



# P-TECH Rejuvenation

# Acknowledgement of Country

The Project Team acknowledges the Wadawurrung People as the Traditional Owners of the land on which we operate. We pay our respects to Wadawurrang Elders past and present and recognise their connection to the land, sea, water and skies. We extend this to all First Nations people reading this report.





# Acknowledgements

The Project Team expresses their gratitude to the Committee for Geelong and the Leaders for Geelong Program for granting us the chance to engage in such a meaningful endeavour. Our heartfelt appreciation extends to our sponsor organisation, Newcomb Secondary College, for their unwavering support and dedication to our team. We are especially thankful to Scott McLeod, the Project Champion, Jacqueline White, the Project Mentor and Newcomb Secondary's Pathways Team, whose guidance and generosity of time were invaluable. We extend our thanks to P-TECH business partners and students who generously gave their time to meet with us to complete surveys which provided invaluable insights that have contributed to the rejuvenation plan for the P-TECH program. Special thanks to Phil Honeywell and Julie Hunter for their experience and expertise. Lastly, we want to acknowledge our families and colleagues for standing by us and offering their support.

The Leaders for Geelong Program is made possible through the support of our generous Program Partners and Scholarship Providers

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# Our Project Team



## Allana Bedggood

Manager Waste Services, **City of Greater Geelong**

A Geelong resident since 2019, Allana is passionate about giving back to her community. Over the past 15 years she has dedicated her career to working with community facing organisations. Allana understands the importance of our youth to the long-term prosperity of our region and firmly advocates for the transformative influence of mentorship, drawing upon her own enriching experiences with mentors during her educational and professional journey.



## Tammy Corless

Manager Student Wellbeing & Inclusion, **The Gordon TAFE**

Tammy has deep roots in Geelong and is committed to helping the city grow. She's a passionate advocate for inclusivity, actively working to remove obstacles and biases. Tammy wants everyone, no matter their background or abilities to succeed in welcoming environments. She was naturally attracted to the P-TECH project because it provides students with valuable skill-building opportunities and promotes inclusiveness.



## Leanne Green

Business Manager Culinary, Education & Teaching, **The Gordon TAFE**

With a lifelong passion for people, Leanne has devoted 35 years to working in Community Services with vulnerable people. Leanne knows first-hand the importance of mentoring and contributed her success to one exceptional teacher in her high school years. She believes education equal opportunities.



## Dylan Mulgrew

Director Scheme Reporting, **National Disability Insurance Agency**

Dylan has grown up in Geelong having both worked and studied in the region and is driven to give back to the community that has given so much to him. He believes programs like P-TECH are powerful in transforming young people's lives and help them achieve real outcomes.

# Foreword



The flagship career development program, Pathways in Technology program (P-TECH), was introduced at Newcomb Secondary College in 2016- an innovative program originating from the United States arriving at Newcomb Secondary College as the first of its kind in Australia. Comprising of over 27 Industry Partners, the P-TECH program at Newcomb Secondary College operates in conjunction with a workplace mentorship over two years that aligns with the students chosen career aspiration as well the supported completion a Certificate Three in a course relevant to that industry.

Over more recent times, it has become evident that the impact of the COVID-19 pandemic has put a halt to the initial momentum gained in the P-TECH Program. The Leaders for Geelong Project team were tasked with supporting Newcomb Secondary College in revitalising the P-TECH program. The team were prepared to act as researchers, interviewers, designers, innovators, coaches and mentors to develop a high-quality scaffolded strategy to rejuvenate the P-TECH Program at Newcomb Secondary College. This report is of great benefit to Newcomb Secondary College strategically, however the real impact of the report, and thus the rejuvenation of the P-TECH program, will be felt by the students for whom it is designed, and the continually evolving industry that they will lead into the future.

All members of the Newcomb Secondary community are truly grateful for the skill and expertise the Leaders brought to this project- thank you. We are honoured to have such amazing Leaders in support of our school, our P-TECH program and our community. The research and recommendations contained in this report are extremely valuable to the future prospects of our wonderful students and will enable the P-TECH Program to once again be the envy of school pathway programs in the Greater Geelong Region.

**Scott McLeod**

Principal

Newcomb Secondary College



“What knowledge, skills, attitudes, and values will today’s students need to shape and thrive in their world in 2030?” . - *OECD, 2019*



# Executive Summary



## **P-TECH stands out for its unique approach, integrating familiar elements like mentoring, workplace visits, and school-industry collaboration.**

The scope of the project is to review and assess the effectiveness of the current P-TECH model delivered through Newcomb Secondary College and to make best practice recommendations for the successful renewal of the model post COVID, supporting students to develop job ready skills to meet current and future workforce demands.

Collaboration remains a linchpin in addressing Geelong's labour market challenges. The P-TECH program, a resounding success initiated by IBM in the US, offers a replicable framework for establishing long-term partnerships between education and industry. By offering students structured experiences, relevant skills, and mentoring, the program bridges the education-industry gap and aligns student learning with employer need, benefiting both parties.

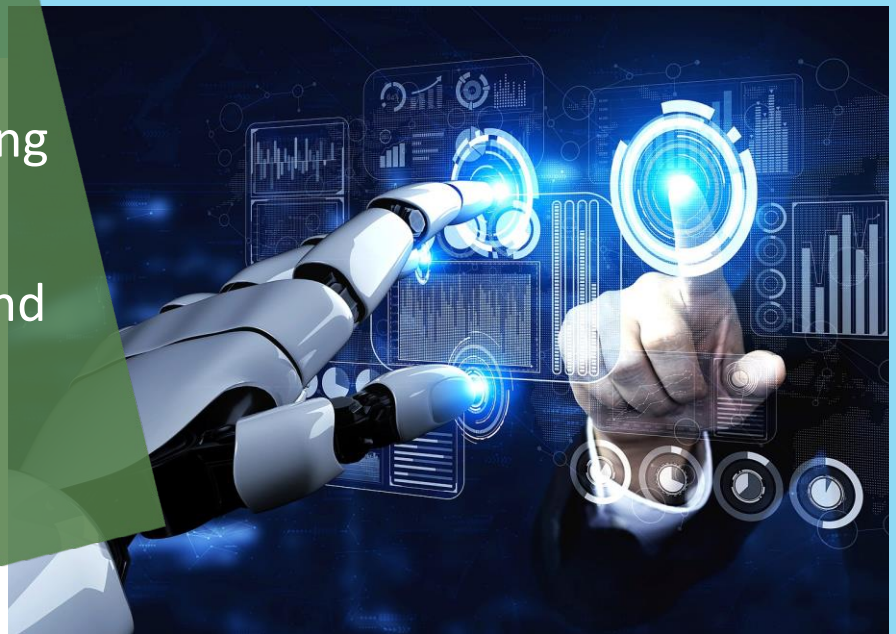
The objective of this report is to revitalise and enhance Newcomb Secondary college's P-TECH program. The content of this report is based on a comprehensive review of both Australian and international literature, as well as an assessment of the current state of the P-TECH program at Newcomb Secondary College. Its purpose is to provide guidance for upcoming strategies and initiatives that equip students to navigate the dynamic changes in the workforce. The report will evaluate the current program's efficacy through surveys involving stakeholders and will utilise this feedback to formulate suggestions for ensuring the program's sustained effectiveness.

The recommendations and best practice principles identified have been collated to support the creation of an action plan to be provided to Newcomb Secondary College to inform the rejuvenation of the P-TECH Program. The action plan is made up of four key areas for improvement – Stakeholder Management, Program Design, P-TECH Environment and Governance and Structure.

Active industry participation in curriculum design not only offers valuable insights and expertise but also fosters ownership and commitment to the P-TECH program.



