

Pathway Planning: Examining the holistic and academic benefits of a targeted professional vocational program

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Abstract

The “Tasmania: A State of Learning” structures were borne from widespread discussion with the Tasmanian community between 2000 and 2003 to identify the optimum model for lifelong learning within the state. At Secondary High School level, with compelling research supporting the benefits of education and training beyond Grade 10, a major component of this initiative is guided by legislation introduced in 2005. This legislation is a response to the communities overwhelming support which now requires students exiting from Grade 10 to participate in training and learning. To support this initiative each government high school now has the additional resource of a Pathway Planning Officer who conducts a minimum of 3 interviews of 45 minute duration with each student through years 8, 9 and 10. This pathway planning process now accurately identifies student vocational interests.

Utilising the strengths of this structure a partnership has been developed between Engineers Australia, Tasmania Division, the University of Tasmania and the Tasmanian Education Department to target 32 students across the state in the field of engineering each year. This innovative program has drawn plaudits from each of the key stakeholders due to its unique interactive pedagogy and the breakthrough in industry/government interface to create this educative model. This paper examines the holistic learning that is woven into the fabric and aligns this with a comparison in academic results of the students involved in this educational initiative compared to those of similar academic standard not involved.

Overview

Tasmania has introduced a network of strategies to increase the opportunities for all groups within the community to extend their education standards. The key component for High School age students within this blueprint was the introduction of legislation (Youth Participation in Education and Training [Guaranteeing Futures] Act 2005). This lifted the expectations of all year groups after and including the exiting 2007 Grade 10 year group. Students are now required to continue training or education in some form post Grade 10 in accordance with the legislation guidelines. Employment opportunities are clearly enhanced with post compulsory education as OECD research affirms “further education – whether it is just completion of upper secondary education or non-tertiary education beyond that level – offers significantly increased chances of accessing skilled occupations within a short time after leaving school”. Sentiments which are highlighted when the “national employment rate for 25 - 29 year olds with an upper secondary education or post secondary non-tertiary education is 22.9% higher than those who are without an upper secondary education” (‘From education to work : a difficult transaction for adults with low levels of education’ 2005). The challenge faced is to engage students within the curriculum spectrum; one of the keys to raising Year 12 completion rates must be wider curriculum choice to allow a wider range of adolescent’s developing personal and vocational interests

to be satisfied (Sweet 2002). Pathway planning is one of several strategies that have been implemented to encourage students to establish a focus, and then make informed and realistic decisions about their vocational futures. The pathway planning process is an integral part of the Tasmanian students' annual program within Grades 8, 9 and 10. The program is supported with a set of Grade dedicated resources; developed by Tasmanian teachers targeted at supporting and enriching the guiding conversations that the Pathway Planning Officer will have with students throughout the year. Tasmania has embarked on a program that will potentially create greater employment opportunities for young citizens. Ryan explained that "individuals who complete VET qualifications and work full time tend to enjoy higher wages, work in higher status occupations and have higher rates of permanent employment than members of their comparison groups" (Ryan 2002, p 41). The value of this program is significant to Tasmania's remaining a competitive player within a knowledge demanding economy.

This discussion examines how effectively this strategy harnesses the full potential of the student cohort with the education system now embracing pathway planning in each Government High School across Tasmania. This scrutiny investigates the key stakeholders at each stage and level of the process in relation to the Traineeship and Apprenticeship Pathway Program. The paper examines how effective is the current structure in creating an awareness of the opportunities for young people in relation to this educational route and the potential outcomes post Grade 10.

Historical Background

The Pathway planning process had its origins when the Tasmanian Government presented to the community "*Learning Together*" in December 2000. This presented the vision of the government for a world-class education, information and training system. An approach that offered a renewed and integrated systemic strategy was needed to provide the catalyst for improving some of the crucial areas within training and education where Tasmanian levels were well below national averages. Highlighting the need for a proactive approach is that Tasmania has by far the lowest proportion of its population with a bachelor degree or higher with the national average of 17.8% compared with the Tasmanian level at 11.4% (ABS, 2003). Paralleling this data the Tasmanian participation in education by 20-24 year olds is 37.2% which is also well below the national average of 28% (ABS, 2003).

