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Paper title: Accepters, Converts and “Resisters” on the road to *Globo sapiens*

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Abstract

I want my teaching to contribute to a society that chooses to “survive” rather than “fail”. I have described elsewhere how a reflective process and on-line support contributed to a learning “oasis” - that encouraged many first year engineering students to leave their cultural and intellectual comfort zones to on the way to becoming sustainability professionals for an increasingly complex century. This led me to consider several common models of graduate attributes, *Globally portable*, *Globally competent*, and my preferred model, *Globo sapiens* (wise global citizens). This paper uses further research findings to counter common criticisms of “soft skills” units by students and staff, using interviewees’ comments to show that the teaching environment and strategies provided *precisely* the personal, academic and professional benefits about which students and staff were most dubious.

More significantly, it shows *how* particular students resisted or reconstructed their worlds when challenged at fundamental levels, but within a supportive atmosphere. 60% were willing to engage with change, 30% changed their minds from regarding it as “crap” and a “waste of time” to seeing it as beneficial and useful, and 10% resisted all the way. Learnings included my own journey from seeing these students as *Resisters*, to seeing their “resistings” and responding more effectively in my teaching. The study has international relevance because it was based in large, socially and culturally diverse cohorts of first year engineering students, many of whom did not choose or want to study such a course. Such cohorts are the *most* likely norm as Higher Education responds to increasing pressures for global “education *as* sustainability”.

Accepters, Converts and ‘Resisters’ on the road to *Globo sapiens*

1. Introduction: Survive or fail?

There is a decreasing window of time, possibly ten years, in which we can still make a difference to ecological crises such as global warming (Steffen et al, 2004, Paavola & Lowe, 2005; Monbiot, 2006, M.A., 2005). My research offers hopeful insights into the process of transformative learning that lies behind the changes we need in order to survive rather than fail (Diamond, 2005). The UN Decade of Education for Sustainable Development (2005-2014) supports teachers at all educational levels to work towards this. I have reported previously the ways I used reflective journals and on-line support to help create a learning “oasis” (Kelly 2006a, 2006b). This was designed to encourage first year engineering students to leave their cultural and intellectual comfort zones to engage with what it means to be critical beings and sustainability professionals, in a century faced with growing ecological and social crises (Steffen et al., 2004).

This led me to consider two common models of graduate attributes, *Globally portable* and *Globally competent*, before developing a preferred vision, *Globo sapiens* (wise global citizens). I compare these in Table 1 below and summarise their main differences as the background to discussing some other significant findings from my study:

- the emerging pattern of Accepters, Converts and Resisters and how this impacts on teachers and students
- the move from seeing resisters to “resistings”; how does this help?
- some examples of student change and transformative learning and
- countering criticisms of “soft skills” subjects.

2. ‘Sustainageers’ - globally portable, globally competent or *Globo sapiens*?

What sort of graduates do we want? Whose vision guides us? I originally used “globally portable” as a catch-phrase because it linked to employment and I felt under pressure to “justify” my approach to students and the faculty, as “useful”. Globally portable is usually expressed in lists that include “Leadership skills, Fluency in English, Ability to work with others, Depth of work experience and Communications skills” (Frankenstein, 1997, p.34). I became concerned that portability denoted an end “product” in a marketised version of globalisation. Globally portable graduates or *Homo economicus* “apply” their “skills” to “ends laid down” by their employers (Sharp & White, 1968, p.15, cited in Kenway and Langmead, 1998, p.30). The missing dimension in workers and the term is the integration of values, ethics and responsibility. Education based on global portability may engage the head and the hands, but there is no heart¹.

I moved to “Global competence” or *Homo globalis* (global man) (sic.) This broader term has been adopted by global management because of its potential to help avoid some of the risks of operating in global markets. From this perspective, cultural knowledge is useful when it serves personal and company ends (Guirdham, 1999;

¹ See Sterngold, (2003) for an extreme example - “mini-nukes”.

