

# Use of personas in education - A case study of development of core competencies

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## ABSTRACT

This paper describes the use of a set of personas in educational development process. We develop a set of personas for New Zealand tertiary information technology students and use these personas to explore a particular challenge in educational design - the specification of core competencies.

**Keywords:** educational design, persona,

## 1. INTRODUCTION

The design and delivery of educational programmes should be a deliberate act - informed by research into curriculum content, education theory and practice. Crawley et al. (2007) argues that curriculum development works best when there is an evident trace from stakeholder needs to learning experiences. Key to these stakeholder needs are the needs of the learner, but in the interests of scale they are often overlooked. It is not usually possible to completely design a learning experience around the needs of every individual student so instead the educational designer will be forced to consider a generic student or graduate. An optimum position along such a continuum may be at the level of the persona.

This paper describes the use of a set of personas in an educational development process. We develop a set of personas for New Zealand tertiary information technology students and use these personas to explore a particular challenge in educational design - the specification of core competencies. We first describe this challenge.

### 1.1 Key Competency

Nygaard et al. (2012) define a competence as “the ability to apply knowledge and skills so that the task at hand is carried out in such a way that it meets the standard of performance required in a particular context and that the person is looked upon by relevant actors as being competent”. We can then distinguish in curriculum development between the knowledge and skills and competencies.

A competence is defined as the ability to successfully meet complex demands in a particular context through the mobilisation of knowledge, cognitive skills but also practical skills, as well as social and behaviour components such as attitudes, emotions, and values and motivations (Rychen, 2003, p. 3). Competencies can be considered “key” if they were instrumental in meeting the demands of multiple areas of life, were necessary for all individuals, and contributed to the outcomes of a successful life and a well-functioning society (Rutherford, 2005, p. 216). Bauman (2001) argued in the “Liquid Modernity”, that the competencies central in the understanding of knowledge.

The specification of competencies is becoming increasingly important. A sample set of core competencies might include:

1. Communicates effectively in writing
2. Communicates effectively orally
3. Displays cultural competence
4. Works independently
5. Works well in teams
6. Reflects on own performance
7. Acts responsibly
8. Practices Health and Safety
9. Organises self effectively
10. Demonstrates resilience
11. Thinks creatively
12. Displays leadership
13. Is Enterprising
14. Practises sustainably
15. Practises ethically
16. Thinks critically
17. Displays work life balance
18. Considers community
19. Plans for the future

The challenge, however of applying these core competencies is applying them to any given educational field - what, for example, does “demonstrates resilience” mean for IT students? Does this mean the same thing for Business or Midwifery students? Further, the student themselves can be seen to have a role in defining the competencies as the learner is in his/her own time, with his/her own past (experiences) and own future (hopes and goals) sets the context for the application of the competencies in the a myriad of new contexts (Nygaard et al. 2012). This multiplicity though, is not much help to the education designer, staring at a blank page needing to come up with an approach for integrating a competency into a programme of study.

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## 1.2 Personas

Fictitious users or personas are widely used in user experience fields such as marketing, design and Human Computer Interaction to provide rich descriptions of segmentation of customers and design (Pruitt & Grudin 2003; Nielsen 2012). They are a narrative tool, designed to synthesise a wide range of data in considering the goals, desires and limitations of different customers. Within a user-centred approach, the intention of using a named character representing a particular user type within a targeted demographic is to provide a vehicle for generative understanding through empathy, common understanding and testing against fictitious but often messy real-life scenarios.

There is no agreed set of personas. Indeed this is the point, they are supposed to emerge from an examination of the experience of the particular users of a product or service.

## 1.3 Use of personas in educational development

As an example, Otago Polytechnic is using a set of six customer personas to represent different learner groups among domestic students. They were synthesised from interviews and surveys with our learners as part of the review and development of student services. (<http://www.op.ac.nz/assets/Uploads/RFP-OP-Website-Refresh-2016.pdf>).

Yström et al. (2010) used personas in a stakeholders' needs analysis for the redevelopment of engineering programmes (including computer science) in a Swedish university. Their personas were used to describe the future professional roles of engineering graduates. In workshops with academics and industry, they developed a set of eight personas to represent the occupational groupings. The personas were described in terms of career goals, educational skills, personal notes and a photograph. They were also used as the basis for "day in the life" consultations with industry. The personas were then used in programme design workshops for computing. Yström reports curriculum design implications of this process, namely a realisation that the generic personas (project leader, technical writer) may have otherwise fallen between the gaps of the technical threads of the qualifications and that "many faculty were further surprised by the amount of non-technical work that engineers perform, and need to be prepared to do so".

