Retention and attrition among National Certificate (Vocational) Civil and Construction students in South African TVET

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Retention and attrition among National Certificate (Vocational) Civil and Construction students in South African TVET

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Abstract
The National Certificate (Vocational) (NC(V)) was introduced into South Africa’s system of vocational training to ‘solve problems of poor quality programmes, lack of relevance to the economy, as well as low technical and cognitive skills of TVET [technical and vocational education and training] graduates’. The NC(V) did not, however, meet expectations, partially because of systemic difficulties. This article reports on research conducted among students who studied on the NC(V) Civil and Construction programme in an effort to identify appropriate corrections that could be made by college management. The research project made use of Tinto’s Student Integration Model to identify reasons for both student attrition and student persistence. The study provides information on the predicament facing TVET Civil and Construction students and has broad relevance for practitioners operating in higher and post-school education.

Keywords
Comparative VET, dropout, student retention, Tinto, VET and economic development, vocational education and training

The National Certificate (Vocational) (NC(V)) programme was introduced into public technical and vocational education and training (TVET) colleges in South Africa in 2006. It was intended to provide students with an opportunity to acquire knowledge, practical skills, applied competence and the understanding needed for entry into a trade or similar occupation. However, the NC(V)’s lack of acceptance by industry and its student profile created credibility challenges. Furthermore, pass rates were initially, and continue to be, low and attrition rates are high.

This article provides information on a qualitative analysis of retention and attrition on one of the specific vocational programmes that formed part of the broader NC(V) offering: the NC(V) in Civil and Construction, which prepares students for entry into the building industry. The building industry is important for the provincial economy and continued existence of the college at which the programme is offered. However, pass and completion rates on the NC(V) in Civil and Construction have been low. This article reports on the views of students, some of whom completed the programme and some of whom did not. The article makes use of the Student Integration Model and shows that learning ability is but one of several factors contributing towards attrition. Other factors include the nature of the curriculum and practices within the college.

Transformation of TVET and the retention challenge
TVET in South Africa dates back to the start of the previous century. Its structure is largely based on British vocational systems, adapted to suit the requirements of the apartheid and post-apartheid state. Its objective is to provide education and training for students who left mainstream schooling without completing it (Lawrence, 2017: 17). In addition, TVET colleges also provide
education and training for mid-level skills in engineering and other related industries to develop the South African economy.

The apartheid state requirement for race-based systems of education and training resulted in a complex array of institutions offering largely the same vocational qualifications at different institutions which had been developed for different designated race groups. Post-apartheid structural and curriculum changes were intended to make education and training equally accessible to race groups that had been denied such training or that had had limited access to it (South Africa, 2008a: 38). The post-apartheid state therefore faced the challenge of integrating its disparate race-based vocational education structure, which consisted of ‘152 technical colleges located in numerous education departments, each department with its own system of government, management and funding mechanisms’ (South Africa, 2013: 12), into a single system with a credible programme structure.

Initial restructuring

Structural transformation was achieved between 2002 and 2006, when the technical colleges were merged to form 50 overarching college administrations dispersed across approximately 254 college campuses (South Africa, 2013: 12). During the merger process, the new multi-campus colleges were named further educational and training (FET) colleges. They were later renamed TVET colleges in 2012.

Curriculum transformation materialized in 2006 with the roll-out of 11 programmes called the NC(V) at levels 2, 3 and 4 of the South African National Qualifications Framework (NQF). The first, level 2, was introduced in 2007, followed by level 3 in 2008 and level 4 in 2009. Initially, the NC(V) was to replace existing curricula and serve the country’s broader aim of post-apartheid social transformation. Subsequently, it has become one of a range of programmes offered by TVET colleges.

The state’s intention in introducing the NC(V) was to ‘solve the problems of poor quality programmes, lack of relevance to the economy, as well as the low technical and cognitive skills of TVET graduates’ (South Africa, 2010: 41). At the time of implementation, the state noted, in the Government Gazette that introduced it (South Africa, 2006: 12), that the NC(V) would enable students to acquire the necessary knowledge, practical skills, applied competence and understanding that are fundamental to finding employment at the basic level of a particular trade or occupation. The South African College Principals’ Organization (SACPO) (South Africa, 2007) noted that its introduction was a major achievement of what was then called the FET college sector.

Soon after the introduction of the NC(V), the state noted in its national review that:

- the NC(V) did not meet all its intended needs;
- it lacked universal support from industry; and
- its success and completion rates were generally regarded as poor and it faced a shortage of ‘universal support’ (South Africa, 2010: 41).

