

**:: Refereed Article A1:****Factors affecting the educational achievement of mature Māori information technology students: A case study**

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**Abstract**

This paper reports on the results of an investigation into the experiences of academically successful adult Māori students undertaking the Bachelor of Information Technology (BIT) programme at the Waikato Institute of Technology (Wintec). This research looked at the participants' motivation for attending Wintec, the barriers (such as financial, social and family hardships) they encountered as they made the transition back to full time study, and their experiences at Wintec. The paper considers the reasons why the participants have achieved well, identifies the support systems they called on, and explores the challenges that they experienced while studying in a tertiary learning environment. Its significance lies in the focus on factors that affect Māori academic success, specifically in information technology, so that teaching approaches and support systems, particularly in the institute of technology and polytechnic (ITP) sector, can enhance the success of Māori in the field of IT.

**Keywords**

Māori, educational achievement, mature students, barriers, enablers

**1. Introduction**

In New Zealand it has long been recognised that Māori students are under-represented in tertiary level computer science and information technology courses. Their participation rates are lower than those of European and Asian students, and there is a lack of understanding about why this is happening. It is also relevant to note is that over the last ten years the number of Māori information technology (IT) graduates from Wintec has declined considerably.

A large number of studies have demonstrated that Māori are not performing as well as they should be in education. The literature in the general area of Māori education portrays a picture of high failure and underachievement. (Bishop & Glynn, 1999; Clothier, 1993; Else, 1997; Selby, 1996; Smith, 1995). However as Hunt, Morgan and Teddy (2001) suggest, "if we look at the reasons people stay and why they succeed, we may be better prepared to help those who are struggling, and more adept at identifying individuals who are having difficulty before they become overwhelmed".

Māori participation in tertiary education continues to be at a lower rate than non-

Māori, from pre-entry level through to university (Else, 1997). Sovaka (2002) notes that Māori school leavers who attend tertiary institutions are more likely than other students to choose polytechnics. There have been some New Zealand and overseas studies conducted on mature students who have returned to tertiary studies. However, there has been little research carried out in New Zealand on mature Māori students studying in the field of information technology. This research therefore attempts to help fill the gap by interviewing six mature Māori students who have successfully completed the Bachelor of Information Technology at the Waikato Institute of Technology. The specific research question is:

*What are the success enablers for mature Māori IT students studying at the Waikato Institute of Technology?*

The obvious limitations of the research are that it involved a small number of participants who studied at a single tertiary institution and were taught and/or advised by the first author.

## **2. International Context**

The causes of student persistence and attrition have been widely investigated. Much of the retention literature focuses on improving retention for students of under-represented populations and individuals from lower socio-economic backgrounds. A systematic study of student attrition and persistence in higher education was undertaken by Tinto (1993) who developed a model to predict the attrition of college students in the United States. Tinto asserts that there are two primary factors related to student withdrawal: the personal characteristics of the student and the nature of the student's interaction with their institution. Tinto also argues that students need to "break away from past experiences and traditions to become integrated into the college's social and academic realms" and that the greater level of commitment to the institution, the greater likelihood of persistence.

Padilla, Trevino, Gonzalez and Trevino (1996) note that:

Ethnic minority students appear to emphasise continuity with their home community by knowing about and joining ethnic organisations, participating in ethnic activities and generally seeking out the ethnic presence that exists on campus as a means of being culturally grounded. This is consistent with the findings of researchers who have suggested that many ethnic and racial minority students adhere to a collectivist orientation (commitment to the group) rather than to an exclusively individual orientation (commitment to self) (p. 134).

Numerous studies demonstrate that students of minority groups need to connect with students with shared cultural heritage to succeed in higher education and can greatly benefit from the support of families, friends, and other members of their home communities (Cabrera, Nora, Terenzini, Pascarella & Hagedorn, 1999; Delgado Bernal, 2002; DeSousa & Kuh, 1996; Eimers & Pike, 1996; Gloria, Robinson Kurpius, Hamilton & Willson, 1999; Gonzalez, 2000; Guiffrida, 2003, 2004, 2005; Hendricks, Smith, Caplow & Donaldson, 1996; Hurtado, Carter, & Spuler, 1996; McClung, 1988; Murguia, Padilla, & Pavel, 1991; Nora & Cabrera, 1996; Rosas & Hamrick, 2002; Sedlacek, 1987).

