

# SKILLS TRANSFER AS A MEANS OF ADDRESSING SKILLS SHORTAGE IN THE SOUTH AFRICAN CONSTRUCTION INDUSTRY

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Measures to manage the effects of skills shortage found in the built environment sector are crucial as the construction industry is a substantial contributor to the country's gross domestic product (GDP) in most developing states. The severity of the challenge of the lack of skills and its impact is felt most severely in the construction industry as the construction industry is driven by equipping labour with the necessary skills to provide finished products such as housing, roads and infrastructure. It is therefore critical that construction companies find ways to retain and sustain skills within their firms if they are to thrive and remain competitive in today's global market. Several strategies have been implemented with the aim of alleviating skills shortage and facilitating skills transfer. The purpose of this paper is to assess the role played by senior workers in the transfer of skills in contracting firms within KwaZulu-Natal. This was a quantitative study, 33 employees in construction firms were randomly selected to complete the questionnaire. The findings indicated that junior workers found that unemployability is the largest contributing factor to skills shortage. The majority of the participants agreed that skills transfer from senior workers is a viable solution to skills transfer. Improvements to the current skills transfer mechanisms were recommended as a means to produce more skilled junior workers. Platforms that facilitate communication between senior workers and junior workers, the identification of goals, workplace shadowing and workshops were recommended.

Keywords: junior workers; skills transfer; senior workers; workplace shadowing

## INTRODUCTION

The construction sector is seen as critical in emerging countries such as South Africa, as these countries attempt to satisfy the requirements of the Sustainable Development Goals (SDGs) through measures to reduce poverty, ensure environmental sustainability and enrich lives (United Nations, 2021).

The construction sector is often the most labour-intensive industry when contrasted to numerous different enterprises as it allows for the employability of unskilled workers (Giang and Pheng, 2011). The construction industry is made up of a combination of participants that are critical to the sustenance of the industry and equips labour with the necessary skills to provide project deliverables (Chan, Chan, Lam, et. al., 2011).

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The lack of skills in the construction industry is a worldwide challenge. But this study focuses on the skills shortage in the South African industry and skills transfer from senior to junior workers as a means to address this. This study was considered important because governments in developing countries such as South Africa often rely on the built environment sector as a mechanism by which infrastructure projects are delivered and in which jobs are created to grow the economy. It is critical that construction companies find ways to retain and sustain skills within their firms if they are to thrive and remain competitive in today's global market.

## **LITERATURE REVIEW**

### *Skills shortage*

In a world with an increasing number of people, a growing economy and growing environmental degradation, the sustainability of skills in the construction industry is required (Dernbach, 2011). A growing population within a country, creates an additional need for construction industry products (Engels and Liu, 2011) such as roads, housing etc. Because contractors are crucial to the success of a project this study looked at the skills transfer in construction firms. Van der Merwe and Barry (2010:1) defines skills shortage as “a situation where employers struggle to fill or experience challenges in filling vacancies in a specific occupation or specialisation owing to an insufficient number of workers with the required qualification and experience”.

The lack of skillsets that are critical to the construction industry is a challenge to contractors as they rely on the services rendered by skilled workers such as project managers, technicians, labourers, and construction workers in order to successfully meet their project targets (PWC, 2019). The contractor is an individual or a firm undertaking a contract required to perform a job. Contractors are usually skilled specialists who are entrusted with the task of carrying out the actual construction works and are responsible for the management of a project which includes contract administration, project financial management, material and equipment procurement and the monitoring of project progress (Yoke-Lian, Hassim, Muniandy and Teik-Hua, 2012) and therefore require skills to monitor and maintain their companies and keep them successful.

Skills shortage is regarded as a key risk to project delivery when taking infrastructure development in South Africa into consideration (PWC, 2019) and has a severe negative societal and economic impact. Leibbrandt, Woolard, McEwen and Koep (2010) are of the conviction that problems arising as a result of skills deficiency in South Africa include the significant levels of joblessness and the resultant desperation apparent in local townships. It was manifested in business owners who are struggling to locate suitably skilled people to function within their businesses and in graduates who find that their qualifications render them unemployable. In order to reduce skill shortages in the industry, skills transfer in the workplace is regarded as a possible solution.

### *Skills transfer*

A skills transfer is the method in which one teaches an employee how to perform a new task or skill. Skills transfer is regarded as a tool to counteract the skills shortage in the construction industry and there are various types of skills transfer strategies, such as mentorship, for employees (Dorjkhuu, 2013). According to Hoffmeister, Cigularov, Sampson, Rosecrance and Chen (2011) skills transfer between employees has the desired effect of creating a lasting bond between the employees. Secondly,

senior employees train future business leaders and this provides a way for them to give back to the organisation (Hoffmeister, et.al, 2011).