The NC(V) was, in fact, widely criticized. Shortly after implementation, Papier (2009: 5), in a report of the Further Education and Training Institute, noted that challenges related to the implementation of the new curriculum had surfaced ‘during the preparation and implementation of the new curricula, [when] systemic problems came to light and were conveyed to the relevant authorities’.

The report’s commentary on completion rates was also accurate. Citing the NC(V)’s Electrical Infrastructure Construction programme, Papier (2009: 18) recorded that six colleges offered it and had registered 849 students for level 2 in 2008. Of these, 640 took the final examination but only 68 passed and were certificated. Low success rates on TVET programmes were, however, not limited to the NC(V). Analyses provided by similar studies of other forms of vocational education conducted by Koen (2007) and Maharaj (2008) at the time, and earlier by Savage (2001), indicated a systemic lack of success and argued that the lack of success could not be attributed only to student inadequacy.

The introduction of the NC(V) therefore highlighted a number of issues, one of which was the problem of retention in the country’s TVET system.

Subsequent restructuring efforts

Following the initial restructuring of TVET, the Department of Education was divided into two, resulting in the establishment of the Department of Higher Education and Training (DHET), within whose ambit FET, renamed TVET, was located. DHET published blueprints for the further transformation of the post-school education sector in the form of Green (South Africa, 2012) and White Papers (South Africa, 2013). It also instituted reporting mechanisms, resulting in the publication of college performance.

Launching the White Paper for Post School Education and Training (South Africa, 2013), the Minister of Higher Education and Training outlined the DHET’s focus and priorities and its strategies and plans for the future. According to the Minister, the intention of the White Paper was to begin the creation of a responsive education and training system that would address broader societal and developmental objectives by expanding access and improving the quality of teaching and learning. The intention was also to increase diversity and create
opportunities for workplace-based learning (South Africa, 2014b: 3).

Despite the Minister’s stated intention, pass rates and retention levels have remained low. Table 1 shows the pass rates from 2011 to 2014 for the new NC(V) programme and the NATED N32 that it was to replace (but did not) and the NATED N6 on to which NC(V) and N3 students progress. The table shows the numbers of students in TVET who took and completed national vocational qualification programmes.

NC(V) Civil and Construction

In 2016, a study was conducted at one TVET college in Western Cape province to identify specific, local-level reasons for academic failure and attrition. An analysis was carried out of the NC(V) Civil and Construction programme. This is a relatively small, but economically important programme, with most students enrolled at one college. As for other programmes, its retention rate has been low. Table 2 shows the certification rates for the NC(V) Civil and Construction from 2009 to 2013.

Methodological considerations

Interviews were conducted with six students who studied on the NC(V) Civil and Construction programme and were willing to take part in the investigation. These students were separated into two groups. Three were dropouts, having left the NC(V) programme prior to completion, and three were students who had completed the programme. Each participant was asked 10 open-ended questions. Questions 1 and 10 concerned the decision to stay or leave, questions 2 to 7 concerned their experiences of the programme and questions 8 and 9 explored their reflections on their experiences. The DHET’s ethics requirements were fulfilled. For compliance with the rules of the university overseeing the research project, informed consent from each interviewee was acquired prior to the interviews.

The analysis of responses was based on the work of Tinto and, similar to his work, is located within the critical paradigm. While the size of the sample influences statistical validity, the in-depth nature of the interview process and the sampling method enhance content validity. The size of the sample must give rise to reservations about the study’s generalizability; the study does, however, provide a clear indication of the dynamics applicable to one, relatively large industry and points to corrective action that could be taken by the college management.

Tinto’s model of student attrition

Tinto’s work dominates discourses on attrition. In contrast to a singular focus on the individual’s psychological issues as a causal factor for student failure and as dropout predictor (Laskey and Hetzel, 2001: 34), Tinto (1993) focuses on dual responsibility and relations within academic settings.

Tinto (1993: 92) refers to Van Gennep (1960) and his research on the ‘rites of passage in tribal societies’. Van Gennep’s (1960) anthropological study, as described in The Rites of Passage, is used as a framework by Tinto to develop his theory of student dropout rates. Tinto (1993: 91) describes Van Gennep’s (1960) envisioned life as ‘being comprised of a series of passages leading individuals from birth to death and membership from one group to another’. These so-called rites of passage are referred to as the ‘stages of separation, transition and incorporation’ (Tinto, 1993: 92):

