

# An analysis of Completion and Retention of a Graduate Diploma

**Christo Potgieter**

Wintec

[christo.potgieter@wintec.ac.nz](mailto:christo.potgieter@wintec.ac.nz)

**Bruce Ferguson**

Wintec

[bruce.ferguson@wintec.ac.nz](mailto:bruce.ferguson@wintec.ac.nz)

## Abstract

Programme management appears to be becoming more “professionalised” in the ITP sector in order to meet several TEC expectations (2007), such as high student success rates. NACCQ, operating under ITPNZ, manages several qualifications and associated practices. McCarthy (2007) raised the matter of retention, covering work of Scott (2005) and others, but no papers followed since at the annual NACCQ conference. This paper presents a case experience at one institution towards further work on this very important matter. We are reporting our experience in analysing data for the management of student success in one programme with very high International student numbers, where the Code of Practice for the Pastoral care of International Students (2003) also apply. We noticed overall good pass rates, but also a tendency for students to fail either no or most modules and relationship between attendance and pass rates. We especially became aware of the need to take more than an elementary on-the-surface look at data, as it could be very misleading and unsatisfactory for everybody involved. More formal research can now be planned. We believe our insights and process would be useful to others even though it does not sit in the framework of ICT teaching contents proposed by Simon (2007) and used by Simon et al (2008) when profiling NACCQ conference papers 2000-2007.

*Keywords:* Computing education, International students, Completion, Retention.

## 1 Introduction

TEC stated several expectations regarding learning outcomes, including bottom-line measures such as completion and retention (2007). Acknowledgement needs to be made evident in the documentation of each institution, such as in business plans (2007, 2008), reports (2008) and quality systems activities (2008).

McCarthy (2007) raised the matter of retention at a NACCQ conference, covering work of Scott (2005) and others, but since then no papers followed at the annual NACCQ conference. McCarthy’s paper focussed on actions that could be taken while ours is one of several submitted for 2009 NACCQ conference where we share some of the complexities of interpreting data for making decisions about possible actions.

The Graduate Diploma in IT (GradDipIT) at Wintec is open for students already holding a degree in any field. During the 2008 academic year student numbers grew

dramatically, and students were with almost exclusion, from India. At the end of the year, as part of end-of-year resulting and in preparation of our Annual Programme Report, we asked ourselves questions about the overall outcome. We looked at pass rates, class attendance and student satisfaction, all considered by TEC to be managed closely. Insights for the next intake were valuable.

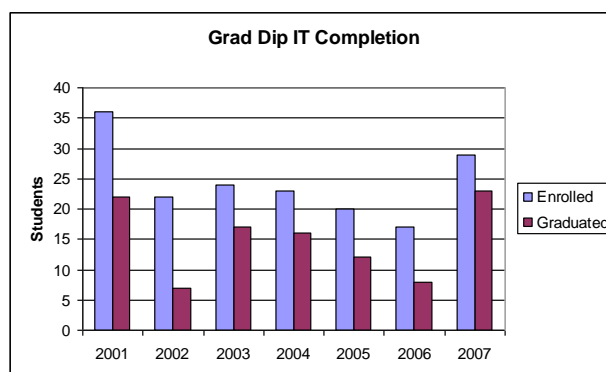
The benefit of analysing a programme with mostly International students is that we can experiment in an environment where TEC have reduced vested interest. This can then feed enhancements elsewhere, apart from the obvious benefit of looking after International students as indicated in the Code of Practice for the Pastoral care of International Students.

GradDipIT had its first intake of students in 2001. The latest year with “settled” figures is 2006. In 2007, the numbers include a significant group who began in summer school (November 2007) so most of their final outcomes are not yet known.

## 2 Completion

Completion is easy to define, being those students who graduate with the qualification. The GradDipIT is a one-year, full time programme, which may also be done over two or three years part time. No analysis of time taken to completion has been done. Completion figures have been restricted to programme only, as module statistics are time-consuming to obtain and analyze and does not indicate the success of the qualification.

The two charts below show completion rate history from 2001 to 2007. The aggregated completion rate for 2001-2007 is 62% - that is, of all enrolments, 62% have graduated or are still in progress and enrolled. This means of all the students who enrolled since 2001, nearly two thirds were awarded the qualification.



