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Making space accessible: A space education program for neurodiverse students

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Abstract

Encouraging neurodiverse individuals to pursue careers in the space sector can help to foster innovation and inclusion in the space sector. The Aurora Mission, now in its fourth year, is a pioneering project designed to empower young people aged 12-25 facing disabilities or social disadvantages, with a primary focus on those diagnosed with autism spectrum disorder. The program's objective is to emphasise the importance of inclusivity within the space industry, recognizing the invaluable contributions and unique perspectives that young individuals living with disabilities bring. This inclusion initiative by the Andy Thomas Space Foundation, in partnership with the Australian-based Edu-Tech startup, Makers Empire, endeavours to grow space awareness and provide educational opportunities to traditionally underrepresented groups.

The Aurora Mission's unique approach extends beyond traditional educational paradigms by incorporating an open-ended mission challenge that prompts students to address not only personal needs but to conceptualise designs that have the potential to benefit both the space industry and society. This deliberate design enhances access and success for participants, regardless of their needs, abilities or backgrounds.

A distinctive feature of the program involves a sensory-sensitive, self-paced excursion to the Australian Space Discovery Centre opened exclusively for each visiting school. This experience is followed with school experiences that engage students in utilising 3D modelling tools to address key enquiry questions related to space travel, essentials in space, and opportunities within the space industry. The students' resulting design solutions are then 3D printed and displayed in a public exhibition at the Australian Space Discovery Centre, granting a public platform and an authentic audience for their skills, ideas and creations.

The Aurora Mission strives to amplify the voices of this often marginalised demographic and not only positively impact on the space industry but the lives of the students themselves.

This paper will analyse the outcomes from the past four years of the Aurora Mission's implementation. Data presented highlights case studies showing how students have been inspired to thrive and continue their interest in space. Further demonstrating the program's positive impact on the capacity of teachers in the disability sector to incorporate space as a meaningful and inspiring learning context for students. '…Having the opportunity to show kids a local, innovative space industry and all the ways they could contribute…It gave the kids…the agency and autonomy to create in a way they may not have done, beforehand.' Participating teacher, 2024.

Keywords: (space, education, design-thinking, diversity, inclusion, neurodiversity)

Acronyms/Abbreviations

ATSF or The Foundation: The Andy Thomas Space Foundation

ME: Makers Empire

ASDC: Australian Space Discovery Centre

STEM: Science, Technology, Engineering and Mathematics

1. Introduction

The Andy Thomas Space Foundation is a national not-for-profit organisation focused on promoting high quality, innovative space activities across Australia, driving progress in space-related research and supporting the development of the Australian space sector through space education initiatives and public outreach. These activities are completed under various

branches which includes the Foundations Education Fund, which has, since commencement, provided around 1.8 million dollars in funding to various programs, scholarships and awards.

In 2022, the Foundation identified a significant gap in STEM and space education that supported one of the Foundation's key target cohorts, being neurodiverse individuals. The Foundation strives to support the next generation of space workforce leaders, across a variety of roles, independent of their backgrounds or disabilities, to ensure the space sector is a sustainable, inclusive and innovative industry.

Following the generous contributions of the Maras Foundation and in-kind support from other organisations, including the Australian Space Agency and SmartSat CRC, the Andy Thomas Space Foundation developed an innovative fund offering engaging and accessible education opportunities designed specifically for students and young people living with a disability.

Following extensive research with representatives of South Australian schools, the Foundation engaged partner, Makers Empire, an education technology company that supports students to become innovators and problem solvers through design thinking processes and 3D design technologies, to deliver the Aurora Program.

The Aurora Program is a highly specialised program designed to inspire students, engage teachers and provide learning opportunities to students who may one day consider an opportunity in the space sector.

The program is now in its fourth year and has so far supported over 700 students and more than 150 teachers and support staff to engage in space in a unique way.

2. Background

1.1 Program context and purpose

The Aurora program was developed to engage and with local South Australian schools to deliver a learning experience, designed to promote space as a topic of inspiration for students living with a disability, with the potential to stimulate student and young people's interest in pursuing STEM subjects in their ongoing study plans.

The program was conceptualised due to a heightened need for creative and innovative thinkers within the space industry and a recognition of the below statistics, which could be in part preventing the industry from accessing a highly capable and innovative cohort of leaders:

- 1 in 6 Australians are living with a disability [1]
- Autism affects 1 in 70 Australians and is the largest primary disability category for the NDIS.[2]
- 33.4% of Australians living with a disability have completed year 12 or an equivalent [3]
- 16.1% of Australians living with a disability hold a bachelor's degree [4]
- Autistic adults are 12x more likely to be unemployed. [5]
- Labor Government has appointed an autism lead teacher in every public primary school commencing in 2023. [6]

The above statistics clearly indicate that there is a need for further educational opportunities, designed to empower and share the talents of students living with a disability, promoting their sense of confidence and opening doors previously considered shut.

