

## **Constraints leading to the shortage of skilled motor mechanics in South Africa**

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## **Abstract**

*In a research study, which focused on a strategy to link informal and formal motor mechanic artisan training, a number of constraints leading to the shortage of artisans in general were identified in the literature. Disparities between big businesses and the informal sector were highlighted. Emphasis was placed on the need for a growth initiative, which would include the informal practising motor mechanic, to address the key constraints and obstacles encountered in the development and implementation of artisan training for South Africa. The study was explorative and a qualitative research design followed. The researcher used semi-structured interviews to collect data from 16 (n = 16) experts in the field of training automotive artisans. A purposive snowball sampling method was applied to select participants from educational sectors (public and private FET colleges), automotive organisations and organised labour with the common characteristic of involvement in the training of motor mechanic artisans. The key themes identified in the different participants' responses formed the data for the study, which was analysed by means of the ATLAS.ti 7.0 version data analysis program. The research confirmed that a strategy could be developed to successfully link the informal and formal motor mechanic artisan communities.*

Keywords: automotive industry, apprenticeships, constraints, artisan shortages

## **1 Introduction**

The automotive industry in South Africa faces a number of challenges. Vehicles are becoming more complex and the number of sales increases annually - hence the need for better qualified and skilled motor mechanics to work on these vehicles (Esterhuisen 2012). According to Angus (2008:9), a focused artisan development initiative is needed to address the key challenges encountered in the

development and implementation of artisan training in South Africa. According to the Amalgamated Motor Holdings (AMH 2011), a key component of government's employment strategy is to encourage the use of learnerships/apprenticeships in the workplace. In the past few years, the rules and regulations surrounding the concept of apprenticeships have been tightened with the effect of less protection for the apprentice, resulting in fewer employment opportunities (Esterhuisen 2012). According to the AMH (2011), businesses find it difficult to attract apprentices, and once these apprentices are placed, there appears to be a general lack of motivation and commitment to the programme, resulting in a lack of discipline through poor time-keeping, low attendance in general and unwillingness to learn.

## **2 Literature review**

The automotive industry in South Africa is well established with representatives from organised labour, government, automotive associations, professional bodies and academia with public and private training centres (Jordaan 2014). Notwithstanding the wide representation, specific motor mechanic artisan trade problems and constraints can be identified in the literature. One such problem, according to Nzimande (2010), is that there is no coordinated approach to monitoring and reporting between the Further Education and Training (FET) College Sector and the Sector Education and Training Authority (SETA) system. Although the automotive industry is committed to the government's job creation initiatives, the proposal to relax certain aspects of the current labour relations legislation for apprentices is under investigation.

The proposal to change the status of the apprentice to that of a normal learner will enable business to increase its investment and intake of new learners to grow the pool of skilled individuals in the motor industry, where there is an urgent need for trained technical artisans (AMH 2011). Esterhuisen (2012) posits that businesses are cautious about offering apprenticeship employment. She adds that businesses are experiencing an over-regulation of employment conditions, making it difficult to terminate an apprentice's employment contract. Likewise, Botha (2012) is of the opinion that the Labour Relations Act 66 of 1995 "kick against business growth, including small, medium and micro enterprises increasing financial costs and

liabilities, making it difficult to dismiss underperforming employees”. Section 200A of the Labour Relations Act, 1996 stipulates that until the contrary is proved, a person who works for, or renders services to, any other person is assumed, regardless of the form of the contract, an employee, if any one or more of the following factors are present:

- the person subject to the control or direction of another person
- the hours of work are subject to the control or direction of another person
- the person forms part of that organisation
- the person has worked for an average of at least 40 hours per month over the last three months
- the person is economically dependent on the other person for whom he or she works
- the person is provided with tools of trade or work equipment or
- the person only works for one person

In a position paper, the AMI (2011) put forward a proposal to amend the current Labour Relations Act 66 of 1995 in an effort to comply with the government’s initiative for assistance in job creation. The position paper proposes that:

- Future apprentices (under the age of 25) be excluded from the ambit of labour legislation and regulation.
- An apprentice review mechanism should be introduced containing detailed and agreed-on achievement criteria in order to identify, address and rectify repetitive non-performing or non-compliant learners and remove them from and replace them in the training programme.