Schools are under growing pressure to prepare students for uncertain futures, including jobs and technologies that don't exist yet and challenges that haven't been predicted.



## Our Project

Over time, Geelong's economy has transitioned away from its historical dependence on manufacturing, especially in the automotive sector, due to changes in industries, technological progress, and global influences. Despite these transformations, Geelong's economic landscape has demonstrated resilience, witnessing growth in sectors such as advanced manufacturing, digital technology, research, innovation, construction, and professional services. Nevertheless, the region still contends with labor market disparities and difficulties, including varying unemployment rates and skill mismatches. To foster economic growth and tackle skill-related challenges, it remains essential to cultivate effective collaboration among government, industry, education, and community organisations.

Acknowledging the changing labour market conditions in the Geelong Region, the Australian Government allocated \$12 million towards Science, Technology, Engineering, and Mathematics (STEM) education initiatives, which includes the modification of the Pathways in Technology (P-TECH) pilot program, inspired by the USA model. This program establishes a connection between education and STEM industry sectors. P-TECH facilitates structured workplace experiences, promotes the development of industry-specific skills, and offers mentoring to bridge the divide between education institutions and the demands of the industry.

Newcomb Secondary College was the first school in Australia to pilot the program in 2016. Their model revolves around a partnership between education and STEM industry sectors, offering students opportunities to:

- Benefit from industry mentorship.
- Gain hands-on workplace experience.
- Pursue well-defined pathways to acquire nationally accredited qualifications alongside their regular school education.
- Experience innovative approaches to learning.
- Establish connections to employment.
- Access various teaching methods and tools for learning.

During the challenging pandemic periods of 2020 and 2021, the P-TECH program at Newcomb Secondary College faced significant disruptions. While the program's partnerships between Newcomb SC and industry remained intact, the original program's facilitation was adversely affected, preventing students from fully benefiting. The rejuvenation of the program depends on continued collaboration between industry stakeholders and Newcomb Secondary College.

# Project Purpose

The project purpose was to undertake an action research project to facilitate positive outcomes for stakeholders and inform decision-making processes with a focus on increasing student participation in the P-TECH program at Newcomb Secondary College.

Participation in the P-TECH program has decreased following the suspension of the program during the pandemic providing an opportune time to undertake a review of the current program, including successes and areas for improvement, alongside best practice P-TECH models.

The completed project will provide Newcomb Secondary College with a best practice action plan focused on the continued success of the P-TECH program in 2024 and beyond.

*Our vision for the action plan is to inspire young people to set goals, pursue career paths and become independent. By offering engaging and supportive career options within various industries with mentors and coaches, we hope to enable Newcomb Secondary College to continue the great work undertaken to establish P-TECH and expand the program further to ensure continued success. By providing these opportunities with support from mentors and teaching staff, young people will be able to pursue and fulfil their dreams and career aspirations.*

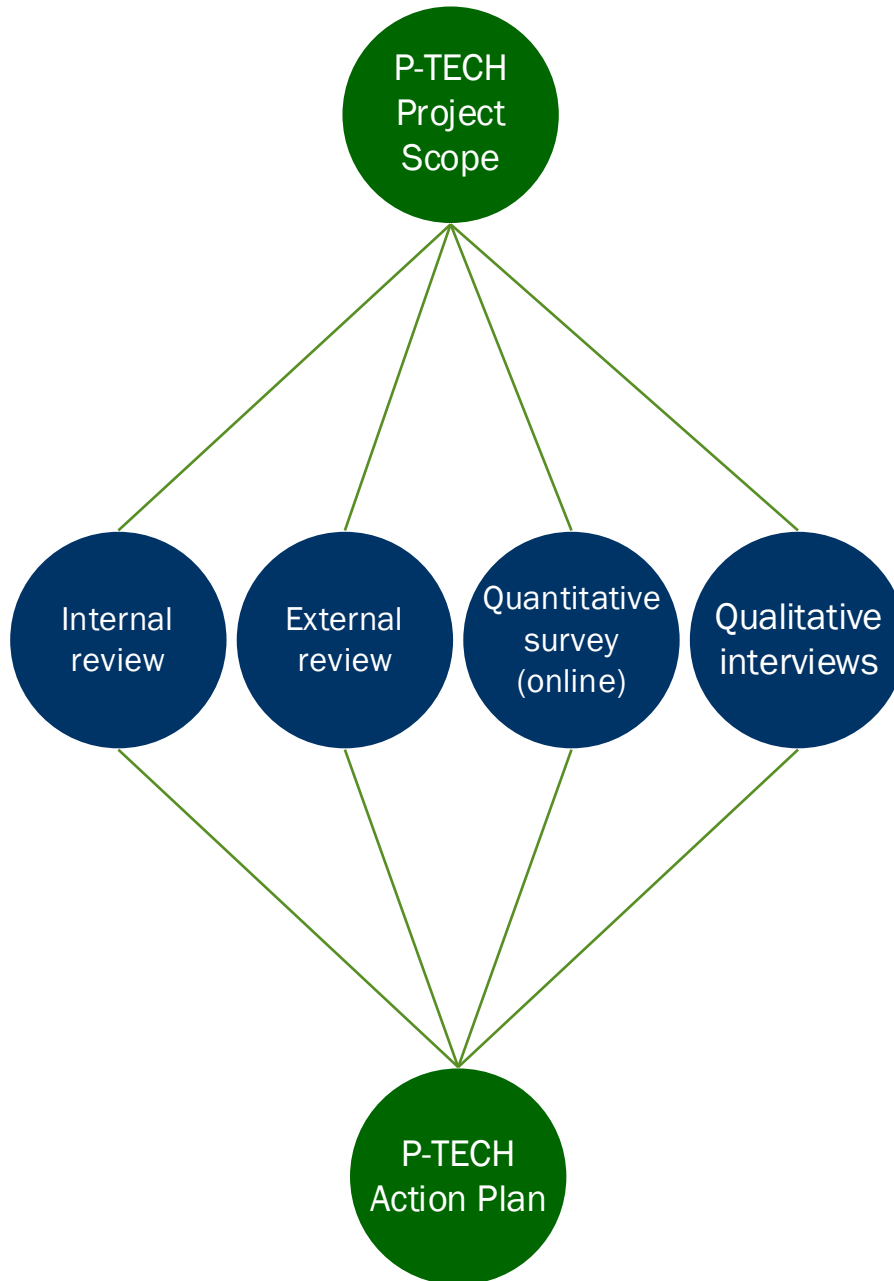






“You get to work in an industry you like and see how it works”. — *NSC Student*

# Project Approach



## Program Review approach

The program review had four distinct sections - internal and external reviews of available literature, survey of students, key stakeholders and industry partners and the creation of the Action Plan.



# Project Approach



## 1. Internal review approach

An internal review was conducted on Newcomb Secondary College to better understand its environment, opportunities and challenges. This review examined the following key areas;

- Newcomb's demographic profile, including understanding its history and current demographic statistics.
- Understanding the operations of Newcomb Secondary College and the student lifecycle.
- Discerning the various career pathways offered at Newcomb Secondary College and how the Pathways program interrelates.
- Review of the historical P-TECH program at Newcomb Secondary College and its current profile.

## 2. External review approach

An external literature review was undertaken; sources were selected based on their relevance, credibility, and contribution to understanding the success factors and challenges of P-TECH programs, with a focus on the Australian context. The inclusion criteria encompassed peer-reviewed academic articles, reports from reputable institutions, and relevant government documents published between 2016 and 2023. Priority was given to sources that addressed key success factors such as industry alignment, curriculum relevance, mentoring relationships, student recruitment, alumni engagement, and effective communication.

## 3. Survey – students, stakeholders and industry partners

The survey of students, key stakeholders and industry partners was undertaken using both qualitative and quantitative methods.

