

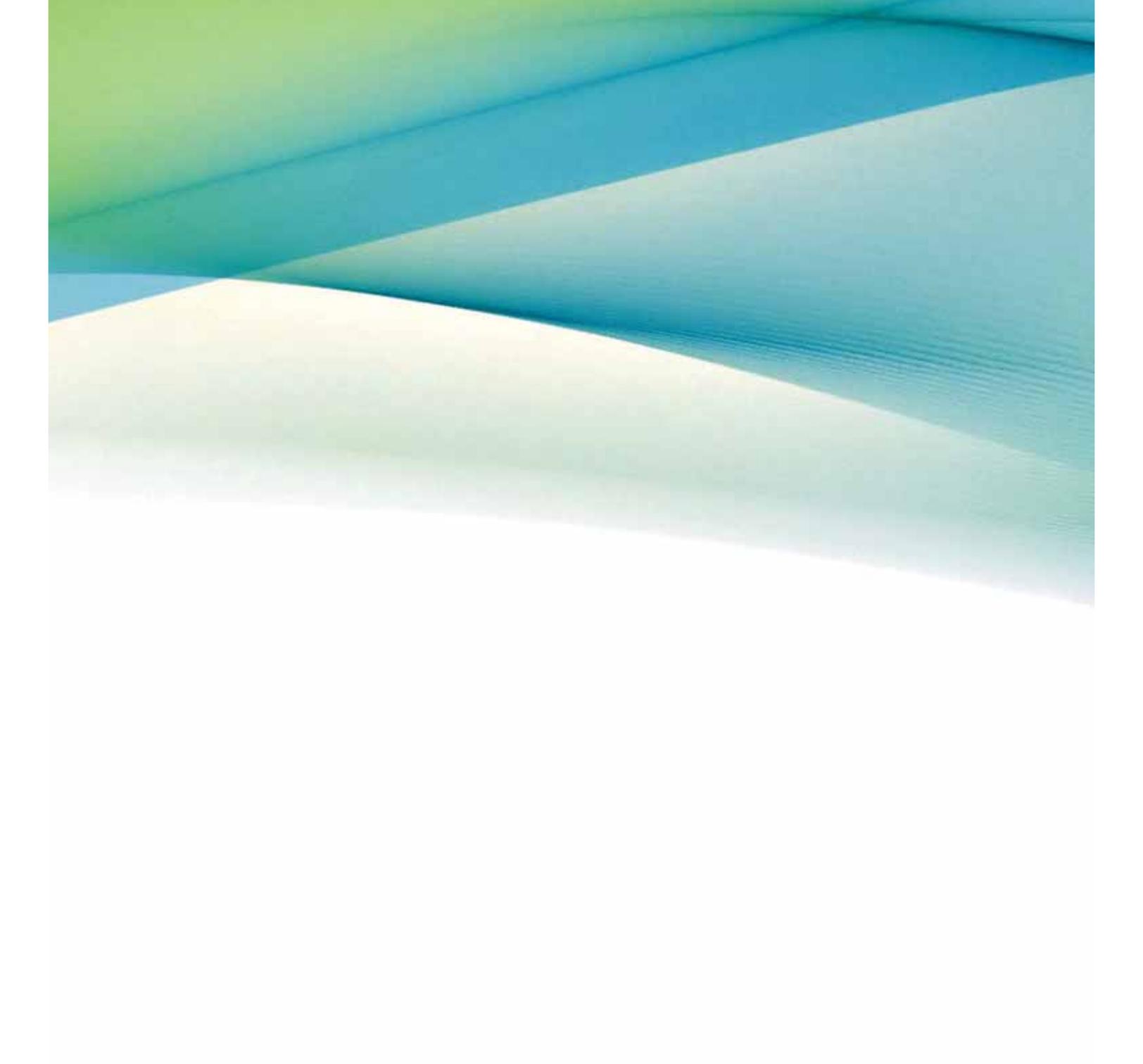
DECEMBER 2011

GEN GREEN SURVEY 2011

Australian apprentices' & trainees'
experience of skills and sustainability in 2011



DusseldorpSkillsForum



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Enquiries should be addressed to:

Fabian Sack
Consultant,
Dusseldorp Skills Forum
PHONE: +61 2 9007 6300
ADDRESS: Level 5, 203-233
New South Head Road, Edgecliff NSW 2027
EMAIL: info@dsf.org.au
WEB: www.dsf.org.au

SUMMARY

In 2008 Dusseldorp Skills Forum (DSF), in partnership with WorldSkills Australia (WSA), initiated a program of qualitative research to capture apprentices' and trainees' experiences of green skills – the *Gen Green Survey*. In March 2011 DSF used an updated survey to again capture young skilled Australians' experiences of skills & sustainability. As well as looking at the green skills covered by the *Gen Green Survey* in 2008, the *Gen Green Survey 2011* was expanded to include questions on skills relevant to social and economic sustainability.

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The Gen Green research indicates that skills for sustainability public policy and business initiatives are having an impact. Young skilled people see barriers to sustainability reducing and shifting from cultural factors to technological limitations. According to those surveyed, there has been a significant take up of green skills in workplaces and courses since 2008. In particular:

- The number of apprentices and trainees who say they have not learnt about sustainability has dropped from 36% to 19%;
- Young skilled Australian's learning of sustainability skills from all sources has increased on average by 130%, with social sources, such as family and the internet, growing fastest;
- Apprentices and trainees continue to recognise TAFE as their main source of learning about sustainability skills, with the number acknowledging TAFE as a source of sustainability learning almost doubling from 39% in 2008 to 77% in 2011.

There remains, however, a large gap between young skilled peoples' expectations and aspirations to develop the skills to tackle the challenges of sustainability and available learning opportunities. In particular, they say that the skills required to manage the emerging carbon constrained economy, such as understanding supply chains, have yet to become common in their courses and workplaces.

The *Gen Green Survey 2011* also indicates that apprentices and trainees say that they are mostly exposed to economic and (to a lesser extent) social skills, not environmental skills, in both workplaces and classrooms. Although some economic and social skills are prevalent, the survey shows that young skilled people think other important economic and social skills, such as the skills needed to manage community investment and to operate businesses sustainably, are less common. This suggests scope for a broader revision of public policy around skills for sustainability in the future.

In 2011 it appears from responses that young skilled Australians' very high level of personal interest in sustainability skills, and their overall strong recognition of the professional relevance of these skills, is confounded by a lack of guidance and incentives from employers, the market and educators. However, many of these public policy and business sector responses are in their early development and implementation and may become more relevant to young skilled Australians' experience of skills and sustainability over time.



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INTRODUCTION

The aim of the Dusseldorp Skills Forum (DSF) Gen Green research series is to build an indicative understanding of changes in apprentices' and trainees' personal experiences of learning and applying sustainability related skills over time. It is hoped that this longitudinal research will provide employers, VET practitioners, VET and sustainability researchers and policy makers with a series of point in time youth perspectives on the impact of delivering skills for sustainability in Australia.

In 2008 DSF initiated a program of qualitative research to capture young skilled Australians' experience of skills & sustainability – the *Gen Green Survey*. This research complimented DSF's commissioning of a systemic exploration of the skills, innovation and employment dimensions of the transition to a more environmentally sustainable economy; the CSIRO *Growing the Green Collar Economy* report [Hatfield-Dodds *et al* 2008]. The Gen Green research was made possible through DSF's long-standing partnership with WorldSkills Australia (WSA), which over recent years has focused attention on skills and sustainability, as described in the report *WorldSkills Australia Green Team – driving excellence in skills for sustainability*.