Other international studies affirm that first-year retention is crucial to degree completion (Krause, Hartley, James, & McInnis, 2005; Kuh, 2001; Pascarella & Terenzini, 2005; Tinto, 1993; Upcraft, Gardner, & Barefoot, 2005; Yorke & Longden, 2008). Zepke and Leach (2005) identified "workload issues" as the primary factor amongst all the institutions involved in their research. Their findings suggest that workload issues were related to time management and student challenges in their first year of study. These findings are reflected in other countries (Haigh & Kilmartin, 1999; Kantanis, 2000; Maguire, 2001; Prescott & Simpson, 2004; Ramsay, Barker & Jones, 1999; Sidle & McReynolds, 1999; Smith, 2003).

Anderson (1997) argues that a counselling programme is "imperative to undergraduate retention because it keeps students motivated, stimulated and working towards a meaningful goal". Wyckoff (1998) notes that student interaction with university members can influence a student's intent to continue studying. According to Kirkness and Barnhardt (2001), there is increased pressure for students to adapt and become integrated into the institution's social fabric, "with the ultimate goal that they will be 'retained' until they graduate". Students are expected to check into the institution's culture and "check out at the university gate their own cultural predispositions". They suggest that there is an "ostrich in the sand" philosophy in

institutions that ignore the cultural transition from the students' home cultures to the culture of the university. They identify the Four R's – Respect, Relevance, Reciprocity and Responsibility – as important enablers for First Nations students at universities in Canada and the United States in their pursuit of success in education. They state that "What First Nations people are seeking is not a lesser education, and not even an equal education, but rather a better education. An education that respects them for who they are, that is relevant to their view of the world, that offers reciprocity in their relationships with others, and that helps them exercise responsibility over their own lives" (p.13).

Tinto (1999, 2002) asserts that the most important issue in student retention is that of institutional commitment and support; the institution must invest time and resources to improve student retention. He also adds that institutions must now provide both academic support (effective tutoring and study groups) and social support (including mentoring and ethnic support centres). Draper (2003) states that "academic integration" evolves over time and as integration and commitment interact, dropouts are lessened. Yorke and Longden (2004) state "Our position is that retention and student success are influenced by a complex set of considerations which are primarily psychological and sociological, but which are in some cases influenced by matters that might be located under other disciplinary banners such as economics" (p. 77).

Guiffrida (2006) offers a critique of Tinto's theory (and the literature arising from it), claiming that "the theory's failure to recognise cultural variables make it particularly problematic when applied to minority students", whose numbers are increasing. Guiffrida presents a modification of Tinto's model which is more culturally sensitive to minorities and replaces the term "integration" with "connection" (p. 457). Students can then "become comfortable in the college environment without abandoning supportive relationships at home or rejecting the values and norms of their home communities" (p. 257). According to Guiffrida, his modification allows the theory to "not only recognise the impact of motivational orientation on academic goal commitment, but to also acknowledge that cultural norms and home and university social systems (past and present) can have significant effects on student motivation and subsequent academic performance and persistence decisions". Further, Guiffrida notes that "cultural norms and home and university social systems can have significant effects on student motivation and subsequent academic performance".

Museus and Jayakumar (2012) claim that "many colleges and universities have not engaged in a critical self-examination and transformation of the culture of their campuses that can lead to most effectively serving diverse student populations [and] continue to perpetuate problematic disparities in persistence and degree attainment among students of color." Davidson and Wilson's (2013) analysis of the application to non-traditional student populations of Tinto's framework for student integration led them to conclude that campus relationships have a strong influence on student persistence.

Thomas (2012) argues (in the UK context) that

The key to boosting student retention and success lies not in any specific intervention, but stems from a set of key characteristics, underpinning principles and wider institutional culture, all intended to foster student belonging [which] is achieved through supportive peer relations, meaningful interaction between staff and students, developing knowledge, confidence and identity as successful learners and providing an experience relevant to students' interests and future goals.

