Impact of skills shortages in engineering

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The primary aim of the study is to investigate the impact of skills shortages in engineering relating to the manufacturing and construction industry in Pietermaritzburg. In addition one will also investigate what steps were taken to try and address the issue and how successful were those steps.

Over the past few years skills shortage has become a major problem. During the recession the issue of skills shortage had been put aside but now the issue is coming back in focus as the economy moves towards recovery (Garrun, 2010). The shortage of professional skills is not only a problem that South Africa is faced with, but it has become a Worldwide (International) issue (Inggs, 2007). According to Inggs (2007: paragragh 3), “ the engineering skills shortage is the single biggest issue facing public works engineering today and is leading to a crisis that threatens Australia’s engineering capability and its ability to refurbish, maintain and develop infrastructure.”

A study conducted in 2005 by Allyson Lawless shows that there are between 4000 – 6000 additional civil engineers that are required in South Africa. The construction industry in South Africa has been in decline for about 20 years (Inggs, 2007). This occurred from the lack of funds, but increased about three years ago due to the FIFA World Cup which has increased the demand in this industry as well as increasing the salaries of engineers (Inggs, 2007).

In South Africa it has been found that there is a loss of professional expertise and an ageing professional group, which resulted from the worldwide phenomenon of outsourcing (Inggs, 2007). According to Inggs (2007: paragraph 20), “ in March 2006, the Joint Initiative on Priority Skills

Acquisition was launched by Deputy President Phumzile Mlambo-Ngcuka to accelerate the provision of priority skills to meet the Accelerated and Shared Growth Initiative for South Africa’s objectives.”

In 2006, Thabo Mbeki had announced that the government will put aside over R370 billion for infrastructure development. This was part of the Accelerated and Shared Growth Initiative (ASGISA) (Burtenshaw, 2006). The infrastructure programme was said to have increased the skills drive which is a critical priority for South Africa. A lack of this can derail a number of the interventions that are undertaken by ASGISA (Burtenshaw, 2006). Former President Thabo Mbeki had announced in 2006 that he was considering importing skilled people from abroad to increase South Africa’s growth rate to 6%. Furthermore, a legislation was introduced to “ smooth the path for incoming skilled workers from overseas, making the idea of applying for a job in South Africa a more viable option” (Burtenshaw, 2006: paragraph 3). Skills shortage has been increasing and is estimated to go up to a shortage of 1. 5 to two million skilled people over the next six years. Some of the reasons behind the skills shortage are; people (graduates and matric students) do not have the necessary skills required for the available skilled jobs (Burtenshaw, 2006). Burtenshaw (2006) goes on to explain that the courses and degrees taken by the youth only increase their employability instead of improving their skills that are needed in industries.

Definition of the research problem

Main Problem and Purpose of the Research:

Welman et al (2005: 13) suggests that your research topic must be something which is of general interest to you. They also suggest that once

you have decided on a research topic, you must be able to gather the relevant information needed.

The primary aim of the study is to investigate the impact of skills shortages in engineering relating to the manufacturing and construction industry in Pietermaritzburg. In addition one will also investigate what steps were taken to try and address the issue and how successful were those steps. The main problem as mentioned above is that the skills shortage in South Africa is constantly increasing especially in the engineering industry.

It has been found that numerous engineers are emigrating because of the global war for talent, which has a negative impact on South Africa. An average of 100 professional engineers had emigrated between the years 2004- 2007 (Mgibisa, 2007). In addition, another problem in engineering skills shortage can result from secondary schools. Majority of the pupils from secondary schools do not qualify to enter the engineering profession because of poor mathematics results (Mgibisa, 2007).

In 2008 a global recession was experienced, as a result companies had to cutback on employing new employees and training the next generation of engineers to save money. Training is always the first thing to get cut when things go bad for the company which impacts on skills shortages in South Africa even more (Garrun, 2010). There is a limited number of available, skilled and experienced workers who fit into specific job descriptions. Those that are available are aged 45-50 (Garrun, 2010). The Department of Labours Scarce Skills List states, that the number of skilled professional

required in South Africa is over 34 000 additional engineers, technologists, draughts persons and technicians (Garrun, 2010).