The CSIRO report demonstrated that the green collar economy in Australia has huge growth opportunity. DSF recognised that to harness this opportunity policy makers and practitioners needed to understand what young, skilled people think about skills for sustainability and to what extent they were engaged with this agenda.

The 2008 *Gen Green Survey* explored the young workforce's capacity to meet the challenges of a sustainable future through an online survey targeting 2006 & 2008 WorldSkills Australia National Competitors across a range of trades and skill areas. The key findings of this *Gen Green Survey* were that, according to apprentices and trainees, the 3 main barriers to practicing green skills on the job in 2008 were:

- Cost;
- Lack of interest by the employer; and
- Work attitudes.

Apprentices and trainees viewed educational institutes & workplaces as important sources of green skills and said that the drivers to learn green skills were, in equal measure, training, work and personal interest. A third of apprentices and trainees reported that they were not learning green skills.

These, and a range of other more detailed findings, provided a 2008 benchmark from which to describe changes in young skilled people's experiences of sustainability related skills at work and in training courses. In March 2011 DSF applied an updated and expanded survey tool on a very similar population to conduct the *Gen Green Survey 2011*.

SECTION 2.0

METHODOLOGY

The *Gen Green Survey*, conducted in 2008, focused on 'green' skills. The *Gen Green Survey 2011* was expanded beyond environmental sustainability skills to encompass the social & economic aspects of sustainability using questions designed to capture apprentices and trainees personal experiences in the workplace and in courses of training. In addition to demographic questions the survey posed 20 multiple choice and rating scale questions relating to the experience of skills for sustainability as well as 2 open response questions. The *Gen Green Survey 2011* survey instrument is given in **Appendix 1**.

2.1 SCOPE OF TOPICS COVERED

To ensure that the survey design reflected current sustainability best practice across the whole skills economy, the scope of sustainability related skills presented in the survey were drawn from the aspects required for standard disclosure in international organisational sustainability reporting, the Global Reporting Initiative *G3 Sustainability Reporting Guidelines*. These are the following aspects:

- **Economic** (economic performance; market presence; and indirect economic impacts);
- **Environmental** (materials; energy; water; biodiversity; emissions, effluents, and waste; products and services; compliance, transport and overall);
- **Labour** (employment; labour/management relations; occupational health and safety; training and education; and diversity and equal opportunity); and
- **Society** (community; corruption; public policy; anti-competitive behaviour; and compliance).

Entry-level employees only have limited exposure to the management and organisational aspects of these skill sets. Therefore aspects that relate to management responsibilities and organisational interactions are not relevant to the exercise of skills by apprentices and trainees and were excluded from the survey design. The skill set researched by *Gen Green Survey 2011* is presented in **Table 1**.

Table 1: Skill sets researched

Skills in environmental sustainability	Skills in social sustainability	Skills in economic sustainability
Energy efficient practices	Safe, healthy work practices	Complying with the policies, procedures & laws relating to your work
Water efficient practices	Treating men and women equally	Managing the risks of the work you do
Waste minimisation, recycling and reusing materials	Considering the culture of workers or customers	Knowing the dollar value of the goods and services you use
Avoiding hazardous or toxic materials where alternatives are available	Providing equal access for less able workers or customers	Providing customers with good service
Minimising emissions from the transport of goods and people	Knowing how the goods and materials you use are made	Paying taxes, fees and bills on time
Knowing where the materials you use come from	Helping in your local community	Helping to improve the way you work
Understanding how your work effects local plants and animals		

Questions regarding the sources of sustainability related experiences in the *Gen Green Survey 2011* cover much the same scope as in 2008 but have been refined to ensure clearer data. The scope of sources of sustainability related information researched are given in Table 2.

Table 2: Sources of sustainability information researched in Gen Green Survey 2011

1. TAFE	9. Employer
2. University	10. Work colleague
3. Teacher/Trainer	11. Industry regulation
4. Mentor	12. Government regulation & legislation
5. Conferences/Expos	13. Friends and family
6. Email newsletters	14. Internet and other social media
7. Trade Magazines	15. I haven't
8. Retail/wholesale/material suppliers	16. Other (please specify)

2.2

SAMPLE SURVEYED

The population of WSA National Competitors voluntarily self identified as wishing to showcase their trade and skill talent in a national competition. Their trainers and employers also identified these young people as sufficiently highly motivated and skilled to warrant support through the competition process. On this basis the population of WSA National Competitors was chosen for the Gen Green surveys as being likely to provide a considered response.

The total cohort of 827 Competitors at both the WSA 2008 & 2010 National Competitions were invited to respond by email to the *Gen Green Survey 2011*. 769 potential respondents were followed up with an SMS message reminder. The Competitors were invited to enter a competition to win an iPad with their response. A representative sample of the target population, 12% or 97 individuals, responded to the survey. This represents 0.02% of the total population of apprentices and trainees in the December quarter 2010.

The age profile and the spread of respondents to the *Gen Green Survey 2011* across the Australian labour market is consistent with the national population of apprentices and trainees.

The target population, as well as the age profile and the spread of respondents' to the *Gen Green Survey 2011* across the Australian labour market, is consistent with the sample responding to the 2008 *Gen Green Survey*, supporting a longitudinal analysis comparing the data from both surveys.

76% of the respondents to the *Gen Green Survey 2011* said they were in full time work, 13% were self-employed. The remainder said they were employed part time or unemployed. 73% said they had completed their studies, 16% said they were still engaged in an apprenticeship or traineeship and 8% said they were still enrolled in vocational courses. 4% said they were engaged in tertiary studies. There have been some changes in the employment and study profile of the survey population since 2008, notably almost double the number had completed their traineeship and there was a slight increase in the number of self employed, and a corresponding decrease in the number of full time employed, respondents.

The spread of respondents to *Gen Green Survey 2011* across the Australian labour market is broadly consistent with the national population of apprentices and trainees completing vocational studies, who are mostly engaged in the ABS categories of:

- Technicians and trades workers;
- Community and personal service workers; and
- Clerical and administrative workers.

The spread of respondents across the labour market is almost identical to that in the *2008 Gen Green Survey*. Most of the respondents worked in the WSA industry category clusters of:

- Computing & Business;
- Manufacturing & Engineering; and
- Building & Construction.

Because the sample of WSA National Competitors represents an elite cohort of the national population of apprentices and trainees there may be a motivational and educational bias in questions of opinion. The gender mix of the respondents' to the *Gen Green Survey 2011* is also slightly biased toward males, compared with the national population. 72% of the respondents were male contrasted with 55% of the national population completing vocational studies who were male. This may also create a gender bias. However the impact of these biases should not be overstated, as explained in the following section.

SECTION 3.0

CHANGING AUSTRALIAN CONTEXT FOR SUSTAINABILITY SKILLS

A number of considerations are relevant to understanding the results of the *Gen Green Survey 2011*. Over the 3 years to 2011 there have been some changes in community attitudes to the environment, which might be expected to influence the results. Perhaps more importantly there have been significant changes in the policy and business context relating to sustainability in workplaces and courses of study over the three years between the first and second Gen Green surveys.

These changes in context indicate some early success for the shift toward a more comprehensive sustainability agenda across many occupations and industries, with sustainability increasingly becoming embedded in training, especially on-the-job, but also in more formal training. The more important of these contextual influences are outlined briefly in the following text.



3.1 CHANGES IN COMMUNITY ATTITUDES TO THE ENVIRONMENT

One of the most comprehensive demographic analysis of community attitudes to the environment in Australia is the NSW Government's *Who Cares about the Environment?* research series. The 2009 survey shows that the environment remains a priority for people in NSW although the level of concern has decreased since the 2006 survey.

The survey shows that:

- Young people increasingly cared about environmental issues and consistently nominate the environment as an important current and future issue for government over the years 2006 to 2009;
- Women were more likely to be concerned a great deal about environmental problems and to express any level of concern and men were more likely to be not concerned.

