

Organisation culture and older workforce in the transfer of skills in a section of a selected water board in South Africa

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Abstract

Numerous organisations all over the world are proactively experiencing labour force crises due to ageing employees and a decreasing pool of a skilful younger generation ~~who~~ which can replace retiring baby boomers. The purpose of this study was to investigate the impact of an ageing workforce and skills transfer of ~~tan~~ an organisation, with the aim of coming up with strategies that can combat challenges pertaining to the dilemma. This study was conducted to assess the current challenges the organisation is facing regarding an ageing workforce. Focus will be placed on the importance of the loss of skills and how such skills can be retained and transferred to younger employees and recorded as institutional property.

Data was collected from Rand Water employees, that is: operators, artisans, support staff and management. A questionnaire with a six-point Likert scale was used to collect data from 156 participants working in selected Rand Water sites to investigate the ~~investigation~~ problem of an ageing workforce and skills transfer in the organisation.

The research results indicated that there is a strong positive relationship between *support older employees to transfer skills, skills and knowledge transfer, the use and willingness of older employees for skills transfer, the use of skills sharing to reach goals* and *skills shortage* among employees within the targeted Rand Water organisation. Such research results are very imperative to top management of the organisation for the execution of recommendations.

1. Introduction

1.1. Background

According to Harrypurshad (2015), human resources are perceived as a critical and exceptionally valuable resource in the workplace. Furthermore, the skills, abilities and knowledge of employees are known to contribute to the optimal performance of the organisation (Harrypurshad, 2015). Clarke et al., (2011) agree by highlighting that the

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literature on human resources frequently affirms that Human Capital (HC) is a source of competitive advantage in large enterprises as well as in small and medium enterprises (González-Loureiro & Pita-Castelo, 2012). Most managers have adopted the culture of stressing the importance of the existence of an ageing workforce within their organisation to preserve the efficiency and effectiveness of the organisation (Richert-Kaźmierska, 2015). In addition, various organisations all over the world are proactively approaching their labour force dilemma prompted by two merging demographic trends, which include the decreasing pool of a knowledgeable ageing workforce with the potential to be replaced by younger employees (Phaladi, 2011).

The rapid aging of the world's population will bring about extraordinary and substantial changes in the global economic environment, creating unique challenges and opportunities for organisations (Chand & Tung, 2014). The aging workforce in the public utilities industry is a well-known and documented phenomenon in the literature (Blankenship et al., 2009). According to Richert-Kaźmierska (2015), an ageing workforce can bring its knowledge, expertise and experience to shape a working environment, providing a competitive advantage and setting a standard to the younger workforce by highlighting the quality of knowledge and skills required. Williams et al. (2016), expanded on this matter by adding that the older workforce offers a unique set of soft and professional skills acquired through experience, which enhances the human capital of the employees and adds value to the workforce.

Govender (2016) states that Rand Water has a vigorous drive to develop the War on Leaks Program across the sector and for governments particularly, which entails artisans' and operators' development. These efforts, however, seem to be random and have taken on the characteristic of *ad hoc* initiatives throughout the organisation. The focus seems a little diluted in that the resources are being spread over multiple projects internally and externally. Govender (2016) continues to state that monitoring, evaluation and analysis of the return on investment seem not to be taking place, except in some areas of Rand Water. This will yield long-term challenges in terms of resource sustainability. However, the primary focus tends to be on more effectively meeting current needs through generic HR training initiatives, and proactively building a talent pipeline that will be an integral and important part of creating a talent pool through 18.2 projects. The Education Training and Development Coordinators (ETDC) and Education Training and Development Practitioners (ETDP) together with the Capacity Building (CB) staff will need to work together in the implementation of these

projects, track the progress and match the future possible talent gaps that Rand Water will have in the future (Govender, 2016). Talent Management Consulting also plays a very strategic role, because it drives the workforce planning agenda at Rand Water. This function will also interface with the ETDP, particularly around critical skills that will enable the creation of a talent pool within Rand Water. This function will also be a bridge between the talent management consultants and the training team. This paper proposes and tests a model in which the role of organisation culture, support for the ageing workforce in transfer of skills, and willingness of the aged employees to transfer skills act as predictors of the use of skills transfer for goal attainment and skills shortage in a section of a selected water board in South Africa. This conceptual model is graphically represented in Figure 1 below.

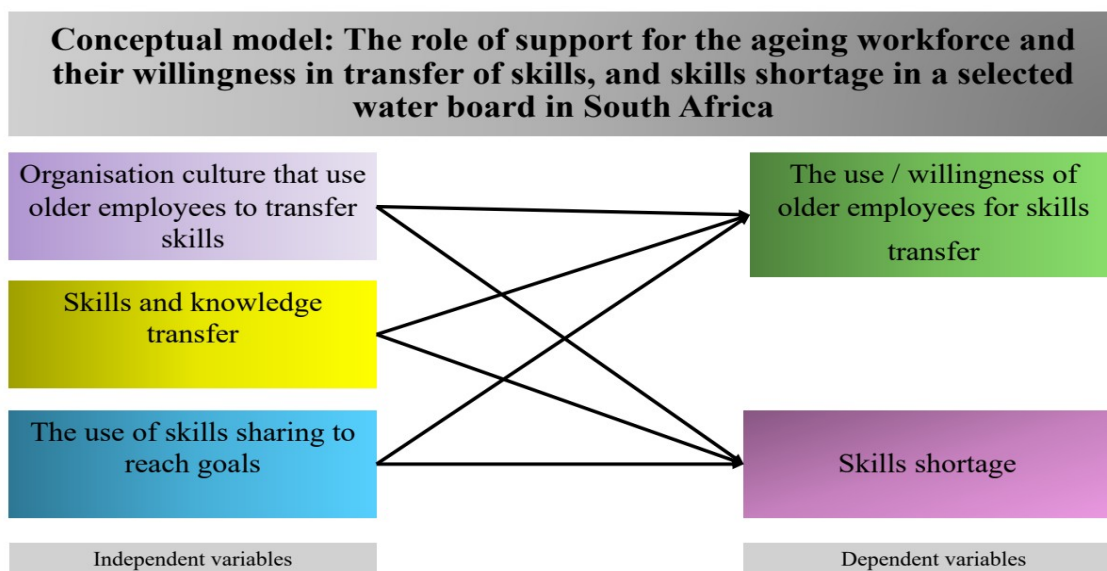


Figure 1. *Conceptual model*

1.2. Problem Statement

South Africa is facing tremendous shortages of critical and technical skills due to a deteriorating workforce caused by attrition such as retirement, deaths and migration. Skills shortage is a foundation that hampers the quality and quantity of output of firms. In addition, skills shortage in South Africa originates from various aspects, namely a lack of investment in skills development; education; rapid structural change, which is combined with high levels of overall unemployment; a cyclical surge in employment in parts of the economy; and because of a weakness in the training system (Richardson, 2007). Rand Water is a SOE in South Africa which is facing drastic generational change in its human capital due to an ageing workforce. It was established in 1903 and currently, the 117 years old water utility is