The proposal to change the status of the apprentice to that of a learner is a debatable issue that needs to be scientifically researched and argued. Not all businesses who are concerned with the training of motor mechanic apprentices may support the notion to change the apprenticeship status. The author holds the opinion that labour unions may also not be in favour of such a status change as well as that the psychological contract between the apprentice and the employer may be harmed.

In the next section, specific constraints identified in the literature review will be reflected upon.

## **2.1 Constraints influencing the supply of and demand for skilled artisans**

Muteswa (2009:12) identified the South African education system, the economic growth rate and rapid technology changes as contributory factors to the high artisan shortages in South Africa. The labour organisation Solidarity (2008) concurs with Muteswa's (2009) argument, mentioning the deterioration in education standards in South African schools and adding the mismatch between the supply of and demand for skills to the list of factors. De Beer (2008) identifies training-related issues such as the cost of upgrading training equipment and facilities and poorly qualified and limited numbers of technical lecturers and trainers.

## **2.2 Mismatch in skilled artisans**

According to the Bureau of Labour Statistics (BLS) (2006), Branch (2010) and Cosser (2010), South Africa is currently facing the challenge of a mismatch in the supply of skilled artisans, compared to the number of artisans in demand by industry. The BLS (2006) and Cosser (2010) support the view of the Department of Labour (DoL, South Africa 2009), namely that the current mismatch of skills can be ascribed to the excessive number of students studying humanities and social science courses, while there are insufficient science and engineering students, especially from previously disadvantaged backgrounds (Cosser 2010).

The BLS (2006) argues that graduate unemployment is an indication of the mismatch between the types and numbers of artisans required by industry. The BLS (2006) further maintains that it is difficult to determine whether the graduate unemployment problem is linked to the conception of a mismatch between the skills supplied and demanded, or whether it is more likely a problem of the quality of the education offered in terms of the curricula for artisan training.

Johanson (2004) postulates that organisations tend to focus their training and development programmes on the demand for new skills generated by changing trading patterns, technologies and managerial practices. According to the DoL (South Africa 2009), the private sector should clearly indicate or signal the types of skills required to training providers such as FET colleges, universities and universities of technology. Lewis (2011) concurs that industries and colleges should work together to develop informational programmes that include subjects

for students embarking on technical careers. Interventions such as organised industry visits for new entrants could be considered to address the mismatch in skills.

The DHET (South Africa 2012) maintains that articulation with the labour market should be to match the supply of and demand for artisans through the development of improved links between education institutions and industry to create extended opportunities for apprenticeships, learnerships, work experience and training. According to Taylor (2011), a detailed analysis of the number of artisans should be established in order to realign the artisan curriculum for more specialised occupational training.

### **2.3 Poor coordination of education and training policies**

Bendix (2009) postulates that the merger of South African higher education institutions (establishment of universities of technology in the place of the previous technikons) led to a watering down of career-focused training provided by the latter. Problems of massification, with the emphasis on research, further hampered the ability of higher education to produce candidates with the necessary industry skills.

The BLS (2006) reports that various policy proposals should be considered to improve educational outcomes in South Africa. Poor quality education, unsuitable subject choices and dismal student performance are frequently raised by organisations as the main concerns about education in South Africa.

### **2.4 Limited pool of suitably qualified FET college graduates**

The shortage of artisans is largely attributed to the decline of apprenticeship programmes and the struggle of substitute training in the form of offering learnership programmes through the FET system (Breier 2009). According to Lishman (2010), the “Department of Education terminated the Nated courses which offered the theoretical component of training for apprentices and replaced it with a longer National Certificate Vocational programme (NC(V)). While a number of students with an N3 or higher qualification have not managed in recent years to obtain an apprenticeship, there are few accurate records of these individuals in the FET college system. The shortage of artisans in the South African labour market is worsened by the insufficient co-ordination and relationship between the Department of Education (DoE) and the Department of Labour (DoL).”

De Louw (2009) conducted an exploratory investigation into the efficacy of learnership programmes in the Cape Peninsula and found a clear indication that learners do not perceive learnership qualifications as a means of enhancing employability or as a vehicle for obtaining employment. De Louw (2009) asserts that learners in the Cape Peninsula most often felt that programmes were not well planned and designed and that curricula should be more carefully planned. In general, these experiences highlight the weaknesses in the training programmes for artisans and are evidence of the low value of learnership programmes.