## 1.4 Process

In this paper we describe the use of personas in the development of a set of core competencies within education, specifically IT education. There is a need to develop competencies beyond the two word definition commonly seen in lists. It is hoped that the use of personas would provide a means to developing a rich picture description of the competencies.

The authors are all academic staff members of ITPs (Institute of Technology Polytechnic), teaching on diplomas and degrees in Information Technology. These personas were developed over a day-long workshop. All the workshop participants have more than ten years' experience teaching IT in ITPs.

There is some debate in the literature as to whether personas can be based on intuition, hunch, anecdote, or whether they should be statistically derived. It is not within the scope of this paper to do such an empirical development, so we first explored whether existing personas could suitably describe IT students. Within education, personas have been used for marketing purposes. For example, Otago Polytechnic used personas in the development of a Design for Service Excellence programme and the artefacts from this process can be seen in the ongoing development of the services (e.g.

<http://www.op.ac.nz/assets/Uploads/RFP-OP-Website-Refresh-2016.pdf>).

These Otago Polytechnic personas were generated by marketing staff on the basis of interviews and surveys with current learners and graduates and validated in terms of demographic spread with reference to student demographic data. Each persona is described in terms of simple demographics and a short description of key values, goals and experiences. Crucially, each one is given a persona - an actual name and a cartoon sketch (see "Sick of School Sam, Figure 1).

- Sick of School Sam
- Second Start Stu
- School Leaver Sally
- Experienced Eric
- Rediscover Rebecca
- Skill Adding Sarah



Figure 1: Otago Polytechnic's "Sick of School Sam" persona.

The first thing we did in the application of the personas was to map them to the range of IT students experienced by the authors. From this initial work we concluded that the distribution of students into the personas is highly uneven. Two personas are carrying most of the IT students. Important characteristics have to be merged.

Second, we also worked out that we needed to have specifically gendered personas. Even within each persona, the gender differences are so strong for us, that simply ignoring the gender of the original didn't work. For example we broke up School Leaver Sally into three types, then made male and female personas for them. In doing so we realised that gendered people are quite different in IT. I dream of IT Gene and Gena, for example, have quite different backgrounds and motivations.

In a second round, the workshop participants expanded the School Leaver role to three personas, and then split all the personas by gender. During the process two (four) more personas were added, international students, and a Battling Bertie (Bertha) role. We then validated these roles by independently assigning a percentage of our students to each role. Disagreements prompted further discussion and refinement of the personas until we were confident we had similar understandings (Table 1).



**Sick of School Sam:** Sam is the life and soul of a party. His friends are important to him and he enjoys spending time socialising both online and in person. He struggles with formal writing and has been told he has dyslexia. Wants to do well in life but struggles to work on his own and lacks motivation to “get a job”. School was difficult and he struggled to enjoy school at all.

**Sick of School Sasha:** Is not considered by her parents as responsible. Shows some leadership skills but tends to become aggressive when her leadership is challenged. Is reluctantly getting support for her “anger issues”. Enjoys playing hockey and would spend all her time playing hockey if she was allowed. Hates having any expectation placed on her.



**I dream of IT Gene:** Wants to do well. Has been interested in IT for as long as he can remember. Comes from a rural background and has always been given responsibility. Was a prefect at school and took a lot of leadership roles. Has a strong sense of community and has already become involved in running local Maker Party. Dreams of starting his own development company.



**I dream of IT Gena:** Gena has always been a “driven” person. Has a wide group of friends but is closest to friends who challenge her thinking and provide stimulating conversation. Throughout school she always queried “lost marks”, and aimed towards 100%. She originally was interested in chemistry at school and wanted to be a scientist but was inspired towards IT when she read an article about how IT was being used to maximise food production in harsh climates. Now she cannot imagine doing anything but IT.



**Rollover Ralph:** Ralph drifted through school achieving pass grades without really trying. He has a kind of idea he might be a games programmer, but has tried programming and really didn’t like it. IT was suggested to him by his high school careers advisor. Is not really sure anymore why he is doing IT.



**Rollover Rosie:** Young school leaver, competent but drifting. Rosie might have chosen design, but likes the idea of web design and someone told her she should do computing for that. Is confident in her ability and gets enthusiastic about some areas of IT but at the same time feels that other areas of IT are “a waste of time”. Argues a lot with her parents about the amount of time she spends on the Internet and “drawing stuff”.



**Gaming Gary:** Achieved above average grades at school until he was 13 years old. Since then he has achieved a “mixed bag” of grades and only just managed to get his University Entrance. Talk to his family and they will tell you that Gary is “disorganised” and that they often have to threaten to take his computer away just to get him to eat a meal with the rest of the family. However talk to his

gaming friends and they will describe Gary as a leader who has organised a number of LAN parties.