having a major challenge of aging infrastructure and an ageing workforce in its core competencies manning points. Rand Water is the largest bulk water utility in Africa and is one of the largest in the world, providing bulk portable water to more than 11 million people in Gauteng, parts of Mpumalanga, the Free State and North West provinces. Rand Water draws water from its catchments and purifies it for human consumption. The water is then supplied to municipalities, mines and industries. Most of Rand Water employees are baby boomers generation, occupying critical core positions, who are retiring within the next 5 to 10 years. There are core skills, knowledge and competencies and knowledge that this SOE will have to replace in order to meet its future objectives. A graphical representation of Rand Water's age analysis of its staff is presented in Figure 2 below.

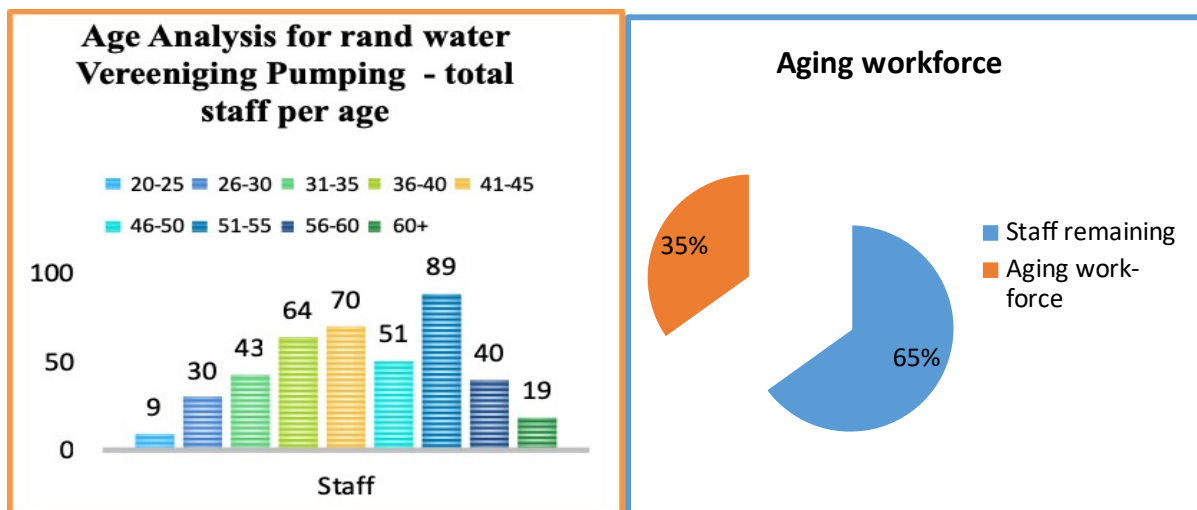


Figure 2: Rand Water VG Age Analysis

Rand Water, Vereeniging Pumping station is having staff complement of 415 employees, 148 of the total complement are the employees who are from 55-60+. This is a potential risk and challenge for the organisation, and should these employees opt for early retirement, the organisation could find itself working with skeleton staff. This can also have a negative impact on the organisation in the form of loss of critical skills and knowledge. This risk can be mitigated by an organisational culture that supports older / ageing employees to transfer their skills and knowledge in formal and informal development structures such as mentoring programmes. The aging workforce that assists with skills transfer can also mitigate the risk of skills shortage. However, political influence in appointments and not incentivising such skills transfer makes the older employees less likely to participate in skills transfer to the

inexperienced. This is only possible if organisations realise that goals can be reached through training and development.

1.3. Research objectives

The primary objective of the study was to assess the experiences of a culture of skills transfer, training and development for goal attainment, and skills and knowledge transfer as predictors of willingness of the ageing workforce to part with their skills and eradicating skills shortage in the organisation.

The secondary objectives of this study were:

- To determine whether employees experience a culture of skills transfer, training and development for goal attainment, training and development and skills transfer as predictors of willingness of the ageing workforce to part with their skills and eradicating skills shortage in the organisation.
- To determine whether there is a significant relationship between a culture of skills transfer, training and development for goal attainment, training and development and skills transfer, willingness of the ageing workforce to part with their skills and skills shortage in the organisation.
- To determine the role of a culture of skills transfer, training and development for goal attainment, training and development and skills transfer in willingness of the ageing workforce to part with their skills and in eradicating skills shortage in the organisation.

The rest of the paper will focus on a literature review regarding the main constructs under investigating, followed by the research methodology that was adopted to execute the study, the results of the study, managerial implications, limitations, recommendations for future studies and a conclusion.

2. Literature Review

Given the problem statement discussed above, the literature review below focuses on support for older employees to transfer skills, within the organisation, older employees' willingness and preparedness to transfer skills, training as an enabler for skills transfer and skills shortages experienced by employees.

2.1 An organisation culture that support older employees to transfer skills

Workforces are aging across the globe, raising pressing issues such as how to extend working lives and how to motivate aging workers of organisations, governments and employees (Kooij, 2015; Xinyue, 2023). Radović-Marković (2013) indicated that due to the dilemma of an increasingly aging workforce, organisations should focus on addressing their work prospects as well as the obstacles older employees face in achieving employment security. An ageing workforce is facing a range of specific barriers related to their age. One of the biggest hurdles is age discrimination, based on stereotypes and myths about the limitations of older workers (Funk & Lorenz, 2024; Miguel, et al., 2024; Radović-Marković, 2013). Research has found that many organisations fail to train their older workforce, assuming those who are eligible for retirement are either slow learners, or else will soon be out of the door (Lössbroek, & Radl, 2019; Moen et al., 2017). Research suggests that the negative consequences of age discrimination of older workers in an organisation can include barriers to recruitment and hiring, diminished conditions of work and employment, limited career development and, in the absence of legislation, diminished employment protection and rights, experience discriminatory treatment, leading to feelings of isolation, self-doubt, and disengagement from the workplace, particularly among older women who report higher rates of victimisation. This discrimination contributes to a toxic work environment and threatens overall job satisfaction (Radović-Marković, 2013; Tahmaseb-McConatha, et al., 2023).