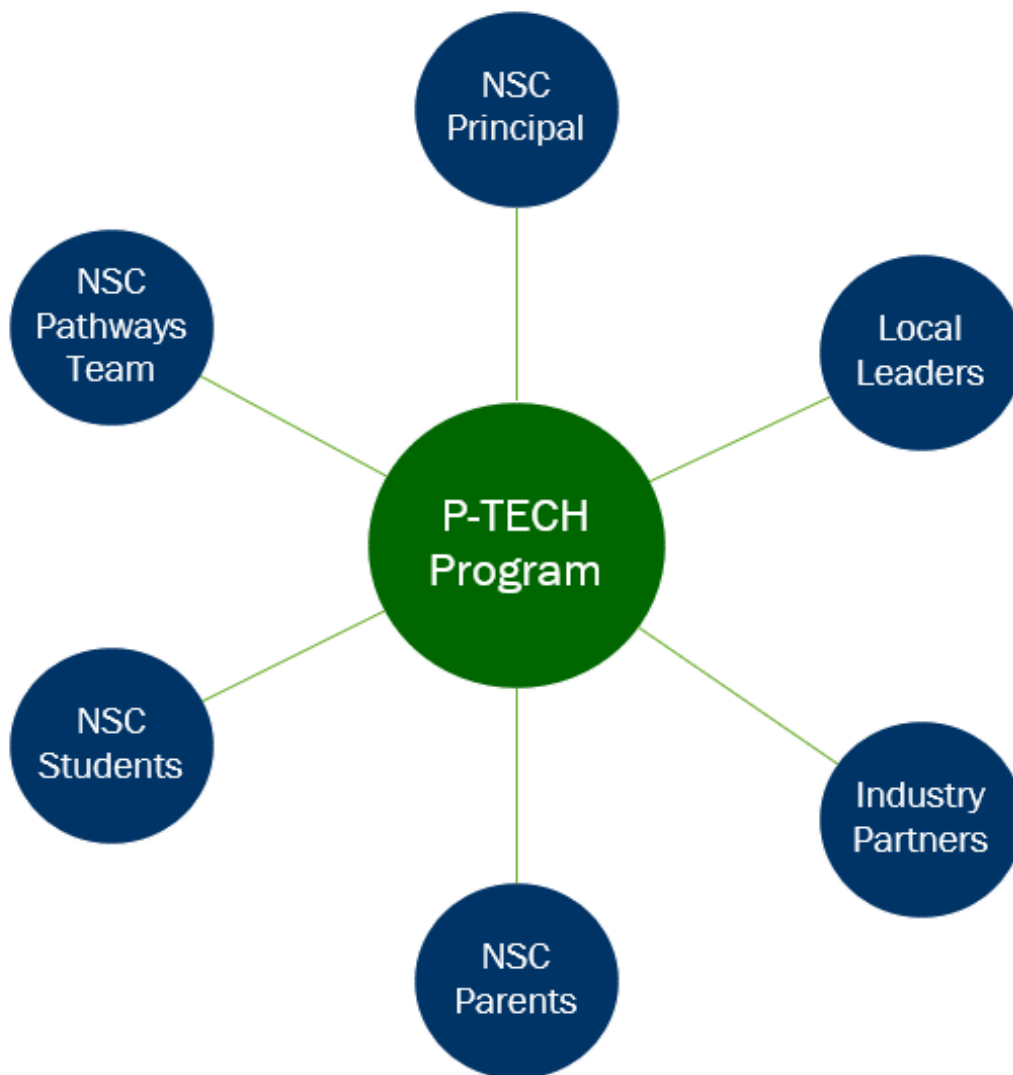
A quantitative survey was created using an online survey tool to gather measurable data about the experience of the students, key stakeholders and industry partners who have participated in the P-TECH program. Free text options were available for verbatim comments to be captured.

A qualitative study was conducted with key stakeholders to explore viewpoints and personal experience with the program as well as examining the perceived benefits and outcomes of the program for students and industry partners. Face-to-face interviews were conducted with current and prospective industry partners and key current and former staff members from Newcomb Secondary College.

## 4. Creation of the Action Plan

Once the research and engagement was completed and best practice principals identified, an action plan for the rejuvenation of the P-TECH program was created. The action plan collated the best practice principles identified through the external literature review with key considerations from the internal review and the survey and interview feedback from students and industry partners to create resources to support the rejuvenation of the P-TECH program.

# Stakeholder Engagement



"Coming together is a beginning. Keeping together is progress. Working together is success." – *Henry Ford*

# Deliverables



**Newcomb Secondary College Internal Review**



**P-TECH Program Literature Review of Best Practice Models**



**P-TECH Stakeholder Survey**



**P-TECH Rejuvenation Action Plan Including Recommendations**



“Being in a professional workplace and being left with responsibilities that you don’t get in simple part time jobs let me refine and improve my problem-solving skills and teamwork”. – *NSC Student*



# Key Insights

## Newcomb Secondary College Internal Review

### Newcomb Secondary College (NSC)

- The zoning for NSC captures the surrounding suburbs of Thompson, Breakwater, Whittington and the high growth area in the Leopold area up to the Curlewis boundary.
- In 2022, NSC had 475 students with a 56:44 ratio of Male to Female students.
- Over the last 5 years, NSC has seen its First Nations student population increase from 4% in 2018 to 7% in 2022.
- Though COVID impacted students, in 2022 completion rates were back up to pre-pandemic levels with 96% VCE, 75% VET and 56% VCE-VM.
- Attendance rates were also impacted over COVID with the senior years trending up in 2022 but no yet back to pre-pandemic numbers.
- As at 2022, there were 1 principal, 2 Assistant Principal, 37 teachers and 34 educational support officers. This equates to one educator for every 13 students.

### Career planning (Pathway Program/NSC)

- Newcomb's career planning focuses on the Pathways Program, which oversees students' entire journey to ensure their readiness for the next steps beyond secondary school.
- In the early years, students focus on taster programs and exposure to different industries through classroom learning. Middle years, students have compulsory units in the Getting Ready for the Outside World (GROW)

program which provides structured career learning/skills and is a unique design feature of Newcomb Secondary School. Senior years focus on the core pathways of Victorian Certificate of Education, Victorian Certificate of Education Vocational Major, Vocational Education and Training and/or School Based Apprenticeships and Traineeships.

- Newcomb offers an excellent website that serves as a valuable career planning tool for students and helps parents understand how it relates to subject selection.

### P-TECH Program

- Originally supported with seed funding from the Federal Government which was not extended after its initial investment.
- Pre-pandemic the program was well supported by industry with only gains in partnerships over the three years leading to 2020.
- The program required a lot of ongoing maintenance which required dedicated staff resourcing, coordination and leadership.
- Due to COVID, the program couldn't be maintained in its usual format because it relied on in-person mentoring, which made it challenging for students to participate and for industry partners to mentor them.



# Key Insights

## P-TECH Program Literature Review

### Regional demographics

- High unemployment in Corio, Norlane, Whittington - P-TECH bridges the gap between student learning and skills required by employers, providing access to those demographics that may otherwise contribute to the unemployment rate.

### Industry alignment

- The willingness of industry organisations to invest staff time in mentoring students, organising work experiences, facilitating site visits, giving presentations at schools, and participating in other activities is a crucial factor in the success of the P-TECH program.
- Skill mapping and involving industry partners in aligning curriculum design with industry.
- Strong mentor relationships rely on close monitoring and provision of training.

### Student attraction

- Most participants are nominated by staff, students need to be highly engaged and committed for program to work.
- Schools can tap in to insights alumni can provide and alumni can benefit from ongoing connection with their host P-TECH industry.

### Communication

- Consistent and effective communication between all stakeholders, buy-in from senior staff and communication systems are pivotal.