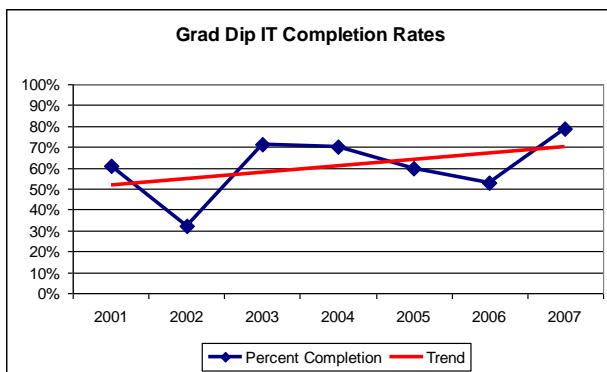
NOTE This graph groups cohorts of students together. That is, a student who enrolled in 2001 and graduated some time later will

have his (her) graduation shown against 2001, even though it may not have happened until 2002 or later.

**Figure 1: Overall Completion proportions**

In addition to those who completed the qualification, a further 13% have passed all modules attempted but have not completed. The nature of the GradDipIT is that many students are in full time employment, which can mean that other priorities intervene from time to time. In theory, this 13% could return to complete their GradDipIT, so there is a “potential” completion rate of 75%.

Of those left, 2% transferred to other qualifications within Wintec, and 23% failed modules and did not return. This proportion is of concern to us but we were unfortunately unable to clearly determine reasons.



**Figure 2: Completion trend**

The completion rate for GradDipIT in 2006 was 53%. That is, 53% of the students who enrolled that year, completed their studies successfully and was awarded the qualification. This compares favourably with Wintec’s reported actual figure for 2007 across all programmes of 49%. Obviously several students then completed the remaining modules in 2007, so by then end of that year the number of successful students from the original intake was substantially higher.

In Scott’s study (Scott, 2005), the first comprehensive longitudinal study of tertiary completion rates in NZ, he reports a rate of 46% across the five years from 1997, declining to 41% across 2001 to 2005. These figures are for undergraduate level 7 programmes – graduate diplomas are not specifically shown as a group. There should be a slight advantage for GradDipIT here because of its one-year duration compared to an average of three years for undergraduate degrees. The comparative figure for post-graduate certificates and diplomas from 1997 is 49%, which may be a truer comparison. The 2001-2005 figures for this group are not quoted. Another study (Tertiary Education Strategy, 2007) provides very similar figures.

So, in summary: GradDipIT 53% and rising (refer trend line on graph), Wintec lower at 49%, NZ-wide also lower at 49% and dropping.

### 3 Retention

Retention is a more difficult concept to define. We defined it as follows: if a student enrolls in any one year

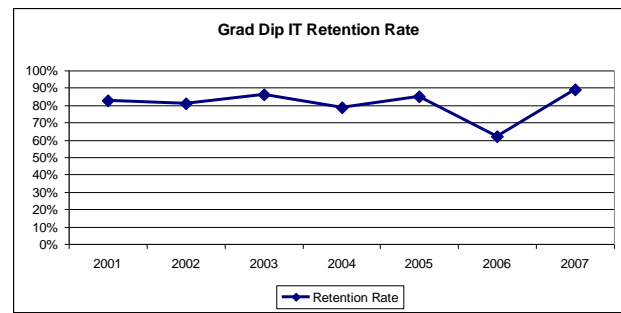
and either completes the qualification or re-enrolls in the following year, they are counted as “retained”.

This may be expressed as follows:  $R = \frac{((\text{students completing within Y1}) + (\text{students returning to Y2}))}{(\text{students enrolling in Y1})} * 100$  where R = Retention Rate Percentage, Y1 = first year of enrolment, Y2 = second year of enrolment. All student numbers reflect actual students, not EFTS.

The 2007 figures may skew the results a little since enrolments significantly increased and students started over Summer School of 2007/8. But any “late” retention problems for those starting in the 2007 summer school will reduce the retention rate for 2008, so it will self-correct in the end.

The GradDipIT has an average retention rate of 81% since its inception. One poor year of 62% (2006) is balanced by five years where the rate was above 80%, and 2007 is sitting at 89%.