### Table 1. Completion rates, 2011–2014, for NC(V), NATED N3 and NATED N6.

<table>
<thead>
<tr>
<th>Year</th>
<th>NC(V) L4</th>
<th>Completed</th>
<th>NATED N3</th>
<th>Completed</th>
<th>NATED N6</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number enrolled</td>
<td>Number</td>
<td>%</td>
<td>Number enrolled</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>2011</td>
<td>17,836</td>
<td>7638</td>
<td>42.8</td>
<td>2909</td>
<td>1366</td>
<td>47.0</td>
</tr>
<tr>
<td>2012</td>
<td>15,334</td>
<td>6018</td>
<td>39.3</td>
<td>9928</td>
<td>3742</td>
<td>37.5</td>
</tr>
<tr>
<td>2013</td>
<td>22,470</td>
<td>8346</td>
<td>37.1</td>
<td>65,788</td>
<td>26,186</td>
<td>39.8</td>
</tr>
<tr>
<td>2014</td>
<td>22,705</td>
<td>74,710</td>
<td>34.5</td>
<td>35,782</td>
<td>47.9</td>
<td>68,678</td>
</tr>
</tbody>
</table>

Source: South Africa (2014a: 26).
Note: NC(V): National Certificate (Vocational); NATED: National and Technical Education Department.

### Table 2. NC(V) Civil and Construction: pass rates, 2009–2013.

<table>
<thead>
<tr>
<th>Level</th>
<th>2009 (%)</th>
<th>2010 (%)</th>
<th>2011 (%)</th>
<th>2012 (%)</th>
<th>2013 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2</td>
<td>3</td>
<td>7</td>
<td>18</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Level 3</td>
<td>16</td>
<td>16</td>
<td>29</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Level 4</td>
<td>10</td>
<td>13</td>
<td>24</td>
<td>3</td>
<td>17</td>
</tr>
</tbody>
</table>

Note: NC(V): National Certificate (Vocational).
Attrition, according to Tinto (1993: 55–56), ‘arises from individual isolation, specifically from the absence of contact between the individual and fellow members of the social and academic communities of the institution’. Tinto (1993: 49) argues that most departures are ‘voluntary in the sense that they occur without any formal compulsion on the part of the institution’. He adds that, rather than mirroring academic difficulties, ‘these attributes reflect the character of the individual’s social and intellectual experience within the institution’. According to Tinto (1993: 50), ‘the more satisfying those experiences are felt to be, the more likely students tend to stay and complete their studies’. Conversely, ‘the less integrative they are, the more likely are individuals to withdraw voluntarily prior to completing their course of study’. It is for students to be, and to feel, part of an institution and its social environment.

Tinto’s work has been critiqued, but it remains a useful tool for analysing student retention and has been widely applied in analyses of student attrition in South Africa (e.g. Koen, 2007; Maharaj, 2008; Papier, 2009; Pather, 2015; Savage, 2001).

Tinto’s model was used for this study because its applications in earlier work on attrition in South African TVET enable national and sectoral comparisons. Furthermore, it provided a framework with relatively clear benchmarks. Through in-depth interviews, it was believed that students’ reasons for early departure and persistence could be identified by analysing the extent to which they had experienced separation from earlier identities, followed by transition to and incorporation into TVET-related identities.

**Reasons for early departure**

Early departure was not an easy subject to discuss, even though participation in the research was voluntary. Despite the fact that the interviews were held quite some time after the event, the students still regarded their departure as a serious, and in one case emotionally disturbing, event. The reasons for early departure from the programme may be summarized as feelings of isolation, curriculum content, the programme administration and financial constraints.

**Isolation**

From the available research on early departure, particularly that of Savage (2001), social isolation was expected to be a major factor contributing to attrition. Social isolation, Savage (2001: 42) argues, is the result of ‘students having limited contact with other students and staff members that could lead to a lack of the necessary emotional support to help with the adjustment process’. Apart from isolation, dropping out can be caused by a number of other factors, including unrealistic expectations and a deficiency in initial support (Cook and Rushton, 2009), inappropriate placement (Sefa Dei et al., 1997), lack of satisfaction (Koen, 2007; Savage, 2001) and inappropriate retention strategies (Cook and Rushton, 2009). The first factor (isolation) could be attributed to separation (Tinto’s stage 1) from pre-college roles not occurring, while the last three factors (unrealistic expectations, inappropriate placement and support deficiency) could be attributed to problematic transition and incorporation (Tinto’s stages 2 and 3).

The interviews identified social isolation as a factor contributing to attrition. The interviewees who had left the programme prior to completion indicated a low level of satisfaction with their college experience – at least lower than they had expected. They were less engaged with peers and structures in the institution. Tinto’s general point that isolation is a cause of early programme departure was therefore confirmed in the interviews.