Waddock & Smith, 2000; Sullivan & Tu, 1995). More useful understandings of global competence include Wilson’s five attributes (1994) and the concept of graduates as citizens of a civil society (Annette, 2005; Crick, 2005; Nunan, George, & McCausland, 2000; Heath, 2000).

These concepts were useful but progressive national and international concern about the nature of engineering in the 21st century called for engineers able to “contribute to a renewal of civil society and take responsibility for the social and human, as well as the technical and economic, consequences of their work” (Lloyd et al. 2001, p.170). Hood, now Deputy Chairman, College of Environmental Engineers, urged engineers to “assume new responsibilities – and ‘dare’ to speak and act in new ways” asking questions such as “what” needs to be sustained, before deciding how to do it (1999, p.20). The role of engineering educators is to teach engineers to ask such questions (ibid).

This encouraged me to develop a broader and more explicitly values-based vision from Malaska’s term *Globo sapiens* (1997)². I developed this in an education context to mean reflective, reflexive professionals united by a common sense of global responsibility, “wise” global citizens. The core word is “wisdom”, which is rich in potential cross-cultural understandings and deserves more attention³. By *Globo sapiens*, I mean graduates not only with the skills and attributes of Global Portability and Global Competence, but also with qualities and understandings that will prepare them to engage in thinking, dialogue and action around preferred, sustainable, (critical and multicultural) futures. *Globo sapiens* is one evolving, guiding vision, not an end in itself. As you can see in Table 1 below, *Globo sapiens*’ qualities build on and offer an extended form of Bellah’s “democratic habits of the heart”, “respect for others, self-respect, willingness to accept responsibility for the common good, willingness to welcome diversity and to approach others with openness” (1985, in Mezirow, 2000, p.14).

Table 1: The attributes of three possible graduate visions

Globally Portable: <i>Homo economicus</i>	Globally Competent: <i>Homo globalis</i>	‘Wise’ Global Citizen: <i>Globo sapiens</i>
Gendered - male	Gendered - male	Gender inclusive
Attributes	Attributes (subsumes those of Global Portability +)	Attributes (subsumes those of Global Portability and Global Competence)

² Malaska was describing the end product of a process by which new humans and non-humans would eventually coalesce into a new hybrid internet progenitor “Grandpa and Grandma Internet”, a “global mind with superior intelligence and wisdom” (1997).

³ Thaman contributes “*poto*”, meaning “wisdom and experience” with “intellectual, emotional and spiritual connotations” (Thaman, 1998 in Thaman, 2006, p.2-3). I engage with wisdom in more depth elsewhere (Kelly, 2006). See Tao (2004) for a Confucianist –guided approach to sustainability.

Leadership skills	Substantive knowledge	<p>S/he will be "...sensitive to the different ways we learn from each other and know the world" and "able to exercise imagination in order to "feel for and with the other" (Inayatullah, 2002), Brennan, 2005)</p> <p>S/he will show evidence of global consciousness (Markly, 2002, p. 340).</p> <p>S/he will be able to contemplate changes to their current way of life, rather than taking its continuation for granted.</p> <p>S/he will be capable of trans-generational thinking</p> <p>S/he will be a person of courage/ "Critical being" Barnett, 1997, p.173) / "Parrhestiastes" (Foucault in Sidhu, 2006)</p> <p>S/he will work towards healthier futures, from the personal to the spiritual. (Inayatullah, 2002)</p>
Fluency in English	Perceptual understanding	
Ability to work with others	Capacity for personal growth	
Depth of work experience	Ability to develop international, interpersonal relationships	
Communication skills	Ability to act as a cultural mediator	
Creativity (Frankenstein, 1997, p.34).	(Wilson, 1994, p.41).	

3.Student responses : Accepters, Converts, Resisters

Once I had the courage to begin the research, I found that 65% of students were *Accepters*, willingly or grudgingly prepared to engage with change, 26% were *Converts*, who changed their minds from regarding it as "crap" and a "waste of time" to seeing it as beneficial and useful, and 9% were *Resisters*, who resented it all the way. Resister responses are not unusual in Engineering (Burrowes, 2001, p.36, Tonso, 2001). Table 2 below represents samples from five cohorts.