We have great examples around the world of using space to make our global ecosystem more inclusive and diverse. Whether it be an astronaut or an office worker, the space sector needs and thrives as a result of individuals of all different backgrounds, skills and abilities. Making space truly a place for all.

1.2 Program establishment

The Aurora Program was initially developed based on the findings of interviews hosted with teachers and student support officers from eight schools with disability or inclusion units across South Australia. The interview took place virtually over the course of around 45 minutes per school, enabling school staff to provide in-depth insights into the following:

- Their schools participation in previous internal or external programs designed to increase STEM and career accessibility
- The fundamental requirements to design a successful program to engage neurodiverse students within their school
- The optimal methods to ensure participation and engagement from students.

The eight interviewed schools, who then became the initial pilot participants in the 2022 cohort of the Auror Program, provided a great array of learnings with key findings including:

Programs should involve some off-site opportunities for students to engage with different environments in a secure manner, allowing their learning to continue beyond the boundaries of a classroom

The program should include hands-on learning opportunities as a focus point. Students across a spectrum of neurodiversity were identified to prefer tactile touch and the opportunity to engage physically in

solutions to ensure focus and engagement with the task at hand.

Teachers also requested a program that has continued learning opportunities for students (and even their teachers). This would allow those students who were passionate about the project, the opportunity to continue and progress their learning, with hopes that they may too one day be able to participate in the workforce.

The findings from these interviews above all else were conclusive that there is a significant gap in educational offerings for neurodiverse students and that their school staff are not only interested, but passionate about identifying opportunities for students to further engage with various topics and industry opportunities.

The findings from these interviews can be found summarised in appendix A. The assessment of the eight schools included two catholic colleges and six public, government run schools. Most of the schools interviewed had a separate stream within the school to support disabled and neurodiverse students, whilst some had inclusion classes, where students were able to participate alongside mainstream students.

1.3 Relevant space sector opportunities

The Australian Space Sector features a combination of technical and non-technical jobs, currently employing up to 19,000 individuals across each state and territory [7]. With roles in industry, government, defence and academia available, the space industry relies almost entirely on innovative, creative minds who are committed to improving current and future opportunities for Australia and our capabilities.

With a number of organisations heavily engaged in the space sector, featuring purpose developed programs and pathways for engagement with Neurodiverse students, including the Australian Government and Defence Science and Technology, students will be able to engage quickly and directly through defined pathways.

Other organisations across the industry are growing quickly and largely prioritise passion, interest and desire to learn - leaving the door wide open to students and individuals who are looking to make an impact

Whilst there are a number of roles that require varying levels of tertiary education, whether that be University or Tafe, there remain some career options that do not require any further study. However, identification of these requirements has presented a barrier for some neurodiverse students who are unable to participate in traditional tertiary education settings. A learning that has been raised by participating teachers and is in review from a programmatic lens to see what possibilities may be available to reduce this impact and improve student outcomes.

3. Methodology

Schools are selected for the Aurora Mission Program via an expression of interest process. Selected schools are provided with a 3D printer and a 12-month subscription to Makers Empire to access its resources, programs and 3D modelling software and assist their engagement in space-related problem solving. The Aurora Mission program is launched with a briefing session, hosted by the Andy Thomas Space Foundation and Makers Empire at the Australian Space Discovery Centre. Teachers, school leaders, program supporters, and special guests are informed about the program's objectives and structure with technical support to operate their new 3D printers. Teachers have time to explore the galleries at the Australian Space Discovery Centre and discuss adaptations that might support their students' visit to the Centre.

All participating schools are provided with a 3D printer, access to an in-app learning program, the Kids in Space Challenge Course, which includes videos, quizzes and other resources focused on the growing Australian Space Industry to assist students in learning about space. A digital library of resources including a Teacher Guide, provides further links to curated space-related resources.

Key components of the program include a class visit to the Australian Space Discovery Centre and a workshop at their school. The visits to the Australian Space Discovery Centre are booked as private sessions with exclusive access for each class, to ensure a calm, safe environment with minimal sensory overload and focussed, specialised support by Space Communicator staff.

Adaptations are included to accommodate the needs of each group including wheelchair-accessible parking, rearrangement of exhibits to allow easier access, and lower volume levels for exhibits featuring sounds. The sessions are individualised for each group and include a discussion and game-based activity followed by time to explore the galleries, with input and support from the Space Communicators.