Crawford, Dearden, Micklewright and Vignoles (2017) assert (in the UK context) that "widening participation is not enough. Emphasis must also be placed on ensuring that young people from disadvantaged families are able to stay in university and perform to their potential."

The international studies described in this section provide a foundation for the following sections, which focus on the Māori context.

### **3. Māori Context**

Educational achievement and the acquisition of formal qualifications are seen as crucial tools to empower Māori people to better workforce participation, enhanced health and wellbeing and then transitioning to becoming better contributing citizens in the global village. The Ministry of Education continues to prioritise the raising of Māori

student achievement and argues that "for Māori to achieve greater success in education it is crucial that all education providers in New Zealand recognise, support and develop the inherent capabilities and skills that Māori students bring to their learning" (Education Review Office, 2010). This section reviews some of the research conducted in the last 20 years into how Māori achievement at tertiary level may be enhanced.

Jefferies (1997) analysed the range, nature and extent of barriers to Māori participation in tertiary education and training in New Zealand. The themes that emerged from this study reveal a combination of factors such as: failure to reach required levels in early education, negative school experiences, transitions between different levels of schooling, difficult home environments, the costs associated with tertiary education, lack of Māori role models as teachers and academics, failure of support systems, and Māori parents being unaware of the benefits of tertiary education. Jefferies posits that Māori students have to find a balance between family and study commitments, especially if there is a strong whānau (extended family/community) orientation. He further argues that cultural constructs can influence whether Māori students successfully undertake tertiary studies.

Durie, A. (2001) researched Māori educational aspirations and concluded that Māori students' "determination to succeed depended on both internal and external motivation". Other elements of motivation included the influential role that teachers played in the school life of Māori students and the value that Māori students placed on quality relationships. Tiakiwai's (2001) doctoral thesis examined factors that contributed to success in Māori achievement in higher education. One recurring theme is the importance of whānau relationships:

Hunt, Morgan and Teddy (2001) found that Māori psychology students at the University of Waikato not only value the support of their tutors, they depend on it. They conclude that academics seeking to retain Māori students should focus on the availability, approachability and genuine support of tutors. They argue that "if we look at the reasons people stay and why they succeed, we may be better prepared to help those who are struggling, and more adept at identifying individuals who are having difficulty before they become overwhelmed" (p. 8).

Bennett (2001) researched the degree to which cultural identity moderates student problems, academic outcomes and psychological wellbeing and found that Māori students who identified strongly with their culture were often "associated with a number of positive psychological and educational outcomes" and that "motivation for Māori students increases when psychological symptoms and stress factors are minimised".

Katene (2004) explored whether orthodox motivational theories were still applicable to young Māori students and whether Māori culture could influence motivation. Underpinning the research were principles of participation, protection and partnership for Māori. Katene also considered social learning theories that sought to describe behavioural learning, more specifically the question of what motivates students to learn. Katene concluded that extrinsic motivational theories were relevant for Māori students and that relationships between Māori students and pivotal people within the schooling and home environment were key influences of motivation. Katene also constructed a framework (Te Ha o te Rangatahi) which identified eight principles that reflected motivational factors for Māori students: Manaakitanga (creating an environment that promotes warmth and a sense of belonging), Awhina (aid, assistance or help), Ngawari (clear and precise instructions), Aroha (respect between individuals), Whakangungu (praise and reinforcement), Akonga ake (motivation affecting behaviour and learning), Tikanga (Māori culture) and Utu (reciprocal relationships).

Prebble, Hargraves, Leach, Naidoo, Suddaby and Zepke (2004) identified 13 factors that promote persistence and achievement of learners in higher education:

1. Institutional behaviours, environment and processes are welcoming and efficient.
2. The institution provides opportunities for students to establish social networks.
3. Academic counselling and pre-enrolment advice are readily available to ensure that students enrol into appropriate programmes and papers.
4. Teachers are approachable and available for academic discussions.