**Gaming Grace:** Anyone of Grace’s many friends would happily describe her as a “geek” (in fact she often describes herself in the same way). When she is not playing computer games, she is discussing sci-fi and fantasy in online communities. She did well at school and especially got high marks in mathematics. She tends to enjoy and achieve a lot better in subjects that she is enthusiastic about. She loves her life just the way it is and does not see the need to “conform to the norm”.



**Experienced Eric:** Eric has a strong sense of his Maori culture but has understanding for those who don’t understand his culture. Has worked for many years in construction and for the last five years of working was in a sole charge position. Even though he is a hard worker, Eric found the demands of being in construction draining both physically and mentally. Eric has always liked to “roll his sleeves up” and do things his way. He has decided it is time for a change and IT seems to be an achievable career change for someone who is “middle age”. He is nervous about the change and therefore wants to make sure that he does everything right. Is lacking a bit of confidence in how he will go.

**Experienced Emma:** Now in her mid-thirties, Emma has been working in administration for nearly fifteen years. In the last three years of working Emma found herself taking on more and more responsibility which included often being the go-to person for “computer issues”, as she was a power user of all the company’s software. She decided to extend her interests and take on an IT Degree full-time. She is very organised and is surprised that she is constantly getting near the top marks in the class.



**Rediscover Ryan:** Ryan’s wife often describes him as “very busy” (as she rolls her eyes). Ryan is a telecom technician who has developed some management skills and is often the lead technician on a job. Outside of work, when he is not coaching his daughter’s rugby team, Ryan is always “playing” with the latest technology and his large workshop is full with devices and cables. In more recent times Ryan has



developed his own small “technology” business on the side. He has been doing IT courses part-time as professional development for the last three years but now is decreasing his proportion of work and is looking at studying 60% of his working week.



**Rediscover Rebecca:** Rebecca completed the Advanced Certificate in Business Computing in 1992 and since then has been working in a selective mix of IT based positions. In more recent times she has become more and more aware of the limitations of her IT knowledge and when she tries to “fill in the gaps” herself she finds that she struggles. She is excited with the courses that

are on offer and didn’t realise that an IT Degree could be so exciting.

**Skill Adding Stan:** Stan has just turned thirty and according to the plan he created ten years ago, it is now time for him to start his own company. He has a marketing degree and now wants to add IT so he can deliver a full range of solutions in a marketing firm he wants to start-up. Originally was planning to do a graduate IT qualification but once he looked at the mix of courses on offer decided to actually do an IT degree with a mix of RPL and classes. Didn’t realise that coding is so hard and though he is enjoying his studies, and says good things about the IT Degree, he had not realised just how much there is to learn.



**Skill Adding Sarah:** Sarah originally completed a degree in accounting but never actually got to be a chartered accounting, as she decided after six months of working that she would do a travel and tourism diploma. She has now been working for nearly ten years in the travel and tourism industry and considers herself blessed in the experiences that she has had all over the world. She is

now doing a graduate diploma in IT and is excited about developing online content for the travel and tourism industry.



**Second Start Stu:** Stu’s father was Scottish and his mother is Fijian. He spent the first half of his life in Fiji where he was born. When his father passed away, he moved with his mother and siblings to New Zealand where they shifted in with his uncle and family. Stu started high school in New Zealand but found the transition was just too much and ended up leaving school with no formal qualifications. He however

is a hard worker and has had a range of jobs and plenty of good references. Now at twenty two years old he wants to have a career in IT. His reading and writing “is not good” and so he is worried about going to a tertiary institution.

**Second Start Sue:** Sue is in her early twenties. She originally tried hairdressing but got in trouble with the law over her ex-partner’s drugs that were found at her flat. She got laid off from hairdressing and has been working in a supermarket. She has just had a baby to her new partner who is “really nice” and does not do drugs. Wants to sort her life out and make a new start with her nice man and baby. She has NCEA Level 1 and always got good marks in technology and science. She enjoys computers and therefore feels that IT will give her the new start that she desires.



**Battling Bertie:** Life has been hard for Bertie. He is about to turn thirty but cannot think of a year when things have gone well for him. Has had back spasms since he was a teenager and despite the doctors trying all sorts of tests and treatment, he cannot completely get relief from the problem. He normally can get through the day without too much discomfort, provided he has the right sort of chair and does the right sort of exercises. Has completed some community computing classes in the past and is now looking at part time / limited full-time options for studying towards an IT degree.