During the visit to the Australian Space Discovery Centre, students are introduced to their mission: to design a solution to the challenge of what they might need to get to space or what they might need when in space. The students have a semester to create and 3D print their design solutions, culminating in a public

exhibition at the Australian Space Discovery Centre. Classes are encouraged to capture photographs of objects in the Centre that are of particular interest, to provide visual reminder cues and inspiration for their Aurora Mission design challenge.

Makers Empire's Learning team members facilitate a school-based workshop for each class, co-designed with teachers to ensure that language, resourcing, methodology and pace is tailored to meet the specific needs of students. These workshops explore space-related resources to inspire students on their design challenge and introduce students to the Makers Empire 3D modelling software for designing their space-themed models. Designs created by previous student participants in the Aurora Mission Program, are shared with students to provide inspiration. Students and teachers are provided with an introduction to 3D printing and early models are 3D printed during the workshop to observe the technology in action.

Throughout the program, online check-in sessions are facilitated for participating teachers to provide ongoing support and encourage collegial sharing.

The exhibition of students' 3D printed models and space learning are on public display in the Australian Space Discovery Centre for a two-week period, providing an authentic audience for student learning. As well as drawing interest from the general public visiting the Centre, classes, families and caregivers are invited to attend the exhibition and celebrate the students' work.

4. Results

4.1 Executive Summary

Total outcomes from the previous four years of the Aurora Program can be seen through the executive summary seen in figure 1 below.

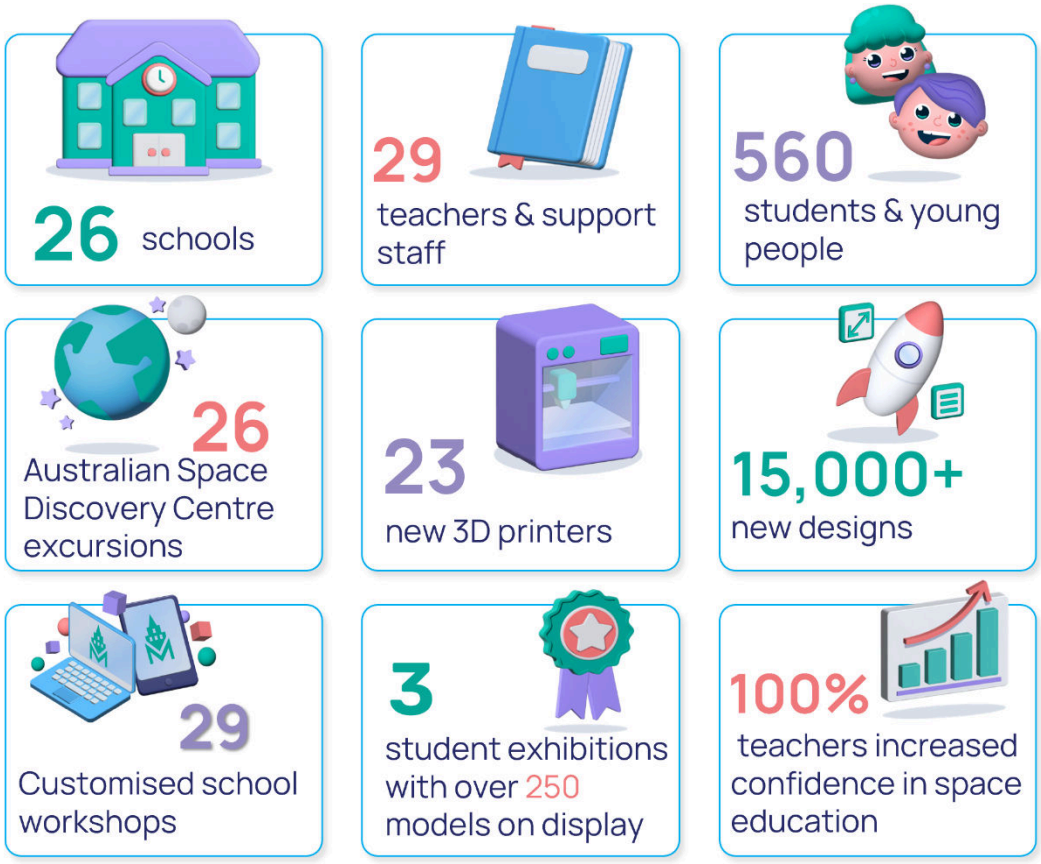

Figure 1 – Executive Summary

4.2 Showcase Events

The Aurora Program, whilst based on the fundamental basis of the Kids In Space National Challenge has a number of key differences that were identified and amended as a result of the interview outcomes. One such difference is the showcasing opportunity for students. Kids In Space culminates in a major showcase event, enabling students from different schools to come together to meet and share their projects. This showcase method has received great feedback and is a major feature of the mainstream program. However, when discussing the showcase with Aurora school staff there was a clear misalignment to student needs.