There is some evidence to indicate that these NSW results from 2009 might even under represent the trend in concern young people have for environmental issues across Australia. Qualitative national research in 2010 by Mission Australia indicates that young Australians believe:

“[U]rgent action is required on a number of fronts including: Australians of all ages taking personal responsibility for their behaviour and lifestyle and how it impacts on the environment; community and business awareness and action; and government leadership. Young people’s responses urge for a whole of community approach.” p.4 Mission Australia 2010

Taken together this research suggests that suspicions of motivational and educational bias in *Gen Green Survey 2011* responses should not be overstated and that a general increase in young peoples’ environmental concern may be anticipated in the results. The preponderance of male participants in the Gen Green survey should further reduce any perception of bias, as they are less likely to be concerned about environmental issues.

The period between the 2008 and 2011 Gen Green surveys was marked by extreme weather events that may have influenced public perceptions of the relative importance of environmental issues. According to the Bureau of Meteorology, 2009 was Australia’s second warmest year on record and floods affected large areas of northern Australia, northeast NSW and Tasmania, while the year started with extremely dry conditions in the southeast and for parts of WA.

The year of 2010 was Australia’s second wettest year on record, with floods affecting large areas of northern and eastern Australia. In contrast extremely dry conditions were experienced in the southwest of Western Australia, with that region experiencing its driest year on record. The Bureau also reported that the ten years to 2009 was the globe’s warmest decade on record, with 2010 the globe’s equal warmest year on record while sea level was also at record levels in 2009 and again in 2010. In conjunction these environmental factors may have lead to heightened interest in sustainability and shifts in environmental concerns, for instance from water to energy efficiency.

14 Since 2008 a number of environmental programs were included in the Australian Government's economic stimulus package. Some of these programs, in particular the Home Insulation Program, the Green Loans program and the Cleaner Car Rebate scheme, have attracted negative media attention for various reasons. This negative coverage, and the extensive public debate surrounding an emissions trading scheme, may have confused or reduced public environmental concern in the years to 2011.

3.2 CHANGES IN SUSTAINABILITY RELATED PUBLIC POLICY

Since the *Gen Green Survey* in 2008 there has been a major take up of sustainability related considerations across a number of Australian policy portfolios affecting the exercise of skills in the workplace and the course of study. As part of the implementation of an inter-Governmental *Green Skills Agreement*, most training packages now incorporate environmental sustainability considerations. Significant progress has also been made teaching the importance of sustainable practices at TAFE and other places of training.

Systemic progress in skills for sustainability can be traced to the Commonwealth Government's release of its second action plan of education for sustainability, *Living Sustainably: the Australian Government's National Action Plan for Education for Sustainability*, in April 2009. The aim of this plan is to equip all Australians with the knowledge and skills required to live sustainably. The plan puts a strategic focus on fostering sustainability in business and industry. The relevance of the plan to the VET sector is described in more detail in the *National VET Sector Sustainability Policy and Action Plan*, also released in 2009. These overarching policy documents have culminated in an Agreement between the Australian Commonwealth Government and the state and territory governments – *the Green Skills Agreement*.

Since the beginning of 2010 implementation of the *Green Skills Agreement* has substantially progressed. The Australian Government funded, industry-led, bodies responsible for action on skills and workforce development, the Industry Skills Councils (ISCs),

have now reviewed training packages to identify gaps in the provision of sustainability knowledge, skills and principles. The ISCs have adopted a range of approaches to embedding skills for sustainability into training packages. Some have revised qualifications to include sustainable work practices as a core unit; others are developing new qualifications and units of competency, while others are focusing on reviewing the pool of electives in selected training packages. With the revision of training packages largely completed, up-skilling VET practitioners to provide effective training and facilitation in skills for sustainability is a high priority for action under the *Green Skills Agreement Implementation Plan*. Elective sustainability training for VET practitioners has been developed and research into good practice in professional development is underway.

To date Australian Government skills for sustainability policy initiatives have had:

“[A] stronger emphasis on environmental sustainability concerns relative to the other dimensions of sustainability”. p.2 MCVTE 2009

This is mirrored in the skills for sustainability that are included in the national training packages following the ISCs' review, which also focus on environmental sustainability. The focus has particularly been on skills required to respond to the wider Government policy agenda in relation to energy efficiency, especially in buildings, and the creation of a market for alternative energy and carbon offsets. Other areas of green skills development have been the skills required for water efficiency and improved waste management.

The wider policy agenda impacting upon skills for sustainability has been the creation of markets in renewable energy (Renewable Energy Target), carbon offsets (NSW Greenhouse Gas Reduction Scheme and the National Carbon Offset Standard), in water (National Water Market System) and the establishment of regulated disclosure requirements on businesses in respect of their energy efficiency (Energy Efficiency Opportunities program) and green house gas emissions (National Green House Gas Reporting framework). There has been less focus on (and fewer strong policy drivers for) developing the skills required to enhance biodiversity and ecological integrity, to improve material efficiency, to increase equity, to build communities and to integrate social, economic and environmental considerations in planning action.

3.3

CHANGES IN THE BUSINESS CONTEXT FOR SUSTAINABILITY SKILLS

The period between the Gen Green surveys in 2008 and 2011 saw major upheaval in the Australian business environment. According to the Australian Government the Australian labour market slowed significantly and the unemployment rate increased following the onset of the global recession in 2008. Since then employment has increased solidly, especially in health care and social assistance, construction, professional, scientific and technical services, education and training, transport, postal and warehousing. Employment has declined in manufacturing and information media and telecommunications. None of these factors appear to have influenced the make up of the cohorts responding the Gen Green surveys in 2008 and 2011, except perhaps to account for the slight shift toward self-employment.

The global financial crisis increased many businesses' focus on short-term financial viability. This may have come at the cost of investment in strategically regearing for a carbon-constrained future and the requisite call on some sustainability related skills. A number of industry groups and commentators have remarked that the uncertainty associated with the deferral of the Commonwealth Government's emissions trading scheme in 2009 had an impact on business investment in green skills over the period 2008 to late 2011, as had rapidly shifting Federal and State Government policy in relation to subsidies for residential solar programs.

The introduction of a carbon price in late 2011 may well encourage business investment in sustainability related skills. Recent modelling by The Climate Institute indicates that there is the potential to generate 34,000 new jobs by 2030 through investment in alternative energy, including jobs in the electricity sector, construction and manufacturing. Beyond the impact of a price on carbon, there are a number of influences that may also drive business investment in skills for sustainability:

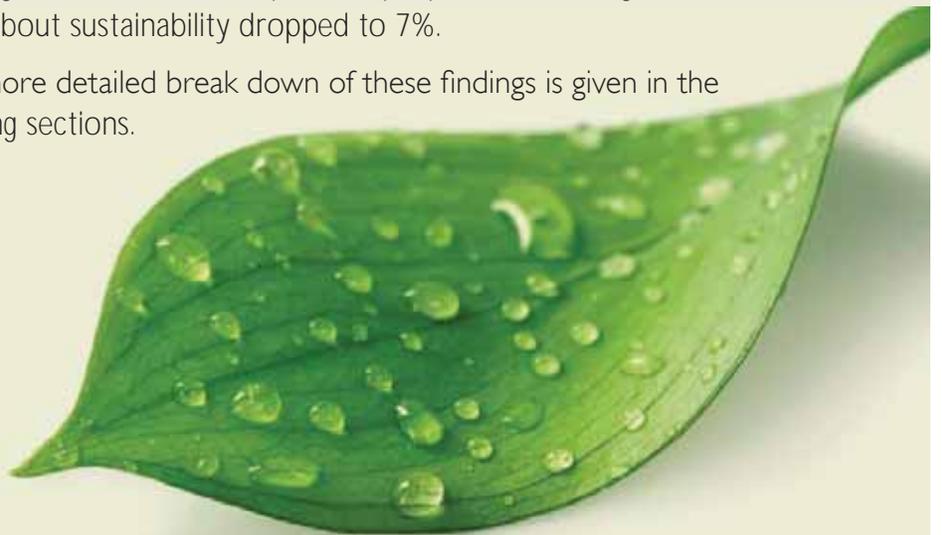
- The rise in new niche markets of consumers who are willing to do and spend more to be environmentally friendly;
- Step increases in energy network costs, in water service and in waste disposal costs; and
- The continued evolution of environmental protection measures (such as discharge standards and biodiversity offsets).