Wintec’s annual report (Wintec, 2008) has a course retention figure but for measurement of programmes it uses what it calls Attrition Rate. From the limited information given (ibid., p.25) it appears reasonable to assume that it corresponds closely to above Retention Rate definition. The Wintec figure is 49%, so GradDipIT at 81% average is performing exceptionally well.



**Figure 3: Retention trend**

Neither Scott (2005) nor TES (2007) provide Retention or Attrition figures, so we are unable to make to industry comparisons.

The definition of Retention is not very clear and consistent across practitioners and the concept of Attrition is sometimes introduced without clarifying its definition and measurement. More work will be required on the matters of clarifying for meaningful study. In the mean time it seems blindingly obvious that continuation of practices to ensure high completion rates and good student satisfaction levels, remain important and can continue.

### 4 Considering International proportion

Over the life of the GradDipIT, International enrolments have totaled 41% of all enrolments, but this is heavily weighted towards the latter years. For 2008, the figure is 87%, and for semester 2, 2008 it is sitting at 92%.

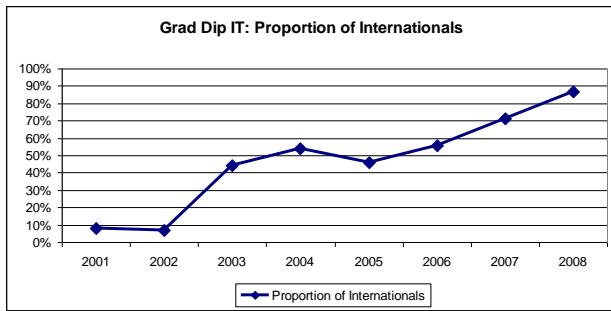


Figure 4: Proportion of International

The next graph shows a declining trend of qualification completion. Coming from a very low base of very few students in 2001-2002 where pass rates and completions are usual low (albeit unprofitable!), one could say that some of the increase in non-completions could be from the simple growth of student numbers.

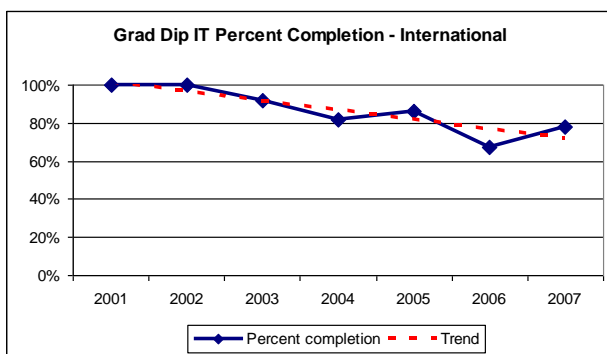


Figure 5: Completion proportion trend of International students

We have obviously noticed a proportional increase in students failing at least one module in the standard period of the programme (one year). They will then redo that module during the next year, so will remain “in the system”. That is the gap between the columns “Enrolled” and “Graduated or still enrolled”. Of all enrolments, 83% have either graduated or are still in progress and enrolled.

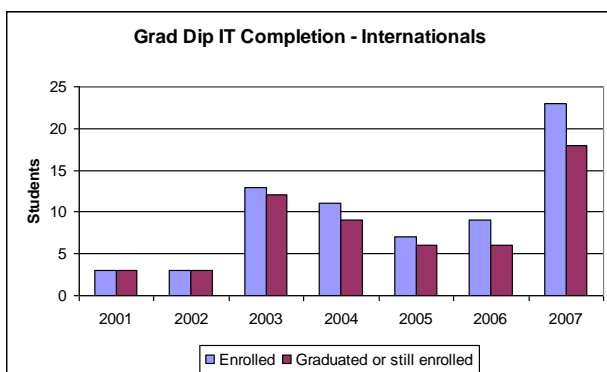


Figure 6: Completion volumes of International students

We noticed that International students have much better completion rates than domestic students. Reasons for having a higher completion rates for International students includes the fact that some of them already held degrees in IT, albeit not from institutions with at mostly regional reputation within a country. However, most of the domestic students have IT industry experience, which should also be in their favour for being successful.