**Curriculum content**

It emerged from the interviews that the students who had left the programme prior to completion had done so primarily because the content had not met their perceptions of what a TVET institution and curriculum should offer. They thought there was too much theoretical content in the programme, arguing that they had left school and had done enough theory. Some interviewees found the school-like theoretical focus challenging – that focus was the reason they had left school and enrolled in a TVET college. They had expected that they would be exposed to practical work at the TVET college. One interviewee expressed his discontent as follows:

> I came to the college with the expectation of much more practical [work] in the NC(V) programme. But my experience with so much theory and so little practical was not such a nice experience of the lesson.

The students believed that the NC(V) programme was designed to train artisans and would therefore be practical in nature, and they had been looking forward to such practical learning. Thus the lack of practical work had created a negative experience.

In contrast to the negative experience of the curriculum, interviewees were positive about the support they had...
received from those whom they met at the TVET college, describing them as friendly, polite and usually helpful. Interviewees also expressed appreciation for funding assistance in the form of a state bursary: they felt this had been the college’s way of supporting them and expressed gratitude for the Student Support System. Some staff members, furthermore, had assisted with matters of a personal nature.

The perception that there was too much theoretical work was, therefore, another clear cause of early departure. One interviewee stated:

I do think, as students, we should have had more practical [work]; then we would have benefitted even more. Many of the lecturers would try their best to help the students to understand the work that they cover during a lesson. If the lecturers knew that there was something in the workshop that they could show us how to get a better understanding.

As shown above, theory-based learning was something that interviewees associated with their school-based learning and that carried with it negative associations – so encountering it again at college caused immediate resistance.

**Administration processes**

The length of time students had to wait for the publication of final marks was a significant factor behind departure prior to completion. The NC(V) is an externally assessed national programme, and results are published and issued by DHET. Publication of marks takes up to 2 months.

The interviewees felt that they had to wait too long for results or at least longer than they had expected. In one case, the lack of information on progress resulted in students not registering for the next level of the programme or not applying for funding. This uncertainty caused frustration, leading to departure prior to completion. As one interviewee stated:

I was unable to apply for a further bursary as I was unsure whether I had passed the examination of the previous academic year.

**Financial constraints**

Two of the students who left before completing the programme did so because of financial constraints. One did not return for level 3, the second year, as his marks had not been published and he could not apply for funding through the state’s national funding scheme. Another managed to access the funding scheme. However, while he did not admit to losing the money, he noted that the household where he lived ‘had some domestic challenges, since there was no steady income due to unemployment’ and ‘some of the family members used drugs’ (Lawrence, 2017: 65).

**Reasons for programme completion**

Unlike leaving the programme prior to completion, which was a traumatic experience, persisting in it was discussed with pride. Furthermore, while the early departures were attributed primarily to extrinsic factors, intrinsic factors, like perseverance and understanding, were more apparent in the responses of those who had completed the programme. The primary reasons identified for completion were an understanding of the academic and administration processes and the support received.

**Understanding processes**

According to Thomas (2012: 12), students who do not consider leaving appear to have a better understanding of college processes and are more likely than those who do not complete a programme to have more positive relations with lecturing staff and other students. The interviewees who completed the NC(V) Civil and Construction corroborated this view. One noted, ‘I needed to start somewhere, and what better programme other than NC(V)?’

**Student support**

The interviewees noted that their expectations of support from the college had been exceeded and that many of the lecturing staff had gone ‘beyond the call of duty’. The state bursary and provision of textbooks and stationery were further motivators to complete the programme. Two interviewees noted the positive impact of the institution and lecturers, which had influenced their decision to stay on the programme and complete it. As noted by one interviewee:

A few lecturers supported me well as well as my fellow students. The lecturers would encourage me personally to do better with my work and to pay keen attention when they as lecturers would speak to us. As students we also support one another so that we all could do better.

**Other factors**

The students who completed the programme had a determined focus. They indicated that they had wanted to complete the programme successfully and that their interest in it developed from the start. New learning experiences, they claimed, had created awareness and encouraged them to remain on the programme. They said that they watched individuals working on construction sites and saw themselves working in the ‘trade’.

Work-related factors also emerged as reasons for remaining on the programme, with one interviewee commenting:
My plans are to go to N4 next year and I think it was the best decision I have ever made to complete the NC(V) programme [... ] it would not be wise for me to turn back now when I have come so far.

