CHAPTER 4: PRESENTATION OF RESEARCH FINDINGS

This chapter presents the research findings under headings, which derive from the research questions.

In what ways has the curriculum changed in the last five years?

“*Iya, there were changes in the new syllabus like what I’m saying in the Electrical Trade Theory N2 textbook has taken some of its things from the SABS code of practice because it now contains everything an electrician must know. So now what is actually happening, the SABS code of practice book is no longer the same, some of the things have changed, not everything in the textbook have (sic) changed, but since the textbook have (sic) changed, They didn’t change the Electrical Trade theory N2 textbook and [it] remained as it is*” (Educator 1)

This is one statement that recurred in many interviews. This educator is of the view that the textbook is the curriculum currently in use. She says that the electrical textbook uses extracts from the *SABS (South African Bureau of Standards) Code of Practice*. The Code of Practice is a set of rules and regulations from the supply authority which governs the wiring of electrical installations. An example might be of newly-built house. An electrical installation will be required, and before the building is supplied with electricity a municipal inspector will examine the installation. The inspector will conduct a number of tests to see if electrical installation complies with the code of practice or not. If there is no compliance then a certificate will not be issued.

I followed up with educator 2 to ask him to explain further. He said that before the Code of Practice changed it was called SABS 0142 and in 2001 it changed to *SANS (South
African National Standards) 10142. It was further revised in 2003/4. There have been significant changes in these rules, which warranted a change in the textbook. However, the textbook still reflects the old rules and regulations.

On the other hand, certain changes were acknowledged by educator 2 although he regarded them as minimal.

“If I had to look that time, the four final chapters of the book remain the same, according to me there was (sic) no changes on the curriculum, then on some of the N1 syllabus there was the old curriculum and the new curriculum there was (sic) changes in the book and things that they did change. Things that was maybe done in N2 they start bringing to N1 as well” (Educator 2)

The respondent acknowledged the structural changes that were effected in the Electrical Trade Theory N1 and N2 syllabuses. These changes are not seen as major and are not involved in the problem of keeping abreast with latest developments in the field. He added that in his view, except for curriculum re-organization, nothing had changed.

I took time to peruse the question papers for Electro technology N3 (April 2004 and April 1999). These were contrasted with the curriculum, which dates back to 1979. It was apparent that question papers were rooted in the 1979 curriculum. Between these two question papers, there was no difference in the content, layout and organization. These are attached as appendix B.

Educator 1 bears witness to this in saying “I’ve looked at…. Calculations a lot and when I look at the question paper even the question paper is still saying ehh. amendments as from 1993, so that means they’re also making use of the old syllabus, but the examiner doesn’t ask anything concerning that thing since the syllabus has changed”
The reference here is to the SABS code of practice, and shows that the examiner was aware of the changes, and that is why he/she had chosen to omit questions that related to what had changed.

“Report 190/191 has not changed” remarked the curriculum developer. He gave reasons for the stagnation in the curriculum, pointing out that there was no national policy governing the curriculum, and the FET Act of 1998 does not accommodate the entire college curriculum. The education specialist on the other hand pointed out there was insufficient funding, and therefore lack of capacity.

He mentioned plans to address the problem, particularly the college recapitalization plan to replace report 190/191. He envisaged unit standard-based qualifications in electrical engineering.

I followed up with the Chief Education Specialist to ask him to explain what report 190/191 is. He stated that it is a policy document containing all programmes that had been approved by the Minister of Education for FET colleges.

Curriculum change should be not something that is decided upon by one person; all stakeholders should be involved. As educator 2 remarked:

“Yes also you need your people to not also do the curriculum and the people who’s gonna change the curriculum it’s the industry, it’s the developers, management and also the education department must all those ones must be involved.”
The educators shared these sentiments, but educators do not know who was involved or should be involved in curriculum development. In general, educators agree that the curriculum should change, but for different reasons.

Educators feel that the syllabus is outdated and long, and maintain that there is a need to incorporate more practicals into theory. One educator cited the fast-changing technology as a drive for change in the curriculum.

“Technology changes, and because of the technology that’s changing like for instance in my time there was no PLCs programmable what you call controllers, many things become computerized but in our syllabus you’ll still do the old things, some of the things that can be removed but the basics you need still in your curriculum, the basics must still be there and then a few changes with technology. Technology changed, you can bring in new technology with the other work.” (Educator 2)

Educator 2 refers to PLCs (Programmable Logic Control). These are circuits used in automated equipment. One example is water level detectors. When the water level is below the ‘empty’ mark the circuit activates a water-pump, which pumps water into the reservoir until the ‘full’ mark is reached. The educator cited an example of technological change and the need for the curriculum to be in line with the changes.