Appelbaum et al. (2017) mentioned that people experience a loss in cognitive resources as they age, such as physical functioning and mental well-being, but, on the other hand, they gain new valuable resources such as knowledge and experience. They further allude to the fact that companies should try to use resources gained by older employees to their advantage. One method that businesses can utilise new resources acquired by older employees is by creating mentorship programmes, where older employees counsel younger employees and assist in their career development. Mentoring opportunities can increase contributions from both older mentors as well as younger employees (Baral, et al. 2024). Mentorship programmes also allow older employees to interact with younger employees and participate more strongly in the company. This is especially important because older workers sometimes face difficulties connecting with younger employees, which may decrease job satisfaction.

Studies have shown that knowledge retention from older and retiring workers becomes a crucial component in ensuring continued organisational success (Biron et al., 2023; Burmeister & Deller, 2016). Therefore, organisations should strive to prioritise skills transfer

within the organisation (Mdhlalose, 2022). According to Grohmann et al. (2014), organisations devote significant amounts of resources to enhancing their employees' knowledge and skills. Support for older employees to transfer skills refers to the presence of enough mentors and coaches in the organisation to transfer skills, and older employees are recognised for sharing their knowledge and skills. Strategies to include to support the aged employees to assist with skills transfer include but are not limited to fostering a positive psychological age climate, providing autonomy, and enhancing social support to effectively support older employees in transferring skills within organisations (Wang, et al., 2024), succession planning, hands-on training, mentoring programs, cross-training, retention incentives, and documenting processes to transfer skills and knowledge from older employees in organisations (Cox & Overbey, 2022).

2.2 Skills and knowledge transfer

Corporate training expenditure is the investment in firm-specific, internal training that aims to achieve immediate skills building and performance gain, which directly address the current and impending training needs of an organisation (Sung & Choi, 2014). Learning may happen either formally, that is, inside a structure deliberately created for that purpose, or informally. Informal learning is less pre-structured, more in control of the learner, embedded in daily working activities of the employee and therefore often a by-product of some other activity and may happen subconsciously (Raemdonck *et al.*, 2015). Learning and development enable managers and subordinates to enter a partnership for the employees' development in exchange for a commitment to lifelong learning (Baker, 2015). Being a lifelong learner reinforces the concept of action and meaningful learning, which goes beyond mutual benefits for employees and organisations. Baker (2015) emphasised how employees enjoy employability through the development of new skills and competencies, greater job satisfaction and more autonomy to play an active role in the organisation's decision-making processes. Through knowledgeable employees an organisation obtains greater flexibility, increased market share, a collaborative environment, responsiveness and competitive advantage in the marketplace (Kahn & Louw, 2016). Knowledge workers enhance value creation, competitiveness, and innovation in knowledge-intensive firms. They drive growth, possess expertise, and contribute significantly to organisational performance in the knowledge economy era (Krstić & Rađenović, 2017). Research has found that there is a positive relationship between organisational climate and support, and skills transfer training that results in job performance (Zumrah & Boyle, 2015). According to Blume, Ford, Baldwin

and Huang (2010), the transfer of training denotes the constant application of skills, attitudes and knowledge gained during training to the workplace. An employee is considered to have transferred the training to their workplace when they can apply the new learned knowledge, skills and attitudes to their job (Zumrah & Boyle, 2015). This transfer of training has been found to have a positive relationship with the quality of service in the organisation (Shen & Tang, 2018; Zumrah et al., 2013).

According to Holton et al. (1997), the transfer of training may be influenced by a range of factors such as trainee features, scope of training, training proposal and the performance measurement of the individual and organisation. Many policies to date have focused on trying to encourage older workers to maintain their employability and postpone retirement (Griffin & Beddie, 2011). As life expectancy increases, greater proportions of employees will begin departing the workforce due to retirement or other reasons. However, the primary concern for organisations is not the number of departing experts, but rather the high level of expertise and knowledge that departing workers will take with them (Morar & Yoong, 2015). Scholars have argued that training practices enhance innovation through promoting a learning climate and exploratory learning (Sung & Choi, 2014). Organisational learning is a central process for innovation, which promotes the absorption and utilisation of external knowledge, and integrates internal knowledge by allowing the effective transfer and application of knowledge among organisational members (Sung & Choi, 2014). Skills and knowledge transfer in this study refers to skills transfer that encourages a culture of learning in my organisation, and skills transfer provides adequacy of resources and creates talent within the organisation.

2.3 The use of skills sharing to reach goals

Organisations increasingly leverage skills sharing as a strategic approach to achieve their goals, enhancing productivity and fostering innovation. This practice not only facilitates knowledge transfer but also contributes to personal and professional development among employees. Effective knowledge sharing can lead to a sustainable competitive advantage, with organisations potentially losing up to \$10 billion annually due to inadequate sharing practices (Mwawasi, 2022). Improved organisational productivity and the development of new strategic capabilities are direct benefits of enhanced knowledge sharing (Mwawasi, 2022). Tacit knowledge sharing significantly influences skill development, as both knowledge donating and collecting positively affect employees' personal and professional

growth. This is particularly evident in engineering organisations, where structured skill development programs are essential for maximising employee potential (Granjon, 2022).

To effectively utilise skills sharing for achieving organisational goals, several interrelated factors play a crucial role. These factors encompass leadership, trust, organisational culture, and the use of technology, all of which facilitate a conducive environment for knowledge sharing. Leaders are pivotal in fostering a culture of knowledge sharing by motivating employees and implementing reward systems for sharing knowledge. Effective leadership encourages open communication and trust, which are essential for employees to feel secure in sharing their expertise. Trust among employees significantly influences their willingness to share knowledge. A secure environment reduces fears of losing competitive advantage through sharing (Evans, 2013;) Strong interpersonal relationships and shared visions enhance collaboration and knowledge exchange sharing (Evans, 2013). A culture that values knowledge sharing promotes employee engagement and enhances performance. Organisations must cultivate an environment that encourages collaboration and recognises contributions (Manus, 2016). The integration of knowledge sharing into the organisational ethos can lead to improved operational efficiency and innovation (Hasanzadeh, et al., 2014).

The success of transferring and retaining knowledge will strongly rest on the systems and processes that the organisation has in place. A knowledge culture will contribute to the results of a long-term competitive edge of the organisation. Knowledge culture is when an organisation's lifestyle enables and motivates the employees to identify the need for knowledge, to share and apply the knowledge that effectively contributes towards the organisation's growth further, adding value to the organisation (Phaladi, 2011). Such a phenomenon can be achieved by identifying the individuals (normally the ageing or retiring employees) who are more likely to possess the knowledge and to whom it should be transferred. . Factors that hinder an organisation from promoting a knowledge culture lifestyle are systems that do not encourage knowledge to be shared, promotions that frown on the improvement of profound knowledge within hasty promotions to management ranks, and systems that do not promote personal development (Phaladi, 2011). The use of skills sharing to reach goals in this study refers to training that helps to understand the job clearly, and equips employees with new skills; knowledge sharing will also enable the organisation to record and transfer skills.