## **2.5 Insufficient training centre and workplace training capacity**

The Skills Development Amendment Act 37 of 2008 stipulates that a person who has completed an NC(V) or “any other learning programme resulting in an occupational or vocational qualification” must complete a period of “prescribed work experience” before he/she is entitled to complete a trade test (Skills Development Amendment 37 of 2008, s 2D(2)(d)). According to Nzimande (2011), the South African government is investigating ways to upgrade workplace training space so that new graduates from FET colleges can gain work experience. The DHET (South Africa 2010a) reports that FET college lecturers and students have had to adjust to the component of vocational training. The DHET (South Africa 2010b), refers to research by Gewer (2009), namely that there is a “strong and significant relationship between work experience during studies and succeeding in employment”. Gewer (2009) also found that FET colleges are currently ill equipped to help students gain work experience. According to Gewer (2009), helping students to gain work experience is not required by NC(V) programmes, and this element thus tends to be overlooked. Through mergers, the FET system has reduced the number of FET colleges from 122 to 50.

## **2.6 Poorly qualified and limited numbers of technical lecturers and trainers**

Molefe (2010) posits that lecturers and trainers sometimes lack the following three types of knowledge: (1) declarative knowledge of facts and concepts; (2) procedural knowledge of what to do; and (3) motivational knowledge to assist learners in their effort and persistence to excel. Subject knowledge (of material) is essential for proper instruction and clear communication of content to students.

Competencies in this regard include not only content knowledge, but also the ability to organise, integrate, adjust and adapt subject content in ways to make it accessible and thought provoking for the learner.

Gewer (2010) reports insufficient (and insufficiently qualified) lecturing personnel at Further Education and Training (FET) colleges who are unable to present the curricula. Moreover, the content of the National Certificate Vocational NC(V) curriculum pitched at an inappropriate level for learners, owing to their poor schooling background. Duncan (2009:6) explains that NC(V) programmes require that fundamentals such as language and mathematics be incorporated into FET curricula, and that more attention should be focused on the integration of theory and practice aiming to better prepare students for the long-term skills demands of a changing workplace and economy. Mukora (2009:2) cautions that apprentices following the FET route exit the college system with artisan skills but face unemployment after graduation because they still need to gain practical workplace experience. O'Donnell (2010) concurs with Mukora (2009) that young artisans are finding it difficult to secure opportunities for practical workplace experience.

The neglect of technical training in recent years by both business and state-operated institutions has resulted in a lack of institutional training capacity in both sectors (Taylor 2011). Due to an ageing profile, skilled technical training personnel have been retiring in increasing numbers, without suitable replacements to take their place being available. Creative ways need to be found to design attractive long-term career paths for people willing to enter a career as technical lecturers and trainers.

The DoL (South Africa, 2009) refers to the poor relationships between institutions and industry players and claims that lecturers rarely enter the industry environment and are thus unaware of new methods and products. In an effort to integrate the theoretical and practical elements of graduate training to equip graduates with on-the-job experience, organisations need to invite universities of technology to allow graduates to do their technical training in factories to enable them to learn on the job while also completing a tertiary degree (Nzimande 2011). According to the BLS (2006), some of the short-term solutions proposed for dealing with the skills shortages should include rehiring of early retirees, assisting and encouraging South Africans living and working abroad to return and recruiting highly skilled immigrants to assist with the training of motor mechanics.

## **2.7 Relevance of FET college curricula**

The BLS (2006) raised the concern of soft skills and workplace readiness, specifically among students from historically black institutions. According to the DHET (South Africa 2010b), the qualification and programme structures of FET colleges have changed to present a “branding” challenge for the government, which seeks to promote them as “institutions of choice” to address specific work-based skill needs. The DHET (South Africa 2010b) reports that FET colleges have experienced changes in terms of names, qualifications and programme structures through a process of amalgamation. The DHET (South Africa 2010b) elaborates further that FET colleges aim to provide institutional learning opportunities for those in work-based learning programmes, including general vocation orientation as well as occupationally specific education and training linked directly to artisan training.