Both educators agree that curriculum has not changed, and that it needs to change. It is also clear that the rules in the code of practice cited in electrical trade theory N2 had changed, not once but three times. The curriculum developer, who has been employed in his position for seven years, also said that the curriculum had not changed, and that the previous question papers do not reflect anything different.
From the perspective of employers, does the curriculum equip FET graduates to cope with the demands of the workplace?

I interviewed employers of four different companies, and asked if they still take graduates from FET College, if they considered that FET Colleges equip learners for the workplace, and what they thought colleges could do to keep abreast with the latest developments.

Companies still take learners from FET colleges, but in most cases they send their employees to these colleges, rather than recruit graduates:

“Yes, particularly fitter and turner, chemical or mechanical. Consol does not have a great need for electrical graduates from FET College, as our core business requires key skills of fitter and turner, mechanical or chemical. If we have to look for electrical skills we might look at National Diploma or degree.” (Ms Moodley – Training manager - Consol)

Ms Moodley expresses her company’s lack of interest in the college graduates. She says that they simply do not have a need for electricians, and that her company believes in ‘multi-skilling’. Instead of training and developing a graduate from FET College they would rather opt for a graduate from Technikon or university.

“... In that I would answer your question, I would say we normally do take students from colleges ...[but] we are not directly involved in the process of taking students from the colleges, Johannesburg ... they know the whole process ... of [inducting college graduates and the] criteria they actually ...[use] in order to take those students ..., after they have taken them, then they give us a schedule which I can show you a sample which I’ve got here. They give us a program that the students will come over here to ... that we may train them ... after training they go to other depots as well, where they receive training and later on they return to Johannesburg where they being sent from”. (Mr. Sefu – Senior training officer - Spoornet)

Here Mr. Sefu explains the process of inducting learners from the FET College. Although he is not clear about the criterion used, he knows that learners are inducted in the head office, which is in Johannesburg.
“Yes we do send our students here, because before a person, when there are certain requirements, before a person can qualify to come to undergo a training here at the Germiston diesel training centre. When they come from training, if they do not have N2, eh we send them to technical college and they do the courses that are relevant to the trade because there are certain courses that have to do like for our specific trade related subjects which will be a diesel trade theory. If they have diesel trade theory and other subjects along with it, I have got it in my documents here that will qualify them at the end of the training course to be able to write a trade test. If they don’t have the requirements to write a trade test they will be taken out of the system until such time as they are” (Mr Sefu)

Mr. Sefu points out a reason for sending learners back to the FET College, namely that they may sit for the trade test. Passing a trade test qualifies a person in a particular field, and in the case of electrical trade, a qualified electrician. There are, however basic requirements to writing the trade test. A candidate must have a minimum qualification of N2 level, obtainable from an FET College, and a minimum of two years experience in that field. Trade tests are developed and administered by the Department of Labour in Olifantsfontein. This is the sole reason why some companies feel compelled to send their staff and trainees to an FET College.

I must also note that in the diesel training centre the main trade is, naturally, diesel, and the electrical trade is a supporting one. When I visited Mr. Sefu at his centre for the first time to make an appointment, I found him in his laboratory with his trainees. The trainees were doing panel wiring. Panel wiring falls within the electrical field, as it is about wiring motors in various ways.

Most employers still hire graduates from the college. Among the personnel of the companies that I interviewed only one does not recruit new staff college from the FET Colleges. Nor is it a matter of reluctance on his part, but because colleges do not produce
graduates qualified in his field. He lamented: “I can’t really because like I said there’s no provision for them, you know.

We had to take a guy from the street, start training him into a lift technician”. Although Ms Mashinini of ESKOM agrees with other personnel managers in that they take graduates, she added that graduates had to be retrained: “Yes we do, however when they join us they need to be retrained on our job specifics” (Ms Mashinini – Senior training advisor)

The challenge for the FET colleges is to develop the capacity to deliver what their customers expect. Ms. Moodley commented:

“Yes, FET college gives the fundamentals and glass specific training can take place on a job”

It seems as if Consol glass sends to a college to acquire basics. Educator 2 and Mr. Leon Theron of Omega Lifts agree: “I would say 30%, 30% look basics never changed, ja, the basics of the electricity never change, ja”

On the other hand Mr. Sefu of Spoornet is of the view that colleges fully equip learners and empower them for the world of work. He stated that he believes that colleges have kept abreast with the latest developments.