Other approaches to showcasing student learning were developed that maintained a similar intention of providing an authentic audience and recognition for student efforts, increasing student confidence and pride in their learning.

As such an alternative showcasing mechanism was proposed and endorsed by teachers. The modified showcase would take place in the form of a two week public exhibition of work on display at the ASDC for not only the participating students friends and family, the schools staff and those close to the program to enjoy and celebrate the work of the students, but for the general public to observe the design thinking and out-of-this-world imagination of participating students.

This exhibition has taken place across each year of the program and has enabled the importance of the program to be given a public, visible platform, celebrating its potential impact on industry innovation.

4.3 Social story development

The design and commencement of the Aurora Program was a unique opportunity to reflect on daily

operations within the industry and throughout the Foundation's Education Fund programs,with a revised lens. Enabling the Foundation and our delivery partners, Makers Empire to review the manner and accessibility of various tasks and opportunities, which at times identified gaps within the current processes making opportunities more difficult for neurodiverse individuals to access and engage with.

Throughout the planning stage, the Australian Space Discovery Centre, who alongside the Australian Space Agency have been great supporters of the Program, was identified to feature a gap in their preparations for neurodiverse schools attending. Through the teacher launch event, where teachers have the opportunity to gain a more in-depth understanding of the program, its requirements and the assets that will be used throughout, teachers are also asked how the Space Discovery Centre (ASDC) can be made most accessible and comfortable for their particular class of students. It was through this process that a gap in the pre-prepared briefing documents for teachers were identified. This gap was a lack of social stories to be able to prepare students for what to expect, who they will engage with and what they will see. Social stories have long been used to support neurodiverse students to feel comfortable and safe when entering a new environment and reduce sensory overload and anxiety.

This was a very welcome addition by the ASDC staff as not only can this support students within the Aurora Program, but provides other neurodiverse individuals across any age and interest level, with the opportunity to receive additional information ahead of their visits, increasing accessibility to the ASDC, and meeting their mandates of being a place for all to experience wonder, excitement and learning. This was sent to schools and was highlighted as a major accessibility strategy which enhanced accessibility and engagement in the program. Since this initial version, the ASDC has continued to evolve their resourcing and make fundamental changes to ensure accessibility and engagement for individuals of varying needs.

4.4 Case studies

In 2025 we interviewed teachers previously engaged with the Aurora Mission Program, to delve deeper into effectiveness and impact. Educator, April Harris, shared the following insights:

As a result of participating in the Aurora Mission program, students were making connections with space-related learning in other curriculum areas, expanding their experiences and enriching their world. With their whole science unit being based around using 3D design and 3D printing to solve problems, the students were able to transfer these skills into a real-world problem when their class teacher was faced with the distressing problem of losing her wedding ring. The students independently took on the challenge of 3D designing the teacher a new ring based on her needs, demonstrating learner agency in their ability to take a problem and develop an effective solution. This real-world learning led to a range of positive outcomes with a selective non-verbal student displaying animated behaviours, great excitement and improved communication through this STEM experience. The teacher also witnessed enormous growth in another particular student who developed her capacity to problem solve, with a shift from typical behaviours of learned helplessness to displaying empathy, confidence, active engagement and creativity. The teacher also witnesses an increased interest in STEM-related technologies during the Aurora Mission Program, evidenced in their selection of space-themed resources in the schools' VR lab and space-related choices for viewing during free-choice times.

Insights from Special Options teacher, Kaitlyn Hawking, include…

Participating in the Aurora Program opened up a whole new area of interest and skillset that the students were excited to persist with. Students who had previously experienced difficulty generating ideas were suddenly problem solving and persisting through trial and error. They were seeking feedback from educators as to how to improve their designs and building language skills to respond to this feedback and in turn, give feedback to their peers.Visiting the Australian Space Discovery Centre to participate in hands-on learning was an important way to deepen the students' understanding of space. Having the Centre to ourselves certainly helped as students were able to explore at their own pace, taking plenty of time to explore the exhibits. An aspect of our visit which has stuck with me, is how skilled the facilitators were in engaging students of all different abilities and levels of confidence. They spoke directly to the students instead of seeking educators to support the conversation and had a 'just right' level of answer for all questions. One particular moment really stood out and captured the essence of why this work matters. A student, who often struggles with confidence and rarely seeks recognition, was so proud of his finished product that he rushed out to find us. I am certain that this is the first time he referred to us by our names. "Kaitlyn and Dani, look at it!" Learning new words, especially ones as arbitrarily assigned as names, can be very difficult for these students. Using our names for the very first time to get our attention showed just how deeply invested and excited he felt about his

achievement. This small but powerful moment highlights the importance of creating opportunities where students feel that their voice, their effort and their ideas truly matter. For this student, the experience wasn't just about producing a piece of work. It was about this student gaining the confidence to share it through seeking out others to invite them into his success. Unsurprisingly, we delighted in sharing this moment with him, and the many more that were to come!