Although consistently the smallest group, average 9%, Resisters confidently claimed to speak for the "overwhelming majority", who they asserted, disliked the unit, hated the journals and only wrote what they had to in order to pass. They saw no need to learn communication skills by communicating but preferred an examination in place of assessed tutorial exercises, Reflective Journals or projects⁴.

⁴ A similar group of 15% "least amenable" to change have been identified in the general population and labelled "laggards" (Rogers, 1962, 1995 in Taylor, 2005, p.8).

Table 2: Numbers of Resisters, Accepters and Converts compared across five years

	2001 [316 total]	2002 [344 total]	2003 [429 total]	2004 [369 total]	2005 [335 total]
Accepters	93 = 66%	99= 71%	77= 56%	24 =63%	50 = 68%
Converts	35 = 26%	29 = 21%	47 = 34%	10= 26%	19 = 25%
Resisters	12 =9% n= 140 45% cohort	12 = 9% n = 140 39% cohort	13= 9% n = 137 32% cohort	4 = 11% n= 38 10% cohort	5 = 7% n =74 22% cohort

Behind Resister responses was often anger and fear. Challenges to the status quo, whether through gender, culture, age, content, teaching and learning styles, are correctly perceived as threats and may be strongly resisted by those who benefit most from its continuance (Tonso, 2001, p.162). The reflective journals raised the issue of power in the learning environment because they created an equalising situation – most students found them difficult, although for differing reasons.

Resisters can be a disproportionately powerful negative influence on others in lectures and online, because in cultural terms, they see only their perspectives or norms of behaviour. Unfortunately, they represent their assumed dominant view so loudly and with such certainty that other students (and teachers) tend to believe it as well. However, supportive relationships and environments play a crucial role in transformation (Taylor, 2000, pp.307-8, Barnett, 1997, p.164). We have to want to change and our motivation is influenced by our relationships with those around us at various levels and how power is exercised in those relationships. For example, fear of expressing feelings was not unique to Resisters, but they were a large influence on it not being “cool” to say something positive or praise the unit.

Before I finish this journal, I'm going to reveal something about myself that I would never tell my mates. I've started to write personal journals about myself on a weekly basis. These journals are not for uni, but rather, for myself. SEE, BNB007 HAS HAD AN EFFECT ON ME and I'm positive that it is a good one. (Male, Bi-cultural, 2001, Convert)
[emphasis in original]

Recent community research also highlighted the “peer group’s supportive impact” on “individual learning and confidence-building” (Taylor, 2005, p.8). This is one compelling reason why Resisters should be made aware, in respectful ways, that their opinions are not those of the majority. Teachers trying to bring about change should also be encouraged by knowing that the majority of students were Accepters, many of whom used the learning opportunities to move gradually or dramatically towards new ways of thinking or transformation.

Through this learning journey I have developed a new perspective on life. (Female, ESB, 18, 2004, Acceptor)

Early evaluations of innovative teaching practices are essential in order to ascertain how many students really do “hate” new content or approaches and where the problems lie.

Typologies were a useful reality check, but without further research they could have stagnated into unhelpful “labelling” and blaming. My interviews with consenting students, guided by Sense-Making methodology, enabled me to see behind the behaviour to the causes (Dervin, 2003)⁵. Sense-Making looks at how we construct sense in any context. It moves the focus from the noun or state, to the verb or action. As I moved my focus to the students’ “resistings”, it helped me change from seeing “Resisters” as aggressive “blockers”, to considering what was blocking *them*. I then had the confidence to spend more time addressing these blocks and less on being defensive or blaming, of myself or them. I became more effective as their teacher and more empathetic with their problems.

4. “Crap, wishy-washy, waste of time”? Where’s the evidence?