According to the DHET (South Africa 2012), general vocational programmes have not had time to mature and be tested in the labour market. Artisan training has declined, and colleges are playing their traditional role in offering the theoretical component of apprenticeship programmes, but the curricula of these programmes have not yet been sufficiently updated and improved. A number of new learnerships and other new qualifications have gained credibility with employers, but often, unless a person was qualified under the old pre-1994 apprenticeship system, employers feel uncertain about the competence of a qualified artisan (South Africa DHET 2012).

According to Molaba (2010), ineffectual liaison between business and the DHET over many years has resulted in FET college curricula, which are not properly aligned with the needs of industry. At the same time, because there is no single national standard or national moderation of the competencies of apprentices, standards differ significantly within the same trades. Nzimande (2009) expressed concern about the misalignment between the curricula taught at FET colleges and industry requirements. According to the Minister, it is a worrying trend that the success rates of apprentices are low and the linkages between colleges and the industry are limited, resulting in low employability among college graduates.

Mukora (2009) questions the marketing of learnership end products, arguing that most companies are doubtful about learnerships and have questioned the quality of learnership programmes. The DoL (South Africa 2009) adds that organisations feel that universities of technology base their curricula on old, obsolete methodologies, creating a mismatch between the skills required by organisations and those acquired through formal learning.

## **2.8 The image of artisan trades**

According to O'Reilly-Briggs (2010), perceptions about the image of artisans do not exist in a vacuum, but there are understandings based on social observations, often reinforced by the promotion of stereotypes by the popular media. Other challenges to attracting the right talent to the industry include the perception that pay levels are not attractive enough, the lack of flexible working opportunities available, poor working conditions and the lack of opportunities for graduates (IMI 2010).

Maloney (2007) argues that a combination of factors has led to the skills shortage in the artisan trades, for example, the public bias against blue-collar jobs in favour of white-collar jobs and the negative image of the construction worker and of unions. Mukora (2009) agrees that discussions on how to improve the public image of the artisan are not unique to South Africa, but that this a global phenomenon typical of the Western world where young people are afraid to get their hands dirty. Young people tend to prefer working with computers than studying engineering and artisan trades. According to Van Rooyen, Du Toit, Botha and Rothmann (2010), many managers refer to artisans as “blue-collar” or “semi-skilled” workers as if they are always dirty, semi-literate and unable to express themselves intelligently.

Gewer (2010) expresses concern about the quality of career path assistance available to young people, particularly those from poor socioeconomic backgrounds, in their decision to engage in post-school education and training. McDowell, *et al.* (2011:13) suggest that promoting apprenticeships to represent “a pathway toward a satisfying career” would provide incentives for people considering a vocation in a traditional trade. Career guidance at schools and colleges, together with rigorous efforts by the business community, is needed to enhance the image of artisans (Molaba 2010). The poor image of artisans in the

eyes of school leavers is a problem that needs to be addressed, if suitable students are to be attracted to artisan careers. Apprentices in general are often viewed as having a lower socioeconomic background, without the capabilities to enter university (McDowell *et al.*, 2011).

Stuart (2010) argues that the artisan occupation needs to be professionalised as a strategy to attract new entrants and to ensure career development for current artisans. The Human Sciences Research Council (HSRC) (Cooper & Walters 2009) reported that academic failure and poor or no career guidance are some of the reasons why learners drop out of school. Cooper and Walters (2009) further cite evidence of a mismatch between students' choices of field of study and their ability to do well in their chosen field, which can be attributed to poor or no career guidance. Gewer (2010:9) concurs with Cooper and Walters (2009), stating that young people are dependent on their parents and families to support them in their career choices. Parents and families provide moral, emotional and particularly financial support, but there is little support in the form of information or career guidance (Gewer 2010).

## **2.9 New technology**

According to Erasmus, Loedolff, Mda and Nel (2009:), technological innovation requires that new entrants should be trained and this necessitates continuous retraining of current workers in new technologies. In addition, Schreuder and Coetzee (2010) state that more people work remotely (e.g. at home) using information and communication technologies such as portable computers and mobile phones. This has made it possible for employees to work longer hours and perform their job tasks at a variety of locations.