The central theme underpinning this document was for education to be the hub for the community wheel to develop to its full potential. An understanding of the dynamics of change were embraced: "we acknowledge the rapidly changing world we live in and recognise that what may be appropriate in the next two years may not be a viable proposition in five or ten years' time"; (*Learning together : a vision for education training and information into the 21st century' 2000*) was a clear message that for Tasmania to continue to move forward there was a need to embrace the challenge that the knowledge demands in modern economies are increasing. As highlighted by Evans when creating policy support for the initiative, research both nationally and internationally consistently supports the benefits of post compulsory education within the community at many levels (Evans 2006). Post compulsory education and training not only provides individual enhancement in job satisfaction, increased earning potential and employment diversity but also creates a raft of benefits for the community. The strategy evolving from "*Learning Together*" was constructed in consultation with all sectors of the community. The process was guided by a steering committee allowing those with an interest in post compulsory education to look at potential intended outcomes, provide alternative or add further outcomes, debate the delivery style of the model, comment on the intent and general scope of the strategy.

After this widespread community consultation the vision, purposes and values that will guide post-year 10 education and training were articulated in 2003 via a document titled "*Tasmania: A State of Learning*". With community support assured during the consultative process for the vision within "*Tasmania: A State of Learning*"; the strategic framework to support the vision was now developed. The document identified four facets that would create conduits to allow all citizens to participate in the journey for embracing the opportunities the initiative would present. The four key elements identified that were to be developed to support the initiative were (Tasmania. Dept of 2003) -

- Guaranteeing Futures
- Ensuring Essential Literacy's
- Enhancing Adult Learning
- Building Learning Communities

The Guaranteeing Futures element has many initiatives within its structure which have been developed to provide a multi faceted resource to assist with student transition post Grade 10. Developing local links and creating authentic learning opportunities is one facet used that mirrors thoughts by Halse, who also contends there is much value and benefit from this strategy where community connections are a crucial tool in supporting school curriculum (Halse 2004). These mechanisms are intended to assist and support the student's journey into the next phase within areas of training, the workplace and the education labyrinths. Within the portfolio of Guaranteeing Futures is the pathway planning component which is currently embedded within the Government High School system.

The intention of the Guaranteeing Futures policy is to encourage students and create an awareness and understanding of the rewards associated with participation in education and training beyond post compulsory schooling. Research consistently indicates that young people who participate in education and training beyond Year 10 broaden their horizons and more easily take part and benefit from life's opportunities; this is clearly summarised by OECD research "further education – whether it is just completion of upper secondary education or non-tertiary education beyond that level – offers significantly increased chances of accessing skilled occupations within a short time after leaving school" ('From education to work : a difficult transaction for adults with low levels of education' 2005, P 53). Those who do not are more likely to narrow their opportunities and experience difficulties in adulthood. The effects of limited involvement in post compulsory education in Tasmania are emphasised when only 37.9% of the states 24 year olds had obtained a skilled vocational qualification or higher, compared with a national average of 49.2% (MCEETYA, 2002).

The Guaranteeing Futures strand has many components within its framework which have been developed to provide resources to assist with the transition from Grade 10 into the next phase of a student's journey. Pathway planning is a major support structure within the Guaranteeing Futures umbrella. The pathway planning model is envisaged to be an instrument providing an integrated opportunity for students to "plan, prepare and make informed choices about their post-school destination" (Department of Education, Tasmania, 2003). Legislation was introduced (Youth Participation in Education and Training (Guaranteeing Futures) Act 2005) to support the student cohort movement to their full potential with an increase to the "compulsory" period of education. The criteria has been from 2008 a requirement for young Tasmanians who have turned 16, or completed Year 10, to participate in training or education for –

- a further two years, or
- until they have gained a Certificate III vocational qualification, or
- until they have turned 17.

To assist this "raising of the bar" a varied and diverse a set of innovative strategies provide scaffolding that seeks to support all members of the student cohort.

The Pathway Planning Process

The key to the pathway planning process is the relationship that is developed and cultivated between the student and the pathway planning officer. The constraints of time placed upon subject teachers within a High School make it extremely difficult to create free time for extended one to one dialogue with students. The limited time to interact with students for teachers is highlighted by teacher reactions such as "There are never enough minutes in a day to ever feel as though you are totally on top of it all, with everything completed and all needs met" (Rossmanith 2006, P 14). The value of the one-to-one conversations that a Pathway Planning Officer can engage a student in are vital to creating the understandings that assist students to move towards informed vocational choices. Pathway Planning

Officers work within a High School and become part of the school fabric with a dedicated workload exclusively based on pathway planning. The Pathway Planning Officer has a time structure that allows for three sessions with students of approximately forty five minutes duration during the school year. The sessions begin in Grade 8 and continue through Grade 9 and finally to Grade 10, with a plan developed each year which dovetails with the student's personal development. Each year the student develops their own individual plan that draws on their unique strengths, attributes, aspirations and builds an understanding of the expectations within the world of work. The completed pathway plan is then presented to parents along with the traditional school report at the end of the year.