The most widely stated and “accepted” student and staff criticisms of BNB007 and similar “soft skills” units were that it was “airy-fairy”, a “waste of time”, and “irrelevant” to engineers/engineering (Pulko & Parikh, 2003). Destructive criticisms of “soft skills” units by students and staff are entrenched and not peculiar to Australia. Respected Pacific educator Konai Thaman reported being told that “cultural literacy and intercultural issues” are “wishy-washy and a drain on resources” (2006, p.14). Empirical research helps to explain why such comments are not only inaccurate but a damaging and unhealthy aspect of engineering discourse. The Reflective Journals and interviews clearly showed that, for many students, this teaching environment and our strategies provided precisely the personal, academic and professional benefits about which students and staff were most dubious.

Table 3 below is a small excerpt from a larger table, comparing 9 categories of “Expressed Doubts” or criticisms that interviewees or staff expressed verbally or in writing about BNB007 and the reflective journals, with their reports of the experienced or “Reported Reality”(Kelly, 2006, pp.302-306). Many of the Expressed Doubts (Column 1) underpin the myths of engineering’s “tight” culture (McIsaac & Morey, 1998, p.114). Column 2 shows the reported realities, sorted into the relevant benefits. The complete table includes Transferability, Approach to Learning, More connected to Engineering, Skills, Ways of thinking and approaching problems, Improved Confidence, Enjoyment, the Journals, the Topics, Engineering, Feelings, Ethics and Environment.

Sustainable education...would nurture the human qualities that progressive businesses and organizations interested in social, economic and ecological sustainability are now nurturing (Sterling, 2001, p. 48)

What is clear even from this sample is the way students have expanded their notions of self, of engineering and what it means to be a “sustainageer”, an engineer who is also on the road to becoming *Globo sapiens*.

⁵ I cannot do justice to Sense-Making methodology here. As well as Dervin’s book (2003), my understandings and comparisons of Sense-Making and my other methodology, Causal Layered Analysis, (Inayatullah, 1998, 2004) are available (Kelly, 2004, Kelly, 2006).

Table 3: Expressed Doubts about Reflective Journals, BNB007 and Engineering compared with the Reported Reality⁶

Expressed Doubts / Myths	Reported Reality
<p>1. Waste of time, Crap, Touchy feely “Waste of time” [Lady- Arwen, Bo] “Useless, irrelevant” “Airy-fairy <i>Fluffy</i> subject” [Bo] “A bit of a sort of touchy feely sort of stuff that’s not going to be any use”. [Peter Parker]</p> <p>“Oh this will be a pain”. [Yamaha]</p> <p>2. Engineering “the image of big machines...hadn’t though much about sustainable engineering” [Jimmy] “Maths and Physics” [Peter Parker]</p> <p>“Maths and science and sitting in an office and not really dealing with people or having a direct impact of people [Lady -Arwen]</p> <p>Engineering is a tough course...great responsibility...I always think Engineer is working alone” [Harry]</p>	<p>Transferability “Took the ‘hoodoo’ [from my bad experiences in Nursing] on the word Reflection away”[Bo] “I should be doing this for all my other subjects...to make sure I do revision. I thought, I can do this in other subjects as well” [Lady Arwen] “It helped me with my other subjects” (Yamaha)</p> <p>Approach to learning “They took up time but freed up space. Frees your mind up...uncluttered my mind”. [Yamaha] “I am more disciplined, more serious about my studies...helped me network – know more in the profession” [Jimmy] “It changed my idea of what Engineering was. I was really excited about becoming an engineer” [Lady Arwen]. “Spurred me on...I <u>cannot</u> be put off” [Muffin] [Males] “Got connected to IEAust...Joined, see it as source of support.” [Peter Parker]</p> <p>Skills “When you dealt with people you were working with or consulting with, that you really needed to have your interpersonal skills working and you need to speak to them politely, using manners and listening to everything they had to say”. [Clarke]</p> <p>Ways of thinking and approaching problems “Helps students look at things from a more engineering point of view...Helps transition to engineering for students with no experience...I can think better now.” [Bruce]</p> <p>Engineering “It’s not just whether the gears turn at the right ratios or the electronics are right, it’s also the by-products it creates...sustainable engineering is going to be big so letting us know now and how they’re working towards it ...helps with the overall big picture” [Jimmy]</p> <p>It has all that and more...culture, political context, ...dealing with people and having an impact on other people’s lives but in a positive way...that’s amazing.” [Lady Arwen]</p> <p>“Engineer is always working with other people...people is very important to Engineer” [Harry]</p>

⁶ All the names used here are the pseudonyms students chose for themselves. This is a mandated aspect of the Sense-Making interviewing process.