Also, in parallel with increasing energy and carbon regulation, many businesses are starting to manage their exposure to what has become known as 'carbon risk'. Increasingly investment markets demand this information, for example through requesting company reporting in the Carbon Disclosure Project. Often these risks arise in the supply chains that businesses rely upon - their suppliers may be exposed to energy price increases or supply constraints, carbon pricing or climate variability. Consequently businesses are increasingly requiring carbon and other sustainability related information and controls from their suppliers.

SECTION 4.0 RESULTS

The Gen Green research shows that, according to apprentices and trainees, between 2011 and 2008 there has been a significant take up of green skills in workplaces and course of study. Over the same period the number of apprentices and trainees who say they have not learnt about sustainability has dropped from 36% to 19%. When questioned in the context of a wide spread of information sources, including the internet and expos, the proportion claiming not to have learnt about sustainability dropped to 7%.

A more detailed break down of these findings is given in the following sections.



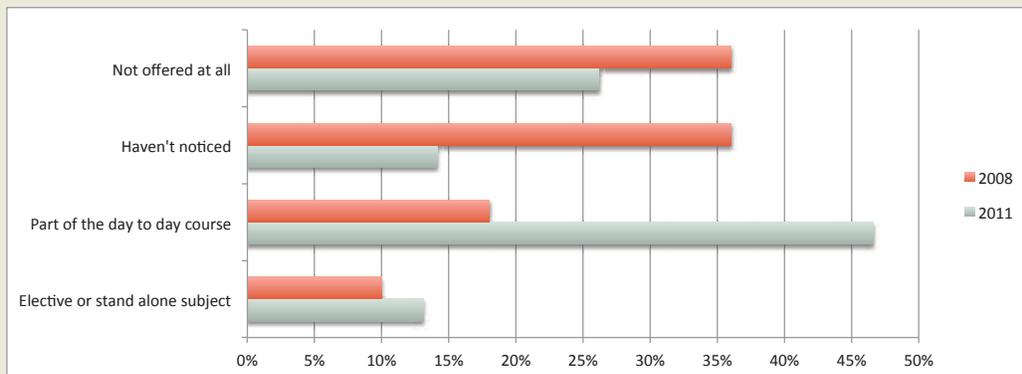
4.1 CHANGES IN SUSTAINABILITY SKILLS LEARNING – 2008 TO 2011

The Gen Green research shows that, according to apprentices and trainees, TAFE is the main source of learning about sustainability skills in 2011, as in 2008. When asked 'Where have you learnt about skills and sustainability?' the number of young skilled people responding 'TAFE' almost doubled over the last 3 years, up from 39% in 2008 to 77% in 2011 (54% said 'employer', up from 38% in 2008).

As shown in **Figure 1**, apprentices and trainees indicate that the inclusion of green skills as part of the day to day course of study has increased 161%.

However, less than half the respondents viewed green skills as 'always present' in their courses of study. Even including elective or standalone content, green skills are only acknowledged as available in 60% of the courses of study. 26% of apprentices and trainees said that specific green skills were not offered at all in their course of study. Their awareness of green skills in the course of study has increased markedly ('haven't noticed' down from 36% in 2008 to 14% in 2011).

Figure 1: Acknowledgement of green skills in courses 2008 to 2011



The research also revealed that apprentices' and trainees' acknowledged learning of sustainability skills from all sources has increased on average by 130%. The largest increases in learning about sustainability have been from interpersonal sources:

- Friends and family (a 322% increase from 2008 to 2011);
- Teacher/trainer (a 247% increase from 2008 to 2011);
- Mentors (a 239% increase from 2008 to 2011); and
- Social media (a 167% increase from 2008 to 2011).

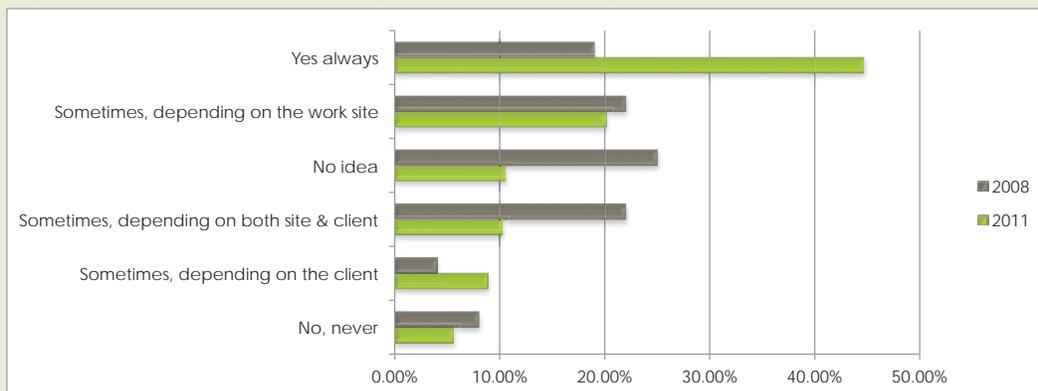
The smallest increase in acknowledged sources of sustainability learning has been from government regulation and legislation (5% increase from 2008 to 2011). While the media (especially email newsletters, but also trade magazines and the internet) was an important source of learning about skills and sustainability, the media was not seen as an important source of learning about more general work skills by apprentices and trainees.

The responses to the *Gen Green Survey 2011* indicated that apprentices and trainees thought 'avoiding hazardous materials' and 'waste minimisation/recycling/reuse' were the most commonly taught green skills in course of study. 'Minimising emission from transport' and 'protecting plants and animals' were the least commonly taught green skills.

4.2 CHANGES IN APPLYING GREEN SKILLS IN WORKPLACES 2008 - 2011

The Gen Green research shows that apprentices & trainees see there has been a significant take up of green skills in workplaces over the last 3 years. Their understanding of green skills in the work place has increased. The number of responses saying they had 'no idea' about sustainability skills across all categories was down from 25% in 2008 to 11% in 2011.

Figure 2. Perceived use of green skills in day-to day-work



According to the Gen Green research the practice of green skills appears to have become better integrated into business practices, with apprentices and trainees saying that the application of at least some green skills is significantly less dependent on different work sites. **Figure 2** shows that the number of apprentices who think that at least some green skills are always practiced in their day to day work has more than doubled (up from 19% in 2008 to 45% in 2011) and that those who think it depends on work sites or clients is down from 22% in 2008 to 10% in 2011.