Aligned with the Pathway Planning Officer developing the students' individual plan is an outstanding curriculum resource to assist teaching staff. Titled "*My Plan for My Future*" the binder is a complete series of learning sequences which supports the integration of the pathway planning process into the schools curriculum. The resource is designed for each year group as an ideal tool for teachers to create a platform to enrich the conversations that occur between the student and the pathway planning officer. The binders for each grade level were developed in consultation with over 90 teachers and pathway planning officers in working groups to identify resources that would be ideal to stimulate interest and discussion. The resource has been well received in classrooms as an effective resource that identifies well with the learning dynamics associated within Tasmanian High Schools. Feedback has been very positive as indicated by a Grade Coordinator from a metropolitan High Schools comments:

"With pathway planning being in place for only 3 years; the VELDO's were able to provide an extremely informative overview of the process and then take teachers through relevant, real life exercises that they can use in class. For an off the shelf unit of work the "My plan for my future" series is up there with the best I've ever seen."

The style in which the support resource material within "*My Plan for My Future*" is introduced and delivered within a school varies within each High School. Some schools have a dedicated period within their timetable devoted to the pathway planning process; some have adopted a more fluid approach whilst other schools have embraced the process as the underpinning of all studies. Many schools are seeing the benefits of the initiatives as pointed out by a Principal of a District High School:

"I have seen a noticeable lift in student's interest and awareness of their potential career paths that they will follow when leaving High School. The Pathway planning process has been a great influence which has provided for many students a "real purpose and focus" for their studies, motivation within the school has lifted and the results are starting to show."

The "rollout" of the process continued steadily with the first group of students who have experienced pathway planning for the full 3 years moving into the Post year 10 stage of their development leaving Grade 10 in 2007. This group of exiting Grade 10 students were the first to leave High School and be operating within the guidelines of the new legislation. This process has dovetailed well within the new Tasmanian education model currently being implemented throughout the states 4 learning areas. The new structure has 2 major "educative routes"; an Academy option which is a target for University aspirants and a Polytechnic institution which has a vocational focus. Students adopting a Polytechnic educative experience can also move to the University route at any time within the learning process. Again this process has involved much consultation with all stakeholders to ensure the current positive momentum is continued. The new education Academy/Polytechnic structure is being rolled out over 3 years and will be implemented gradually during this period at negotiated times with each learning area.

Another initiative within the Guaranteeing Futures structure was to employ Youth Learning Officers (YLO) to create a safety network for students who have been identified as potentially likely to become disengaged from or have disengaged from education. The Youth Learning Officer works in conjunction with the Pathway Planning Officer to develop an understanding of the individual student's needs and barriers from the relationship that has been nurtured during the pathway planning process within Grades 8 and 9. Each YLO has a caseload of 50 students who may face multiple barriers to their educational opportunities; the identified student group are supported through the final 2 Terms of

Grade 10, this support continues in Term 1 at Polytechnic or Academy level and critically contact is maintained with students over the Christmas break covering the crucial transition period. The benefits of this holistic approach are identified clearly in recommendations regarding improving student retention in Australia “Student satisfaction with careers education and guidance tends to decline with achievement levels and as student distance from university grows. The emphasis should shift from information to strategy-building and case-management, including transition mentoring” (Lamb et al. 2004). The outcomes of the Tasmanian YLO program in 2005 have been very positive with 70% of students in the caseload moving into colleges, study or training and employment (Evans 2006) following the high level of quality YLO support.

Vocational Education and Learning Development Officers (VELDO) are another element of support for the Guaranteeing Futures initiatives; VEL Development Officers have a role in providing advice for optimum integration of Guaranteeing Futures programs such as pathway planning within each schools curriculum. Professional learning for teaching staff at Grade and subject level provides teachers with the necessary tools to integrate new material within their structures successfully. Information evenings are arranged with the organisations such as University of Tasmania, High Schools and community groups to ensure not only the education community but the wider population have an understanding of the Guaranteeing Futures framework, the implications and benefits of the initiatives for students and all stakeholders. The pathway planning initiative has been very well received by parents of students within the system

"As parent of a child just entering adolescence, it is reassuring there is a solid plan in place in schools to provide direction and advice for careers planning that will carry through as they move up through the grades. The information evening was well-presented, informative, and essential to ensure parents are “kept in the loop” with how to access this vital information and gain insight on their child's aspirations and dreams for their future."