5. Students experience good quality teaching and manageable workloads.
6. Orientation/induction programmes are provided to facilitate both social and academic integration.
7. Students working in academic learning communities have good outcomes.
8. A comprehensive range of institutional services and facilities is available.
9. Supplemental instruction is provided.
10. Peer tutoring and mentoring services are provided.
11. There is an absence of discrimination on campus, so students feel valued, fairly treated and safe.
12. Institutional processes cater for diversity of learning preferences.
13. The institutional culture, social and academic, welcomes diverse cultural capital and adapts to diverse students' needs.

Durie, M. (2006) points out that shifting the paradigm of worker to smart worker requires Māori to engage with education. He argues that:

A deficit model assumes that Māori are problematic and energies should be focused on uncovering problems, or making a diagnosis, or identifying areas ... Moreover, the preoccupation with disparities and comparisons with Māori and non-Māori, as if that were the most significant indicator of progress, creates a distorted picture of actual progress and assumes that the non-Māori benchmark captures whānau aspiration. Reversing entrenched attitudes will be no mean task ... but balancing problem detection and problem solving with equal weighting on identifying promise and potential could create another level of engagement that leads to longer term positive outcomes ... The challenge for whānau, schools, and for those who provide whānau support is to shift from a paradigm of deficit and risk, to one of potential and discovery. (p. 16)

Greenwood and Te Aika (2008) investigated Māori achievement in four different tertiary providers and identified 21 themes which included the importance of relationships with teachers, social groups, and peers acting as role models for Māori students. They found that Māori students were motivated as much by "what they hope to be able to offer the community when they graduate" and that success in tertiary education is valued as a communal good and not just a personal one. Māori students valued manifestations of Te Ao Māori such as mihi whakatau (formal speeches of welcome, which demonstrate commitment to Māori values, provide connection with iwi, and "affirm the importance of personal relationships") and Noho Marae (where study and inductions are played out in marae context, which can be effective "because students can get to know each other as more than academic classmates"). Personal development involved hard work, time management, settling goals, consistency, and patience to battle on when it appeared that the workload was demanding.

Williams (2010) identified four major enablers that appear to have contributed to Māori adult students succeeding at the University of Waikato: a strong determination to succeed, whānau support, strong social support networks and a Māori world view. Williams observes that inspiration and motivation to study often came from whānau who can help students develop good time management and organisational skills in order to balance all of their commitments. However, Williams notes whānau could also be a hindrance to study; although they valued the importance of education, sometimes they could not understand why participants did not attend all the events that whānau went to (especially when assessments were due). Williams also discusses Tinto's (1993) model of student attrition in higher education and noted that the New Zealand context can shape and lessen the impact of some factors that may be prevalent in international studies.

Tahau-Hodges (2010) suggests mentoring is beneficial for Māori learners. Mentoring can assist learners to develop meaningful relationships with peers and colleagues, mentors and faculty, to integrate into the tertiary institution, and to complete programmes of study. Walker (2012) focusses on the importance for Māori students (tāuira) of finding friends and relationships in the university environment. He observes that when students feel socially isolated, the learning environment is

challenging and difficult. He argues that tāuira need to make friends quickly, mentors and role models are important and Māori coordinators should focus on the potential of tāuira rather than the challenge. Curtis, Townsend and Airini (2012) state that "academic support that is culturally appropriate and has a positive impact of Māori student learning means providing appropriate tutors who are Māori, act as positive role models, are connected with Māori students and Māori specific issues, who know the course content, and who create culturally safe learning environments". Waikarepuru (2012) argues that traditional Māori concepts practised and acknowledged by an institution cement a sense of wellbeing for Māori tāuira and that tertiary institutions should use effective teaching and learning practices that acknowledges Māori values; provide academic support that is culturally appropriate; and provide a culturally safe learning environment for learning.

Chauvel and Rea (2012) identified 20 barriers to, and 33 enablers of, Māori student success and concluded that

The extent to which the tertiary institute facilitates a sense of belonging in a culturally relevant, safe, supportive and familiar environment, and whether learners are able to see themselves and their culture reflected in these institutions is key to influencing whether Māori learners engage and remain in tertiary study and experience positive and successful learning experiences ... Māori learners are more likely to engage and persist with their studies when they feel that they are a central part of the learning environment, and that they belong. This is particularly important for learners who have experienced being on the margins educationally and socially. Māori learners are more likely to feel a part of the institution if it is culturally relevant to them.