**Battling Beth:** Beth has just turned forty and is giving IT a try. She was told ten years ago, to her relief, that she has autism. She told her lecturer, through tears, that she has always been told that she is stupid and has never been able to develop lasting relationships. Her last ten years have been like a rebirth and with support she has started to understand how she thinks and where her strengths and weaknesses are. She still suffers from anxiety and tends to have her good days and bad days. She is currently excited about her IT pathway but will take it a day at a time.



**International Ike:** Ike is twenty years old and comes from China. He has been in New Zealand for two years and is staying with “a nice” host family. He has just completed language studies and is now wanting to do IT. He is planning to go flatting while he is studying IT. He is really keen and works hard. He understands that he will have to work twice as hard because he struggles often comprehending instructions in English.





**International Ina:** Ina is twenty five years old and comes from India. She has a business degree and wants to get an IT qualification as fast as possible. She has started her classes and is struggling to relate to her classmates and lecturers. She has commented on how it is different studying in New Zealand compared to her studies in India. She has already decided that she does not

like programming and is considering the offer of extra peer support.

For each persona we then workshopped a richer description of their perspective on each competency. These are shown in the following tables (with a key in Table 2). Note, only the male personas are shown (see discussion below).

**Table 1: Agreed distribution of personas into IT qualifications on basis of author's experiences (from four institutions).**

		% IT Cert/Dip	% IT Degree		% of women
Otago Polytechnic	IT Persona (male)			IT Persona (Female)	
Sick of School Sam	Sick of School Sam	40	18	Sick of School Sasha	40 (intake), 10 by end first year.
School Leaver Sally	I dream of IT Gene		20	I dream of IT Gena	30
	Rollover Ralph	10	20	Rollover Rosie	10
	Gaming Garry	20	20	Gaming Grace	<10
Experienced Eric	Experienced Eric	5	5	Experienced Emma	5
Rediscover Ryan	Rediscover Ryan	5	10	Rediscover Rebecca	15
Skill adding Sarah	Skill adding Stan	5	5	Skill adding Sarah	15
Second Start Stu	Second Start Stu	40	15	Second Start Sue	10 (20+ for certs)
	Battling Bertie	10	10	Battling Beth	5
	International Ike		0-40	International Ina	20

**Table 2 Key for persona perspectives on key competencies**

Name	Communicates effectively in writing	Communicates effectively orally	Displays cultural competence	Displays leadership
Works independently	Works well in teams	Reflects on own performance	Acts responsibly	Is Enterprising
Practices Health and Safety	Organises self effectively	Demonstrates resilience	Thinks creatively	Considers community
Practises sustainably	Practises ethically	Thinks critically	Displays work life balance	Plans for the future

<p><b>Sick of School Sam</b></p> 	<p>Struggles with formal writing , dyslexia contributed to school issues</p>	<p>Great oral communication – life and soul of classroom -performer</p>	<p>May have had cultural training or home environment but likely to bring some cultural issues into class.</p>	<p>Has an ability to lead people in school teams etc. but struggles to engage when people challenge his leadership – is learning skills to manage this</p>
<p>Struggles to work independently on entry but is able to learn this skill. Wants to do well but not wanting to put much effort in</p>	<p>Works well with others like him but has to learn to work with different people</p>	<p>Is very reactive in performance, seldom reflects on performance. Lacks reflection skills</p>	<p>Has developed bad habits through school years and therefore his behaviour is not considered responsible</p>	<p>Sam is full of ideas which could be new businesses. He spent his time at school thinking these up.</p>
<p>Same as second start Stu – "she'll be right"</p>	<p>No organisational skills "remembers" what needs to be done. No study plan often no work completed unless in class</p>	<p>Not yet resilient. Is easily knocked off track by home &amp; life crises. A contributor to his school experience</p>	<p>Has developed creative skills in avoiding school work. Needs some channelling.</p>	<p>Community is not yet a focus for Sam, but happy to work on community projects.</p>
<p>Has no depth of knowledge in sustainability but "knows about recycling"</p>	<p>Does not really understand where ethics fits? There is the law and apart from that it is about what you are able to actually do (so plagiarism not seen as breaking the law).</p>	<p>Has never really had to think critically. No one has taught him how and so he lives reactively</p>	<p>Sam has keen sporting interest and balances study to ensure he is free on Saturday</p>	<p>Sampling a possible future</p>
<p><b>I Dream of IT Gene</b></p> 	<p>Able to get basic understanding across. But needs to remember to use spell checker and to check his grammar.</p>	<p>Gets basic ideas across. Not comfortable talking in front of class.</p>	<p>Has learned cultural awareness at school and in family. Struggles with relevance to IT but is socially competent. Has been taught about cultural awareness but hasn't experienced any other cultures. Doesn't see the need to engage in that "stuff"</p>	<p>From a rural background, he has had to take leadership roles in the family, so it is a skill that he has used in the classroom</p>
<p>Needs guidance and to know expectations but can work mostly independently</p>	<p>Enjoys working with Friends, likes challenge of competing against other groups</p>	<p>Always queries "lost marks". Keen to push self further. Aims towards 100%</p>	<p>His Gran says he's a nice boy and he seems to be living up to that.</p>	<p>Gene has participated in Young Enterprise at school, and is keen to start his own business</p>
<p>Invulnerable no need for health and safety</p>	<p>Organised had future mapped and worked hard to get there.</p>	<p>Gene has developed resilience through school. Is unlikely to improve these skills in further study.</p>	<p>No recognition in NCEA of technical skills – very frustrated – games to find challenge</p>	<p>Sees the application of IT in community and is keen to get started.</p>
<p>Gene has a custom game setup that cost a lot but with upgrades has lasted 7 years. Argues that this is better than a new machine every year.</p>	<p>Knows that when employed won't have to deal with ethics, that is the employer's responsibility. So finds all this talk of IT ethics a bit of a bore.</p>	<p>Perceptive, enthusiastic for learning good critical thinking</p>	<p>Gene would rather spend all weekend coding than go to a social event. Why should life/work balance be a problem?</p>	<p>People keep talking about making evidence portfolios and a CV and getting industry experience, but his coding problem is actually quite interesting.</p>