Furthermore, according to Erasmus *et al.* (2009), the speed of technological development is a result of cutting-edge technologies such as the microchips, computers, networks, satellites, telecommunications, cellular technologies, the internet, nanotechnology and biotechnology. Schreuder and Coetzee (2010) argue that the changes in technology impact on employee and organisational wellness. Rapid technological changes impact on the nature of jobs and careers, influencing the well-being of individuals and organisations, resulting in socio-economic changes (Rothmann & Cilliers 2007).

Johanson (2004) explains that changes in technology require knowledge and skill-intensive training to assist people to work with new technologies. The International Labour Organisation (ILO 2012) reports that artisans operating in the informal sector find it difficult to adapt to technological changes because of the financial constraints they face. The lack of access to additional and secure sources of funding constrains the development of informal apprenticeship and traps master craftspeople and apprentices in informal economies with limited access to new skills, technology and ideas for diversification and productivity increases.

According to Africa Mechanics Trust (2007), the majority of the informal artisans gained training on the job as apprentices and were trained informally working on cars and learning on the job. In the past, this model would have worked, but unfortunately mechanics in the informal sector have not kept pace with the rapid technological changes the majority of cars have undergone. In line with this finding, the ILO (2012) reports that a major issue in informal apprenticeships is the lack of access of master craftspeople and their apprentices to new skills and technology. Working in small businesses in the informal economy limits them to a restricted pool of knowledge and prevents them from catching up with new technological developments that are available to the formal sector.

### **3 Research design**

This study was exploratory and a qualitative design was used. According to Yin (2009), a study can be considered exploratory when the knowledge base is insufficient to make sound theoretical propositions prior to the start of data collection. The research methodology adopted for this study was a qualitative approach, which consisted of a literature review and semi-structured interviews aimed at extracting information from training experts representing a variety of automotive environments in South Africa (Olutola 2011).

#### **3.1 Data collection**

The purpose of data collection was to obtain a thick description of the experiences of those individuals involved in the training of automotive motor mechanics. The creation of the content to be analysed was defined and categorised utilising the ATLAS.ti (Version 7.0) program. In this study, the

researcher used semi-structured interviews to collect data from the personal experiences of 16 (n = 16) experts in the field of training automotive artisans. These individuals were representatives of academia, public and private FET colleges, MerSETA, major automotive industries and organised labour.

### **3.2 Data analysis**

The creation of the content to be analysed was defined and categorised utilising the ATLAS.ti (Version 7.0) program. This program assisted the researcher with the text analysis and interpretation, selection, coding, annotation and comparison of noteworthy segments of the raw data. Coding is the process of grouping evidence and labelling ideas so that they reflect increasingly broader perspectives of the participants (Creswell & Clark 2007). The researcher immersed himself in the data in order to be sensitive to the meanings of even the insignificant details, as suggested in the work of Elo and Kyngäs (2007), May (2010) and Zhang and Wildemuth (2009). The researcher attempted to uphold the trustworthiness of the research through the application of various reasoning strategies, such as content analysis, inductive reasoning, blending, bracketing and understanding to interpret the data (Kvale 1996). In this kind of research, the researcher attempts to describe with words the experiences of the participants relating to the investigation of the phenomenon by bracketing out any possible prejudiced ideas about the phenomenon under discussion (May 2010). Bracketing is the cognitive process of putting aside one's own beliefs, not making judgements about what one has observed or heard, and remaining open to data collection and analysis (Arjun 2011 & Van Manen 1997).

### **3.3 Population and sampling**

The researcher utilised purposive and snowball sampling. Purposive sampling enabled him to use his judgement to select participants who would best enable him to answer the research questions formulated for this study (Saunders, Lewis & Thornhill 2009). The researcher focused on access to the target population and their industry experience as well as the inclusion of capacitated individuals who could provide a rich detailed response to represent the motor industry at large. Senior individuals (managers or heads of the respective motor

industry training divisions) who had more than five years' experience in the training of motor mechanics were considered in the sample.