2.4 The use and willingness of older employees for skills transfer

The fact that organisations realise the importance of the presence of the aged for skills transfer, is critical, and also that their mere presence does not guarantee skills transfer. Older employees are willing to assist with skills transfer, but institutional culture and HR practices impact the transferability of skills between older and new generation academics (Bazana, et al., 2018). Older employees exhibit a willingness to assist with skills transfer, influenced by factors such as perceived age discrimination and organisational support (Huang, 2019). When older employees feel respected and valued, their intention to share knowledge with younger colleagues increases significantly. Older employees' willingness to transfer knowledge is negatively impacted by perceived age discrimination. This perception diminishes their organisational identification, which in turn reduces their intention to engage in knowledge transfer (Huang, 2019).

A supportive learning environment significantly impacts older employees' willingness to engage in skills transfer. Perceived organisational support encourages older workers to participate in continuous learning, which is crucial for knowledge sharing (Žnidaršič., 2021). Positive age stereotypes enhance older workers' job performance and their intention to transfer knowledge, while negative stereotypes can hinder these outcomes. This highlights the importance of fostering an inclusive workplace culture that values older employees (Wang & Shi, 2024). Support from colleagues plays a vital role in facilitating the transfer of skills acquired through training. Older employees are more likely to share knowledge when they feel supported by their peers (Ochoi, 2023). Factors such as time, energy, and purpose are essential for older employees' engagement in skills transfer. These elements must be addressed to create conducive conditions for participation (Lyngdal et al, 2024).

Organisations can incentivize older employees for skills transfer by implementing employment and retirement strategies, recognising unique skills, and fostering intergenerational knowledge exchange within the organisational culture (Marjan & Milan, 2013). According to Moen et al. (2016), many organisations are evolving towards an institutional logic appreciating all workforces, irrespective of age group, and are mindful that implementing age-neutral policies and procedure for flexible work and job shifting makes the workplace more welcoming and accommodating to their older workforces. In response to accommodating older employees, selected organisations are redesigning their HR strategies (Mulders et al., 2015). The use and willingness of older employees for skills transfer in this

study refer to older employees who are retained for the purpose of skills transfer, and older employees' skills would offer better skills transfer to protégées.

2.5 Skills shortage

The South African labour force remains shaped by two key challenges namely, growing the skills and capability of the workforce and reducing the high unemployment rate. The labour force grew by 1.2% on average per annum from 25.7 million to 26.7 million. Generally, there was a slight improvement in the education level of the labour force. Only 25% of the employed were highly skilled in 2021. Although the share of medium-skilled workers waned from 47.7% to 44.9%, this remains the largest skills category in employment. Low-skilled workers accounted for 30.2% of employment in 2021, while most job losses occurred in medium-skilled occupations (Department of Higher Education, 2022).

Expressions of concern about South Africa's skills shortage are not something new, but have become more apparent in recent years. The Centre for Development and Enterprise (CDE) (2007) argues that skills shortage in South Africa is entirely because of increasing demand, which is driven by more rapid growth coinciding with continuing supply pressures. These are caused by pull factors of the global skills market and the country's inability to develop, utilise, and retain sufficient human capital from its own resources (Robert & Bohlmann, 2010). In recognition of the skills shortage in South Africa, particularly scarce critical skills, the Joint Initiative for Priority Skills Acquisition (JIPSA) was initiated as part of Accelerated Shared Growth Initiative for South Africa (ASGISA) that was launched by the Presidency to develop a second economy in the country (Thekiso, 2011). The Skills Development Act (SDA) of 1998 and the Skills Development Levies Act (SDLA) of 1999 were introduced by the Department of Labour to incentivise employers who participate in the skills revolution in that they can recover 50% of the 1% skills levies paid via the Sector Education Training Authority (SETA) skills grants. The Skills Development Act of 1988 plays a vital role in assuring that companies comply with the legislation aiming to enforce training in organisations. This Act brought about new programmes and funding mechanisms aimed at increasing training spent on skills development (Maboa, 2009). It is expected that companies' return on investment from training will add value and can be achieved through the improved job performance of trainees. To validate the return on investment and the issues affecting the yield, studies have focused on the impact of training transfer to the work environment through job observation, coaching and mentoring done by subject matter experts (older,

skilful employees) towards improving performance and its reputation. There is an assumption that the training spent will result in increased firm performance (Salas & Cannon-Bowers, 2001). It is this combination of explicit and tacit knowledge that mature workers possess that has become the most “strategically significant resource of organisations” (Calo, 2008). Therefore, with these assertions, it is envisaged that older-worker recruitment and retention efforts will become one of the dominant business and industrial issues in coming decades. Skills shortages in this study refers to the organisation facing skills shortages due to the transition of ageing employees, and my organisation requires highly skilled employees to meet its strategic goals

3. Research Methodology

3.1 Research paradigm, approach, design, sample and procedure

The research paradigm

This research uses a positivist paradigm. Positivism emphasises the importance of empirical verification in generating knowledge. Researchers must base their findings on observable facts and evidence rather than subjective beliefs or interpretations. This focus on empirical verification ensures that research findings are reliable, replicable, and generalisable across different contexts. Positivism strongly emphasizes identifying causal relationships between variables, seeking to determine the factors that influence or cause outcomes (William, 2024). This study was aimed at determining the relationships amongst the variables under investigation, making the positivist paradigm ideal.

The research approach

In line with the positivist paradigm, the quantitative approach was selected to reach the objectives of this research. Quantitative research is a systematic investigation that primarily focuses on quantifying relationships, behaviours, phenomena, or patterns through statistical and numerical data. This approach involves the collection and analysis of measurable data to identify trends, test hypotheses, and make generalisations. By utilising statistical tools and techniques, quantitative research aims to provide objective, replicable, and generalisable findings that contribute to broader knowledge in a given field (Mohajan, 2020)

The research design

A correlational survey design, more specifically a cross-sectional design, in which a convenient sample was drawn from the target population at a particular time (Shaughnessy, Zechmeister & Zechmeister, 2006), was used to achieve the research objectives. Correlational research examines the relationships between two or more variables to determine if they are associated or correlated. This design does not imply causation but identifies patterns and strengths of associations (Curtis, et al., 2016). Common types include Cross-Sectional studies where the researcher collects data at a single point in time to examine relationships between variables (Wang & Cheng, 2020).