The organisational benefits of skills transfer include the ability to improve and nurture employees and plan channels of progression inside the firm; sharing of basic business information and marketplace trends; nurturing and transfer of scarce skills; increase performance and project delivery and improves worker's commitment to the firm (Marsh, 2012).

Skills transfer leads to the improvement of competitiveness, quality, productivity and the setting out of future ideas to individuals and organisations, which makes it important that the choices of training methods undertaken are properly considered such that its effectiveness is monitored (Iruobe, Ojambati, Akinpade, and Iruobe, 2012). The need for training is dependent on a variety of factors which include but are not limited to; incoming of new employees, increasing morale of workers, response to the changing environment and the improvement of performance (Iruobe, et. al., 2012).

#### *Government initiatives*

Government has invested in finding solutions to skills shortages (Rasool and Botha, 2011). According to Statistics South Africa, the government had awarded R5 billion in 2016 towards the course of improving higher education. In the 2020 budget speech, R200 million was committed towards improving technical skillsets, universities, colleges and vocational skills improvement (South Africa, Department of Treasury, 2020). Tertiary training is important, but it is not enough to completely tackle the challenge of skills shortages (Rasool and Botha, 2011). Skills transfer strategies are still required to tackle the skills shortage.

The South African government introduced different initiatives to tackle the skills shortage challenge within the construction industry. In 2020, the Construction Industry Development Board (CIDB) established a vehicle for the implementation of the skills development, namely the Standard for Developing Skills through Infrastructure Contracts which seeks to restore the construction industry skills supply pipeline by creating a system of flexible, sustainable, and structured workplace learning opportunities for learners who have completed the theoretical part of their training and require workplace experience (CIDB, 2020).

Forming policies that facilitate skills development is one of the other ways that government has been investing towards skills development for example, forming the Expanded Public Works Programme (EPWP) initiatives as an intervention to skills shortage which was initially positioned as a skills training intervention that provides a stipend salary. The Expanded Public Works Programme is South Africa's largest active labour market intervention.

The Department of Labour has also participated in skills development through the formation of the National Skills Development Strategy (Department of Labour 2005) whose core mandate is skills development. Another form of government intervention has been the passing of the Skill Development Act of 1998 which gave rise to SETA, an acronym for Sector Education and Training Authority (Republic of South Africa, 2020). SETA serves the function of enabling skills development by funding and improving training and learning in the workplace in order to help jobseekers to secure jobs. To date, there are 21 SETAs in South Africa functioning in different sectors (Department of Economic Development, 2020). The Construction Education and Training Authority (CETA) provides support to graduates through offering bursaries,

learnerships, work integrated training opportunities and student placements (CETA, 2020) and implements the values of skills development in the workplace by awarding funds that cover a percentage of the cost of skills development at work to approved employers (CETA, 2020). Park (2012) found that members who attended work programme training were at an advantage to their counterparts and performed better and received a higher income.

The sustainability of skills positively impacts the performance of the built environment sector (Dernbach, 2011). Upskilling junior workers and ensuring that skills are sustained and passed over in due time to reduce the skills deficiency in the building industry is important because the industry is required to be agile, if it is to maintain the same pace and effectively tackle the challenges of this modern era (Aouad, Ozorhon and Abbott, 2010).

## **RESEARCH METHOD**

For this quantitative study, the population comprised of two hundred and thirty contractors recognised by the KwaZulu-Natal Master Builders Association (MBA) as 'general contractors'. Furthermore, the contractors were subdivided in accordance with their location. Contractors located within the city of Durban were selected, thus yielding a total of 55 contractors. Thirty-three contractors, which was deemed sufficient for this quantitative study (Lewin, 2005), were then randomly selected for the distribution of online questionnaires. The questionnaire focused on questions pertaining to the skills transfer from senior to junior workers as a means to address the skills shortage in the industry. Prior to conducting the questionnaires ethical clearance was obtained. All 33 contractors responded. The data was analysed using Microsoft Excel. The relative agreement index was used to rank the Likert scale items (Burke and Dunlap, 2002). It has an indication of 1 as a perfect match and 0 as no agreement at all. The researchers presented a value more than 0,5 as an indication of a good agreement, a value less than 0,5 as a bad agreement and 1 or as indicating a perfect match. The RAI formula used was:

$$RAI = \sum w \div A \times N$$

W-weighting given to each statement ranging from 1-5, A = highest weight and N= sample size.

## **DISCUSSION**

Keeping all workers competent in technology and skills has raised the awareness of multigenerational training. Senior workers refer to those who have worked more than three years and are 26 years and older (Eversole, Venneberg and Crowder, 2012) while junior workers are those who are aged between 18-25 years old and are newly employed with less than 3 years' experience. Junior workers are younger and less experienced and require about a decade before they can be regarded as skilled and experienced (Eversole et.al., 2012). Forty two percent of the participants in this study had more than 3 years' experience indicating that they are senior workers with the remaining participants being classified as junior workers.