Authentic learning opportunities are initiated across a diverse range of vocational areas for students from medicine to bricklaying, returning excellent parental feedback and consistently enthusiastic support from High Schools. Community support for this cooperative authentic educational model is high and as Billet suggests; “almost universally, a school-based component which seeks to embellish, elaborate or augment the students’ experiences in the workplace is a key element in securing effective school-to-work transitions” (Billett 2006, P 12). VEL development officers are currently creating innovative learning options for students through creating close ties with High School, industry, community and other training providers.

Discussion with stakeholders about the process has indicated much interest about the pathway planning model. A parent at an information evening commented that had the requirement of working towards a certificate been in place when he was leaving Grade 10 his work situation would probably be far different. With his current family responsibilities and not having recognition for his current skill set these factors combined to created a lot of stress due to the lack of evidence gained to mirror his years in the workforce. A former student now in the workforce was very impressed with the opportunity to take part in extended authentic learning experiences and felt that consistent vocational focus, advice and structure was in his words “exactly what I needed” during the final phase of compulsory education.

Not all points of view are similar with quite opposing views even coming from two teachers at the same school. One teacher was impressed with the supporting resource that dovetails with the pathway planning process; this teacher was “teaching out of area” and saw the supporting learning sequences as a “lifesaver”. The colleague of the teacher who felt she had been “saved” by the resource had a different view, she was strongly of the opinion that there were not enough hours in the day now let alone introduce another block of information in her lessons. One student upon learning of the extra year necessary at school loudly exclaimed “oh no, ripped off” as he felt another year of school was

made harder to accept by the fact his brother was in the year group prior to the new legislation effecting his cohort.

A tertiary lecturers initial view of the structure that has been put in place with the pathway planning initiative was that this was an exciting addition. After an extended explanation of the integrated nature of the support framework to augment the structure, the lecturers view was this was an example of best practice within the fabric of a High School. Another former student had an air of disappointment regarding missing the opportunities that the pathway planning initiative could have opened up for her; the young lady impressed upon her younger brother to ensure he made the most of the process as a potential blueprint for his future options. One parent had the view that education had gone too far; expecting all students to continue past Grade 10 was simply “out of touch” with society. A sentiment that was expressed continually by a small group of parents at an information session was they were not aware of the great opportunity to see their siblings plans develop during each year and how easily accessible the plans were. Internet access to all students plans via individual password protection allows parents to see the development of their siblings plans with the students consent. Common thought from these parents was that this was a wonderful chance to create conversations around their childrens proposed futures at a time when conversation was in their terms “drying up”, much to the parents despair.

Design Your Future - an Experience in Engineering

Australia is facing a shortage of Engineers that is of concern to the continued development of national infrastructure. Recent reports, Anlezark et al (2008), and Tytler et al (2008), suggest that there is a growing concern in the developed world about the decline in the proportion of school students who choose a career in Science, Engineering, Technology, and Mathematics. Given this backdrop the “Design Your Future - an Experience in Engineering” began in Tasmania in 2008. The concept was developed between the Tasmanian Education Department, the University of Tasmania, the Australian Maritime College and the Tasmanian Division of Engineers Australia.

The initiative goals were to further the aims and purpose of potential future engineers by providing Grade 10 students with authentic real-world worksite experiences. The “Design Your Future - an Experience in Engineering” program seeks to engage students in a range of engineering genres that will allow a genuine exploration of the engineering profession by interacting with engineering professionals, university academics and current engineering undergraduate students. The unique formula provides mentoring engineers with maximum flexibility and control over the learning opportunities of the future Grade 10 group of engineering candidates. In a breakthrough for vocational experiences; engineers do not have the restriction of a fixed period work experience, instead times and days that suit the learning segues will be determined by the engineer when convenient and as they arise. Innovation is the hallmark of this collaboration with an educative process firmly embracing authentic learning. Within the new Tasmanian curriculum there is a capacity for students to receive an assessment for Vocational Applied Learning in such programs.