Diamond (2013) investigated supports of successful Māori undergraduate appellants at the University of Waikato and found that informal support (given by whānau, friends, significant others and university peers) was more helpful than the formal support provided by the university (counselling service, Māori liaison officers, tutors, Māori support units, other school-specific personnel). Cram, Phillips, Sauni, and Tuagalu (2014) identify several measures that can raise the retention and achievement levels of Māori and Pasifika students: embedding aspects of Te Ao Māori; programmes that operate from a strengths-based position and have been specifically designed by Māori and Pasifika; culturally relevant support and safe spaces for students; professional development of teaching and support staff; and mentoring. Lillis, Fiso, Henricksen, and Storz (2015) note the importance (for academic success) of positive tutor-student relationships and recommend employing tutors who are experienced in teaching Māori and Pacific learners and use a range of teaching and learning methods. They also advocate running classroom sessions that include breaks and creating attractive physical environments that motivate students and promote a sense of belonging.

#### **4. Methodology**

Interviews were used for data collection in order to collect rich data. Six participants were selected using four criteria:

- identifying themselves as Māori;
- being over the age of 24 at the start of their studies;
- gaining a Bachelor of Information Technology degree from Wintec as full time students; and
- being willing and available to be interviewed.

The interviewees' iwi (tribal) affiliations included Ngāpuhi, Ngāti Porou, Ngāti Raukawa, Tainui, Te Arawa and Tuhoë. Three interviewees were female and three were male; their ages at graduation ranged from 27 to 40. Most had left school before completing year 12 (when eligibility for university entrance is decided); one left school at 14 and two left school at 15.

Interviews were semi-structured (to allow unanticipated ideas to emerge) and lasted for approximately 60 to 90 minutes. Two interviews took place in a Wintec office and the rest were conducted at the interviewee's homes. The interviews were audio-recorded with the permission and informed consent of the interviewees and transcribed verbatim by an independent transcriber. The transcripts were analysed by the first author using thematic analysis based on open, axial and selective coding.

## 5. Research Findings

Analysis of the interviews identified the following over-arching themes which are expanded in the following sections:

- the tertiary learning environment plays an essential role in academic success
- personal development is crucial to academic preparedness for the tertiary learning environment
- it is important to have Te Ao Māori world view incorporated within the learning environment
- whānau relationships may be a support or barrier to learning
- determination to succeed in spite of the barriers or obstacles is an important factor
- financial concerns are a major barrier and there is little financial aid available.

All six themes have been explored to some extent in the literature, as shown by the examples in Table 1:

**Table 1. Themes Explored in the Literature**

Theme	International context	Māori context
Tertiary learning environment	Tinto (1993, 2002) Guiffrida (2006) Museus & Jayakumar (2012) Thomas (2012)	Hunt, Morgan & Teddy (2001) Katene (2004) Prebble et al. (2004) Curtis et al. (2012) Waikerepuru (2012) Chauvel & Rea (2012) Cram et al. (2014) Lillis et al. (2015)
Personal development	Tinto (1993)	Greenwood & Taika (2008) Chauvel & Rea (2012)
World view	Kirkness & Barnhardt (2001) Guiffrida (2006)	Greenwood & Taika (2008) Williams (2010) Chauvel & Rea (2012) Cram et al. (2014)
Family/community relationships	Padilla et al. (1996) Guiffrida (2006)	Jefferies (1997) Tiakiwa (2001) Katene (2004) Williams (2010) Chauvel & Rea (2012) Diamond (2014)
Determination to succeed	Guiffrida (2006)	Durie, A. (2001) Williams (2010) Chauvel & Rea (2012)
Financial concerns	Yorke & Longden (2004)	Jefferies (1997) Chauvel & Rea (2012)

### 5.1 Tertiary Learning Environment

The participants discussed how academic staff, peers and institutional support impacted on their academic experiences. When tutors engaged with mature Māori students in a genuine manner, students responded positively, resulting in a meaningful academic learning experience. The participants noted that there was a lack of culturally appropriate peers to serve as mentors and role models. They identified this as a challenging barrier because information technology learning concepts were sometimes difficult to comprehend and there was no mentor to assist and give academic help. Māori mentors were easier to approach and could empathise with their queries without making them 'feel stupid for asking a stupid question'.