Limiting that possible benefit is the fact that work experience is usually in only a limited area of a qualification like GradDipIT, and that most students study part-time, having with family and work responsibilities. Bottom-line is that we don't really know why completions differ and did not study it.

Neither Scott (2005) or any TEC statistics indicates performance of International students specifically. While International students are full-fee paying so TEC is not funding anything for them, we believe students success for them should be at least the same as the overall for the industry.

## 5 Summary

The important figures are shown again below for comparison purposes, and to bring everything together.

Two matters are concluded: Firstly that GradDipIT is currently performing well on these particular benchmarks, and secondly that resourcing issues must be carefully thought through and given priority because of the influence of the high number of International enrolments. Although overall numbers are not large, the proportion of Internationals is surely at one of the highest levels within Wintec.

Table 1: Completions overview

GradDipIT 2006	GradDipIT INT's Only 2006	Wintec 2007	New Zealand 2001-2005
53%	67%	49%	c. 41%

Table 2: Retentions overview

GradDipIT 2007	GradDipIT INT's only 2007	Wintec 2007	New Zealand 2001-2005
89%	88%	49%	-

## 6 Further analysis

One might firstly briefly be tempted to ask whether any completion rates are important for courses where the majority of students are not funded by TEC. However, it is in the interest of the full fee paying student and obviously the reputation of the institution and country, to manage student success satisfactory.

There seems to be several matters regarding definition of metric that will need to be sorted for proper benchmarking. A most fundamental matter would be the period in which study was expected to have been completed, considering this qualification typically draws working people for part-time studies.

Considering a significant proportion of students do not complete the qualification in one year, it might be worthwhile for diagnostics purposes to analyse results at module level of the qualifications. The critical matters here would be whether there are any modules where failure rates are generally worse.

Having said that, we are of the view that completion and retention rates for this qualification are relatively satisfactory, if not actually impressive. There are however several matters for management and also further study.

The proportion of International students is very high. It is our experience that they require more resources, mainly effort/time. Increased pressures on School resources (continued staff reduction) is causing this business income to increase operating risk with likely decrease in student outcomes and worsening staff experiences.

The matter of class attendance obviously must continue being closely managed for visa purposes and causal association with completion/retention for possibly at least some students. One of the reasons for absences could be that students are not coping, so are already falling behind, and for that reason, close management might be beneficial. Having said that, we feel that the whole matter of class attendance and its causal relationship with student success, might still be worthy of further study. This is especially needed in the emerging era of self-paced learning, flexible delivery, mobile access and more. Another paper on this matters has been drafted for NACCQ2009.

While there are many students already holding a degree in IT prior to joining, we noticed that it is no breeze for them, as most modules are new to them. We did not perform a comparison of their performance with that of other students, which in perfect hindsight, is a pretty obvious thing to have done. This situation is therefore worthy of further study and internal discussion..

We noticed several, if not many, complexities in data collection, analysis and interpretation. One should bear this in mind during management practices where this data is used, for example Annual Programme Reports, Annual Report of the institution, analysis for/with/by TEC and self-assessment as part of the institution's self-management practices of quality systems.

Because TEC previously stated their intention to reduce funding for institutions where student completion do not meet expected targets, metrics will be important. A clear leadership role for TEC to clarify definitions, advice on statics preparation by ITPs and listen to practical matters regarding metrics for such benchmarking, amongst other things, seems very appropriate.

Finally, degrees undergo a comprehensive review every five years. GradDipIT will be covered in the BInfoTech review since they share most classes. It would be appropriate for this whole report to be taken up in the process.

## 7 Conclusion

The programme appears to be performing comparatively well as far as completions are concerned as measure of student success. We will need to keep an eye on matters to ensure the radical increase and high proportion of International students from India does not distort experiences and outcomes for other or all students.

This analysis was done manually with a programme manager extracting data from the student enrolment system, Arion. This was then tabled and processed with Excel. This is time consuming and obviously might be

inaccurate. More work will be required in the institution and possible with TEC to improve definitions, measurement and management information systems.

We see our experience as important self-reflection for the student, our practicing as teachers, International Student Code of Conduct and obviously TEC. Obviously improvements will be required to the management information systems for effort to remain reasonable.

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