Table 1 depicts what the participants regarded as the causes of skills shortage. Eighty two percent of the workers agreed that unemployability of young graduates was a significant contributor towards skills shortage. This concurs with the study by Rasool and Botha (2011) who found that the problem of skills shortage in South Africa can be

attributed to the previous mediocre educational standards offered to the majority of the population and substandard results in core subjects such as math and science. The South African education system weakly addresses the challenge of skills shortage. There is a constant supply of graduates for careers that are no longer experiencing growth adding to skills mismatch and shortages (ibid).

Changes in technology was also seen as an important cause of skills shortage. Sixty seven percent agreed that the lack of training programmes was also a cause of skills shortages. Traditional work training methods such as universities are at times ineffective and progressively fail to meet the expectations of industry because their objectives are centred around the advancement of information and not necessarily the attainment of ‘hard’ skills (Balynskaya, Sinitsina, Kuznetsova and Koptyakova, 2015). Employers expect graduates to be well-versed on matters pertaining to the area of work, keep abreast of new work trends and be practically competent (ibid). This is especially shown by employers advertising jobs that require 3-5 years of experience for an entry level job. The expectations of employers clearly demonstrate a need for skills transfer and workplace training (Balynskaya, et.al, 2015).

Emigration and resettlement otherwise known as the ‘brain drain’ is another stressing component of the skills challenge in many African countries (Dumitru, 2014). Brain drain describes the international migration of the valuable and experienced workforce thereby taking away human capital from the poorer countries. The movement of highly trained people from the native nations to first world countries adversely affects poorer countries since the number of knowledgeable people within its talent pool decreases. The brain drain was ranked 4th as a cause of skills shortage.

Table 1: Causes of skills shortage

Causes of skills shortage	Mean	Std Dev	RAI	Rank
Unemployability of young graduates	4,03	1,08	0,81	1
Changes in technology	3,52	1,10	0,81	1
Lack of training programmes	3,94	1,22	0,76	2
Inadequate understanding of types of skills	3,70	0,95	0,74	3
Brain drain	3,64	1,14	0,70	4
Lack of academic training	3,33	1,19	0,67	5
Skills mismatches	3,00	1,03	0,60	6
Retirement of staff	2,94	1,11	0,57	7

Table 2 represents challenges that affects junior workers in the construction industry. The main challenge that junior workers experienced was underqualification. Fifty eight percent of the participants felt that they lacked experience (ranked 2nd). The 3rd challenge experienced by junior workers was the fact that they were unfamiliar with the people they worked with. Of interest was that fact that the complexity of the work that needed to be conducted was not considered as a major challenge.

The South African construction industry also faces is a high dropout rate in skills development programmes. Government initiated skills development programmes experience dropout rates ranging between 45% and 65% in most skills development programmes.

Table 2: Challenges experienced by junior workers

Challenges faced by junior workers	Mean	Std Dev	RAI	Rank
Underqualification	2,94	1,190	0,782	1
Lack of experience	3,45	1,252	0,691	2
Unfamiliar with people I worked with	3,27	1,232	0,682	3
Not used to the working environment	3,24	1,001	0,648	4
Unfamiliar with the office	3,12	0,111	0,624	5
Complexity of work	3,06	1,116	0,612	6
Lack of skills needed for my job	2,73	1,257	0,545	7

Training for a newly employed graduate is critical as graduates leave the educational institution learned in the theoretical sense but lacking practical experience. Table 3 indicates that 67% of the junior workers leave skills development programmes because they receive better jobs opportunities. They also feel that they do not get enough help (ranked 2nd). The least likely reason for junior workers to leave skills development programmes was the lack of commitment.

Table 3: Reasons why junior workers leave skills development programmes

Why Juniors leave skill development programmes	Mean	Std Dev	RAI	Rank
Leave for better jobs	4	0,95	0,776	1
Do not get enough help	3,38	0,976	0,655	2
Lack of adequate support from seniors	3,18	1,211	0,636	3
Workplace is mundane	3,06	0,998	0,612	4
Junior workers are uninspired	3,03	1,075	0,606	5
Lack of commitment	2,18	1,103	0,436	6

The transfer of skills has received increased attention because of its significance and the role it plays in the construction industry. The transfer of both hard and soft skills is important in the wellbeing and success of the construction company. Table 4 shows different skills transfer strategies from senior workers to junior workers that can be used. Mentoring which is defined as “human resource development mechanism that aids in the learning and the transfer of knowledge and skill” (Hamburg, 2013: 219) is generally regarded as the more popular method of transferring skills.