In 2011 apprentices and trainees saw the practice of green skills in their day to day work as quite variable, especially energy and water efficiency. The green skills that they saw most frequently used in workplaces were:

- Waste minimisation, recycling and reusing materials
- Avoiding hazardous or toxic materials where alternatives are available

Energy efficiency & minimising emissions from transport were viewed as the least used green skills. One respondent commented:

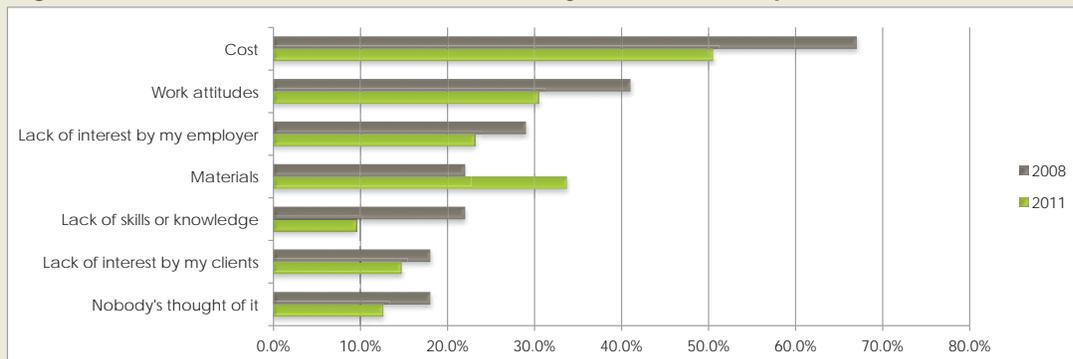
“The employer has a large amount of influence on whether work practices become more sustainable”.

In conjunction these results seem to indicate that the skills required to manage the whole of life cycle impacts of different work activities, including the carbon footprint, are still poorly represented.

4.3 CHANGING BARRIERS TO SUSTAINABILITY SKILLS IN WORKPLACES 2008 - 2011

The Gen Green research indicates that 10% of apprentices and trainees saw no barriers to practicing sustainable skills on the job, however most still thought that cost was a barrier, although the prevalence of this view has fallen by a quarter in the last 3 years. As shown in Figure 3, the number of apprentices and trainees who thought that work attitudes are a barrier have similarly declined. In 2011 only half as many apprentices and trainees thought that a lack of skills & knowledge are a barrier as those that thought this in 2008. In 2011 about a third more apprentices and trainees thought that materials were a barrier.

Figure 3: Perceived barriers sustainability skills in workplaces 2008 - 2011



Several respondents commented that 'lack of time' was a particular barrier to applying sustainable skills on the job. Another comment about barriers to applying sustainable skills on the job noted that "work attitudes and level of commitment from fellow employees" are important. Apprentices and trainees who thought lack of skills or knowledge was a particular barrier also commented that they needed:

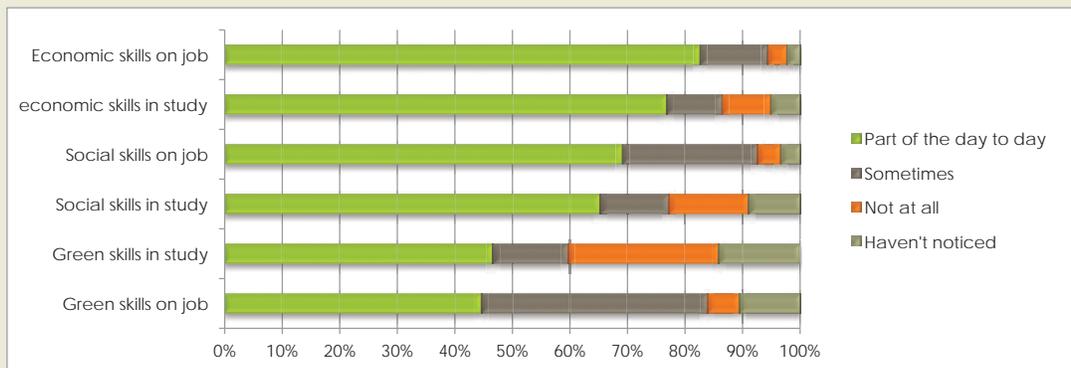
- "More information or knowledge of what products are available for use ... alternative products which are green friendly";
- To be "improving processes to make work more efficient and cost effective";
- "Knowledge of how others are doing it";
- "New and up-to-date news on new products skills and knowledge in the industry. (free news feed via internet on i-pad?)";
- To be "calculating the cost to the environment in financial terms"; and
- "Knowledge of material wastage, and value for recycling".

4.4 SUSTAINABILITY SKILLS IN 2011 WORKPLACES AND COURSES

The *Gen Green Survey 2011* indicates that apprentices & trainees saw economic skills as the most common of the three sustainability skill sets in both workplaces and classrooms, and ‘always present’ in workplaces almost twice as often as green skills. As shown in **Figure 4**, in 2011, apprentices and trainees experienced less economic, social and environmental skills in courses of study, compared to workplaces. This is most pronounced with green skills, which were seen as completely absent from 40% of courses of study, but only 12% of workplaces. One respondent commented: “a lot of these [environmentally sustainable skills] aren’t specifically targeted at training organisations”.

However, energy efficiency & water efficiency were seen as being learnt more in the classroom than on the job, energy efficiency more so than water efficiency.

Figure 4: Perceived sustainability skills in 2011 on the job and in study



Although respondents saw social skills as less prevalent in classrooms, the *Gen Green Survey 2011* indicated that these skills may be more consistently integrated into courses of study than into work practices. ‘OH&S’ and ‘treating men and women equally’ were the social sustainability skills most commonly taught in courses and on the job, but the visibility of OH&S, cultural diversity & disability skills to young skilled people varied across workplaces. Apprentices and trainees viewed ‘helping in the local community’ as the least used social skill in the

workplace and it was not covered in half the courses of study. 'Knowing how the goods and materials you use are made' (which would inform young skilled people of the social consequences of purchasing decisions) was not offered at all or was an elective or stand-alone topic for 35% of respondents.

According to apprentices and trainees, 'compliance', rather than 'customer service', is the economic skill most often taught in the classroom. Young skilled people saw an equally high emphasis on 'continuous improvement' skills in both workplaces and classrooms. While apprentices & trainees saw 'risk management' and 'compliance' skills applied in most workplaces, they viewed these skills as patchy in some workplaces. 'Customer service' skills were also commonly experienced in their day-to-day work. 'Knowing the dollar value of the goods and services you use' was the economic skill least applied by apprentices & trainees in workplaces. Young skilled people saw basic business management skills featuring in studies less frequently than compliance, continuous improvement, customer service and risk management skills.



4.5 MOTIVATION TO LEARN SUSTAINABLE SKILLS

Apprentices' and trainees' level of interest in sustainability skills is similar in the 2011 and 2008 Gen Green surveys. Their interest is personal and positive, as measured by the averaged responses given to 3 related questions in the 2011 survey ('I'm really interested'; 'I have no interest'; and 'I have a personal interest') on a 5 point rating scale (strongly disagree to strongly agree)². The orange line in **Figure 5** depicts this normalized level of interest. One respondent commented that:

"[I]t's a great practice to pass down to younger generations".

The professional relevance of sustainability perceived by apprentices and trainees closely mirrors their personal interest in sustainability, as measured by disagreement with the question: 'I don't think that sustainability relates to my job skills'. The khaki line in **Figure 5** depicts this perceived professional relevance.