<b>Rollover Ralph</b> 	<p>Able to get basic understanding across. But needs to remember to use spell checker and to check his grammar.</p>	<p>Gets basic ideas across. Not comfortable talking or presenting in front of class.</p>	<p>Learned this in school may not have paid attention but knows it matter</p>	<p>Will take leadership in areas he is are enthusiastic about.</p>
<p>Needs guidance and to know expectations but can work mostly independently</p>	<p>Whatever.</p>	<p>Have confidence in own abilities, from what they are taught at school. Did not see the importance of reflection, but now have learnt its value in self and process improvement</p>	<p>Drifted through school, achieving without really trying. Hasn't really had to explore consequences of actions. Doesn't really care about computers but is passionate about sea-cadets. Sees link when he does his third year project on cadets.</p>	<p>Not enterprising as is lacking motivation and interest in subject area.</p>
<p>No need for health and safety</p>	<p>Lack of enthusiasm in subject reflects in poor organisation</p>	<p>Low resilience. Any pitfalls lead to giving up, not trying harder.</p>	<p>Ralph is easily distracted. Is creative in a tunnel vision sense - a topic they like, he'll be creative. Otherwise nothing.</p>	<p>Was excited when one lecturer let him do an assignment on rugby club, wishes they would all be like that.</p>
<p>Doesn't know why he is doing computing, the examples in the textbooks are all about business. Doesn't have time for assignments because flatmate rope him into organising a rally for social justice. Has never made connection</p>	<p>Whatever I can get away with is okay, as long as no one gets hurt. Ethics don't apply to me – don't get caught.</p>	<p>Is trying to develop critical thinking skills but is struggling with the context. Lack of motivation in the topics and therefore does not desire depth</p>	<p>Can't see the point in assignments that no one will read. Would rather be helping organise fundraiser for rugby club.</p>	<p>Hasn't made any plans so far, seem to be doing OK, why should I start now?</p>
<b>Gaming Gary</b> 	<p>Able to get basic understanding across. But needs to remember to use spell checker and to check his grammar.</p>	<p>Gets basic ideas across. Not comfortable talking in front of class.</p>	<p>Doesn't think he's ever met someone from another culture. His Friends Sanjay and Tino like computers too – it's all the ever talk about.</p>	<p>Not interested in leadership as requires "too much work"</p>
<p>Not good at independent work, easily distracted off topic</p>	<p>Enjoys group work as can achieve with minimal effort</p>	<p>Is proud of being at healer level. Frustrating that people tell him that isn't real world.</p>	<p>Class rules set up to give ownership and stop me from being inappropriate. I want to be like and fit in (find my place in class).</p>	<p>Gary is enterprising, as long as the business involves gaming. Eg. Start own gaming company or café</p>
<p>Has no danger of sunburn as never goes outside</p>	<p>Poor organisation but somehow manages to pull off a LAN party which 100 attend</p>	<p>Demonstrates resilience, so he can keep gaming. Great organisational skills in setting up LAN, meeting game deadlines.</p>	<p>Gary will do anything if it is gaming, anything else is irrelevant. Is misplaced, should really be doing design</p>	<p>Is an Uber leader on MineWar with 100s of druid cub followers. Has an idea that these skills should somehow translate to the "real world" but for the moment the game is real.</p>
<p>Has an idea for a game that will change the world by solving climate change.</p>	<p>Demonstrates "rules only apply if caught" attitude.</p>	<p>Low response for critical thinking except in high interest areas – "tunnel vision"</p>	<p>Comes to class tired from playing games all night.  Gaming-No balance, miss class, no homework. New game out – no show in class.</p>	<p>No direction, day by day view. But secretly worries if his coding will never be good enough</p>