# Key Insights

## P-TECH Stakeholder Survey

The survey was designed to capture the experiences and perspectives of P-TECH students, mentors, industry partners, and community members. Results informed changes and improvements necessary to rejuvenate the program in 2024 and beyond.

### Positive Impact on Student Learning

- The P-TECH program has been successful in improving opportunities for students to gain experience and learn about the working environment.
- Participants found the program to be well-supported and inspiring.

### Balancing Priorities

- Students emphasised the importance of carefully balancing the program with their other commitments, such as study, part-time work, and recreation.
- There is a consensus among students that the program should not exceed one day per week to maintain this balance.

### Enhanced Workforce Readiness

- Students reported feeling better prepared for the workforce after program participation.
- Students expressed confidence in leaving school with additional training, such as Barista Training and Occupational Health and Safety knowledge.

### Industry Partners' Dedication

- Industry partners expressed pride and dedication to collaborating with young people through the program.
- The program was viewed as an excellent opportunity to develop industry skills and offer leadership roles to their staff through the mentoring program.
- Industry partners value the ability of the program to help them attract their future workforce.

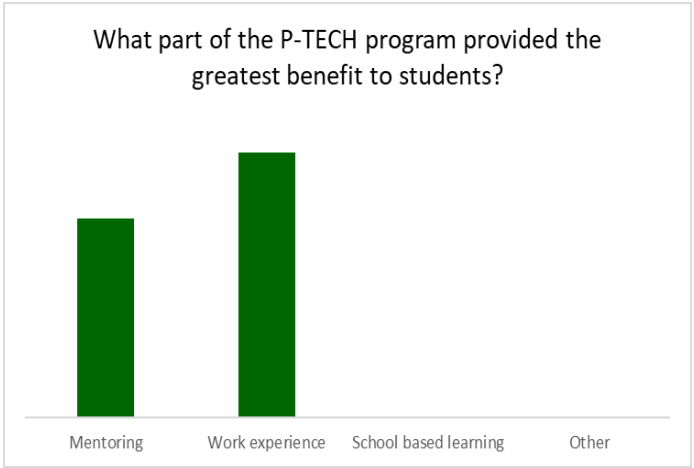
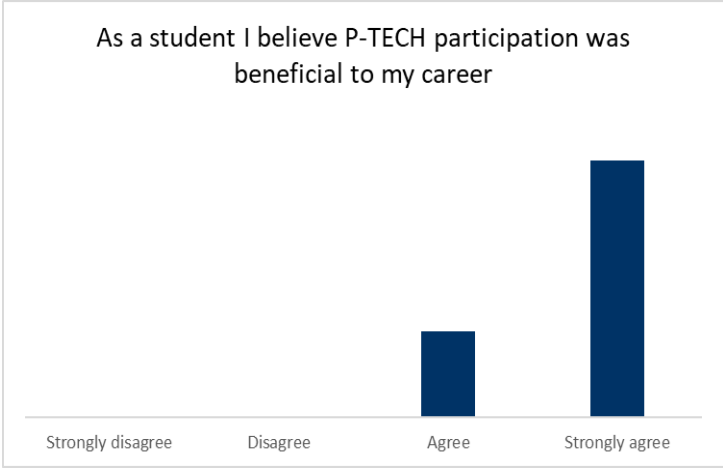
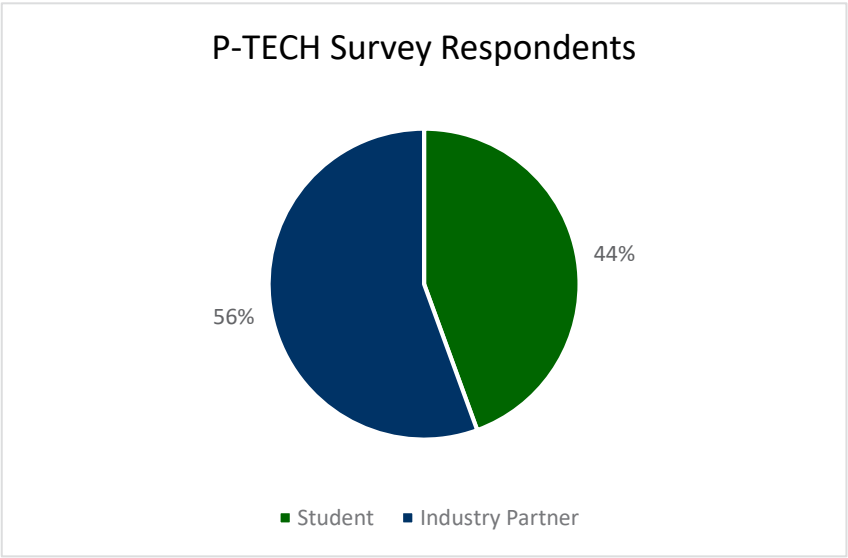
### Community and School Support

- The program received positive feedback from the Newcomb community members and the school.
- It has been viewed as a valuable addition complementing other programs in the community.

### Communication Improvement Needed

- The survey highlighted a need for improved communication within the program.
- All survey participants expressed a desire for increased communication.
- Some industry partners reported a lack of communication since the COVID-19 pandemic, indicating an area where immediate attention is required.





The survey findings highlight the positive effects of the P-TECH program on students, industry partners, and the community. It has improved students' readiness for the workforce and provided valuable skills and experiences.

To sustain and enhance the program's success, it is crucial to improve communication and balance the schedule to fit students' other responsibilities.





“My tasks at work directly related to my VCAL studies” . – *NSC Student*

The program's emphasis on mentoring and supporting students during their industry placement and education increases their chances of success, resulting in a significant return on investment for both the student and the industry partner.



# Opportunities

## **Students**

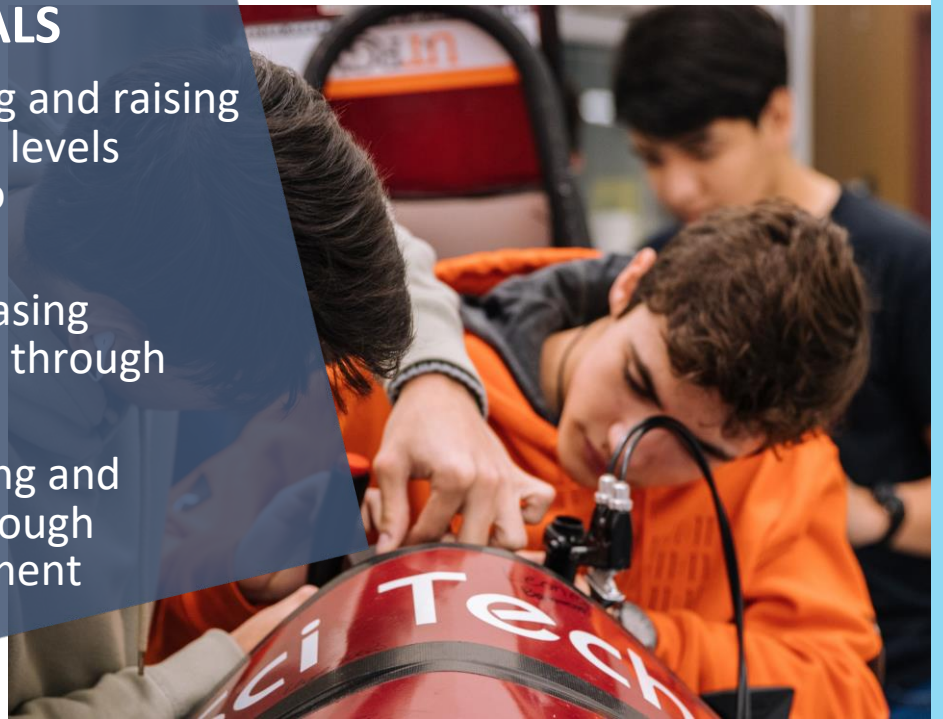
For Newcomb Secondary College students, the P-TECH program provides an opportunity for tailored support by the school's Pathway Team as they explore their career opportunities. The support and guidance offered by the Pathway Team and their in-depth knowledge of the industry partner opportunities encourages students to undertake a broader consideration of the career pathway they could follow. The Pathway team undertake a tailored approach to matching the student interests with the key skills sought by the industry partner, which, when coupled with student mentoring, can deliver increased student engagement and long-term success of the placement.

