

Investigating the Causes of Skills Shortage in South Africa Construction Industry: A Case of Artisans

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Abstract:

The decline in artisans in the construction industry in South Africa has prompted the government to be reactive. The current artisan shortfall is at 46 000. This study explores the causes and the effects of artisan skills shortage in the South African construction industry. Furthermore, it explores possible solution to alleviate the skills shortage in the South African construction industry. The research approach used was inductive, using a structured interview. A combination of purposive and snowball sampling techniques were used, to identify respondents who met the criteria for inclusion in the study and to reach the targeted sample. Finally a total of 17 respondents were interviewed. Each interview took approximately 35 minutes. The data was manually recorded in a notebook. The interviewees refused to be recorded because of the sensitivity of the questions. Content analysis was used to analyse the data. The causes of skills shortage were established to be: the closing down of artisan training schools, insufficient practical exposure, unattractiveness of being artisans and migration of skilled artisans among others. It was also found that artisan skills shortages had also impacted negatively in the industry in terms of the quality of work produced increased costs of projects, delays and a decline in productivity. Skilled artisans are critical to the delivery of vision 2030 for infrastructure delivery; hence the continuous training of artisans should be safeguarded.

Key words:

Craftsmen, Construction Industry, Further Education and Training

1 Introduction

The construction industry plays a crucial part in the development of a nation by providing the infrastructure on which most developmental initiatives depend and is a major employer of manual labour (Bagilhole *et al.*, 1996). According to Shah and Burke (2003), skill shortage exists when the demand for workers for a particular occupation is greater than the supply of workers who are qualified, available and willing to work under the existing market conditions. In a report by Thornton (2009), approximately 40% of South Africa's privately held businesses cite the availability of a skilled workforce as the biggest constraint to business growth. This was the third consecutive year that workforce issues have been cited in Grant Thornton's survey as the greatest impediment to growth in South Africa.

The decline in the number of skilled artisans in the South African construction industry has been investigated over the past 10 years. However, little research has been done to

determine the causes and the extent of effects it had in the construction industry. In 1982 there were 13 000 apprentices in training in the industry – in 2006 this figure had fallen to 3 400, causing the massive shortage we see today (Solidarity Research Institute, 2008). In line with the aforementioned statistics a recent report indicated the shortfall of skilled artisans was about 46 000 (SA Commercial Prop News, 2013). Furthermore it has been found that the average age of an artisan in South Africa is 56, a clear indication that South Africa is not doing enough to meet the demand (Solidarity Research Institute, 2008).

Unless radical intervention is imposed to rectify the current artisan skills problem, South Africa's industrial and commercial sectors will be faced with an acute shortage of qualified artisans. This may hamper the government's goal to achieve vision 2030 of job creation and infrastructure development (National Planning Commission, 2011). Therefore, this study aims to investigate the causes of artisan skills shortage and the extent of effects artisan skills shortage has on the South African construction industry.

For the government to succeed in its infrastructure delivery this time, thorough and correct approach should be implemented to alleviate the shortage of artisans. Having identified artisan skills shortage as a road block for infrastructure delivery in the South African construction industry, by conducting the right type of research, the right plan of action can be devised. The researcher conducted a literature study to identify the causes, effect of artisan skills shortages in the South Africa construction industry and finally the methods government has used to resolve the dearth of skilled artisans.

2 Literature Review

2.1 Causes of artisan shortage in South African Construction Industry

Skills shortages in South Africa are the consequences of the interplay of several complex socio-political and economic factors. According to Callinicos, (1980) cited in Mukora (2008), the apprenticeship system was introduced in South Africa by immigrant craft workers, the majority of who came from the United Kingdom (UK) and various parts of Europe during the second half of the 1800s. They were trained in a particular skill and had years of experience in industry. Today, this traditional apprenticeship, based on a very structured master-apprentice relationship no longer exists in South African workplaces, due to a range of factors such as workplace changes (technology, politics) and beyond. However, Gamble (2004) argues that the apprenticeship system has evolved over time from the 'formal, traditional master-apprenticing relation that was regulated first by the individual artisan or journeyman, later by various craft unions and ultimately by the state. Once the state got involved, the state-regulated apprenticeship system changed its shape and form.