<p><b>Rediscover Ryan</b></p>	<p>Highly intelligent, excellent communication skills both orally and written (went on to do post graduate).</p>	<p>Asks questions. Clearly communicates in class and enjoys doing presentations</p>	<p>Culturally sensitive. Willing to learn. Works well with international students.</p>	<p>Willing to take the lead in organising a group. Others think he is bossy.</p>
<p>Motivated. Works well on their own. Work handed in early. Likes to work independently as not let down by younger students.</p>	<p>Excellent team skills. Participates well and is willing to lead. Has little patience for the kids in his group mucking around.</p>	<p>Will often reflect on own performance and makes changes but needs to learn some skills around deeper reflection.</p>	<p>Is really focussed on getting the qualification and therefore acts responsibly and is passionate.</p>	<p>Always thinking of using skills to make money. Involved in start-ups. Now has own business.</p>
<p>Through life experience, Health and Safety is relevant to him.</p>	<p>Is organised. Has a real drive to do well and therefore plans ahead.</p>	<p>Is very resilient. Has often had to complete things without understanding all the rules and so has developed own ways of working.</p>	<p>Is very good at thinking creatively as has not always had structures/systems in place. Lots of life experience.</p>	<p>His teacher, his doctor, his friends, his sports coach, his parents, his classmates all tell Ralph about community but who cares? Ralph is a self-made man. He got to where he is without help from others.</p>
<p>Has not really considered sustainable practices but realises a passion for it as study progresses.</p>	<p>Has developed an understanding of ethical practices within the scope of life experiences but has never studied ethics theory. Knows that in real life things are not black and white. Enjoys the opportunity to explore ethical dilemmas but wishes classmates could see that it is more complex than "would you steal a car"</p>	<p>Has developed a range of critical thinking skills but not a lot of depth. Is interested in the critical thinking tools that are now being introduced.</p>	<p>Managed to complete undergrad and post grad papers. Runs a household.</p>	<p>Has career planned. Directed in study.</p>
<p><b>Experienced Eric</b></p> 	<p>Struggles with formal academic writing, despite work/life experience. Communicates well in writing. Has learnt this skill by writing reports on the job. Uses full sentence structure.</p>	<p>Good at talking to people. Needs to adjust some language and body language.</p>	<p>Maori student who is grounded in his own culture but is also accepting of other cultures. Will spend time with others explaining his culture but is not pushy.</p>	<p>Natural leadership, due to life and work experience. Feels they should lead as "know all"</p>
<p>Works well independently, as has been in a sole charge position.</p>	<p>Good team worker but is frustrated by poor performing students.</p>	<p>Critiques own work. Looks at what value can be added. Makes sure that all details of an assignment is covered.</p>	<p>Works well in class. Benefit of being a mature student. Takes ownership of own mistakes.</p>	<p>Has worked in own company. Sees opportunities for enterprise. Needs some skills.</p>
<p>Worked in a physically hard job and body cannot handle that now. So is very conscious of Health and Safety. Has industry experience. Has developed some bad habits around Health and Safety, "didn't need that in their day".</p>	<p>Motivated as they know how much it costs. Want to get the most out of course work. Submitted early.</p>	<p>Has had lots of life knocks. Knows how to bounce back and continue towards goals. Has stickability. Worries about ability to study and so needs support/encouragement.</p>	<p>Has had creativity worn out of them from previous jobs. But always thinking of additional things they could add to assignments to make them better.</p>	<p>Is often embedded in the community with family and community commitments. Runs Scouts on a weeknight. Has been in airforce as tech support.</p>
<p>Once worked in an office in a transport company. Knows that so called recycling just gets put in landfill. Climate change is a conspiracy. Can't understand why didn't get an IT job for city council transport planning department.</p>	<p>Understands implications of ethical behaviour.</p>	<p>Often appears to jump from thing to thing, But other occasion, when is reminded of kaupapa, thinks deeply and holistically.</p>	<p>Refers to study as wok, Gets to work early. Talks about family life.</p>	<p>Good direction. Is rebooting career and this is vehicle for doing that.</p>