The selection process delivers highly motivated Year 10 students who demonstrate high levels of ability in maths and science. In addition to proven academic ability the candidates chosen exhibited the potential to develop excellent communication and presentation skills. Workplace preference to a particular engineering field that matched the student’s interest was supported by members of Tasmanian Division of Engineers Australia. Chemical, Marine, Electrical and Mechanical interest areas provided students with engineering genres that linked with their career thoughts. Within the structure mentoring engineers were able to elect a day or clusters of days that fitted in with appropriate learning options and crucially better suited to the engineers work commitments. The program

structure allowed an engineer to notify a workplace experience opportunity at short notice via a convenient email loop.

Interest for this initiative generated from students with very high standards in maths and science was strong. Mike Green (President of Tasmanian Division of Engineers Australia) commented during the selection process and structure development for the program “this is the most exciting project I have been involved within in 20 years”. Engineering was certainly in the spotlight in Tasmanian High Schools. Part of the selection process was via the Guaranteeing Futures Pathway Plans. Pathway Planning Officers in each of the Government High Schools have an intimate knowledge of students’ future aspirations and this ensures that students with potential could move into these engineering fields.

The selection process resulted in the gender split for the 2008 group being 10 girls and 22 boys; interestingly well up on the 9% in the current Engineering student cohort at the University of Tasmania. This concern is mirrored with the extremely low percentage of female students that choose careers in the Physical Sciences (especially in Physics), Engineering, and Information Technology fields. It has been argued, Fleer and Marsh (2008), and USA House of Representatives (2008), that to help reverse these trends it is crucial to encourage creativity and innovation in (very) young children (especially in girls) with a focus on Science, Engineering, Technology, and Mathematics related areas. This is believed to be essential to Australia's success in a global knowledge-based economy.

With research by Shah and Burke, flagging the proportion of employed people with qualifications in 2016 is estimated to be 71.2 per cent compared with 58 per cent in 2005; this program clearly mirrors the need for the gaining of qualifications. The first component of the program experience for the budding engineers was to meet in Hobart for a 3 day taste of life in the Faculty of Engineering at Sandy Bay University of Tasmania campus. Tours of cutting edge world class engineering sites around Hobart accompanied the UTas experience for the students. An extended tour of the Australian Antarctic Division, the Transend Power Control Centre and concluding with Incat worksite as the final site tour destination were selected to deliver an authentic look at the full spectrum of engineering opportunities available. An indelible impression had been made on every participant as the students returned to their regional locations around the state.

The mentoring process took the learning for participants to a new educative plane; this commitment from a highly supportive peak body (Engineers Australia, Tasmania Division) is a critical component to the authenticity of the experience. The mentoring commitment length of between 10 and 15 days is supported with a communication email link; the link ensures that the students have complete support from all key stakeholders prior to any days on the worksite. Mentoring engineers have the opportunity to comment and assess students across the 10 crucial ACCI employability criteria (Communicating, Teamwork, Self Management etc) during the program.

The Hobart UTas visit and mentored engineering experience align with another tertiary “taster” in Term 3 which seeks to provide a sustained holistic and authentic overview of the potential engineering career pathways in Tasmania. This visit is another 3 day taster; this time of the Australian Maritime Colleges engineering facilities for the group of budding engineers. The AMC is a world renowned education facility which if the numbers of graduates tripled it would still not quench industry desire for graduates from the institution.

Combining both Tasmanian tertiary institutions and aligning these with a targeted mentored engineering experiences was a formula that achieved excellent results. The unique program married academic ability with a raft of potential engineering career options. The level of academic skills that accompanied the group is highlighted by the statistic that all students were in the top 8% of numeracy students in the state and 2/3 of the group were in the top 0.6% in Tasmania. All of the participating students had a desire to move into a career that engaged their interest in Maths and Science. Each student developed a digital portfolio of their experiences during the program and towards the end of

the year present their experiences to Grade 9 students who may wish to apply for entry into the program the following year. The presentation is assessed within the new Vocational and Applied Learning (VAL) genre which is one of the seven strands of the Tasmanian curriculum.

The strength of this program is the ability within High Schools to identify a cohort of students who have thoughts of moving in a subject interest direction aligning with engineering. This is made possible by Pathway Planning now being a genuine component of the High School curriculum supported by legislation (Youth Participation in Education and Training [Guaranteeing Futures] Act 2005). The selected student group have the academic capacity to successfully follow such a challenging career path. Crucially they are identified as an “ideal student” for such a program by Extended Maths and Science teachers.