Insights from classroom teacher, Lewis William, a repeat teacher to the Aurora Program:

Ken (changed name) is a student with Cerebral Palsy, who has been reluctant to take on challenges or access the world because of his challenges. Through the Aurora program, he was able to explore how 3D design and printing could be used to create grips and handles to help him complete tasks. Others within the program also saw this and explored similar concepts.

Declyn (changed name) is a student with STEM interests. By engaging in the Aurora program, he was able to refine his problem solving skills, consider the perspectives of others with different needs, and reflect on his achievements. He has since gone on to further study in the Sciences/Mathematics.

Joseph (changed name) is a student with very little interest in STEM/Space, but through the Aurora program, he was able to make sense of the challenges of operating in different environments and create a tool with features to help operate in microgravity environments.

Kirra (changed name) is a student with ambitions in the medical space. Through the Aurora program, she was able to decode the challenges of survival in space and design multiple habitats and space suits to exist in the vacuum of space. She has since set a goal of studying a medical degree at university.

5. Discussion

5.1 Program Summary

Both the Foundation and Makers Empire carry the strong belief that all students should have access to the highest quality STEM education, enabling them to follow their passions and pursue careers in whichever field they choose. The Aurora Program enables students of all abilities to play a leading role in their education and participate in a program specifically designed to enable their engagement. The Aurora Program, which is successful, in part through the active engagement of teachers supporting and shaping the program for students in their care. This further enables students to develop new skills, interests and hopes in future space career opportunities.

5.2 Social Model

The Aurora Program is designed on a social model of access and inclusion with a focus on promoting accessibility, and identifying and removing societal barriers, both physical and attitudinal, that limit full participation [8,9,10].

Examples of this model in practice include:

refining infrastructure to maximise accessibility and inclusion, including accessibility around parking, bathroom facilities, change rooms and 'quiet spaces' at the Australian Space Discovery Centre.

providing social stories to classes, prior to the visit to the Centre, nurturing student safety and wellbeing and reducing anxiety around an unfamiliar experience.

learning sessions focused on universal design principles that incorporate appropriate language and communication strategies, content exploration in various formats (including audio, video, graphics and interactive media), incorporating captions for video content and designing high contrast slideshows with high levels of visuals to support the acquisition of new learning.

consideration of pace and 'wait time' during discussion opportunities to cater for diverse processing needs, the incorporation of assistive technologies and opportunity for deep thinking and personal meaning making.

an open-ended design challenge that supports diverse learners to make personal connections.

3D modelling and 3D printing tools to allow for immersive, creative and personalised approaches to the learning challenge aligned to individual skills, interests and experiences.

co-designed school workshops in collaboration with teachers and carers who have deep knowledge of the students, to maximise engagement. This includes considerations around resources, pace, length of sessions, acoustics, break times, calm-down spaces and levels of feedback and support.

5.3 Teacher Responses

Teacher feedback indicates a high level of appreciation for offering this inclusion initiative to their students, given the limited access to bespoke programs designed specifically for students living with a disability. Teachers continue to express a high degree of satisfaction with the program indicating that it meets the needs of their students and provides them with access to knowledge, experiences and personnel that they may not have otherwise had.

Some feedback provided by participating teachers includes:

'The Aurora Mission program provides an opportunity for meaningful, project based learning which can take place over an extended period of time. We appreciate the benefit for the students to feel valued by the community and draw on the characteristics of their disabilities as unique strengths rather than deficits is invaluable.'

'This program lifts their vision to broader horizons. They can see more possible jobs and employment opportunities for themselves within Adelaide.'

'The benefit of this program is having the opportunity to show the kids a local, innovative, space industry and all the ways they could contribute to space science. It gives the kids access to a creative, spatial design tool and the agency and autonomy to create in a way they may not have done so beforehand.'

'This program provides equitable access to 21st century technology. Some students benefited from the academic challenge and the opportunity to expand their knowledge of space and associated technologies. Other students, after engaging in the Aurora Mission, have chosen to pursue the use of 3D modelling and printing in other subjects across the curriculum and have been supported to identify opportunities to extend this to 3D print clubs in their local community. Participating in the world on the same basis as their abled, better resourced peers remains a challenge, so having access to modern technology to spark an understanding of what opportunities exist both in and beyond school is imperative.'

5.4 Teacher roundtable session

As with all Foundation programs, regular review ensures that as the rising needs of schools change, that programs are able to remain updated, relevant and beneficial to both teachers and students. Through discussion with ME around the provided feedback forms from the 2024 cohort and where additional opportunities have been successful in other programs, it was identified that more context around opportunities could support teachers in best guiding their students through the program.