<b>Skill-adding Stan</b> 	<p>Very effective at sentence structure when writing. Has not written a report for a while and needs some refreshing.</p>	<p>Has good verbal skills.</p>	<p>Does display cultural competence. Understands NZ cultural considerations. Has to develop knowledge for IT specific context.</p>	<p>Has had leadership experience and has worked a lot in teams. Is struggling a bit with confidence to lead in an IT environment</p>
<p>Works very well independently. Has had to be organised in the past and therefore has developed self-management skills.</p>	<p>Wants something more challenging and creative. Works well in class. Benefit of being a mature student. Takes ownership of own mistakes.</p>	<p>Has the ability to reflect on own performance but is nervous to do so, as IT is new and lacks confidence.</p>	<p>Already has degree in horticulture but cannot get employment in that industry. Sports person at competitive level – strong heritage links.</p>	<p>Has had a lot of experience in various communities. Considers communities. Is keen to get involved in IT communities.</p>
<p>Is very conscious of Health and Safety but can't see that much relevance to IT</p>	<p>Highly organised. Is still working and is attending to acquire new skills. Has to organise work/home/study balance. Has many things on the go at once.</p>	<p>Is normally resilient and can handle a lot but life “has been turned on its head” by studying. Feels like a “fish out of water”.</p>	<p>Is very creative. Has developed creative thinking skills. Is looking forward to being creative in an IT context.</p>	<p>Enjoys friends. Enjoys socialising. Attracts likeminded game geeks.</p>
<p>Has worked in Department of Conservation. Made redundant in restructuring. Wants to now make a difference – but “not in gumboots”. Has an idea for a national park management system for which IT is needed.</p>	<p>Has a broad experience of having to practice ethically. Is having to adjust to some of the ethical challenges of IT</p>	<p>Has achieved critical thinking through experience/ academic study.</p>	<p>Struggles a bit with work/life balance as is used to doing long hours while working but now is trying the same with study. Is tired.</p>	<p>Clear view of new career. Plans well for the future. Works hard to achieve goals.</p>
<b>Second Start Stu</b> 	<p>Writing has not improved as most of their written communication is informal</p>	<p>Nervous presenting but clearly spoken and able to communicate well during class.</p>	<p>Has been taught cultural awareness at school and interacts with many cultures online</p>	<p>Mature, willing to take lead even if finding it difficult. Accepts job needs done.</p>
<p>Works on what he wants to do but is not reliable to complete tasks assigned by others. Wasted time in past wants to “make a go” of new opportunities</p>	<p>Prefers to work with others in an online environment rather than face-to-face</p>	<p>Never did well at school. Has child, wants to learn IT as a lucrative career for family.</p>	<p>Stu is often caught between the desire to be one of the lads and to be responsible. Often caught setting goals to achieve, before he gets time to play.</p>	<p>Bit of a schemer, always thinking of commercial opportunities. Finds assignments for their own sake frustrating.</p>
<p>Has a bit of “she’ll be right” attitude. Has developed some bad habits. Does not see the relevance.</p>	<p>Motivated due to cost of course. Determined to do well and get good marks. Works hard to get work in before time.</p>	<p>Shows lots of determination in his work as he knows the alternative is back to his supermarket job. Wants a lot of interaction to make sure he is on the right track. Eager to please.</p>	<p>Has done a variety of jobs: retail, wait staff, courier, fruit picking. Doesn't see themselves as creative. “I can't draw” but whenever is set a coding task, is always distracted by working out how that would solve a problem in one of his/her previous jobs</p>	<p>As a mature student, sees need for giving back, keen to be involved in projects</p>
<p>Has no depth of knowledge in sustainability but “knows about recycling”</p>	<p>Does not really understand where ethics fits? There is the law and apart from that it is about what you can actually do.</p>	<p>Having previously attended the “university of life” is dismissive of “theory” and time “wasted in irrelevancy”. But time spent following instructions means has a passion for clear understanding that turns into skills in critical thinking.</p>	<p>Coming back to study is hard work, so Stu has put balance aside in interest of improving his grades.</p>	<p>Wants IT but unsure of future direction.</p>