### **3.4 Semi-structured interviews**

Semi-structured interviews are the most common mode of data generation for both grounded theory and phenomenology (Reiter, Steward & Bruce 2011). Semi-structured interviews are designed to ask each informant a set of similar questions (De Vos 2004). The semi-structured interview allows for probing of views and opinions where it is desirable for participants to expand on their answers (Gray 2009; Smith & Osborn 2008). The researcher prepared an interview guide beforehand based on the literature review for the research. Kvale (1996) explains that an interview guide either indicates the topics and their sequence in the interview or presents a detailed sequence of worded questions predetermined from the interviewer's judgement. Preparing an interview guide beforehand compels the researcher to think explicitly about what he/she thinks/hopes the interview might cover (Smith & Osborn 2008). Rubin and Rubin (2005) recommend that researchers include the investigative research questions in the interview guide.

The following investigative research question was based on theoretical perspectives governed by an overview of relevant literature (De Vos *et al.*, 2005):

- What factors/constraints do you think contribute to the shortage of artisan skills in general?

### **3.5 Conducting and recording interviews**

A digital voice recorder was used to accurately collect raw data. To ensure the accuracy of the data collected and to avoid misinterpretation, the researcher made his own notes throughout the interviews, which were later compared with the digital recordings when they were played back. These notes were also considered when the recordings were transcribed.

## **4 Results**

This article reflects on the participants' responses to question 2. The theme, formal sector skills review, emerged from the participants' responses to question

2: What factors/constraints do you think contribute to the shortage of artisan skills in general? Six categories of discussion points were identified which are visually represented in figure 1.