The population, sample and data collection procedure

The convenient sample consisted of employees from a South African utility company named Rand Water, based in Vereeniging, Gauteng, South Africa., The proposal outlining the study was presented at the People management scientific committee meetings as well as the faculty research ethics committee for ethical clearance. After ethical clearance was obtained, permission was requested via e-mail outlining the objectives and ethical aspects of the study from management. Once permission was granted, prospective participants were invited to information sessions on site. The anonymous and voluntary nature of the project was emphasised during the information session. Participants were also informed about the aim of the project and were encouraged to attend sessions on site where questionnaires were administered. Signed consent forms were obtained from respondents before questionnaires were given to them. Employees from all departments, job groups and educational levels in the provincial utility company were considered. The biographical characteristics of the participants are presented in Table 1 in the results section.

3.2 Measuring instruments

The following instruments that consider elements of skills and talent transfer and the role of the older employees were developed for the study and used in this project:

- *Demographics* such as gender, age, race, home language and qualification were requested to describe the sample.
- *Support older employees to transfer skills*. This scale, with nine items, used a six-point scale (1 = strongly disagree, 2 = disagree, 3 = disagree some-what; 4 = agree some-what; 5 = agree; and 6 = strongly agree) and refers to the presence of enough mentors and coaches in the organisation to transfer skills, and older employees are recognised for

sharing their knowledge and skills. A Cronbach alpha coefficient of .86 was obtained in this study.

- *Skills and knowledge transfer.* This scale, with seven items, used a six-point scale (1 = strongly disagree, 2 = disagree, 3 = disagree some-what; 4 = agree some-what; 5 = agree; and 6 = strongly agree) and refers to skills transfer encouraging a culture of learning in my organisation, and skills transfer provides adequacy of resources and creates talent within the organisation. A Cronbach alpha coefficient of .89 was obtained in this study.
- *The use of and willingness of older employees for skills transfer.* This scale, with 10 items, used a six-point scale (1 = strongly disagree, 2 = disagree, 3 = disagree some-what; 4 = agree some-what; 5 = agree; and 6 = strongly agree) and refers to older employees who are retained for the purpose of skills transfer, and older employees' skills would offer better skills transfer to protégées. A Cronbach alpha coefficient of .87 was obtained in this study.
- *The use of skills sharing to reach goals.* This scale, with seven items, used a six-point scale (1 = strongly disagree, 2 = disagree, 3 = disagree some-what; 4 = agree some-what; 5 = agree; and 6 = strongly agree) and refers to training that helps to understand the job clearly, and equips employees with new skills, and knowledge sharing will enable the organisation to record and transfer skills. A Cronbach alpha coefficient of .86 was obtained in this study.
- *Skills shortage.* This scale, with four items, used a six-point scale (1 = strongly disagree, 2 = disagree, 3 = disagree some-what; 4 = agree some-what; 5 = agree; and 6 = strongly agree) and refers to the organisation facing skills shortages due to the transition of ageing employees, and my organisation requires highly skilled employees to meet its strategic goals. A Cronbach alpha coefficient of .53 was obtained in this study.

3.3 Statistical analysis

The statistical analysis was carried out with the Statistical Package for the Social Sciences (SPSS; 2017). Descriptive statistics (e.g. means, standard deviations, skewness and kurtosis) were used to determine the distribution pattern of the data. Cronbach alpha coefficients were calculated to assess the reliability of the constructs measured in this study. Nunnally and Bernstein (1994) recommend a guideline of 0.70 as an acceptable cut-off point. Exploratory factor analyses were carried out to investigate the construct validity of the measuring instruments. Firstly, a simple principal component analysis was conducted on the constructs

that form part of the measurement model, namely job demands and resources, and the eigenvalues and scree plot were studied to determine the number of factors to extract. Kaiser (1960) recommends extracting factors with eigenvalues higher than 1.00. Additionally, the scree plot can also be used to determine the number of factors. Cattell (1966) advises that the point of inflection of the scree plot should be considered. Secondly, a principal component analysis with a direct oblimin rotation was conducted if factors were related, and a principal component analysis with a Varimax rotation was used if the obtained factors were not related (Tabachnick & Fidell, 2001). The following criteria were considered in deciding which factors to retain: (1) as a rule of thumb, item loadings had to be more than 0.32; (2) an item was not allowed to load onto more than one factor, as this was considered to indicate that the item either tapped more than one factor (poor item) or that there was an overlap of factors or components; (3) a factor needed to have at least three substantive item loadings; and (4) the retained factor needed to make theoretical sense (Field, 2009; Tabachnick & Fidell, 2001). The obtained factors were consequently used as input in a second-order factor analysis. Varimax rotation was used to extract the factors because the factors were not correlated ($r < 0.30$).

Pearson product-moment correlation coefficients were used to specify the relationship between the variables. In terms of statistical significance, it was decided to set the value at a 95% confidence interval level ($p < 0.05$). Effect sizes (Steyn, 1999) were used to decide on the practical significance of the findings. The parameters 0.10 (small effect), 0.30 (medium effect) and 0.50 (large effect) were set for the practical significance of the correlations (Steyn, 1999). A cut-off point of 0.30 (medium effect) was set for the practical significance of correlation coefficients (Cohen, 1988). A multiple regression analysis was also conducted to determine the proportion of variance in the dependent variables of *willingness of older employees to transfer skills and skills shortage* predicted by the independent variables, namely *culture that uses older employees to transfer skills, skills and knowledge transfer, the use/willingness of older employees for skills transfer, the use of skills sharing to reach goals and skills shortage*. The effect size in the case of multiple regressions is given in the formula: $f^2 = \frac{R^2}{1-R^2}$ (Steyn, 1999), to indicate whether obtained results were practically important. The parameters 0.01 (small effect), 0.09 (medium effect) and 0.35 (large effect) were set for the practical significance of f^2 (Steyn, 1999).

3.4 Ethics

The proposal outlining the study was defended at People management scientific committee meetings of the NWUBS where steps to adhere to the ethical standards were scrutinised by the scientific committee and the faculty research ethics committee members of the ethics committee who granted ethical clearance (EMSPBS16/11/25-01/36).

4. Results

The findings of this study will be presented in the following sections: (1) demographics of the sample (2) exploratory factor analysis; (3) descriptive statistics and correlations; and (4) regression analysis.