As such the Foundation and ME, established an additional session for teachers which was co-located with the program launch event at the ASDC. This additional session was a space industry roundtable, where teachers and support staff were able to hear directly from industry, the opportunities available for their students should they be interested in pursuing a career in space, and just what it would take to get there.

With five speakers representing three organisations within the space sector, teachers had the opportunity to ask questions, gain an understanding of entry pathways and hear directly from individuals with experience in navigating this approach. This opportunity sparked conversations with teachers as to which of their students might be interested and or show an inclination towards such STEM or space related topics. Through open discussions, teachers were able to take away practical strategies for accessibility and inclusion and ways to engage students with disabilities in STEM fields.

This initial pilot roundtable was deemed to be a considerable success, providing valuable professional learning around surfacing biases around expectations and experiences for students with neurodiverse, physical and intellectual needs. Future planning is taking place as to additional sessions that may best support teachers across the spectrum of neurodiversity education and space industry entry.

5.5 Repeat engagement - Alumni Schools

Of the 791 South Australian schools, a total of 424 Autism Inclusion Teachers have been placed, ensuring that advances in neurodiversity education across inclusion schools and special units are ongoing. This advancement alongside the success of the Aurora Program in capturing student imagination, advancing confidence and enabling engagement with STEM topics has seen a high rate of re-application by participating schools, with some reapplying with their new cohort each and every year.

Due to this existing and growing need, the Foundation has, in 2025 opened a new stream of the Aurora Program to enable alumni schools to continue their participation in the program. This new stream enables schools to access all elements of the program other than receiving a new 3D printer whilst ensuring that new schools who have never received such resources previously, have an opportunity to participate.

This alumni program, which is currently being piloted, attracted 3 schools to participate, increasing the total 2025 cohort to 11 schools, the largest year to date for engagement in this bespoke program.

This alumni pilot provides schools who have found previous benefits from the program with the opportunity to re-engage and provide new and exciting opportunities for future year levels.

5.6 Addition of augmented reality

In 2024, augmented reality capabilities were embedded into the student exhibition to enhance the interactivity of the display enabling viewers to place the digital 3D designs in a real-world environment.

Other enhancements to the program in 2024 and 2025 have included the addition of regional schools, increasing access and participation beyond the Adelaide Metro region. In 2025 we have made the program available to upper primary school students in years 5 and 6, with 2 primary schools securing a place this year. In 2025 we have also expanded the offering, increasing student participation by 39% with the introduction of the three alumni schools in addition to the 8 new schools. These alumni schools have access to all current resourcing other than a 3D printer, which they had received in previous years. Repeat expressions of interest, is a strong measure of success with teachers eager to continue student engagement with the program year after year.

6. Conclusion

6.1 Future Directions

The Aurora Program is an ever adapting program, intrinsic to its support for a wide variety of disabilities and neurodiversities. Alongside this dynamic approach comes the opportunity to make regular and reflective updates to the program's delivery and premise. Whilst some are actively underway, discussions have indicated that future directions could include:

- increased incorporation of Throughout In future iterations of the program, the Foundation and Makers Empire we aim to continue to engage in professional learning to inform program design and delivery
- additional opportunities to connect teaching staff to , by inviting educational experts in Autism, and neurodiversity, workforce development and space to the Round Table discussions at the launch
- enhanced space experiences incorporated into the visits to the ASDC as well as the school workshops to increase engagement and participation.
- providing additional resourcing and information on direct jobs and pathways into a future career in the space industry

6.2 Conclusion

With a number of future directions of growth and an ever expanding set of learnings, successful outcomes and space ambassadors, the Aurora Program has exceeded expectations in bringing space into the classrooms of disability and inclusion schools across South Australia. The neurodiverse students of today will become work force leaders of tomorrow, bringing creative, innovative and strategic ideas to the forefront to promote Australia's space and STEM capabilities.

As summed up by participating teachers,

'It was beneficial in having the opportunity to show the kids a local, innovative space industry and all the ways they could contribute to space science.'

' Keep this program running - it's perfect for the students.'

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Appendix A School Interview Outcomes

Compass Catholic Community

- Find great benefit from taking students out of the schooling environment to expose them to industry and alternative pathways.
- Students need to have the opportunity to determine whether they would like to participate
- Students prefer hands-on experiences, find value in interactive activities
- A strong preference for students to be able to take some of the learning home
- Need to have a sense of pride and achievement
- Frequently engage in 'Learning Directions Offsite' - their unique version of excursions to allow for continual learning and engagement in all instances.