## **Industry Partners**

Through their engagement with the P-TECH program and Newcomb Secondary College, industry partners can attract a younger workforce they have otherwise been unable to find. By linking with Newcomb Secondary College and supporting workplace visits they can secure P-TECH placements that allow them to tap into an underutilised workforce pipeline and promote their industry. This partnership also offers the industry partners the opportunity to reduce their recruitment costs, the ability to workforce plan and, for many, a way to begin counteracting their aging workforce demographic.

## SKILLING THE BAY GOALS

- **Education** – Informing and raising educational attainment levels focused on pathways to employment
- **Employment** – Increasing workforce participation through training and reskilling
- **Skills** – Growing existing and emerging industries through targeted skills development



# Opportunities

### Geelong region

Across the Geelong region, there is an identified skills gap for current and future jobs. For the wider Geelong community, the P-TECH program offers a solution to the on-going skills shortage the region has been experiencing for many years, as acknowledged through the Skilling the Bay initiative. The purpose of the P-TECH program clearly aligns to the goals of Skilling the Bay, while also offering students from lower-socio economic backgrounds key mentoring support during their transition to the workforce.

During interviews with industry partners, it was identified that they valued the ability to attract the students while they were still at school and used the P-TECH program to create a working relationship with the students which provided confidence for both student and industry partner when considering on-going employment options including apprenticeships and traineeships. Enabling students to remain in the Greater Geelong region post high school keeps skills in the region, and further addresses the concerns over skills shortages and an aging demographic.





“Everything in the program was extremely helpful, and I learnt a lot for where I am today” – *NSC Student*



# Limitations

## Impact of COVID-19

With educational institutions compelled to transition to remote learning and restricted face-to-face interactions, the program encountered a clear obstacle – the inability to carry out its intended in-person mentoring. The temporary pause in program activities resulting from the COVID-19 pandemic led to a reduced number of current participants, thereby limiting the scope of the evaluation. Furthermore, there was a significant gap in research pertaining to the impact of COVID-19 on the ongoing implementation and outcomes of P-TECH programs across Australia.

## Evolution of Student Pathways

The pathway of a student has also evolved. Students can undertake a mixture of programs including the Victorian Certificate of Education (VCE), Vocational Education and Training (VET), School Based Apprenticeships and Traineeships (SBAT's), Victorian Certificate of Education – Vocational Major (VCEVM). P-TECH sits as a unique offering to students to combine their VET course with practical industry mentoring. An unintended consequence of this partnership with industry is that the student may have the opportunity to be moved into an SBAT program where they can be employed by the industry partner. This is a desired outcome for the student however results in the student discontinuing in the P-TECH program. Defining what the purpose of P-TECH is as a pathway will be challenging where these conflicts arise.

## Neglect of Program Duplications

The report did not account for the possibility of program duplication. Program duplication refers to situations where similar or identical educational programs or initiatives exist in the same geographical area or serve the same target population. In this case, the report did not thoroughly consider the possibility that programs with similar goals and structures, such as those

offered by the Geelong Technical School, might be concurrently operating in the vicinity or catering to similar student demographics.

## Resource Constraints

Like other public schools, Newcomb Secondary College is not immune to having limited resources and has needed to distribute staff across the full careers' suite of programs. P-TECH in Australia was originally funded under a Commonwealth program supporting schools to deliver career outcomes for students, this funding was not extended and has seen Newcomb Secondary College absorb the cost of maintaining the program since. Furthermore, the overall depth and comprehensiveness of the review were significantly influenced by the constraints stemming from time limitations faced by the teaching staff at Newcomb Secondary College. These constraints can be attributed to a range of factors within the educational landscape. The constrained time not only impeded the in-depth exploration of specific aspects of the P-TECH program but also limited the feasibility of conducting comprehensive discussions, interviews, and data collection – all of which are essential components for achieving a thorough and all-encompassing analysis.

## Literature Limitations

The current literature predominantly focuses on the P-TECH model in the United States, with a need for further longitudinal research to assess its effectiveness in an Australian context. While existing studies highlight positive outcomes, there's a shortage of comprehensive, long-term impact assessments. Additionally, while industry partnerships are emphasized, research is needed to examine their sustainability over time, considering the commitment, engagement, and challenges faced by industry partners to ensure the ongoing success of the P-TECH model.



# Recommendations

**The examinations conducted by the project team informed the creation of an action plan to enable Newcomb Secondary College to rejuvenate the P-TECH program in 2024 and beyond. A summary of the recommendations can be found below:**

## **Stakeholder Management**

1. Establish an Industry Liaison Officer at Newcomb Secondary College.
2. Increase the frequency and consistency of communication to stakeholders.
3. Embed stakeholders into curriculum design.

## **Program Design**

1. Embed clear contact schedules for students & industry partners.
2. Define industry partner types to align with school objectives.
3. Develop effective channels to create feedback loops from students and industry partners.

## **P-TECH Environment**

1. Identify ways to improve awareness and access to P-TECH opportunities for students.
2. Look for opportunities to financially support the P-TECH program.
3. Support industry partners through mentor training and guidance on expectations.

## **Governance & Structure**

1. Establish a P-TECH committee.
2. Redesign P-TECH's governance to enable collaboration amongst stakeholders.
3. Develop a clear schedule for the P-TECH program.

Mentors play a crucial role in sharing their professional experiences and the essential skills required for success in their respective industries.

# Conclusion

*The extensive internal and external review, surveys and interviews completed by the project team have informed the creation of an action plan to provide Newcomb Secondary College with the resources required to rejuvenate the P-TECH program in 2024 and beyond.*

*We look forward to observing the success of the P-TECH program following the rejuvenation and the on-going benefits this will offer Newcomb Secondary College students, industry partners and the wider Geelong community.*



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- Australian Bureau of Statistics: <https://www.abs.gov.au/>
- Bellarine Secondary College: <https://www.bellarinesc.vic.edu.au/>



# Appendices

Newcomb Secondary College Internal Review

P-TECH Program Literature Review of Best Practice

P-TECH Stakeholder Survey

P-TECH Rejuvenation Action Plan Including Recommendations



# P-TECH Action Plan

**Date:** 13 September 2023

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# 1. Executive summary

Over the past two months, the P-TECH Rejuvenation working group has conducted the analysis outlined below to inform this action plan.

## 1.1.1 External literature review of P-Tech models

An external literature review was undertaken, sources were selected based on their relevance, credibility, and contribution to understanding the success factors and challenges of Pathways in Technology (P-TECH) programs, with a focus on the Australian context. The inclusion criteria encompassed peer-reviewed academic articles, reports from reputable institutions, and relevant government documents published between 2016 and 2023. Priority was given to sources that addressed key success factors such as industry alignment, curriculum relevance, mentoring relationships, student recruitment, alumni engagement, and effective communication.

## 1.1.2 Internal Review of Newcomb Secondary College (NSC)

An internal review was conducted on Newcomb Secondary College (NSC) to better understand its environment, opportunities, and challenges. This review examined the following key areas:

- Newcomb's Demographic profile including understanding it's history and current demographic statistics.
- Understanding the operations of NSC and the lifecycle of a student.
- Discerning the various career pathways that are offered at NSC and how the Pathways program interrelates between these programs.
- Review of historical P-TECH program at NSC and its current profile.