4.1 Demographics of the sample

Table 1: *Characteristics of the participants*

Biographic feature	Category	Frequency	Percentage
Gender	Male	100	66.2
	Female	51	33.8
Age	20-30 years	28	18.5
	31-40 years	47	31.1
	41-50 years	39	25.8
	51-60 years	31	20.5
	61+	5	4.0
Race	African	121	80.1
	White	21	13.9
	Coloured	5	3.3
	Asian	2	1.3
	Other	2	1.3
Home language	English	6	4.0
	Afrikaans	23	15.2
	Sesotho	67	44.3
	Xitsonga	9	6.0
	isiZulu	27	17.9
	isiXhosa	10	6.6
	Other	9	6.0
Qualifications	Not matriculated	21	13.9
	Matric	57	37.7

Diploma	34	22.5
Bachelor's degree	13	8.6
Honours degree	5	3.3
Master's degree	7	4.6
PhD	0	0.0
Other qualifications	14	9.3

Closer inspection of Table 2 revealed that most of the sample was male (66.2%), between the ages of 41 and 50 years old (25.8), African (80.1%), Sesotho speaking (44.3%), and with a matric as educational attainment.

4.2 Exploratory factor analysis

A simple principal component analysis was carried out on all the items used to assess the number of factors to be extracted. The results of the principal component analysis with a Varimax rotation with the factor loadings of the individual items are presented in Table 2.

Table 2: *Exploratory factor analysis (EFA)*

Items	Component				
	1	2	3	4	5
Experienced employees assist in skills transfer	0.65	0.17	0.19	0.34	0.14
Experienced employees are involved in mentoring and coaching programmes	0.68	0.02	0.22	0.24	0.10
Older employees understand the vision and mission of the organisation	0.61	0.09	-0.15	0.06	0.13
Older employees are recognised for sharing their knowledge and skills	0.56	0.03	0.37	-0.01	0.05
Mature employees' skills and knowledge can be solicited and recorded to enable future training	0.46	0.09	0.32	0.30	0.22
My organisation embarks on workforce planning exercise to address ageing workforce	0.46	0.03	0.45	0.07	-0.32
There are enough mentors and coaches in your organisation to transfer skills	0.59	0.14	0.18	0.14	-0.30
My organisation implement a clear and focused succession planning to enable older employees' s contribution	0.68	0.09	0.23	0.15	-0.40
My organisation portrays a culture that acknowledges the strengths and benefits of mature workers	0.65	0.07	0.22	0.14	-0.30
Training helps to understand the job clearly, and equips employees with new skills	0.11	0.24	0.13	0.72	0.03
Training provides effectiveness in completion of tasks allocated.	0.16	0.26	0.21	0.73	0.06
Training and development programmes meet the employees' needs	0.38	0.08	0.10	0.72	-0.09
Knowledge sharing will enable the organisation to record and transfer skills.	0.01	0.36	0.06	0.62	0.04
My organisation supports a culture of skills transfer	0.53	0.27	0.15	0.31	-0.14
Managers take effort to release employees for training and development initiatives	0.35	0.29	0.13	0.53	-0.04
Training initiatives are aligned to the organisation's goals	0.34	0.31	0.11	0.60	-0.11
Transferred skills will assist my organisation to perform when I retire	0.14	0.77	0.30	0.23	0.14
Skills transfer encourages a culture of learning in my organisation	0.23	0.74	0.19	0.06	0.07
Knowledge transfer will enhance the positive work contribution	0.14	0.83	0.23	0.22	0.09
I highly recommend the skills transfer initiatives in the organisation	-0.02	0.82	0.14	0.35	0.09

Knowledge sharing imposes more opportunities to learn new skills	0.19	0.85	0.02	0.24	0.09
Skills transfer provides adequacy of resources and creates talent within the organisation	0.06	0.82	0.11	0.30	0.10
Management encourages older employees to transfer their skills to young employees	0.48	0.25	0.44	0.08	0.03
My level of experience determines how critical my skills to the organisation are	0.11	0.38	0.57	0.27	-0.24
Older employees are prepared to work extra years after retirement for the sake of skills transfer	0.33	-0.11	0.62	0.10	0.23
Older employees' skills would offer better skills transfer to protégées	0.05	0.36	0.64	0.16	0.27
Older employees are retained for the purpose of skills transfer	0.36	0.06	0.63	-0.09	-0.08
I am prepared to work after my retirement for the sake of knowledge and skills transfer	0.10	0.17	0.58	0.15	-0.03
I believe that my organisation is dependent on my skills and knowledge	-0.02	0.14	0.65	0.32	0.17
My competencies, knowledge and skills can be solicited and stored as IP of the organisation	0.12	0.20	0.58	0.37	0.11
There are policies in place that support skills transfer initiatives in my organisation	0.42	0.22	0.52	-0.02	0.10
There are training programmes that are aligned to skills transfer in my organisation	0.50	0.30	0.43	0.16	-0.14
My employer is experiencing a high shortage of critical and core skills	-0.06	0.35	0.04	-0.03	0.62
The organisation is facing skills shortages due to the transition of ageing employees	0.15	0.07	0.16	-0.08	0.58
It takes long for my organisation to fill the vacancies with the right people with the right skills	-0.04	0.03	-0.06	0.02	0.49
My organisation requires highly skilled employees to meet its strategic goals	-0.08	0.07	0.22	0.13	0.50

An analysis of the eigenvalues (>1) in line with literature (Cattel, 1966) and the screen plot indicated that five factors could be extracted, which explained 55.46% of the total variance. The eigenvalues of these factors were as follows: Factor 1 = 31.79; Factor 2 = 9.93; Factor 3 = 6.07; Factor 4 = 4.56; and Factor 5=4.12.

- Factor 1 was labelled *Support older employees to transfer skills*. This factor (10 items) refers to the presence of enough mentors and coaches in the organisation to transfer skills, and older employees are recognised for sharing their knowledge and skills.
- Factor 2 was labelled *Skills and knowledge transfer*. This factor (7 items) refers to skills transfer encouraging a culture of learning in my organisation, and skills transfer provides adequacy of resources and creates talent within the organisation.
- Factor 3 was labelled *The use and willingness of older employees for skills transfer*. This factor (6 items) refers to older employees who are retained for the purpose of skills transfer, and older employees' skills would offer better skills transfer to protégées.
- Factor 4 was labelled *The use of skills sharing to reach goals*. This factor (7 items) refers to training that helps to understand the job clearly and equips employees with new skills, and knowledge sharing will enable the organisation to record and transfer skills.
- Factor 5 was labelled *Skills shortage*. This factor (4 items) refers to the organisation facing skills shortages due to the transition of ageing employees, and my organisation requires highly skilled employees to meet its strategic goals.