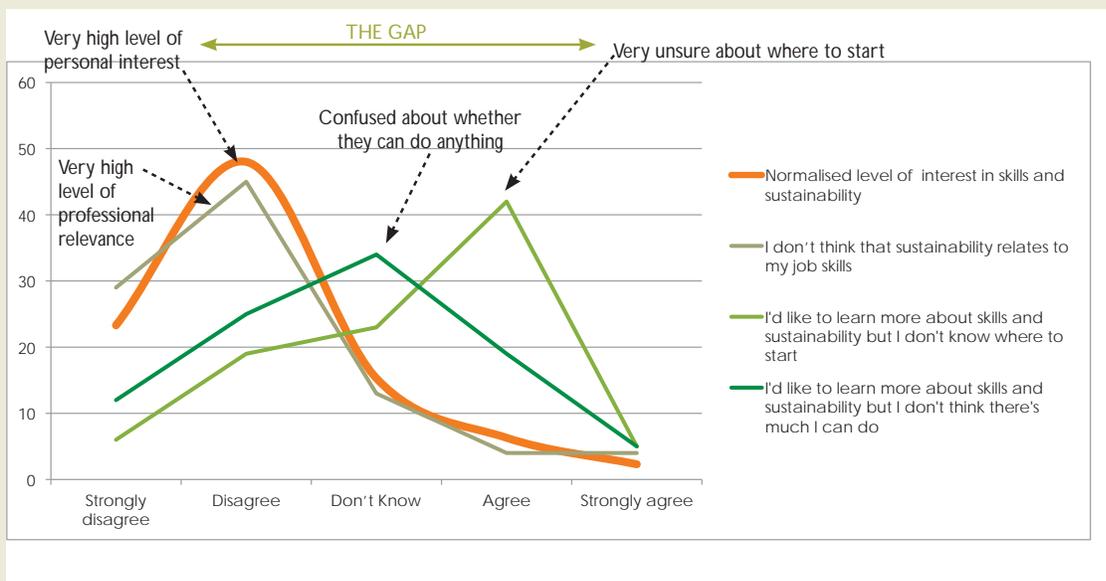
When asked whether they agreed with the statement 'I'd like to learn more about skills and sustainability but I don't think there's much I can do', most respondents to the Gen Green Survey 2011 replied 'don't know'. This confusion may partly be a response to the complex phrasing of the question. However, the more definite response to the next question, with the same phrasing suggests an underlying confusion amongst apprentices and trainees about their ability to respond to the challenges of sustainability. The light green line in **Figure 5** depicts this confusion. The Gen Green Survey 2011 also asked apprentices and trainees to rate their agreement with the question: 'I'd like to learn more about skills and sustainability but I don't know where to start'. Most respondents indicated their agreement or strong agreement, as depicted by the dark green line in **Figure 5**.

As illustrated by **Figure 5**, taken together these results indicate that there remains a large gap between apprentices' and trainees' personal interest in, and perceived professional relevance of, learning sustainability skills on the one hand and the knowledge needed for apprentices and trainees to learn more sustainability skills on the other.

² The graph showing the normalized level of interest depicts a curve joining the averaged responses given to 3 related questions. Responses of 'I'm really interested' were close to the median value between responses of 'I have no interest' (suitably reversed) which were somewhat more flat, and responses of 'I have a personal interest' which were more positive.

While the complex nature of these questions means this reasoning is somewhat speculative, it is supported by responses to a similar question in 2008 that show much the same pattern, with most apprentices and trainees in 2008 indicating that they are 'really interested', that they would 'like to learn more but I don't think there's much I can do'; and that they would 'like to learn more but I don't know where to start'. The analysis given in **Figure 5** is further supported by the responses to other questions about motivation in the *Gen Green Survey 2011*, as discussed below.

Figure 5: Response on personal and professional interest in sustainability



4.6 INCENTIVES AND BENEFITS TO LEARN SUSTAINABILITY SKILLS

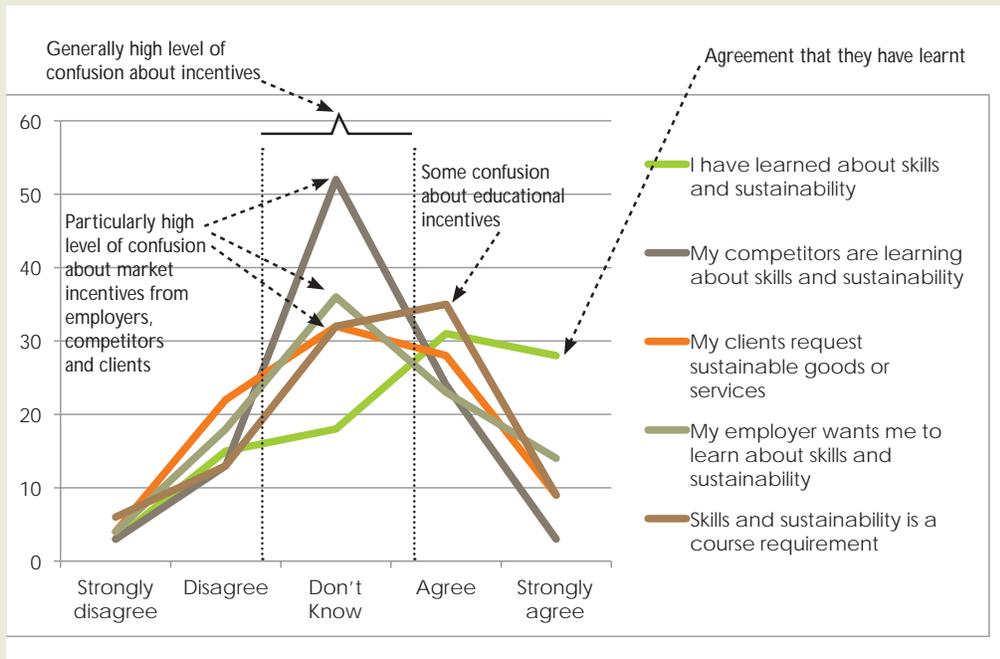
The *Gen Green Survey 2011* asked 'Why did you learn about skills and sustainability?' In response apprentices and trainees rated their agreement with the following statements about different possible incentives for learning about skills:

- I haven't learned about skills and sustainability
- Skills and sustainability is a course requirement
- My clients request sustainable goods or services
- I have a personal interest in skills and sustainability
- My employer wants me to learn about skills and sustainability
- My competitors are learning about skills and sustainability

The averaged responses to these questions are shown in **Figure 6**. As shown, those surveyed generally agreed that they had learned about skills and sustainability (the green line) but indicated that they could see no clear incentive aside from personal interest. Most responded 'I don't know' regarding incentives from business competitors, clients and employers.

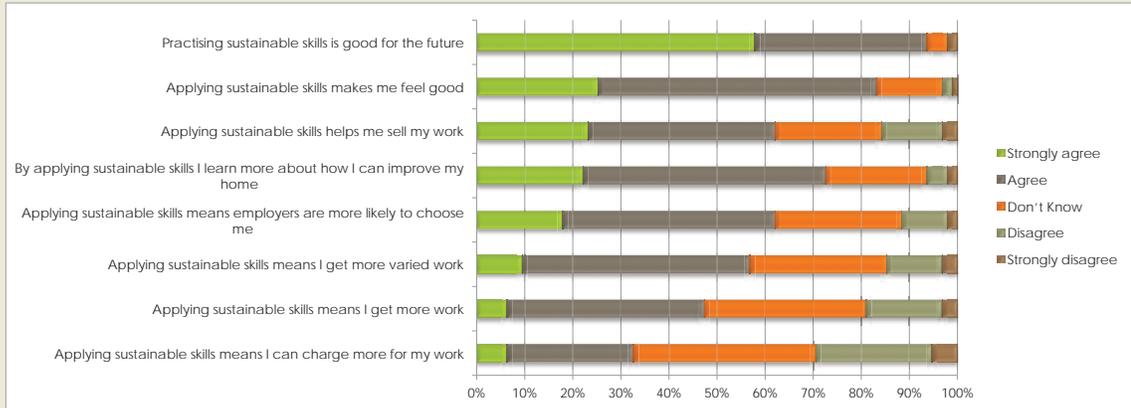
As depicted by the brown line in **Figure 6**, many respondents agreed that skills and sustainability is a course requirement, although a relatively high number (38%) also responded 'strongly disagree'; 'disagree'; or 'don't know'. This would seem to indicate that many apprentices and trainees don't perceive a clearly communicated commitment from educators, or at least indicates that they experience some confusion about education incentives to learn skills for sustainability.