## 1.1.3 Survey of students, key stakeholders and industry partners

The survey of students, key stakeholders and industry partners was undertaken using both qualitative and quantitative methods.

A quantitative survey was created using an online survey tool to gather measurable data about the experience of the students, key stakeholders and industry partners who have participated in the P-TECH program. Free text options were available for verbatim comments to be captured.

A qualitative study was conducted with key stakeholders to explore viewpoints and personal experience with the P-TECH program as well as examining the perceived benefits and outcomes of the program for students and industry partners. Face-to-



face interviews were conducted with six current and prospective industry partners and key current and former staff members from NSC.

## 1.2 Objective

During the analysis and development of the recommended NSC P-TECH Actions, a key element was to consider a broad range of views, experiences, challenges, issues and opportunities in relation to career pathways, mentoring and industry immersion.

With this in mind, we felt that these recommendations also closely align with the four-year goals set in the Newcomb Secondary College Annual Implementation Plan 2023 (NSC AIP) to reflect consistency in working towards the school's overarching goals.

The specific actions are aligned with:

**1.2.1 Improved Student Wellbeing and Outcomes.**

**1.2.2 Strengthen partnerships, pathways and transitions.**

## 1.3 Key areas of focus

The plan identifies four key areas for improvement that can be tangibly implemented to increase student awareness of the pathways available as well as improve student outcomes for those who undertake the P-TECH opportunity.

**Stakeholder  
Management**

**Program  
Design**

**P-Tech  
Environment**

**Governance  
& Structure**

## 2. Stakeholder Management

Identified throughout the external review of P-TECH models was the importance of strong relationships with key stakeholders. Additionally, it was identified that industry partners are a stakeholder who require more attention on balance than others.

The project team received insightful feedback through our interviews with stakeholders which allowed us to understand the current level of engagement with stakeholders in the NSC P-TECH program.

### 2.1 Recommendations

From our analysis undertaken through the interviews of students/teachers/industry partners, internal review of NSC & external review of P-TECH models, the project team make the following recommendations to NSC to improve its Stakeholder Management:

#### 2.1.1 Establish an Industry Liaison Officer (ILO) at NSC.

Stakeholder interviews clearly showed the importance of the ILO in establishing and maintaining the relationship between schools, education and industry partners. It was also identified in the external review the benefits other programs have obtained through the establishment of a dedicated resource to manage the program.

The role of the ILO would provide a clear channel of communication between stakeholders, and the continuation of this channel is proven to be critical to P-TECH program success.

It is widely accepted amongst stakeholders that the workload associated with a successful P-TECH program could not be taken on as additional tasks for a teacher or school employee and the program's needs should be managed by someone specifically appointed to this role.

#### 2.1.2 Increase the frequency & consistency of communication to stakeholders.

Clearly defined channels of communication, ideally through the ILO, have been a major factor in the success of partnerships between schools, industry organisations and tertiary education partners.

Having a consistent and frequent communication strategy will allow for regular updates and the ability to constantly promote the opportunities on offer in the P-TECH program.

### **2.1.3 Embed stakeholders into curriculum design.**

The external review found stakeholders of all types (school, industry and education) indicated that the differing priorities of stakeholders have at times led to misalignment of expectations. The program will be at its most successful when each party can find the best outcome for themselves and the group.

Bringing students and industry partners into the design of the P-TECH program will ensure both parties, along with the school, see their desired outcomes from their investment.

In addition to achieving outcomes, stakeholder experience will be enhanced when the priorities, needs and barriers of each stakeholder are understood.

## 2.2 Actions

The project team provide the following actions for Newcomb Secondary College's consideration:

ACTION	MEASURE	RESPONSIBILITY	TIME FRAME	RESOURCES
<b>Establish an Industry Liaison Officer (ILO)</b>	One resource dedicated to being the ILO of Newcomb Secondary College.	<ul style="list-style-type: none"> <li>Principal, NSC</li> </ul>	<ul style="list-style-type: none"> <li>Trial for 2 years with targets for measuring return on investment.</li> <li>Convert to ongoing position upon successful completion of trial.</li> </ul>	<b>Budget</b> - Funds for recruitment of role and wages of ILO.
<b>Develop a communication strategy for students, parents, industry partners and education providers.</b>	Year on year increase in P-TECH participants.  Increase in P-TECH enquiries.  Improvements in satisfaction survey from students, parents & industry partners.	<ul style="list-style-type: none"> <li>Pathways team</li> <li>Industry Liaison Officer</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing</li> </ul>	<b>Communication Tools &amp; Platforms</b> Email - For official program announcements. Online Portal/Website - to host program materials & updates. Social Media - To share success stories and relevant industry news. Messaging Apps - For direct mentor-mentee communication  <b>Communication Team</b> - Content Creators to develop engaging content (e.g. newsletters, updates, success stories).  <b>Feedback Mechanisms</b> Surveys - Regular surveys to gather mentor and mentee feedback. Suggestion Box - Confidential platform for participants to submit suggestions or concerns. Regular check-Ins - Scheduled meetings or calls to discuss progress and concerns.  <b>Communication Plan</b> - A comprehensive plan outlining communication goals, channels, and schedules. Clear guidelines for mentor-mentee communication, including suggested frequency and topics.  <b>Data Management System</b> - A secure system to collect, store and analyse feedback data.



				<b>Budget</b> - Funds for communication materials, technical support, and online platform maintenance.
<b>Consult with Industry Partners when designing new P-TECH programs</b>	Ensure new P-TECH programs have Industry Partner endorsement before advertising	<ul style="list-style-type: none"> <li>• Pathways team</li> <li>• Industry Liaison Officer</li> </ul>	<ul style="list-style-type: none"> <li>• Before offering to students</li> </ul>	<b>Labour</b> – Members of the Pathways team and the ILO would provide their time
<b>Consult with Education Providers when designing new P-TECH programs</b>	Ensure new P-TECH programs have engaged with Education Provider before offering to students	<ul style="list-style-type: none"> <li>• Pathways team</li> <li>• Industry Liaison Officer</li> </ul>	<ul style="list-style-type: none"> <li>• Before offering to students</li> </ul>	<b>Labour</b> – Members of the Pathways team and the ILO would provide their time
<b>Consult with Students &amp; Parents when designing new P-TECH programs</b>	Ensure new P-TECH programs have engaged with Students & Parents before offering to students	<ul style="list-style-type: none"> <li>• Pathways team</li> <li>• Inclusion Coordinator</li> </ul>	<ul style="list-style-type: none"> <li>• Before offering to students</li> </ul>	<b>Labour</b> – Members of the Pathways team and the school Inclusion Coordinator would provide their time

## 3. Program Design

Clear and targeted program design was identified through the external review as being key to the success of the P-TECH program for all stakeholders. The surveys and interviews completed by the project team reinforced this recommendation.

Having a structured approach to program design ensures best practice education outcomes for the student which are clearly aligned to the industry partner workforce requirements. The structured approach also allows for industry partner participation in related school programs.

### 3.1 Recommendations

From the analysis undertaken through the interviews of students/teachers/industry partners, internal review of NSC & external review of P-TECH models the project team make the following recommendations to NSC to improve the P-TECH Program Design:

#### 3.1.1 Embed clear contact schedules for students & industry partners.

Schools operate in structured environments where students will have a set number of periods in a day and classes generally fall into these blocks, whereas businesses tend to be scheduled based on current projects and priorities.

Whilst it's important for both parties to recognise these potential scheduling conflicts and collaborate to work around them, it is clear there would be benefits to both parties in setting clear targets for mentoring including frequency and purpose.