But for this study, surprising seventy three percent (73%) of the respondents agreed that working in projects with diverse teams was the first method that was selected as a skill transfer method. This was followed by mentoring and meetings between senior and junior workers. This is similar to the findings by Dorjkhoo (2013) who found that periodic training, every morning training (or quick training) and team-based learning were useful strategies for skills shortage interventions in the workplace. Successful workplace training is centred around the core purpose of producing an expert technician who is able to think critically and apply themselves professionally in a manner that promotes individuality (Balynskaya, et. al., 2015).

Table 4: Skills transfer methods

Skills transfer from senior workers to junior workers	Mean	Std Dev	RAI	Rank
Project tasks in teams	3,79	1,023	0,694	1
Mentoring	3,36	1,319	0,673	2
Meetings between senior and junior workers	3,06	1,368	0,612	3
Weekly and monthly training sessions	2,73	1,442	0,545	4

Table 5 represents how the transference of skills in the workplace have helped the participants. Ninety one percent of the participants agreed that skills transfer helped them grow professionally. This was followed by communicating with senior workers which helps junior workers perform better. Communicating with senior workers was also seen as important for the transfer of skills.

Table 5: Success of skills transfer

Success of skills transfer	Mean	Std Dev	RAI	Rank
Skills transfer help me grow professionally	4,58	0,751	0,915	1
Communicating with senior workers helps me perform better	4,39	0,747	0,879	2
Communicating with senior workers is important for skills transfer	4,36	0,783	0,873	3
Communicating with senior workers motivate me	4,21	0,992	0,842	4
I find that I am now more skilled	4,06	1,059	0,812	5

Table 6 represents the results of skills transfer measures. Eighty two percent of the participants agreed that students could benefit from skills transfer. Seventy three percent of the participants agreed that skills transfer increases learning when discussing work with their peers. The participants also agreed that skills transfer allowed them to communicate better.

Table 6: Assessment of skills transfer

Assessment of skills transfer	Mean	Std Dev	RAI	Rank
I think the students could benefit from skills transfer	4,06	1,014	0,800	1
I learnt through interactions with others	3,97	0,933	0,770	2
Skills transfer allows me to communicate	3,81	0,896	0,745	3
I understand the importance of skills transfer	3,94	1,153	0,739	4
Skills transfer helps me do my job better	3,94	1,124	0,739	4
Increases my learning	4,00	1,114	0,727	5
The environment at work is conducive to skills transfer	3,58	1,025	0,673	6
I have not benefitted from skills transfer	2,31	1,281	0,448	7
I find interactions difficult	2,32	1,077	0,436	8

Table 7 shows structures that can be put in place for skills transfer. Seventy three percent of the participants agreed that senior workers should help junior workers

identify skills transfer goals. Senior workers taking junior workers alongside them was ranked second. Workshops were also identified by 63% of the participants as a method to transfer skills. The participants did not believe that recognition and reward of senior workers enhanced skills transfer.

*Table 7: Structures put in place for skills transfer*

Structures put in place for skills transfer	Mean	Std Dev	RAI	Rank
Seniors help junior workers identify skills transfer goals	4,06	0,914	0,788	1
Senior workers take junior workers alongside them	3,91	1,058	0,758	2
Workshops	3,91	0,928	0,758	3
Platforms of engagement	4,00	1,033	0,752	4
Motivate diverse teams	3,84	1,221	0,745	5
Give incentives to junior workers	3,72	1,198	0,721	6
Employment opportunities	3,74	1,094	0,703	7
Appoint a supervisor	3,74	1,316	0,703	8
Recognise and reward senior workers	3,52	1,338	0,661	9

## CONCLUSIONS

Construction projects are characterised by a high level of design knowledge, technical skills, competent human resources and managerial capabilities. The severity of the challenge of the lack of skills and its impact is felt most severely in the construction industry as the construction industry is driven by equipping labour with the necessary skills to provide finished products such as housing, roads and infrastructure. As an industrial sector, the construction industry is reliant on the conservation of skills in the industry.

Unemployment, changes in technology and lack of training programmes were considered as some of the important causes for skills shortages experienced in the industry. Skills transfer is important to overcome the challenges that junior workers in the construction industry experience, such as underqualification, lack of experience and the fact that they were unfamiliar with the people they worked with. Skills transfer helps junior workers grow professionally, improve their communication and their performance. The respondents in this study agreed that working in projects with diverse teams was the best method for the transference of skills.

In terms of structures that can be put in place for skills transfer, it was suggested that senior workers should help junior workers identify skills transfer goals, junior workers should shadow senior workers and workshops should be used as a method to transfer skills. The research contains information regarding the transference of skills in the construction industry and analyses the importance of these skills being transferred amongst employees within the construction industry thereby creating an environment with increased level of skill while trying to reduce the skill shortage predicament.

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