- Autism Spectrum Disorder (ASD) students would benefit greatly from being involved in such a program. However, all students at Compass could benefit, with their diverse cohort of students facing learning challenges, who are disadvantaged or disengaged.
- Young people would find the opportunities within the Space and STEM sector so abstract, that they would struggle to even consider how they could form part of their future, or how they could create a career within it – particularly when so many jobs of the future haven't even been created yet. If we can help them comprehend the depth, breadth and opportunity within the sector, and how they could live a life that's meaningful to them through a career within it, that would be an awesome starting point.
- As Compass Catholic Community only opened in January 2022, our STEM offerings are limited at the moment but we have dedicated spaces ("Tinkering" and "Makers" spaces).
    - Our young people are currently engaged in activities that focus on identifying a real world problem, then researching, designing and creating a concrete solution. Examples of these include: designing and building a "suggestions box" for the school, and, researching, designing and installing garden beds and irrigation systems for harvesting food on site at Compass.
    - Outside of this, there is a real interest in assembling/disassembling PCs, gaming, mechanics and construction (analysing, pulling apart and putting things back together – this maybe using Lego, models, computers or small machinery)
- An ideal program would include:
    - ATSF facilitates a tour of its facilities for our young people, to inspire and engage them in Space and STEM activities and showcase associated career pathways
    - Compass works with ATSF to capture specific interests of the young people and tap into the ATSF network to facilitate tours of businesses they work in partnership with, to create further learning opportunities off site in the short term, and possibly work experience opportunities into the future
    - ATSF delivers Space/STEM workshops on site at Compass in the key areas of interest of our young people – experiences where they can "make" something to take home, show off and be proud of
    - Build a pool of mentors through these networks, who have overcome their own challenges, to inspire our young people and begin creating their own networks

Craigmore High School Disability Unit

- This program is well aligned to the current focus at the school. Year 7 students have been learning about space and have just had an excursion to the SA Museum where the space exhibit caused a lot of excitement. Students are very interested in space at the moment.
- The school has 2 disability classes and 2 special classes. All students qualify for disability support and have different levels of intellectual disability including ASD and Downs Syndrome. There are 40 students across all 4 classes.
- Most students have literacy and numeracy levels at about 5-7 years but important to remember that they are teenagers and enjoy the same types of interests that other teenagers enjoy.
- Most students have very short attention spans so short spurts of information are best and lots of hands-on activities for students to engage in.
- Students tend to respond better if they can focus on one or 2 things rather than trying to address everything. So, we should choose a couple of key ideas and focus on them.
- Most students enjoy using technology
- Students have a very wide range of ability levels so it is important to provide different levels of activity and activities with different entry points that all students can engage in.
- Excursions and learning experiences are more successful if students feel prepared and know what to expect. What does the new place look like? What will we be doing there? Social stories help with this.
- Students benefit from repeated opportunities to remember what they have learned and practice skills and use the same. information in lots of different ways.
- It is best to focus on concrete activities and ideas rather than expecting students to respond to abstract ideas and concepts.
- Students in special school settings often miss out on opportunities and Craigmore is very excited about this opportunity for their students.

The Palms Disability Unit Findon High School

- Findon High School are very excited about this project and are interested to use this great learning opportunity with their students, who have severe multiple disabilities, including physical disability.
- Findon High School have 7 students in their unit who have very specific needs including students who are non-verbal.
- Successful outcomes for lessons are based on a careful planning that is personalised to individual students' needs.
- All students need assistance to access devices/computes or communication devices and they have School Services Officers (SSO) helping them.
- Due to the complex needs and multiple disabilities Kati's students live with, most families are unlikely to be able to invest the time and effort required to take their children to visit places like the Space Discovery Centre. This means that the students miss out on opportunities other students might have in their daily life and family time,
- Findon High School are excited about the opportunity to create a learning experience that is centred around, and specifically designed for their students. The school feels confident that their team can make the necessary adaptations in order for their students to be able to participate, enjoy and learn through the experience.
- Most students will use wheelchairs whilst visiting the centre although some use walkers in other contexts.
- Students use technology-enabled communication with the support of one-on-one SSOs.
- Specific words/icons can be added to students' devices to help them communicate and engage with the visit and program.
- Findon High School's students have participated in the Wattle Seeds in Space, and Storytime from Space programs and these experiences will connect well to the ATSF Inclusion Program.
- Students will need varying levels of support to create space-related designs using Makers Empire and SSOs will be able to help with this.
- Students are used to using communication devices to make decisions about shape, colour etc and this will be a suitable entry point into the design task.
- Findon High School representatives will need to visit the Space Discovery Centre prior to the visit to help make plans for their students to best access and participate in the session.
- They need as much lead-up time as possible to plan for the excursion as they need to book Access Cabs, ensure staffing availability, feeding support etc.