#### 3.1.2 Define industry partner types to align with school objectives.

P-TECH is one of several programs NSC offers its students. In discussions with stakeholders on this topic, it was frequently mentioned how a P-TECH partner might offer other opportunities for students through the Getting Ready for the Outside World (GROW) program or with unique projects for students to provide tasters into their industry.

This flexible approach to the industry partners is an appropriate and effective way of maximizing the benefit to the school. With this in mind, we see an opportunity to review this approach and embed a more targeted method when approaching new industry partnerships. Identifying the unique selling proposition to each industry partner will increase the longevity of the partnership and ensure alignment with the goals of both parties.

### **3.1.3 Develop effective channels to create feedback loops from students & industry partners.**

Identified throughout the project was the need for capturing data. Having effective channels to capture feedback from students, teachers, parents, and industry partners will provide valuable data to further refine and make informed decisions on future program models.

## 3.2 Actions

The project team provide the following actions for Newcomb Secondary College's consideration:

ACTION	MEASURE	RESPONSIBILITY	TIME FRAME	RESOURCES
<b>Create standard Mentor/Mentee agreements</b>	Agreements in place for all mentor/mentee relationships.	<ul style="list-style-type: none"> <li>• Pathways team</li> </ul>	<ul style="list-style-type: none"> <li>• Within 1 month of establishment of relationship.</li> </ul>	<p><b>Mentor Agreement</b> – Agreement between mentor and mentee that sets out expectations and cadence for relationship.</p> <p><b>Training and Support</b> – Training materials and resources for mentors and mentees on effective communication and mentoring techniques.</p> <p><b>Data Management System</b> – A secure system to collect, store and analyse feedback data.</p> <p><b>Communication Tools &amp; Platforms</b></p> <p>Email for formal communications.</p> <p>Online Portal/Website to host program materials &amp; updates.</p> <p>Social Media - To share success stories and relevant industry news.</p> <p>Messaging Apps - For direct mentor-mentee communication.</p>
<b>Create stakeholder engagement framework</b>	A stakeholder assessment is created/reviewed for each industry partner.	<ul style="list-style-type: none"> <li>• Pathways team</li> <li>• Industry Liaison Officer</li> </ul>	<ul style="list-style-type: none"> <li>• Stakeholder assessment completed prior to engagement.</li> <li>• Stakeholder engagement framework review annually</li> </ul>	<p><b>Stakeholder Engagement Framework</b> – The stakeholder engagement framework outlines the roadmap and future direction of Newcomb Secondary College partnerships and collates all important aspects of stakeholder management including engagement, planning, communication and acts as the central point for any stakeholder communication matrix.</p> <p><b>Labour</b> – Members of the Pathways team and the school Inclusion Coordinator would provide their time</p>



<b>Define and categorise Industry Partnerships based on school objectives</b>	<p>Clear strategic definitions for each type of Industry Partner.</p> <p>All Industry Partners categorised.</p>	<ul style="list-style-type: none"> <li>• Pathways team</li> <li>• Industry Liaison Officer</li> </ul>	<ul style="list-style-type: none"> <li>• Stakeholder assessment completed prior to engagement.</li> <li>• Stakeholder engagement framework review annually</li> </ul>	<p><b>Stakeholder Engagement Framework</b> – The stakeholder engagement framework outlines the roadmap and future direction of Newcomb Secondary College partnerships and collates all important aspects of stakeholder management including engagement, planning, communication and acts as the central point for any stakeholder communication matrix.</p> <p><b>Labour</b> – Members of the Pathways team and the school Inclusion Coordinator would provide their time</p>
<b>Establish Effective Communication and Feedback Loops</b>	<p>Increased mentor-mentee engagement</p>	<ul style="list-style-type: none"> <li>• P-TECH Committee</li> <li>• Pathways team</li> <li>• Mentors &amp; Mentees</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Launch</b> - embed communication process from program inception.</li> <li>• <b>Ongoing</b> - Continual communication throughout the program.</li> <li>• <b>End of year evaluation</b> - Gather final feedback and assess the effectiveness of the communication and feedback loops.</li> </ul>	<p><b>Communication Tools &amp; Platforms</b> -        Email-For official program announcements. Online Portal/Website-to host program materials &amp; updates.        Social Media-To share success stories and relevant industry news.        Messaging Apps-For direct mentor-mentee communication</p> <p><b>Communication Team</b> -        P-TECH Coordinator-To oversee communication efforts.        Content Creators-To develop engaging content (e.g. newsletters, updates, success stories).</p> <p><b>Feedback Mechanisms</b> -        Surveys-Regular surveys to gather mentor and mentee feedback.        Suggestion Box-Confidential platform for participants to submit suggestions or concerns.        Regular check-Ins-Scheduled meetings or calls to discuss progress and concerns.</p> <p><b>Communication Plan</b> - A comprehensive plan outlining communication goals, channels, and schedules. Clear guidelines for mentor-mentee communication, including suggested frequency and topics.</p> <p><b>Training and Support</b> - Training materials and resources for mentors and mentees on effective communication and mentoring techniques.</p> <p><b>Data Management System</b> - A secure system to collect, store and analyse feedback data.</p>

				<p><b>Budget</b> - Funds for communication materials, technical support, and online platform maintenance.</p> <p><b>Program Timeline</b> - A clearly defined program schedule with milestones and communication events.</p>
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## 4. P-TECH Environment

The P-TECH Environment is key to the overall success of the program and therefore should be given priority when setting the program structure. The ability to attract student participation and on-going industry partner support and commitment to the program will enable long-term planning and success.

The external review highlighted the importance of appropriate mentor selection along with training programs for the mentors. Additionally, promotion of the P-TECH program to the school community is key to attracting increased student participation. Finally, securing funding to support student participation in the program is vital.

### 4.1 Recommendations

From the analysis undertaken through the interviews of students/teachers/industry partners, internal review of NSC & external review of P-TECH models the project team make the following recommendations to NSC to improve the P-TECH Environment:

#### 4.1.1 Identify ways to improve awareness & access to P-TECH opportunities for students.

Identified through this review were partners who signed up to P-TECH with opportunities on offer that were not utilised by students. Therefore, improvements can be made to boost awareness of P-TECH offerings.

As well as awareness, access to resources to enable students to take part in the program is a barrier that should be given attention. As identified in the internal review, NSC is part of a low socio-economic area and current cost of living pressures are compounding this problem and adding another barrier to student participation in the program.

#### 4.1.2 Look for opportunities to financially support P-TECH program.

With government funding for P-TECH being withdrawn, other avenues should be explored to support the program. This funding mix should include both government and private sources of funding.

#### **4.1.3 Support industry partners with mentor training and clear guidance on expectations.**

Mentor programs like P-TECH have been found to increase school attendance rates, raise school completion rates, improve academic performance and much more. However, these improvements are generally only found when there has been careful selection and close monitoring of mentor-mentee relationships and the provision of training, assistance, and support to mentors.

General support should be provided for mentors to guide the expectations and ensure the schools objectives are effectively supported through the relationship.