Figure 6: Perception of incentives to learn sustainability skills



Respondents were asked to indicate 'How is applying sustainable skills likely to benefit you?' Respondents were also asked to indicate their agreement with statements about the benefits of applying sustainable skills ('I get more work'; 'I get more varied work'; 'helps me sell my work'; 'makes me feel good'; 'I learn more about how I can improve my home'; 'I can charge more for my work'; 'employers are more likely to choose me'; and 'are good for the future'). Apprentices and trainees level of agreement with these statements are depicted in Figure 7.

Figure 7: Perceived benefits of learning sustainability skills



Responses to this question indicate that apprentices and trainees clearly recognise strong normative imperatives to practice sustainability, as more than twice as many agreed that ‘practicing sustainability is good for the future’ as any other benefits. Respondents saw sales and a personal interest in home improvement as the main practical benefits and only mildly perceived any market signal from employers and clients in terms of price or employability.

The *Gen Green Survey 2011* concludes by asking respondents to choose from a list of options that might assist to further develop sustainable skills. Apprentices and trainees say that more training on the job and in courses would most assist them to further develop sustainable skills. **“Integrating sustainability as a subject into the TAFE component for my apprenticeship”** would be relevant said one. They also think that market signals in the form of rebates and customer demand would be relevant. Competition between businesses in taking up sustainability skills is regarded as least relevant – apprentices and trainees don’t see the first mover advantage.



5.0 GEN GREEN SURVEY 2011 - CONCLUSION

The Gen Green research indicates that skills for sustainability public policy and business initiatives are having an impact. The results show a substantial increase in apprentices' and trainees' experiences of skills for sustainability in courses and on the job. Young skilled Australians see barriers to sustainability reducing and shifting from cultural factors to technological limitations. There remains, however, a large gap between young skilled peoples' expectations and aspirations to develop the skills to tackle the challenges of sustainability and available learning opportunities. Apprentices and trainees are looking increasingly outside the VET sector for information on skills for sustainability, in particular interpersonal sources such as friends, family and social media. However, young skilled people do still look to training providers and their employers to provide the skills they want and continue to recognise courses and workplaces as the main sources of their existing sustainability related skills.

The Gen Green survey results indicate that apprentices' and trainees' interests in sustainability related skills are motivated by normative forces, reflecting a broad social trend amongst young people and students to engage more with sustainability. Apprentices and trainees appear to be fairly unsure of the practical benefits of applying sustainable skills. Public policy responses in the form of market reforms and market driven initiatives do not appear to create incentives that strongly influence young skilled people. They don't perceive a clear market signal or a clearly communicated commitment from employers. However, many of these public policy and business sector responses are in their early development and implementation may become more relevant to young skilled Australians experience of skills and sustainability over time.

Although the main emphasis of skills for sustainability reforms has been environmental sustainability, the Gen Green survey series indicates there remains a long way to go before all apprentices and trainees experience these skills. In particular, the skills relating to product lifecycles and supply chains, which are required to manage the emerging carbon economy, have yet to become prevalent in courses and workplaces. Again this is not surprising, as the cohort participating in the *Gen Green Survey 2011* survey had mostly completed their apprenticeships

or traineeships during the first year of delivery of the revised Industry Skills Packages and the carbon price had yet to come into play.

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The 2011 surveys shows that some important social and economic skills are largely absent from courses and workplaces, suggesting scope for a broader revision of public policy around skills for sustainability in the future. The opportunities flagged by the Gen Green findings include:

- looking for measures that consistently integrate sustainability skills in workplaces;
 - developing delivery of the skills required to manage community investment and to understand the social and environmental impacts of supply chains; and
 - ensuring that the skills required to operate businesses sustainably are developed by all apprentices and trainees.
-

Gen Green 2010 - Skills & Sustainability Survey

Dusseldorp Skills Forum and WorldSkills Australia are interested in finding out about what you know about skills and sustainability.

This is the second time we have run this survey and we are sending this survey to all competitors who participated in the 2008 and 2010 WorldSkills Australia National competitions to see what has changed.

This survey should take no more than 10 minutes to complete. We really appreciate your time.

If you want to go into the DRAW for an iPad enter your email or phone number at Question 1.

Thanks!

1. The following details are optional but would really help our research.

The Dusseldorp Skills Forum and WorldSkills Australia will only use these details for the purposes of this research and to contact the winner of our iPad competition. They will not be given to any third party and will be kept secure.

Name	<input type="text"/>
Phone/Mobile	<input type="text"/>
Email	<input type="text"/>
Postcode	<input type="text"/>

2. What is your age?

(Please tick one of the following.)

- | | | |
|--|--------------------------|--------------------------|
| <input type="radio"/> 16 | <input type="radio"/> 20 | <input type="radio"/> 24 |
| <input type="radio"/> 17 | <input type="radio"/> 21 | <input type="radio"/> 25 |
| <input type="radio"/> 18 | <input type="radio"/> 22 | |
| <input type="radio"/> 19 | <input type="radio"/> 23 | |
| <input type="radio"/> Other (please specify) | | |
| <input type="text"/> | | |

3. What is your gender?

(Please tick one of the following.)

- Male
- Female

Gen Green 2010 - Skills & Sustainability Survey

4. Which of the following options best describes your skill area?

(Please tick only 1 response)

	Automotive	Building & Construction	Client & Services	Computing & Business	Electrotechnology	Food & Beverage	Manufacturing & Engineering
Your industry	<input type="checkbox"/>						

5. Which of the following best describes your work situation?

(Please tick only one.)

- Unemployed
- Employed Full Time
- Self Employed
- Employed Part Time

6. If you are employed, do you use of the following environmentally sustainable 'green skills' in your day-to-day work?

(Please tick the relevant responses.)

	Yes always	Sometimes, depending on the work site	Sometimes, depending on the client	Sometimes, depending on both site & client	No idea	No, never
Avoiding hazardous or toxic materials where alternatives are available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Minimising emissions from the transport of goods and people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy efficient practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Water efficient practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waste minimisation, recycling and reusing materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding how your work effects local plants and animals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowing where the materials you use come from	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

Gen Green 2010 - Skills & Sustainability Survey

7. If you are employed, do you use any of the following socially sustainable skills in your day-to-day work?

(Please tick the relevant responses.)

	Yes always	Sometimes, depending on the work site	Sometimes, depending on the client	Sometimes, depending on both site & client	No idea	No, never
Treating men and women equally	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Providing equal access for less able workers or customers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Considering the culture of workers or customers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safe, healthy work practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helping in your local community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowing how the goods and materials you use are made	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

8. If you are employed, do you use any of the following economically sustainable skills in your day-to-day work?

(Please tick the relevant responses.)

	Yes always	Sometimes, depending on the work site	Sometimes, depending on the client	Sometimes, depending on both site & client	No idea	No, never
Complying with the policies, procedures & laws relating to your work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing the risks of the work you do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Providing customers with good service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Paying taxes, fees and bills on time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helping to improve the way you work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowing the dollar value of the goods and services you use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

Gen Green 2010 - Skills & Sustainability Survey

9. What are the barriers to you practising sustainable skills on the job?

(Please tick as many as are relevant.)