Modbury Special School

- Modbury Special School are keen for our students to engage in meaningful, and accessible opportunities and to become involved in the growing space industry.
- The students who will participate are from 2 Modbury Special School annex classes located on Modbury High School Campus. The students are in Years 7 -12 (13years -18years old) Each class has 7 students (75% of student cohort have an autism diagnosis, and all students have a verified intellectual disability)
- They are very interested in visiting the Space Discovery Centre as this will tie in with our thematic space studies that we completed in Term 2. The Makers Empire's 3D modelling software and learning program sounds like something our students would also be interested in, and we welcome an opportunity for the students to have a tailored workshop to design 3D print models in response to their visit to the Space Discovery Centre.

Springbank Secondary College Disability Unit

- Springbank Secondary College is an inclusive school which means that all students are in mainstream classes and teachers cater for a range of learning needs and disabilities within their classes.
- All classes have students with learning complexities including students with ASD.
- A program about space would fit perfectly with previous learning for his Year 10 science class (30 students) and Year 7 science class (28 students) as they have been focussing on some space learning already and this program would help build and extend the learning for students.
- They have not previously sought any external learning experiences to complement the space curriculum they are teaching and believe that this project would be an invaluable experience for students.
- Space is a popular topic with students at the school and a good 'hook' for students with ASD.
- Springbank Secondary College will develop other lessons to support what students learn

through the ATSF Inclusion Fund Pilot program.
- Most students have not done any 3D modelling before and Makers Empire would meet their needs as an introduction.
- As the classes are very diverse, activities that can be completed at different levels and in different ways are extremely important.
- Springbank Secondary College are keen to look at how this program might align to a SACE assessment task and he is happy to work with staff on this.

Bowden Brompton Community School
- Bowden Brompton Community school provides an alternative education model for students with complex needs.
- The majority of students have experienced significant trauma issues in their lives, issues caused by factors such as family breakdowns, mental health problems, welfare issues, social problems and juvenile justice involvement.
- The school adopts a cross-curricula approach to teaching, enabling students to participate in a wide range of activities within their communities as they develop life skills and achieve learning outcomes.
    - For example, Pedal Prix, Bike Programs, Martial Arts, Visual Arts, Music, Animal Rescue, Enterprise, Human Movement (Parkour), Community Service, school camps, Bushwalking, BMX Riding, Canoeing, Surfing, Rock Climbing, Water, Skiing, Snorkelling and Aboriginal Perspectives.
- Bowden Brompton Community School believes that the Andy Thomas Space Foundation Inclusion Fund pilot program will suit the school's approach and student's needs very well.
- It is important to create a safe environment for students to participate where they don't feel under pressure to perform or worry about what other people think. Non-competitive activities work well.
- Bowden Brompton Community School would like to participate in the program with a small group of 3 students. These students live with ASD and Alison believes they will benefit most from the program.

Roma Mitchell Secondary College Disability Unit
- Roma Mitchell Secondary College has over 100 students in their special needs' programs.
- All of the students in the Disability Unit have an intellectual disability and many of them have ASD.
- A cohort of 15 students from across two of the classes would benefit most from this program.
- The students are a range of ages from Year 7-12.
- Students will be most successful if the learning activities are well scaffolded and students can achieve success quickly. For example, they might add to a pre-created design rather than start from scratch.
- Some of the students have been doing some coding and robotics activities and enjoy using technology.
- Many students are interested in space and she is excited about this opportunity for them.
- Roma Mitchell Secondary College is participating in other Andy Thomas Space Foundation programs and Alison believes this program will connect well as a whole school focus and allow more students to be involved.

Thomas Moore College
- Recommended focusing the program towards students with 'cognitive abilities that are experiencing some barriers'
- Students can often feel black & white emotions towards activities - it is important to have flexible approaches and offer hands-on activities, such as: facilitating conversations, show & make, model construction and role play.
- Important to see relatable role models in industry.
- Significant importance on providing appropriate transition times and offering preparation time.
- The program seems to be most suitable for autistic students for whom ASD is their main diagnosis.
- This program would provide the opportunity for these students to pursue an area of specific interests (art, space, science, robotics, coding- etc) which due to their social skills challenges and sensory needs, they may never have thought of before, as they may not have seen how their interests could transfer into the demands of the workforce.
- For these identified students to be successful they would need the following accommodations and adjustments:

- Social stories (texts and digital) to prepare them for the new space they would be engaging in.
- A sensory room that is accessible at the site for the students to access as needed
- Alternative seating/set up of rooms for these students (appropriate lighting, seating options; standing options; different ways of completing work, hands on activities, assistive technology etc).
- Possibility of mentors who have lived knowledge of ASD.
- Possibility of visits to the school first for students to get to know who they are working with.

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