Participating students academic results have been tracked against other students starting the school year at the same numeracy level, with the same teachers to compare final assessments. Some students have missed up to 18 days with all components of the program taken into account. The research results show that the students cohort involved in the initiative have had their numeracy marks improve at a rate higher than the rest of the group with exactly the same dynamics despite missing significant class time. The claim that authentic learning is a powerful tool to create a relevance to traditional curriculum is highlighted within these figures.

Excerpts from feedback of Interviews and Comments

Comments from the key stakeholder groups involved within the study provided a rich understanding of the level of impact the program had made on all involved. The 6 key stakeholder groups identified as vital components to the program are – Parents, Students, Principals, Mentor Engineers, Contact Teachers and Pathway Planning Officers. The return rate of 6 page questionnaires from the 154 members of the key stakeholder groups was 86% (133 returns). The questionnaire returning cohort had an option to request a 30 minute interview also; from this group 53% (70 interviews) were keen to express their views in more depth. Below is an example of comments from each of the stakeholder groups with a more diverse group within the appendix.

“The parents viewed University as something that did not relate to their family. Before this program it was seen as an abyss where students disappeared into. There is no question that this exposure was a turning point in his career choices and his life, his parents were able to see how much he enjoyed it, how engaged he was, and how relevant his skills were; he would not have gone to University let alone engineering; what an absolutely brilliant outcome”

Excerpt from Southern region Principal interview

“For academic students this is a big step forward in the education system”

Excerpt from South East region student interview

“Really inspired him, realised there were a whole group of kids he could relate to. Fits with the whole philosophy of what good education is all about; this is best practice and what we should be aiming to do with all students”

Excerpt from North West region parent interview

“They were so highly motivated by the program, I am sure this transpired to their classroom results. Talking to people who were engineers gave it so much relevance; simply blown away by the opportunities, engineers were talking about their careers it was infectious within the peer group.

They came back from the UTas visit full of it; the girls were always thinking mainland University; they loved that opportunity, they articulated to me that now UTas is for them, that's a big shift"

Excerpt from Northern region contact teacher interview

I would have loved to have had this sort of thing. This is essential for Australia, we need to think smarter, this is the sort of thing that can help us get smarter, getting excited about the profession, this is the way of the future for Australians.

Excerpt from Northern region Engineer interview

Students just loved the interaction with the high-level tertiary teaching; they loved the program, they were always telling me what was going on, the mentors really connected, I never overheard at downside.

Excerpt from Northern region Pathway Planning Officer interview

Conclusion

The pathway planning process has certainly created much spirited discussion amongst stakeholders. The initial feedback has been overwhelmingly positive with some reservations being raised. The integrated nature of the program requires extended time to present a clear overview of all of the facets supporting the initiative. Whilst the broad and diverse nature of the various elements that create the momentum are a definite strength, until the "complete package" is clearly understood there will be some reservations within the community. It would be fair to view that the process has received support at this early stage however the benefits to the student cohort will not be seen for some time yet. The strategy appears to be well thought out and could present the impetus to provide solutions to some of the post compulsory education issues the policy targets.

The Engineering Initiative has been well received by all stakeholders with few reservations. The program has been embraced by the Engineers Australia national committee with a view to expanding the program to all states in an effort to raise the profile in an authentic and effective format. Crucially the program aligns with the changing nature of the workforce as pointed out within the *Qualifications and the Future Labour Market in Australia* paper "the number of people employed in Australia increased by 19.7 per cent from 1995-2005, however the number with qualifications increased by 44.7 per cent". The experience is targeting a highly qualified profession with high levels of demand across all genres. The academic results of the students involved have emphasises the community preference for authentic learning to become an increasing component within the education fabric.

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Appendix

When he returned to class, having had this experience he developed leadership and teamwork skills, the students looked up to him because he had been involved. He was unsure of engineering but now he is keen.

Excerpt from North West region contact teacher interview

This is a great idea and has really opened my eyes in terms of engineering as a career pathway. Programs like this one need to be run so that students are aware of just how important engineers are. I know that I personally, before this program, wasn't aware of the pathways and achievements that engineering offers.

Excerpt from Southern region student written feedback

Thanks to all of the organisers and organisation involved in supporting the initiative. It was great to have my child involved, and see the program co-ordinated with such enthusiasm. Thank you.