Mentors could offer useful tips and techniques, be advocates for the students, provide pastoral and procedural support and refer them to other student support services. All participants had experienced positive and negative aspects of the tertiary learning environment.

## **5.2 Personal Development**

All participants were articulate and thoughtful about their personal development, concerned about the learning process, and mindful of the importance of education to their futures. Sub-themes included pre-tertiary learning and motivations. The sub-theme 'motivations' explored how lifestyle, self-improvement and the value of education contributed to the personal development of mature Māori IT students, which ultimately acts as an enabler of success. Several studies, both international and New Zealand, identify academic preparedness and personal development as pivotal elements to secure success and achievement for students entering tertiary education.

## **5.3 Te Ao Māori World View**

The participants were eager to succeed and complete their degrees, however being Māori was integral to their success. They observed that other students' lack of cultural knowledge (which participants attributed to a lack of exposure to 'Māori thinking') acted as a barrier for the participants because students contextualise learning from their own world view and that may differ from the world views of the tutors and other students. Participants' world views included such Māori concepts as aroha (affection, love), manaakitanga (respect, generosity and care), mana atua (sacred power, spirituality), tikanga (customs and traditional values), whakamā (humility) and whanaungatanga (close connection, relationship).

## **5.4 Whānau Relationships**

Whānau strongly influence the emotional, social and physical environment of mature Māori students. The participants acknowledged that whānau are the first priority in their lives, and they would sacrifice their academic learning for their family. They discussed the struggles they experienced with conflicting expectations and responsibilities, including caring for their children, being there for their children (at school activities or sports) and their own studies. Spouses/partners supported wholeheartedly the participants' decision to return to study and often stepped in to fill the gap and, if need be, found ways to supplement their income and meet the needs of their family. However participants commented that they sometimes experienced covert criticism and negative feedback from whānau members if they did not attend family functions or 'lend a helping hand' because they needed to study. Two participants mentioned both positive and negative aspects of their whānau relationships, three mentioned only positive aspects and one mentioned only negative aspects.

## **5.5 Determination to Succeed**

All participants used words such as 'persevering', 'being determining', 'keep going' and 'need to do well' to describe their desires and aspirations to succeed. Identifying what success and achievement means to this particular cohort of students provides opportunities for academics to design effective teaching strategies and for administrators to take a tailored approach in their recruiting and marketing strategies. Adapting student support systems to meet the needs of this cohort will lead to increased retention and completion rates for mature Māori IT students.

## **5.6 Financial Concerns**

All participants identified financial concerns as a major barrier and noted that there is little financial aid available. They sometimes felt inadequate to compete against their younger colleagues for scholarships. They have to cover educational expenses and also living expenses for themselves and their families. Working long hours at the minimum wage reduced the time available for lectures, tutorials and study, so most preferred to take student loans. Financial commitments such as house mortgages, hire purchase of chattels and the financial needs of children increased the financial pressures. Meeting these often required spouses or partners to pick up the financial obligations and some whānau contributed through purchasing groceries or paying costs of utilities, such as power and water.

## **6. Conclusions and Recommendations**

At many tertiary institutes in New Zealand there is trend for Māori students not to continue to higher levels of study. In particular, at Wintec there is a high rate of withdrawal during or after the level 3 IT certificate programme and again after the first year of the level 5 IT diploma; a smaller percentage drop out from the first year of the IT degree. This suggests that Māori students find study within the IT field difficult and struggle with the course content, the style of teaching and the workload. In this section, reasons for this situation are identified and possible solutions are proposed.