In 1995, South African Qualification Authority (SAQA) passed an Act which would integrate education and training through the National Qualification Framework (NQF) in order to include those who had been previously disadvantaged from getting a formal learning opportunity. In 1998 the Skills Development Act 97 was introduced, which seek to; provide an institutional framework to devise and implement national, sector and workplace strategies to develop and to provide for learnerships that lead to recognised occupational qualifications.

According to Mukora (2008) as part of the Department of Labour's commitment to ensure the implementation of the National Training Strategy Initiative (NTSI), it drafted an initial green paper on skills development in 1997. The green paper stated that learnerships were being proposed as a 'major vehicle for addressing skills development needs. The green paper argued that traditional apprenticeships had been declining for a decade which had been attributed to the economic downturn, rising costs, reduced incentives, inflexibility of design in the face of shifting skills requirements linked to technological change and increased multiskilling of lower levels in the workforce.

Devey *et al.* (2003) argued that existing government training schemes, were not sufficiently oriented to the promotion of informal survivalist economic activity, and that the structure of training does not benefit those engaged in the informal economy, but focuses too closely on the promotion of formal and first economy activities. The key challenge here is to translate work opportunities into long-term livelihoods. Bhorat, (2004) strongly agreed with Devey *et al.* (2003) comments.

Research conducted by the Department of Public Works (2008) indicated that the construction and engineering skills supply pipeline has been plagued by a number of systemic challenges which have impacted on the productivity and quality of artisan outputs in the sector. The following factors were found to have exacerbated the skills shortage in the construction industry in South Africa.

Input issues: The national pass rate in mathematics and the unattractiveness of the industry to prospective learners are adversely affecting the input into the skills supply pipeline.

Institutional issues: Historically, artisan training was offered through a collaborative pathway between employers and training institutions. The trainee was appointed and tenured with an employer as an apprentice getting practical experience under the guidance of an experienced artisan. The trainee received theoretical instruction at either the Building Industries Federation of South Africa (BIFSA) or South African Federation of Civil Engineering Contractors (SAFCEC) training institutions or Further Education and Training (FET) colleges. To qualify as an artisan, the trainee had to take a trade test and receive a Certificate of Competence. This training system changed with the promulgation of the Skills Development Act No 97 of 1998, which provided for the establishment of Sector Education and Training Authorities (SETAs). Specifically, the BIFSA currently known as Master Builders South Africa and SAFCEC training institutions were scaled down around the late 1980s due to industry changes such as the rise in trade unions and labour regulation.

Quality and relevance: The quality and relevance of training and particularly of learnerships and FET college programmes is adversely affecting the skills supply pipeline. The industry has raised concerns about the quality and relevance of both the practical and theoretical training that learners receive at FET colleges, citing both the qualifications and workplace experience of the teaching staff as a concern.

Accreditation: Pre-2000, universities were completely autonomous in the determination of their programme content and quality, and professional councils such as the Engineering Council of South Africa (ECSA) provided much needed checks and

balances to the quality and international acceptance of programme. The former technikons, on the other hand, had all their programmes accredited by the Certification Council for Technikons (SERTEC).

Lack of experiential learning: Historically, artisan training required theoretical as well as practical learning component. The theoretical component was offered by FET colleges, and trainees entered into employment contracts with the company that hosted their practical training. The apprentice would then practise his/her trade under the supervision of a qualified artisan. Upon completion of the training the trainee would write a trade test and get a Certificate of Competence.

2.2 Effects of Artisan skills shortage in the construction industry

Artisan skills shortage continues to hamper the infrastructure developmental plan initiated by the government. It has become increasingly challenging for authorities to regulate the level of skills and training of the country's construction workforce due to increasing emerging contractors. The lack of skills at management level has also impacted on the training of artisans where the transfer of skills is not administrated effectively.

Furthermore, most of the contractors experiencing this shortage suffer tremendous time delays and increased costs on projects. Moreover, the early retirement of experienced workforce has left a gap within artisan skilled workforce. With the current shortage of artisan skills it has also been found that the quality and productivity of work has deteriorated. Furthermore, due to the lack of artisan skills employers have been forced to increase wages and salaries to retain and attract artisan skills which has been highly damaging to the profits and organisational competitiveness of companies. If the current artisan skills shortage problem continues it will be detrimental to the competitiveness of the South African construction industry.