- | | |
|--|--|
| <input type="checkbox"/> Materials | <input type="checkbox"/> Lack of skills or knowledge |
| <input type="checkbox"/> Lack of interest by my clients | <input type="checkbox"/> Nobody's thought of it |
| <input type="checkbox"/> There are no barriers | <input type="checkbox"/> Work attitudes |
| <input type="checkbox"/> Lack of interest by my employer | <input type="checkbox"/> Cost |
| <input type="checkbox"/> Other (please specify) | |

10. If you ticked a 'lack of skills or knowledge' in the previous question, please identify what skills you need to make your work practices more sustainable?

11. How do you usually learn more about your skill area?

(Please tick as many as are relevant.)

- | | |
|--|--|
| <input type="checkbox"/> Conferences/Expos | <input type="checkbox"/> Mentor |
| <input type="checkbox"/> Email newsletters | <input type="checkbox"/> Retail/wholesale/material suppliers |
| <input type="checkbox"/> Employer | <input type="checkbox"/> Teacher/Trainer |
| <input type="checkbox"/> Friends and family | <input type="checkbox"/> Trade Magazines |
| <input type="checkbox"/> Internet and other social media | <input type="checkbox"/> Work colleague |
| <input type="checkbox"/> Other (please specify) | |

Gen Green 2010 - Skills & Sustainability Survey

12. How do you usually learn more about your industry products, materials or tools?

(Please tick as many as are relevant.)

- | | |
|--|--|
| <input type="checkbox"/> Trade Magazines | <input type="checkbox"/> Email newsletters |
| <input type="checkbox"/> Teacher/Trainer | <input type="checkbox"/> Conferences/Expos |
| <input type="checkbox"/> Internet and other social media | <input type="checkbox"/> Mentor |
| <input type="checkbox"/> Employer | <input type="checkbox"/> Friends and family |
| <input type="checkbox"/> Work colleague | <input type="checkbox"/> Retail/wholesale/material suppliers |
| <input type="checkbox"/> Other (please specify) | |

13. Which of the following best describes your study?

(Please tick as many as are relevant.)

- | | |
|--|--|
| <input type="radio"/> I have completed my apprenticeship/traineeship | <input type="radio"/> I am studying part time at university |
| <input type="radio"/> I have completed my TAFE studies | <input type="radio"/> I have completed my university studies |
| <input type="radio"/> I am in an apprenticeship/traineeship | <input type="radio"/> I am studying full time at TAFE |
| <input type="radio"/> I am studying full time at university | <input type="radio"/> I am studying part time at TAFE |

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Gen Green 2010 - Skills & Sustainability Survey

14. How much have your studies included the following environmentally sustainable skills? (Please tick the relevant responses.)

(Please tick the relevant responses.)

	Part of the day to day course	Elective or stand alone subject	Not offered at all	Haven't noticed
Water efficient practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waste minimisation, recycling and reusing materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Minimising emissions from the transport of goods and people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avoiding hazardous or toxic materials where alternatives are available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy efficient practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understanding how your work effects local plants and animals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowing where the materials you use come from	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

15. How much have your studies included the following socially sustainable skills?

(Please tick the relevant responses.)

	Part of the day to day course	Elective or stand alone subject	Not offered at all	Haven't noticed
Helping in your local community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowing how the goods and materials you use are made	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Considering the culture of workers or customers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Providing equal access for less able workers or customers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Treating men and women equally	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safe, healthy work practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

Gen Green 2010 - Skills & Sustainability Survey

16. How much have your studies included the following economically sustainable skills?

(Please tick the relevant responses.)

40

	Part of the day to day course	Elective or stand alone subject	Not offered at all	Haven't noticed
Providing customers with good service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Paying taxes, fees and bills on time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helping to improve the way you work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowing the dollar value of the goods and services you use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Managing the risks of the work you do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Complying with the policies, procedures & laws relating to your work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

Gen Green 2010 - Skills & Sustainability Survey

19. How would you describe your interest in skills and sustainability?

(Please indicate how much you agree with the following statements.)

	Strongly disagree	Disagree	Don't Know	Agree	Strongly agree
I'd like to learn more about skills and sustainability but I don't know where to start	<input type="radio"/>				
I'm really interested in skills and sustainability	<input type="radio"/>				
I don't think that sustainability relates to my job skills	<input type="radio"/>				
I'd like to learn more about skills and sustainability but I don't think there's much I can do	<input type="radio"/>				
I have no interest in skills and sustainability	<input type="radio"/>				

20. Why did you learn about skills and sustainability?

(Please indicate how much you agree with the following statements.)

	Strongly disagree	Disagree	Don't Know	Agree	Strongly agree
I have a personal interest in skills and sustainability	<input type="radio"/>				
My competitors are learning about skills and sustainability	<input type="radio"/>				
Skills and sustainability is a course requirement	<input type="radio"/>				
My employer wants me to learn about skills and sustainability	<input type="radio"/>				
I haven't learned about skills and sustainability	<input type="radio"/>				
My clients request sustainable goods or services	<input type="radio"/>				

21. Where have you learnt about skills and sustainability?

Tick what you think are the most relevant and important boxes.

- | | | |
|---|--|---|
| <input type="checkbox"/> Trainer or teacher | <input type="checkbox"/> Friends and family | <input type="checkbox"/> University |
| <input type="checkbox"/> Employer | <input type="checkbox"/> Work colleague | <input type="checkbox"/> Industry regulation |
| <input type="checkbox"/> I haven't | <input type="checkbox"/> Mentor | <input type="checkbox"/> Conferences or exhibitions |
| <input type="checkbox"/> TAFE | <input type="checkbox"/> Internet or other social media | |
| <input type="checkbox"/> Trade magazines | <input type="checkbox"/> Government regulation & legislation (local, state, federal) | |

Other (please specify)

	5
	6

Gen Green 2010 - Skills & Sustainability Survey

22. How is applying sustainable skills likely to benefit you?

(Please indicate how much you agree with the following statements.)

	Strongly disagree	Disagree	Don't Know	Agree	Strongly agree
Applying sustainable skills helps me sell my work	<input type="radio"/>				
Applying sustainable skills makes me feel good	<input type="radio"/>				
Applying sustainable skills means employers are more likely to choose me	<input type="radio"/>				
Applying sustainable skills means I can charge more for my work	<input type="radio"/>				
Applying sustainable skills means I get more varied of work	<input type="radio"/>				
Applying sustainable skills means I get more work	<input type="radio"/>				
By applying sustainable skills I learn more about how I can improve my home	<input type="radio"/>				
Practising sustainable skills is good for the future	<input type="radio"/>				

Other (please specify)

Tick what you think are the most relevant and important boxes.

- | | |
|--|---|
| <input type="checkbox"/> My competitors using sustainable skills | <input type="checkbox"/> On job training on sustainable skills |
| <input type="checkbox"/> Access to suppliers of sustainable goods and services | <input type="checkbox"/> Learning about sustainable skills through my apprenticeship or traineeship |
| <input type="checkbox"/> Customers who are willing to pay for sustainable goods and services | <input type="checkbox"/> Short trades based courses on sustainable skills |
| <input type="checkbox"/> More rebates for sustainable goods and services | |
| <input type="checkbox"/> Other (please specify) | |

24. Are you happy to be contacted directly about any of the information provided in this survey?

- Yes, I am (and I have provided my contact details in Question 1)
- No, I am not

25. Are you interested in becoming part of a 'skills & sustainability network' providing skill specific information and opportunities for Q & A?

- Yes, I am (and have provided contact details in question 1)
- No, I am not

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Enquiries should be addressed to:

FABIAN SACK

Consultant

Dusseldorp Skills Forum

PHONE: +61 2 8007 6300

ADDRESS: Level 5, 203-233
New South Head Road, Edgecliff
NSW 2027

EMAIL: info@dsf.org.au

WEB: www.dsf.org.au