### **6.1 Concepts of Success**

Those who identify themselves as being Māori carry with them a holistic worldview, that everyone and everything is connected. This view is expressed by the way they interact with others and in particular the way they consider non-relatives to be whānau as well. As a result, success for Māori students is not an individualistic effort or a result of the class setting, but rather a product of the student's internal and external environment. A Māori student's success is dependent on the balance of their studies, personal lives and whānau. For Māori students, success is not defined by the grades they achieve, or the qualification they undertake. Success is more dynamic and multifaceted than educators may perceive. For example, Māori students may not find success in learning a theory, but rather in the ability to apply that theory to help their whānau or in their own personal lives.

### **6.2 The Culture of IT**

Within the education sector there is a drive to produce students who are independent and resourceful. As a result, IT is often seen a strict discipline which encourages individualistic efforts. The content of the IT course can be learnt in a communal setting, but applying the practical aspects of the course cannot always be achieved in a collective way. This is an approach that is inconsistent with the communal, social nature of Māori students. Likewise, the culture of IT utilises westernised practices/styles in teaching. Both factors contribute to underachievement for Māori students, and may explain why few complete their qualifications.

### **6.3 Misconceptions about IT**

Information Technology is often associated with smart technology, social media, high-tech learning and access to useful data. As a result Māori students can be attracted to the field of IT and enrol into introductory courses because they perceive IT to be 'exciting' and 'innovative'. They may not realise that understanding and using the end result of IT (e.g. a smartphone) is far easier than understanding how to produce that IT. When they do realise this, they may withdraw from their course and no longer regard IT as a viable career

### **6.4 Teaching Practices**

Māori students approach groups of people with a holistic view, meaning they are whānau-based, communal and collective. As a result, Māori students are less likely to come forward in a classroom or ask questions in a group setting, for fear of being seen as inarticulate or inferior in front of others. Common teaching models provide a westernised framework that is very individualistic. In particular, the field of IT encourages students to be independent thinkers and western teaching models can reinforce this attitude. Furthermore, the course material in the study of IT can be very complex and largely theory-driven, using terms, definitions and concepts that can be somewhat overwhelming. It can be difficult to articulate this course material in a simpler way without losing what essentially needs to be learnt. If a Māori student asks for clarification, and a tutor responds 'I told you yesterday' or 'it's in the book' or 'you can find this yourself', the student may feel shamed (whakamā) and discouraged from seeking help again. A better approach is to explain the concept in a different way and/or give explicit guidance about where to find the answer.

### **6.5 Strategies for Success**

The following 16 strategies for helping mature Māori IT students to succeed are based on ideas discussed in the literature (the first 13 are covered by Chauvel and Rea

(2012)), the experience of the first author (who has used all of them), and the views of the research participants. Many of the strategies would also help younger Māori IT students and Māori students studying subjects other than IT.

- Encourage pastoral care inside the classroom environment by addressing the way tutors approach, interact with, engage with and respond to, Māori students
- Establish pastoral care outside the classroom environment by making Māori students aware that Māori mentors/counsellors, Kāiawhina or Kaumātua are available to help them on an individual basis
- Ensure that the process for selecting and enrolling Māori students takes into account their academic preparedness and self-management skills
- Hold workshops to develop time management, organisational, assignment and examination skills
- Cluster Māori students into discussion groups during classes
- Organise study groups for Māori students to meet outside class time
- Organise study sessions where extra tuition is provided outside class time
- Incorporate Te Ao Māori themes and examples in course material
- Have Māori IT professionals, academics and support staff act as role models and advocates for Māori students
- Hold an information evening for whānau to show how they can support Māori IT students in their studies
- Hold a whakawhānaungatanga hui each semester to create whānau connections among Māori IT students; this may lead to marae visits and joining kapahaka groups
- Maintain and promote a mentoring programme for Māori IT students
- Encourage Māori IT students to apply for scholarships from their respective iwi and from Wintec
- Monitor progress of Māori IT students and follow up if necessary
- Provide incentives for students who do well in assessments; for example, book vouchers, petrol vouchers, technological gadgets
- Celebrate successes of Māori IT students; for example, profiles in newsletters or on posters, morning teas and graduation dinners.

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