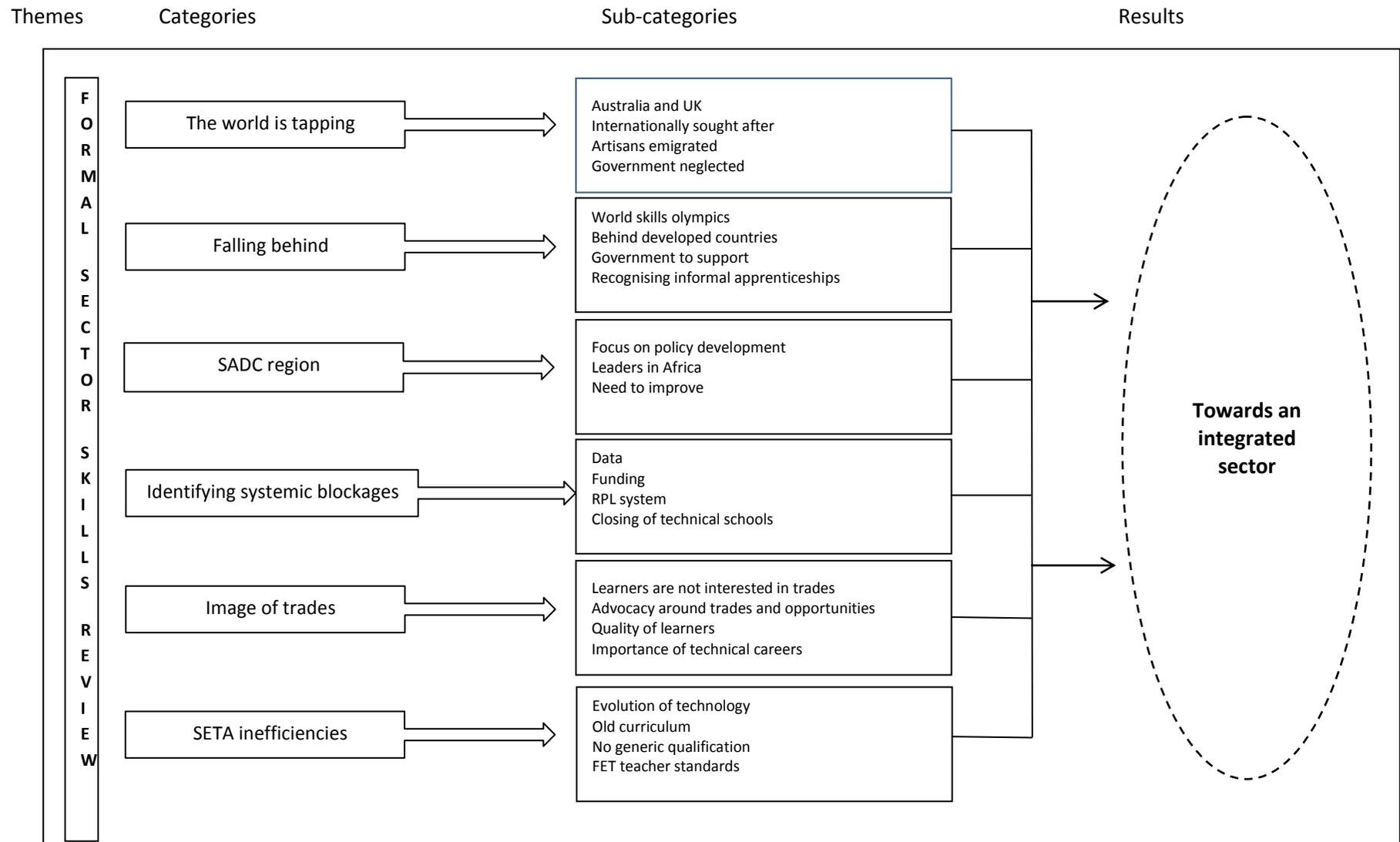


FIGURE 1: A visual representation of the formal sector skills review (Source: Jordaan, 2014)

## 5 Discussion

The objective of this article was to deliberate on the constraints leading to the shortage of motor mechanics in general. The participants concurred with the view of Taylor (2011), namely that the quality of the FET college system is directly related to the quality of the apprentices who are trained there. Apprentices are trained on outdated courseware because college lecturers may have fallen behind in their technical capabilities. There is a perception that FET staff may not have the competencies required, as there is currently insufficient capacity building at FET colleges, which in turn contributes to the market needs for the motor mechanic artisan trade not being met.

It is concerning that FET curricula are outdated and obsolete– they are using older types of equipment and motor-car engines, whereas the modern motor-car uses high-tech turbo engines with advanced autotronic systems. The participants agreed that even those lecturers who have an artisan qualification may not have been in the field for many years. They therefore tend to still teach apprentices on outdated technology. The situation is compounded by the rapidly changing technology.

The majority of participants agreed on the relatively poor image of the artisan trade. According to them, artisans have a low status because of a general perception in the community that they are not good enough. It is especially the “new generation” of youngsters who prefer to study management types of courses as opposed to manual/technical-related types of courses. In order to change this perception, advocacy or awareness around trades and related opportunities should be raised at school level. The issue of subject requirements for the school leaver to enrol for the artisan trades should also be addressed at school level. In addition, the issue of mathematics and science as school subjects was raised. Pure mathematics and science as subjects should be followed as opposed to the mathematical literacy subject that is currently being taken by learners.

The South African motor industry proposes that the status of the motor mechanic apprentice be changed to that of a normal student and no longer an employee. Participant (P13) stated that “*we believe an apprentice should be recognised as a learner and not as a full-time employee. The reason when you fail at university, you had your chances and then you are done. Here if you fail as an*

*apprentice, you then have to go through the whole process of industrial relations prescriptions to get you out of the system that can take anything from 3 to 4 months.” P12 explained that changing the status of the apprentice to that of a learner would benefit both the motor industry (employer) and the apprentice (learner). The employer could more easily replace the underperforming learner without following the lengthy employment relations process and the learner who performs according to the minimum requirements would still have all the benefits that go with those of full-time employment.*

## **6 Conclusion**

Obtaining a binding opinion that could overhaul current industry processes and streamline the intake, discipline and termination of learners in the automotive industry could address the unemployment phenomenon in South Africa. There should be some form of cooperation between the stakeholders to manage the constraints that are evident in the formal sector which contribute to the shortage of qualified motor mechanics. One such constraint is the outdated curricula that are currently being taught at FET colleges. The suggestion to change the status of the apprentice to that of a normal learner is a contentious issue which needs to be scientifically investigated to have the different stakeholders view on the issue.

## **7 Possible limitations**

Owing to the fact that this study was qualitative and focused on the motor mechanic artisan trade, the findings cannot be generalised to other contexts. Regarding the sample, experts from only the motor mechanic training environments were consulted. Other opinions, such as those of management and the human resources department were not solicited in this research.

## **8 Recommendations for future research**

Potential topics for further research would be to study changing the status of the apprentice to that of a learner as well as to determine how qualified artisans perceive the image of the trades.

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