<p><b>Battling Bertie</b></p> 	<p>Bertie has had to deal with many Government departments in his struggles, is able to write well to explain his case and to establish his rights. Written communication sparse and lacking valid points</p>	<p>Oral communication often bountiful but lacking substance</p>	<p>Was adopted from Maori parents to Pakeha family. Huge feeling of loss that has never been filled. Programme such as He Kakakano enormously empowering. Very aware of cultural matters will often advocate for others.</p>	<p>Leads from the front. Is a face to face person. What you see is what you get. .</p>
<p>Often prefers to work alone as others are obstruction to achieving. Now realises that having others working with her lightens the load if they are working together</p>	<p>Appreciates group support as finds work difficult to do.</p>	<p>Concerned over poor performance, but even with extra assistance is really struggling</p>	<p>Will do everything they can to get things done – can often take risks without thinking about the possible consequences. And ends up with more work from this approach.</p>	<p>Bertie battles to keep on top of studies and does not have energy to think about new enterprises yet</p>
<p>Started with the attitude that it only gets in the way. But now understands and is likely to be the person enforcing safety in the group.</p>	<p>Poor self-organisation</p>	<p>Bertie is resilient and has battle scars to prove it. Some of his strategies may not be perfect for study environment. Survives multiple failures but perseveres to fail again.</p>	<p>Has had to overcome a lot and therefore has been creative in much of what she has done. However is use to "firefighting" and so needs planned creativity</p>	<p>Bertie has been involved with community support groups and enjoys chances to be involved.</p>
<p>Is involved in several groups within community. Despite being in wheelchair, volunteers at community garden, refugee resettlement and victim support. Guilty that has to be driven everywhere – including to class</p>	<p>Beth – fights for what is right, both for others and themselves.</p>	<p>Battles through life struggling to maintain balance of positivity and cynicism. Is dubious about ideas and systems which could be turned into critical thought.</p>	<p>Has often struggled with work/life balance as things tend to happen to him. Does not feel in control enough to do this.</p>	<p>Whole life story is considerably more complex than what they present with. Plans for future appears to be a lack of direction, but getting out of bed is an enormous achievement. Survival of present overshadows future.</p>

## 1.5 Discussion

The premise of this paper is that a consideration of the personas of IT students would allow for a rich description of perspectives in educational design and delivery. We have demonstrated this with a consideration of core of how the competencies can be applied within IT.

It is not the purpose of this section to fully develop those core competencies, rather, it is to explore the nature of the descriptions. The process has allowed a wide range of perspectives. For example, when looking at the various elements of the competency “Works independently” we not only see a broad range of skills from “Struggles to work independently” all the way to “Works well on their own”. The personas also expose behavioural components, such as the motivations that might exist: “wants to do well”, “gets distracted easily”. This multiplicity of perspectives allows a richer exploration of the key components of a competency.

The process also highlights tensions within learning environments due to multiple personalities. Some of the elements of “Practises sustainably” highlights how the different personas have varying understandings, viewpoints and motivations. This includes that sustainability is just about “recycling” through to a more complex “National Park Management System” and even that sustainability is a “conspiracy”. An understanding of the behaviour components within a competency informs learning facilitation and can be utilised to promote open discussion.

There are limitations of this approach. Clearly there are elements in the descriptions that both expose bias of the

authors, and can be seen to generate stereotypes. This is demonstrated in some of the elements described for the persona of “Gaming Gary”, such as “Comes to class tired from playing games all night. No balance, Miss class, no homework. New game out – no show in class.” Turner and Turner (2011) argue that this is “almost inevitable” and that “to use a stereotype is to use a form of shorthand which is necessarily missing the very detail we are trying to capture or include”. This would have a constraining effect rather than the hoped for generative effect. However Turner and Turner go on to point out that stereotypes are “often disconcertingly accurate”. They conclude that “stereotypes can be positive and accurate; positive and inaccurate; negative and accurate; and negative and inaccurate” and “may be usefully thought of as comprising a number of tensions”. In our case, the authors report - albeit anecdotally - that the engagement afforded by the persona process was much higher than if we had sat down to explore competencies without this vehicle.

In the initial round where we considered the Otago Polytechnic personas, the authors decided that gender was important and not something that could be ignored in generating the personas. However, when we expanded the personas to consider the competencies we found ourselves slipping back to the male personas. Only in a few cases were the pronouns feminine. Indeed we purposefully avoided the gender neutral “they” to make it clear that the persona was a real person, not a class of people - so we preferred “Stu is a good student” rather than “they tend to be a good student/s”. So why not “Sue is a good student?” We have reflected on this lapse. We think it is in the nature of a persona as a narrative vehicle for summarising a

large number of voices. With the tiny participation of women in IT education, once we had segregated the women into personas, we found ourselves uncomfortably considering actual people, not a fictitious characterisation. Somehow we could describe characterised individuals, but not actual individuals. Because we based our personas on our experience as IT educators, we perhaps didn't have the experience to confidently characterise the female persona's relationships with the core competencies for the women.

Personas are an attempt for a richer representation of segments - to turn clump into person to generate insight. Even though the approach was a simple one based on experience rather than empirical data, we successfully used personas in the exploration of a set of core competencies IT education.

## 1.6 References

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