How am I going to graduate? [Harry]

I thought a professional engineer was an ideas man, b. a number cruncher and then c. the overseer, the guy who makes sure his idea actually comes into implementation and what he saw when had the vision is actually being built out there [Clarke].

“How do I contribute to people as an engineer?” [Harry]

“...in this day and age to be a sustainable engineer is the only way you can be... those ideas you come up with will have to be sustainable ideas and then when you crunch those numbers you'll get an answer that will have to be sustainable and when it's being built you'll have to make sure that the way you construct it doesn't harm your own....people that surround where you're building in any way”. [Clarke]

5. The “how” of change

Sense-Making methodology is complex but among other techniques, encourages interviewees to keep “circling” a question or gap, until deeper understandings emerge of what “helped” or what “hindered” their learning at any given moment. Analysing the Sense-Making guided interviews allowed me to identify what sort of questions the interviewees had about the reflective journal process and the lecture topics and when support would be most crucial. Sense-Making techniques also uncovered how and why particular students resisted or reconstructed their worlds when challenged. Positive, values-based outcomes emerged as “got connected”, “got respect”, “got insight”, “got inspired”, “got courage”, “got healing” and “got transformation”. “Got connected” was a significant use identified in previous research (Dervin, 2003). All but one interviewee (25/26) reported “uses” which I classed as “Got Connected”, in relation to their identified “questions” or gaps. Of 92 identified “connectings” half became connected to self and feelings (15%), or to others (37%). Other “connectings” were to engineering (13%), to the issues (16%), to the environment, the world or life (14%) and to the past and future (4%). *Alexander* connected “my life experience, my imagination and my work”. *Yamaha* said “You are touching people through who you are”. Once “connected” or more correctly, along with their connectings, students were helped to develop other “uses” such as “got healing”.

I highlight this because healing ourselves is an essential corollary of a healthy planet. Inayatullah argues that “health and healing” together are the defining dimension of the “next five hundred years...(replacing ‘strategy’)", (2002, p.142). Twelve of the interviewees or almost half (46%), reported experiences I identified as healing some past hurt, changing qualities they identified as not healthy for them, or a clearly expressed moving towards an integrated, holistic view of themselves. As *Alexander* expressed it, “I am a more complete human being”. As I identified new “uses”, particularly those mentioned above, I could see the qualities of *Globo sapiens* many students were developing.

6. Conclusion

We are in real danger of creating post-modern learning institutions, whose graduates are able to exploit others and the environment more efficiently and effectively than their predecessors (Sterling, 2001, p.45).

If we do nothing, (as most governments are choosing to do) and if warnings became unavoidable crises, would education be able to respond fast enough by reorientating to sustainability-guided education? If we do heed increasingly urgent warnings that “Our civilisation will collapse if we continue to serve short-term economic growth at the expense of living within the limits of natural systems” (Lowe, 2006), then Higher Education will need to change rapidly. In this case, teaching large, unwilling cohorts who would not have chosen to study units with a sustainability dimension will be the norm.

There is a precedent. The small country of Cuba faced huge economic and social crises in 1989 with the fall of the Berlin wall, subsequent loss of Soviet subsidies and draconian US embargoes on essential supplies of food, medicine and medical supplies (Zepeda, 2003, p.2, Lara, 2002). In order to survive, Cuba instituted dramatic reforms that included a reorientation of *all* education to an “agroeducational technology” paradigm. Although still struggling and hardly ideal, Cuba has “created what may be the world’s largest working model of a semi-sustainable economy” (McKibben, 2005, p.2/13). Could we do something similar?

Many students have been encouraged by education and media messages to expect a future of endless growth. Teachers who take the Decade of Education for Sustainable Development seriously need the courage and skills to challenge these expectations. It may not be a popular approach but it is our responsibility to future generations.

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