Next, the individual items of the sub-scales were subjected to individual exploratory factor analysis. EFA of the individual sub-scales revealed the following:

- Factor 1 (*Support older employees to transfer skills*): 4.33 = The Eigen values; .48 - .80 = Range of item loadings; 48.15 = variance explained;
- Factor 2 (*The use of and willingness of older employees for skills transfer*): 4.75 = The Eigen values; .40 - .91 = Range of item loadings; 67.89 = variance explained;
- Factor 3 (*The use of and willingness of older employees for skills transfer*): 4.59 = The Eigen values; .60 - .72 = Range of item loadings; 45.90 = variance explained;
- Factor 4 (*The use of skills sharing to reach goals*): 3.86 = The Eigen values; .63 - .81 = Range of item loadings; 55.17 = variance explained; and
- Factor 5 (*Skills shortage*): 1.67 = The Eigen values; .53 - .79 = Range of item loadings; 41.64 = variance explained.

4.3 Descriptive statistics and correlations

Cronbach alpha coefficients (individual sub-scales), descriptive statistics (means, standard deviations skewness and kurtosis) and the correlations between the variables are reported in Table 3 below.

Table 3: *Descriptive statistics and the correlations between the variables*

Variable	α	Mean	SD	Skewness	Kurtosis	1	2	3	4
1. Support older employees to transfer skills	.86	3.94	.88	-.13	.19				
2. Skills and knowledge transfer	.89	4.88	.85	-1.56	.19	.28			
3. The use / willingness of older employees for skills transfer	.87	4.24	.88	-.64	.19	.64	.50		
4. The use of skills sharing to reach goals	.86	4.68	.84	-.91	.19	.57	.55	.56	
5. Skills shortage	.53	4.39	.90	-.59	.19	-.02	.44	.19	.08

Inspection of Table 3 revealed that acceptable alpha coefficients were obtained for all scales. All alpha coefficients (except for skills shortage) were higher than the recommended lower limit of 0.70 (Nunnally & Bernstein, 1994). This means that the scales developed for and used in this study are reliable. According to this standard, acceptable levels of internal consistency were obtained in the current study. Table 3 indicates that all the scores on the subscales are above the mid-point and normally distributed. This means that respondents do experience *Support older employees to transfer skills* (e.g. presence of enough mentors and coaches in the organisation to transfer skills and older employees are recognised for sharing their knowledge and skills), *Skills and knowledge transfer* (e.g. skills transfer encourages a

culture of learning in my organisation and skills transfer provides adequacy of resources and create a talent within the organisation), *The use of and willingness of older employees for skills transfer* (e.g. older employees are retained for the purpose of skills transfer, and older employees' skills would offer better skills transfer to the protégées), *The use of skills sharing to reach goals* (e.g. training helps to understand the job clearly, and equips employees with new skills, and knowledge sharing will enable the organisation to record and transfer skills), and *Skills shortage* (e.g. the organisation is facing skills shortage due to the transition of ageing employees and my organisation requires highly skilled employees to meet its strategic goals).

Correlational analysis suggests that a culture that *supports older employees to transfer skills* is statistically significantly related to skills and knowledge transfer (small effect), the use and willingness of older employees for skills transfer (large effect), and the use of skills sharing to reach goals (large effect). *Skills and knowledge transfer* is statistically significantly related to the use and willingness of older employees for skills transfer (large effect), the use of skills sharing to reach goals (large effect) and skills shortage (large effect). *The use and willingness of older employees for skills transfer skills* is statistically significantly related to the use of skills sharing to reach goals (large effect) and skills shortages (small effect). This means that if the company culture supports older employees to transfer skills, then older employees will be more willing to transfer their skills and knowledge, and it becomes easier for organisations to use skills transfer and sharing to reach its goals. In addition, if older employees are willing to part with their skills and knowledge because the culture of the organisation supports them to do so, it becomes easier to transfer skills and knowledge and to use skills and knowledge transfer to reach the objectives of the organisation as well as to address skills shortage. The literature suggests that companies lose key knowledge and may cause a decline of organisational memory when older employees leave, which will, on the other hand, hamper the ability to use previous knowledge for competitive advantage (De Massis et al., 2016). Sumbal et al. (2017) indicated that the retirement of ageing employees is a major source of knowledge loss. Hurt (2016) indicated that organisational objectives are compromised without a transfer of knowledge and skills obtained from training back to the workplace

4.4 Regression analysis

Next, the presentation on the results focuses on the regression analysis, with willingness of older employees to transfer skills and skill shortage as *dependent variables* and support for

older employees to transfer skills, skills transfer within the organisation, older employees' willingness and preparedness to transfer skills, and training as an enabler for skills transfer, and support for older employees to transfer skills, skills transfer within the organisation, older employees' willingness and preparedness to transfer skills, and training as an enabler for skills transfer as predictors, respectively. The results of the regression analysis are presented in Table 4 below.

Table 4: *Regression analysis willingness of older employees to transfer skills and skill shortage as dependent variables*

Variable	<i>Willingness of older employees for skills transfer.</i>			<i>Skills shortage</i>		
	Standardized β	t	p	Standardized β	t	p
1. Culture that use older employees to transfer skills	.49	7.26	.00	-.12	-1.23	.22
2. Skills and knowledge transfer	.30	4.47	.00	.53	5.88	.00
3. The use / willingness of older employees for skills transfer.	-	-	-	.12	1.15	.25
4. The use of skills sharing to reach goals	.12	1.49	.14	-.21	-2.06	.04
5. Skills shortage	-	-	-	-	-	-
R		.73			.49	
R ²		.53			.24	

Inspection of Table 4 revealed that 53% of the variance in *willingness of older employees to transfer skills* was predicted by support older employees to transfer skills, skills transfer within the organisation and training as an enabler for skills transfer, with support older employees to transfer skills ($\beta = .49$; $t = 7.26$; $p = .00$) and skills transfer within the organisation ($\beta = .30$; $t = 4.47$; $p = .00$) proving to be the only statistically significant predictors of support older employees to transfer skills. Research has found that there is a positive relationship between organisational climate and support and skills transfer training that results in job performance (Zumrah & Boyle, 2015). Hurt (2016) mentioned that it is the duty of organisations to show support for training initiatives by communicating their desired outcomes about the importance of training as a strategic objective, allocating appropriate resources, enabling employees to attend training, ensuring that trainees have been given the ability to utilise and share their acquired skills, encouraging training initiatives and holding managers accountable for the implementation of strategic training initiatives.