2.3 Government and Private Initiatives

Bhorat (2004) stated that, given the unevenness of the economy's growth generation both in terms of sectorial expansion and skills requirements a fair degree of intervention is clearly required on the labour supply side. Put differently, the simultaneous existence of a skilled labour shortage and unskilled labour surplus, point to the importance of adhering to a policy framework that emphasizes both the need to kick-start economic growth as well as ensuring that the characteristics of the suppliers of labour match those in demand by growing sectors.

In line with the above sentiment, a number of joint initiatives have been established by government and private sector since there is a demand of artisan skills. Private institutions like Joint Initiative on Priority Skills Acquisition (JIPSA), Steel and Engineering Industries Federation of South Africa (SEIFSA) and Southern African Institute of Steel Construction (SAISC) under the supervision of the National Skills Authority (NSA) have come on board to try and address the artisan skills shortage.

According to the Department of Public Works (2008), plans are, however, now under way to promote crosspollination between Further Education and Training (FET) colleges and industry to advance the quality of curricula and improve programme relevance. Furthermore both the Master Builders South Africa (MBSA) and South

Africa Federation for Civil Engineering Contractors (SAFCEC) proposed the reintroduction of training institutions which provide practical experience.

3 Problem Statement

The literature review has revealed the existence of shortage of skilled artisans in the South African construction industry. This is a deterrent factor to the delivery of infrastructure to its clients in the construction industry. Therefore, based on this problem statement, this study aimed to determine the causes and effects of the shortage of skilled artisans' in the South African construction industry. Furthermore, this study aimed at determining the methods or measures the South African government has taken to resolve the artisan skill shortage.

In order to achieve the stated objectives the following specific research questions were formulated:

- What are the factors causing artisan skills shortages?
- What effects does artisan skills shortage have in the construction industry?
- What measures should the government take to resolve artisan skills shortage?

4 Research Methodology

In order to answer the research questions. A qualitative strategy was used using an inductive approach. Furthermore, the method used to collect data was structured interview. In this research method the researcher studies the phenomenon without predetermined expectations or categories and tries to understand the data from the perspective of the participant (Moustakas, 1994). This approach was used because the researcher intends to grasp respondents' insights. The interview questions for the purpose of the structured interviews were constructed and identified beforehand by using literature study, problem statement and the research objectives as a guide. Three research questions were asked, namely, 'What are the main cause(s) of artisan skills shortage in the construction industry?', 'What effects does artisan skills shortage have in the construction industry?' and 'What method(s) should the government use to resolve artisan skills shortage in the construction industry?'

In order to answers these specific research questions, the target sample was based in Gauteng province. This was because the province is more vibrant in construction projects compared to the other nine provinces, therefore more ideal to conduct this study. Furthermore, the limited time to complete the study and expenses of conducting the study in other provinces were further reasons to conduct the study in Gauteng province. A combination of purposive and snowball sampling was used, to identify respondents who met the criteria for inclusion in the study and to reach the targeted sample quickly. Seventeen respondents agreed to participate in the interview. The respondents consisted of civil engineers, quantity surveyors, construction managers, project managers, contracts managers and contract director. The duration of the interviews lasted approximately 35 minutes per respondent. The interviews were recorded manually on a writing pad as the interviewees did not want to be recorded using an electronic device. Furthermore, the researcher's attitude was one of unconditional positive regard. Nondirective conversation technique for example

minimal encouragement, attentive listening, clarification, paraphrasing, reflecting and summarizing, were used to gather information. A relaxed atmosphere was created to help the participant to feel at ease. This approach is in line with the study of Van Rooyen *et al.* (2010).

The data was then analyzed using content analysis. This included identifying recurring themes and coding them in order to analyze, quantify and interpret the research data systematically and objectively. The universe of the content to be analyzed was defined and categorized. The units of analysis, words and themes were determined by reading through the written transcriptions of the data. The themes were coded. Coding can be seen as the process of grouping evidence and labelling ideas so that they reflect increasingly broader perspectives (Creswell & Clark, 2007).