In 2007, it was found that there was a shortage of at least 1000 engineers who had five years of relevant experience. If the engineering skills challenge is not resolved, the government will experience a great loss because the multibillion infrastructure development plan depends on the availability of such skills (Mgibisa, 2007).

Research objectives:

The research objectives are to:

Investigate the impact of skills shortage in the manufacturing and construction industry

Establish what they have done to address the shortage

Evaluate how effective were the steps that were taken

Establish what they plan on doing if the steps they have taken to address the shortage has failed

Review of related literature

The literature review will contain some of the general information about skills shortage such as:

what is skills shortage

the shift in demand for skilled workers

the skills gap and skills shortages and reasons for it

how HIV/AIDS has impacted on labour supply in South Africa

the relationship between workforce skills and product quality

the relationship between skills shortage and productivity growth

Engineering skills shortage including studies that have already been conducted.

There are studies that have been conducted on skills shortage in engineering but relating to different aspects such as client satisfaction and dealing with the workplace skills plan to improve workplace learning and not forgetting ways in which skills can be upgraded.

Research methodology

Terre Blanche, et al (2006: 34) defines a research design as " a strategic framework for action that serves as a bridge between research questions and the execution or implementation of the research. Research designs are plans that guide the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure."

Data could either be primary data which is the original date that the researcher collects for his/her study or it could be secondary data which is information collected by other individuals besides the researcher (Welman, et al, 2005: 149).

One also needs to decide whether one wants to take a qualitative approach (describing and interpreting people's experiences and feelings in human

terms) or quantitative approach (measuring things instead of asking questions).

In my study I will be using a primary data base and qualitative methods which will be quantified.

The population sample will include managers and workers both young and old from different parts of the engineering industry. This selection will be done randomly especially with the workers.

I will then conduct interviews with the managers and workers and also design questionnaires for them to answer. Once all the data has been collected one will then have to analyze the data collected. To analyze and quantify the data that I have collected, I will use SPSS (statistical package for social sciences) to quantify it and generate the relevant charts and tables. From this quantified information one will be able to understand and make sense of the data collected.

Anticipated contribution

This research is different from the other research that has been done because this research is looking at ways in which industries are tying to address and overcome the problem of skills shortage. Other research has been done on how skills shortage affects client satisfaction ad so forth. Some studies highlight the general shortages of skilled workers, reasons for skills shortages and recommendations for addressing the problem. The study that I am conducting does include the reasons behind skills shortages and some recommendations for addressing it but also what has the company done to address the problem and how effective was it. It will add value to the existing

literature by showing the ways in which the skills shortage has been addressed and the outcome of it. If it was successful, the reasons behind is success will be explained and if it was unsuccessful the reasons behind this will be explained including suggestions as to what can be done differently. This will be of benefit to companies who want to address the shortages o skills that they are experiencing by showing them how to go about it. This will mostly include things like training.

Ethical requirements

Ethical requirements are highly important. One cannot just enter a company and start researching without permission. One first has to approach the person in charge and get consent from him/her to conduct the study. A consent form will be signed stating that permission has been given to conduct the research.

The participants that are being interviewed must sign a consent form, they need to be informed that it is confidential, anonymous and they can withdraw at any time. Moreover the participants must also be informed that it is voluntary and they will not be harmed in anyway. One needs to ensure that the participants are aware that the researcher is only conducting research after obtaining ethical clearance from the ethical clearance committee.

Framework for the proposed study

Title page

Executive summary

Contents

Chapter 1 – Introduction and background, statement of the problem, research objectives, research question, significance of the study

Chapter 2 – literature review on skills shortages in general, and in South Africa

Chapter 3 – research methodology, research design, population sampling, data analyses process

Chapter 4 – interprets and briefly discusses the findings and conclusion

References

Appendices

Provisional list of sources

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There are other internet journals and articles that will be used

Date of completion

Literature review – 14 April 2010

Methodology – 28 April 2010

Ethical clearance – 10 May 2010

Data analysis – 26 July 2010

Discussion and concluding chapter – 18 August 2010

Complete draft – 20 September

Final submission – 18 October