The negative influence of theory-based learning

As it had been for those who had departed from the programme early, the curriculum’s theoretical emphasis was a concern for the students who had completed it, particularly for those who were challenged by school-based learning processes. The interviewees who noted the learning challenge, however, remained positive about the programme. They expected the practical element of the programme to be more than it was. One interviewee stated:

I think we should do more practical and less theory, especially for the students who will be enrolling in the future. So even though my experience when I was at the college did not match with what I was looking forward to, I still remained determined to complete the programme.

In contrast to the cognitive and personal challenges that had caused some students to leave the programme prior to completion, the interviewees who had completed it did so because of a combination of factors. They accepted college processes, even if they disagreed with them or struggled with the work required. In terms of Tinto’s model, those who completed the programme succeeded in the transition (Tinto’s level 2) from school-based learner to vocational learner. They succeeded in laying the foundations for incorporation (Tinto’s level 3) into their chosen career, preparing themselves for it by completing a programme that, in the words of one interviewee, gave ‘me and the other students content knowledge’ – although, he continued, ‘I would have liked to put that theoretical information into practice in the workshop or on a construction site’.

Our finding that learning success results from successful transition correlates with the findings of other studies. Thomas (2012: 13) indicates that success is associated with two important elements – a ‘sense of belonging’ and ‘engagement’. At the individual student level, the sense of ‘belonging’ derives from subjective feelings of relatedness or connectedness to the institution. ‘Belonging’, according to Thomas (2012: 13), ‘can be seen as taking an individualistic view of student retention and success’. Students whose social structure is at odds with that of their higher education institution may feel that they do not fit in, that their social and cultural practices are inappropriate and that their tacit knowledge is undervalued and, therefore, may become more inclined to withdraw early. (Thomas, 2012: 13)

Expressing a similar view, Ebrahim (2013: 29), in a study of the success of students with diagnosed disabilities at TVET colleges, argues that their success derives from a desire to improve their standard of living by finding gainful employment; in the process fulfilling their vision of successfully preparing for careers and becoming ‘something in life’.

It is clear from interviews conducted in this study that the reasons behind early departure and decisions to persist with and complete the NC(V) programme can be related both to the individual and to the institution. Working towards the achievement of personal goals and not succumbing to feelings of isolation are factors that individuals must grapple with as they assume their identity as college students. Curriculum content and programme administration, on the other hand, are college-related factors. Even in the case of a predetermined national curriculum, curriculum delivery and administration can be used as tools for student introduction (separation from earlier identities) as well as the transition into and incorporation of new student identities. In addition to directly influencing the student experience through curriculum delivery and the administration system, these factors can also be used by college management to improve student satisfaction, thereby contributing towards student entry, transition and incorporation into the college.

Conclusion

This research highlights reasons why some students drop out of the NC(V) Civil and Construction programme at a TVET college in South Africa’s Western Cape province. The study also provides insights into why other students complete the programme. The interviews conducted indicate that some students were overwhelmed by the curriculum content because their prior learning did not equip them adequately for the programme. Furthermore, porous support mechanisms and a shortage of finance had contributed to the early departures. The interviews conducted with students who had completed the programme, in contrast, illustrated that an appropriate focus and orientation result in success.

There is clearly scope for colleges to improve their mechanisms for student orientation and curriculum presentation. The nature of the curriculum and its presentation are not unimportant factors, but the dearth of appropriate orientation programmes for new students means that they are not provided with information on the nature of the curriculum and potential pitfalls. The provision of adequate orientation programmes, supported by classroom-based follow-up and work-related presentation of theory, could achieve a reduction in attrition by assisting in the separation of pre-college learner identities and the transition to and incorporation of new identities.
Declaration of conflicting interests

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Notes

1. In terms of the National Qualifications Framework (NQF) Act (67 of 2008) (South Africa, 2008b: 6–8), the NQF comprises a 10-level system of learning achievement. Levels 2 to 4 form the further education and training sub-framework. This is the sub-framework in which the school-leaving certificate and the three levels of vocational education and training are located.

2. NATED is an acronym for the TVET college National and Technical Education Department programmes, known as Report 191 programmes, promulgated in the early 1990s by the Department of National Education. The Department of National Education was disbanded as part of the post-apartheid reconstruction of the country’s education and training system. NATED programmes are offered at six levels, from N1 to N6. Each level involves a 6-month certified programme. N1 entry has a minimum age requirement of 16 years. N3 is equivalent to a school-leaving certificate. N4–N6 provide a total of 18 months of post-school education.

3. ‘Departure’ is described as the act of leaving something or a programme at a particular time without completing it (Bullon, 2004: 491).

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