In addition, 24% of the variance in *skills shortage* were explained by support older employees to transfer skills, skills transfer within the organisation, older employees' willingness and preparedness to transfer skills, and training as an enabler for skills transfer, with skills transfer within the organisation ($\beta = .53$; $t = 5.88$; $p = .00$) and the use of skills sharing to reach goals ($\beta = -.21$; $t = -2.06$; $p = .00$) proving to be the only statistically significant predictors of skills shortage. This means that skills shortage can only be reduced by actual skills transfer programmes and the use of skills transfer to reach the objectives of the organisation. Banerjee et al., (2017) describe an organisational learning culture as a culture that encourages the practices of attainment of information, distribution and transfer of learning and recognition for learning-based application. He further emphasised that culture like this assists in the development of a mutual agreement among organisational employees pertaining to the value of learning and the utilisation of new learning tools in the working environment for the achievement of organisational goals and objectives.

5. Managerial Implications

Considering that this study's main emphasis was to investigate the ageing workforce and skills transfer in the organisation, managerial implications are specifically based on the improvement of the use of intended resources.

Accommodating ageing workforce

To meet the strategic objectives of the organisation associated with ageing employees and skills transfer, the Strategic Human Capital (SHC) division must come up with an integrated and holistic approach which will assist in combating skills shortage emanating from ageing workforce. Initiatives such as dual career path, succession planning, training programs for older employees, job shadowing, rotation of employees within other manning points, recognizing of mentors and coaches, accelerated skills and knowledge transfer and retention models should be considered. It is therefore recommended that Rand Water must also embark on the mentioned initiatives

Flexible retirement contracts

Methods that can also assist organisations to retain the knowledge of the ageing workforce are catering for flexible retirement contracts to allow veterans to work in accordance with their needs. Rand Water may formulate programmes that will allow them to rehire the

veterans as contractors or consultants where they can bring their valuable knowledge to the corporates and provide guidance to the younger employees. Although rehiring the retirees may be an option, there could be financial constraints or a lack of resources from organisations to recompense for retirees' services. This will lead to organisations having no other choice but to recreate the knowledge with the junior employees, effectively being slow and resulting in more costs.

Incentive

Corporates should consider drafting and implementing incentive measures consisting of financial, non-financial or performance-based incentives, which will encourage the ageing workforce to remain in the workforce, and further augment the performance of employees with greater tasks. This recommendation emphasises retaining the valuable workforce and improving the performance of employees. Incentive systems should be integrated through all departments to ensure a competitive environment resulting in enhanced performance. The reward of an incentive system is that the incentives introduced will contribute to the retaining of the ageing workforce. The incentives introduced will furthermore create an environment of competitiveness that will result in the enhancement of their performance.

Proactive HR initiatives

Organisations must come up with a proactive and thoughtful approach that will deal with issues pertaining to ageing employees and skills transfer. They need to assess age demographics and come up with innovative policies, procedures, processes and standards designed to retain older employees with the aim of transferring skills to younger employees. An effective skills gap analysis will enable Human Resources (HR) to act strategically on focusing on resources that are more critical, which the organisation will need for future purposes. Succession planning, dual career path, and accelerated skills transfer initiatives must form part of Strategic Human Capital (SHC) objectives as a model aiming to incorporate knowledge transfer, skills shortage and accommodating aging employees. Over and above the Rand Water must consider the following:

- Rand Water must come up with total reward structure initiative that includes more than compensation.
- Create employee value proposition initiative that will enhance the retention of older employees.

- Develop the best retention strategy which is aligned to the main objectives and needs of the organisation.
- Continuously assess organisational talent needs through the auditing of skills matrix, skills gaps and competency profile processes.
- Implement advanced Talent Management (TM) resolutions, which will melodramatically reduce staff turnover and improve goal alignment.
- Engaging baby boomers/retirees in skills transfer programs to enable impartation of knowledge and skills.
- Embark on continuous development of existing talent within the organisation through Personal Development Programs (PDP)
- Mitigate future skills shortage by reviewing the pool of successors with the aim to address gaps through competency profiling initiatives, which will be regarded as a method to identify the knowledge, skills attitude and behaviour to fulfil a job or task as an enabler and business driver in accomplishing the organisational strategies.
- The organisation must embark on Communities of Practice (CoP) that will encourage Subject Matter Experts (SME) to share their expertise more extensively, to make knowledge to continuously be available in the organisation after the SMEs retire.

6. Conclusions, Limitations and Future Research

The primary objective of the study was to assess the experiences of skills shortage, willingness of the ageing workforce to part with their skills, a culture of learning, training and development, training and development as enabler for skills transfer and skills transfer in the organisation. The results suggest that all the scores on the subscales are above the mid-point. This means that respondents do experience *Support older employees to transfer skills* (e.g. presence of enough mentors and coaches in the organisation to transfer skills and older employees are recognised for sharing their knowledge and skills), *Skills and knowledge transfer* (e.g. skills transfer encourages a culture of learning in my organisation and skills transfer provides adequacy of resources and create a talent within the organisation), *The use of and willingness of older employees for skills transfer* (e.g. older employees are retained for the purpose of skills transfer, and older employees' skills would offer better skills transfer to the protégées), *The use of skills sharing to reach goals* (e.g. training helps to understand the job clearly, and equips employees with new skills, and knowledge sharing will enable the organisation to record and transfer skills), and *Skills shortage* (e.g. the organisation is facing

skills shortage due to the transition of ageing employees and my organisation requires highly skilled employees to meet its strategic goals).

The research results indicated that there is a strong positive relationship between *support older employees to transfer skills, skills and knowledge transfer, the use and willingness of older employees for skills transfer, the use of skills sharing to reach goals* and *skills shortage* among employees within the targeted Rand Water organisation. In addition, the results indicate that 53% of the variance in *willingness of older employees to transfer skills* was predicted by support older employees to transfer skills and skills transfer within the organisation and training as an enabler for skills transfer. Results of this study suggest that 24% of the variance in *skills shortage* were explained by actual skills transfer within the organisation, and the use of skills sharing to reach goals proving to be the only statistically significant predictors of skills shortage. This means that skills shortage can only be reduced by actual skills transfer programmes and the use of skills transfer to reach the objectives of the organisation.

Like any other empirical study, this study is not without any *limitations*. Firstly, the research design was a cross-sectional survey design, which makes it difficult to prove causal relationships. Secondly, the results were obtained solely by means of self-report measures. This may lead to a problem commonly referred to as ‘common method variance’, which could give rise to an overestimation of the correlations studied. Thirdly, this study focused on a provincial utility company only. This has implications for the generalisability of the findings to other provincial and national utility companies, and therefore this study could be extended to other provincial and national utility companies in South Africa.

Future researchers might focus on more widespread investigations to recognise the challenges of the skills shortage, and addressing Employment Equity (EE) as a barrier, and how the organisations can create reasonable accommodation of the ageing workforce across South Africa. Researchers must come up with case studies, reports and findings that will provide direction to the organisations in response to actions that will combat challenges pertaining to the impact of ageing employees and skills transfer.

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