Excerpt from Southern region parent written feedback

The big thing that has come out of this is these students are saying they wouldn't think twice about doing Uni here, where its always been Uni of Melbourne or Monash, isn't it great our kids want to stay here because they now think its good enough.

Excerpt from Northern region contact teacher interview

You can do Maths, you can do Science, you can do English but how do you know what that's for unless you see someone using it; this broadened the students exposure to significant adults, it contained all that is vital.

Excerpt from Southern region Principal interview

A wonderful initiative, allowing students the opportunity to develop an understanding of what engineering is all about, as well as a wonderful mentoring and coaching opportunity with young engineers. This initiative has had a significant positive impact on Nick. Thank you.

Excerpt from North West region parent written feedback

I have no hesitation in saying that he was always doing interesting stuff, seeing the technology, doing hands-on stuff, when he stated he was blown away, wouldn't stop talking about it, just so enthusiastic.

We are so pleased with how thorough everything has been. The kids felt special being involved in having clothing that identified with their efforts.

Excerpt from Southern region parent interview

He enjoyed his Science and Maths so much more, it increased with more relevance and why he was doing it and where it would take him. I think it is so important to kids at this age.

Excerpt from North West region contact teacher interview

Here was a nice, tentative person prior to embarking on the program, he came back to the school and took on the role as a leader and wanting to share his experiences the program gave him. The chance to explore in a very grown up way what was right for him. This brought the curriculum to life and put meaning into it, it gave him an authentic view of what he needed to work towards; it refined what he needed to do to be really good. Myles profile in engineering has lifted the profile in the school.

Excerpt from South East region Principal interview

This is really opened my eyes to engineering, seeing the AMC has seriously made me consider this as an option.

Excerpt from Southern region student interview

We simply cannot provide these types of opportunities as a school.

Excerpt from North West region Principal interview

Both our students took it seriously as a step to the future, others in the school wanted to know “what do you do?”. It was seen as a big, important thing they were doing, the group dynamic was this is a good thing to do. We need to give kids the basics but unless the subjects are hooked to a future we are wasting time, getting kids to see further than tomorrow was the challenge, and this program does that.

Excerpt from Northern region Principal interview

Maddison for a fact is thinking of engineering now, never mentioned it in her life now she is doing engineering, the pendulum has swung. Its time to think about our top end kids, you offer a program like this and its WOW!

Excerpt from Northern region contact teacher interview

Gave him a meaning for the curriculum marks he needed to have; professional people had now told him these are the things he needed and he had seen some of this in action. He came back really, really keen, tails up, that he wanted to make sure his marks were the sort that would let him be an engineer.

Excerpt from South East region principal interview

Going to University in Hobart reinforced that this is definitely the pathway from me, and he said WOW this is amazing. Not knowing what the facilities were like, being able to see what first, second, third and fourth year students are doing in engineering was mind blowing to him. Was daunting at first but now he is looking forward to studying, he found all of the students having the same interest was great. This program puts the students on a stepping stone progression, and lets them know I am making the right decisions, it was reinforcement and a refinement of his vocation map

Excerpt from Northern region Pathway Planning Officer interview

It was a GREAT experience and I have gained a lot from it and thank you very much for giving me the opportunity.

Excerpt from Northern region student written feedback

The Engineering Initiative program was very well structured and a positive experience. Communication received re: student's progress etc throughout was greatly appreciated. Thank you.

Excerpt from South East region parent written feedback

Once the word gets out; students are saying I want to have a go at what Thomas did last year.

Excerpt from North West region Principal interview

He said to me; I can see why I need to be doing advanced level Maths because these guys are using it. After going to UTas he came back pumped, to get together with another group of students from across the State who are keen and get their brains together he was pumped; he came back and organised a group in the school to look at engineering.

Excerpt from North West region contact teacher interview

If I was a Grade 10 student and saw something like this I would have gone WOW, engineering seems to have gone behind in Tasmania and a program like this is a huge benefit.

Excerpt from Southern region Engineer interview

I think the way the program was structured was excellent. Student's benefit from a program being run earlier in the year where they get a taste for engineering without the stress of the end of year rush. Also they realise the importance of the subjects they are doing.

Excerpt from South East region student written reflective feedback

If my son could have had this opportunity when he was at high school I would have died for it

Excerpt from Northern region contact teacher interview