“I would say ...yes ...I think the skill that they acquire from technical colleges are actually in line with the requirements of the company, ...due to the advances in technology I believe also that the colleges are...their materials are and everything that is needed to be upgraded with the new technology, okay” (Mr. Sefu)

I asked if he had studied the college material to see if it was is in line with the latest developments in the field. He had this to say:
“Not actually that I believe ... not actually that I have gone there physically but I believe that the technical colleges are keeping themselves updated in things that are happening in the modern technology” (Mr. Sefu)

To me Mr. Sefu has put his faith in the FET colleges to do what is expected of them. He never interacts with the colleges or reads their materials, nor enquires on the courses are offered. I suppose that this is not one of his responsibilities, or perhaps it is a lack of interest.

“I believe that somewhere as well in the company, probably there are people that are paying visits to the technical colleges to see that, what is being done there is relevance to industry and all that” (Mr Sefu)

On the other hand Ms Mashinini of ESKOM does not think that colleges adequately equip graduates for the world of work. Mr. Theron of Omega Lifts maintained that a very small portion of what is taught is relevant to his field. It has been a common trend, however, that colleges receive on the on-the-job training graduates before they are assigned to tasks. The following is one of the reasons that were cited:

“No we don’t put them to task right away, they need to be introduced to the environment where they will be working, and they need to be introduced to the equipment with which they will be working. Before they can know actually be permitted to work by themselves, because you might find that some of the equipment on which they gonna work on they not very familiar with it. Although they have knowledge, they have knowledge to handle the equipment they not yet familiar with it, and they need in a certain way to be introduced to those” (Mr. Sefu)

“Yes we do; however, when they join us they need to be retrained on our job specifics” (Ms Mashinini).

Ms. Moodley endorsed Ms. Mashinini’s comments and added that college gives learners the basics. Ms. Mashinini concluded, “No, they are not well prepared to face the workplace challenges”
In summary, employers have differing opinions. One employer believed that knowledge acquired at the college was current and relevant, which in turn empowered the graduates for the world of work. Other employers were of the view that graduates are not properly equipped with the necessary skills and needed further training. They all agreed that graduates needed training on site.

Colleges have a duty to keep abreast with the latest developments in the industry and rapidly changing technological advancements. This could be through establishing partnerships with the industries themselves. This is ideal as college’s product is supposed to be absorbed by companies. Generally all my respondents agreed with this idea.

“I think FET colleges should stay in touch with latest technological advancements” (Ms Moodley)

“I think the technical colleges maybe, I would suggest is that if they can organize themselves in such a way that they visit for ... may say at least once or twice to visit the industry to see what new developments are happening in the industry and all that, and this way that they will be able to deliver the right product meaning students to interest industry, that will be able to cope with what they gonna find in the industry” (Mr Sefu)

Ms. Mashinini made the point that colleges operate on the supply side without taking cognisance of the demand. If partnerships are to have mutual benefits, colleges need to know what changes are taking place, and the skills required in the industry. On the other hand, industry will benefit by receiving a well-equipped supply from the college. Industry should also play a role in the development of the curriculum, to give them a sense of ownership.
“They need [FET colleges] to be responsive to the need of the industry, to balance the supply and demand. They can’t just continue training on skills that are not required by the industry. They must also form partnership with industries to understand their business requirement” (Ms Mashinini)

Mr. Theron of Omega lifts was of the view that it about time the college took the lift industry into consideration. He mentioned that the lift industry is big and growing, and deserves recognition by educational institutions. He commented:

“... with elevator industry there are about 33 000 elevators in Johannesburg no in Johannesburg in South Africa you know, that’s a growing industry...all over you come there is. I think what the colleges could do is start looking at the government; they’ve got provision for electricians. They should start making provision for something like this that is right” (Mr. Theron)

Employers like educators and learners are of the view that partnerships with the companies should enable colleges to know about the developments that are taking place. In doing so, colleges will better equip the learners with the skills required by the workplace. Mr. Theron concluded:

Do FET graduates feel that they have been appropriately equipped through their studies to cope with the technological demands of the workplace?