5 Findings and Discussions

The result in Table 1 indicates ten causes that have exacerbated the decline of artisans in the South Africa construction industry. The “closing down of training schools” was ranked highest and was mentioned by thirteen respondents. Furthermore, insufficient practical exposure was ranked second. A total of eight (8) respondents indicated that there was insufficient training being offered. However, the least perceived factors that were causing skills shortage in South Africa were “current market wages and foreign influx of artisans” as they articulated by only one respondent each”

Table 2: Contributing Factors to Artisan Skills Shortage

Causes of artisan skills shortage	Number of respondents	Total Responses (%)	Ranking
Closing of training schools	13	76	1
Insufficient practical exposure	8	47	2
Unattractiveness	6	35	3
Experienced artisan retiring	4	24	5
Immigration of experienced artisans	4	24	6
Poor transfer of skills	3	18	7
Succession Planning	2	12	8
Foreign influx of artisans	1	6	9
Current Market Wages	1	6	10

Table 2 indicates five effects that are experienced due to shortages of artisan. Artisan skills shortage had hampered company development in many ways, i.e. the quality of workmanship was ranked first, with 14 respondents articulating it. This result concurs with the report by SA Commercial Prop News (2013) which stated that, with an increasing number of small to medium-size enterprises (SMEs) emerging in the construction sector, it becomes increasingly challenging for authorities to regulate the level of skills and training of the country’s construction workforce. Furthermore, eleven of the respondents were also of the view that artisan skills shortage had led to increased costs of the project.

This could have been exacerbated due to re-work, which could have led to extra supervision to ensure the required quality. In light of these results, skills shortage has led to increased project delays and low productivity as indicated with 10 respondents.

Table 3: Artisan Skills Shortage Effects on Companies

Effects of artisan skills shortage	Number of respondents	Total Responses (%)	Ranking
Decreased Quality	14	82	1
Increased Costs	11	65	2
Increased Delays	10	59	3
Low Productivity	10	59	4
Re-work	8	47	5

The results in Table 3 indicate the methods that government can use to improve on the level of artisan shortage in South Africa. Fourteen of the respondents indicated the need to reinstate training schools for artisans. It has been indicated by the Master Builders Association (MBA) that their training outlets were closed. This could have definitely led to the shortage of artisans in the construction industry. The reinstating of training schools for artisans could promote greater relevance and responsiveness in the education and training system and strengthen the employability of artisans.

Eleven respondents indicated that collaboration with the private sector would assist in resolving the skills shortage. According to Sector Education Training Authority (SETA) this could have been done through learnerships. This could also lead to the artisans getting practical learning. According to the Department of Public Works (2008), the shortfall of artisans should be reduced by, artisan training offered through a collaborative pathway between employers and training institutions. The socioeconomic welfare of the artisans was further seen as a channel to alleviate artisan shortage. Eight respondents indicated that “introducing market related salaries to retain artisans” could resolve skills shortage. However, remuneration was not a frequent cause of skills shortage that was highlighted by the respondents as indicated Table 1.

Five respondents indicated that “monitoring and supervision of artisans” would alleviate the much publicised skills shortage problem. The least proposed method to resolve skills shortage was “to compensate industry professionals to come share their knowledge”.

Table 4: Government improvement methods

Methods to resolve skills shortage	Number of respondents	Total Percentage Responses (%)	Rankings
Reinstate training schools for artisans	14	82	1
Collaboration with the private sector	11	65	2
Re-baseline of the minimum artisan standards	9	53	3
Introduce market related salaries to retain the artisans	8	47	4
Introduce artisan training programmes	8	47	5
Monitoring and supervision of artisans	5	29	6
Compensate industry professionals to come share their knowledge	3	18	7

6 Conclusions and Recommendations

Skills shortage continues to pose a major threat in the construction industry, which has created fear of not having the level of skilled labour in the next decade. In lieu of this concern, this research has presented the causes of artisan skills shortage, its effects in the construction industry and finally the methods or measures to resolve the skills shortage in the construction industry have been suggested.

The most common cause of skills shortage was closing of the training schools for artisans. In order to alleviate this problem the respondents suggested that the artisan training schools should be reinstated by the government.

This study recommends that the government and the private sector should work together to curb the shortage of skilled artisans in the construction industry. It is therefore paramount that this recommendation is implemented to ensure the sustainability of supply of artisans in the South African construction industry.

Further study is suggested to alleviate the bias that qualitative method of interviews could have in collecting data. A quantitative study using a large sample is advocated in order to generalize the findings.

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