The learners cry out for practicals. They feel that without this component they are doomed. On question of what colleges could do to remedy the situation they find themselves in, they presented a number of suggestions. They proposed that FET colleges should combine theory and practice. Educators also expressed this view, that learners really need to know, see, and apply what has been taught.
“... It will enhance factors, understander, if you have to something about; DC ..., DC motor, AC motor ..., capacitancy and all those kind of things, what they should do is probably they should take something like a practical examination ... understander? To show ukuthi eintlik you are going to a point whereby you say ukuthi now you understand what are they talking about you know about...” (Learner A)

To me it seems that most of the time learners have difficulty understanding basic concepts due to the theoretical nature of the course. One learner added that it would be proper for college to develop partnerships or links with companies so that learners could quickly apply the knowledge and skills acquired at college.

“I think in my own opinion, I think if maybe the colleges could have a sort of ... contractual agreement with some certain companies so that maybe at a certain level maybe when you finish N4 and then you go to the particular company, that particular company equips you, have experience with the...the skill in the workplace itself so that when you do let’s say, maybe from N3, N4 level whatever you do at the college you must apply it on the workplace as well, so that when you go up to N5 and N6 you actually...you can best apply that knowledge that you get in the college by time you are doing it.” (Learner B)

Learner C on the other hand took another view, “I think if the college could offer courses that are offered by companies then there won’t be a need for companies to offer training” (Learner C). This learner echoes one of the employers, who said colleges should look at the demand side and respond accordingly. She suggested that courses be tailor-made for companies. In that way companies would not have to train candidates themselves.

Learners had mixed feelings about whether or not what is taught at colleges is relevant to the tasks performed in the workplace. Some viewed colleges as empowering to a certain extent, except for the lack of a practical component.
“Yes definitely, after the theory when I got practicals within my workplace, I found that it is relevant to what I was learning” (learner D).

On the other hand there were those who were not satisfied. These learners charged that curriculum was irrelevant to their jobs. Others claimed that only a small percentage of the curriculum was applicable.

Learner C claimed that FET colleges are contributing to the high number of the unemployed.

“No, there are too many people who are sitting at home with their college experience. Other people are doing jobs irrelevant to whatever the training they had at the college. I am one of those people who are fortunate to have a job with the college experience” (Learner C)

This suggests that most learners do not get employed after graduating and end up idle at home, or doing jobs they do not want. As a former lecturer I can relate to this. There are good learners whom I saw working at supermarkets, lamenting lack of employment.

FET colleges should empower and prepare learners for careers in the workplace. This adaptation process in the workplace should at least be less complicated. The question is whether or not FET colleges can make learners thrive in the world of work. The learners themselves had something to say on the question of whether colleges enabled them to fit well in the world of work or not. The following were some of the responses:

“Iya, without practicals it is difficult you see because you will be dealing with something you didn’t have in hand and practical with it but the difference that I would say is theory is far too different, cause like for instance you talk about a motor nobody knows what is a motor, you see but he theoretically knows what is a motor, but he has never seen a motor before you see.” (Learner D)
This statement made by this learner mentions again to the issue of practicals; without this component it is difficult to adapt without on-site training. All but two of the learners felt that colleges lacked capacity to empower and prepare the learners for workplace.

Learner B held a different view “... I would say maybe depending on the job that you’re doing, depending on the company itself that you are working for and... I think it empowers me.” (Learner B) This learner raises the point that not all companies are the same. In his thinking, he is not limited to the company he works for, but has a wider view.

Learners generally said they undertook to some form of on-site training prior to starting their actual tasks. There were a number of reasons given for this training.

“I had to undergo a three months training, and afterwards I was given a mentor for a month. Practical experience is non-existent, and college knowledge does not apply and that is why we have this training” (Learner C)

This learner puts the blame on the college. In her view, no relevant knowledge and skills were imparted to learners to help them cope in a work situation.

In summary, learners are divided on this question. Certain learners felt that colleges were empowering, and could help learners thrive in the workplace. Others, though, said colleges did not empower learners and contributed to joblessness. What stood out was the absence of practicals, which made it difficult for the learner to gain a thorough grasp of what was taught.
Does the teaching staff employed at the FET colleges consider the curriculum to be relevant and current, and able to empower students to be responsive to the demands of modern society?

Educators in general did not express confidence in the curriculum, and were less optimistic about the job prospects of their learners. The inadequacies of the curriculum were seen as the reason, especially the non-existent practicals.

“Let’s say that particular student goes for an interview and they ask questions concerning the content, then it’s whereby the student will have a problem and even when it comes to the fact that he has to go to the workplace and work, but he will have some of the problems because this have changed and you know them the other way around of which now, for example, I’ve just said the volt-drop calculations…” (Educator 1)

Conclusion

This chapter presented the major findings of the research. The next chapter discusses these findings in the light of the literature reviewed in chapter two.