## 4.2 Actions

The project team provide the following actions for Newcomb Secondary College's consideration:

ACTION	MEASURE	RESPONSIBILITY	TIME FRAME	RESOURCES
<b>Develop mentor induction pack to guide mentors with what is expected and how to engage mentees.</b>	<p>A comprehensive mentor induction pack with all required content.</p> <p>Mentors provide feedback to the effect that they are well informed in how to mentor students.</p>	<ul style="list-style-type: none"> <li>Industry Liaison Officer</li> <li>Pathways team</li> </ul>	<ul style="list-style-type: none"> <li>Initial pack developed then reviewed annually for improvements.</li> </ul>	<p><b>Labour</b> – Staff time would be invested into developing mentor induction pack.</p>
<b>Conduct Student, Parent and industry partner interviews and collect data from careers site to identify best channels for promotion of P-TECH. Utilise the library of interviews to create promotional material for the program to increase program awareness.</b>	<p>Year on year increase in P-TECH participants.</p> <p>Increase in P-TECH enquiries.</p>	<ul style="list-style-type: none"> <li>Pathways team</li> <li>Industry Liaison Officer</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Initial feedback should be reviewed monthly whilst analysis is being undertaken and troubleshooting is required.</li> <li>In the longer term, reviews should move to quarterly.</li> </ul>	<p><b>Labour</b> – Members of the Pathways would provide their time.</p> <p><b>Communication Tools &amp; Platforms</b> - Email-For official program announcements.          Online Portal/Website-to host program materials &amp; updates. Social Media-To share success stories and relevant industry news. Messaging Apps-For direct mentor-mentee communication.</p> <p><b>Feedback Mechanisms</b> -          Surveys-Regular surveys to gather mentor and mentee feedback. Suggestion Box-Confidential platform for participants to submit suggestions or concerns.          Regular check-Ins- Scheduled meetings or calls to discuss progress and concerns.</p> <p><b>Data Management System</b> - A secure system to collect, store and analyse feedback data.</p>

				<b>Budget - Funds for website analytic collection.</b>
<b>Create a uniform/tool library and seek donations (financial and non-financial) from the community for students to borrow required health &amp; safety equipment</b>	Creation of uniform/tool library.	<ul style="list-style-type: none"> <li>• Inclusion Coordinator</li> <li>• Business Manager</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing</li> </ul>	<b>Labour</b> – Inclusion coordinator & business managers time to operate.
<b>Conduct a needs assessment to identify specific uniform/tools required by students and determine demand.</b>	Needs assessment report detailing required equipment, including OH&S requirements.	<ul style="list-style-type: none"> <li>• Relevant Teachers</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Complete needs assessment within two months.</li> </ul>	Time and expertise for data collection, analysis, and compiling report.
<b>Establish a physical library space to store and distribute uniform/tools.</b>	A designated space equipped for storage and distribution.	<ul style="list-style-type: none"> <li>• Inclusion Coordinator</li> <li>• Business Manager</li> </ul> <p>Library staff</p>	<ul style="list-style-type: none"> <li>• Design and set up library space within four months.</li> </ul>	Space, shelving units, tubs.
<b>Review current grant opportunities at Federal/State/Local levels for funding of P-TECH program initiatives.</b>	Engagement of local members of parliament.  Number of grant applications.	<ul style="list-style-type: none"> <li>• Inclusion Coordinator</li> <li>• Business Manager</li> <li>• Pathways team</li> <li>• P-TECH Committee</li> </ul>	<ul style="list-style-type: none"> <li>• Ad hoc with specific needs.</li> <li>• Quarterly for awareness.</li> </ul>	<b>Labour</b> – Staff time would be invested into researching available grants and writing applications for funding.
<b>Conduct a comprehensive search for grant opportunities at Federal, State and Local</b>	Compiled list of relevant grant	<ul style="list-style-type: none"> <li>• Inclusion Coordinator</li> <li>• Business Manager</li> <li>• Pathways team</li> </ul>	<ul style="list-style-type: none"> <li>• Complete grant search within one month</li> </ul>	Time for research, access to grant databases, and compatible communication tools.

<p><b>Levels that align with the funding needs of the P-TECH program Initiatives.</b></p>	<p>opportunities, including deadlines.</p>	<ul style="list-style-type: none"> <li>• P-TECH Committee</li> <li>• Administration staff</li> </ul>		
<p><b>Develop a sponsorship proposal for Industry Partners to promote themselves to the school community through P-TECH program. The sponsorship proposal could commit to providing resources required for the student in return for business promotion.</b></p>	<p>Amount of financial support provided by industry.</p> <p>Amount of non-financial (equipment) provided by industry.</p>	<ul style="list-style-type: none"> <li>• Inclusion Coordinator</li> <li>• Business Manager</li> <li>• Industry Liaison Officer</li> </ul>	<ul style="list-style-type: none"> <li>• Annual proposal for program.</li> <li>• Ad-hoc proposal where resource shortfall is identified.</li> </ul>	<p><b>Labour</b> – Staff time would be invested into developing sponsorship proposals.</p>

## 5. Governance & Structure

The research undertaken identified the importance of clear program governance and a structured approach to the on-going program delivery and review. This oversight will facilitate a strategic focus on the long-term goals and provide appropriate consideration to competing stakeholder priorities.

### 5.1 Recommendations

From the analysis undertaken through the interviews of students/teachers/industry partners, internal review of NSC & external review of P-TECH models the project team make the following recommendations to NSC to improve the Governance & Structure of the program:

#### 5.1.1 Establish a P-TECH committee.

To keep the P-TECH program successful into the future, a committee should be established to focus on the current delivery of P-TECH and enable on-going review and implementation of future improvements for the program.

The committee should contain members of each identified stakeholder group (pathways team, students, parents, teachers, education institutions, industry partners & other relevant bodies) to have appropriate stakeholder representation.

#### 5.1.2 Redesign P-TECH's governance to enable collaboration amongst stakeholders.

Currently, the Pathways team manage multiple programs and activities. Members of the Pathways team are assigned to look after multiple programs or classes (some include P-TECH, GROW or Junior School) which defaults on the incentive to deliver outcomes based on the calendar cycle of what is coming up next.

With the implementation of recommendation 5.1.1, further enhancements can be built into the structure of the committee to act as both an advisory body and a working group. This will enable the Pathways team to leverage off a group for strategy development and network support so that day-to-day functions can be managed by Pathways without losing sight of the sustainability of the program.



### **5.1.3 Develop a clear schedule for the P-TECH program.**

P-TECH is a value-add offering for students which is currently driven by the passion of the school to go the extra mile for their students. As mentioned in 5.1.2, this makes putting in time to make improvements to the program quite difficult.

Creating a clear schedule for the lifecycle of P-TECH including, the collection of feedback identified in recommendation 3.1.3 and the review and modification of the program stage which can be built into recommendation 5.1.2, will enable the end-to-end lifecycle management of the program whilst ensuring it constantly evolves and adapts to the changing environment.

## 5.2 Actions

The project team provide the following actions for Newcomb Secondary College's consideration:

ACTION	MEASURE	RESPONSIBILITY	TIME FRAME	RESOURCES
<b>Establish P-TECH Committee</b>	Implement P-TECH committee with objectives, defined roles & responsibilities and representation across all stakeholders.	<ul style="list-style-type: none"> <li>• Principle, NSC</li> <li>• Pathways Team</li> </ul>	<ul style="list-style-type: none"> <li>• Establish in 2024.</li> <li>• The cadence of the committee to be determined by Principal in consultation with the committee.</li> </ul>	<b>Labour</b> – Members of the Pathways team would provide their time and ILO to perform the role of secretariat.
<b>Redesign the governance for P-TECH Program</b>	<p>Strategy created by the P-TECH Committee to develop a 4-year plan for the program.</p> <p>Operations to be defined and set with Pathways team.</p>	<ul style="list-style-type: none"> <li>• Principle, NSC</li> <li>• P-TECH Committee</li> <li>• Pathways Team</li> </ul>	<ul style="list-style-type: none"> <li>• Establish in 2024.</li> <li>• Operations reviewed every month.</li> <li>• 4-year plan targets reviewed quarterly.</li> </ul>	<p><b>Labour</b> – Principal, members of the Pathways team and the ILO would provide their time.</p> <p><b>Data Management System</b> – A secure system to collect, store and analyse feedback data.</p>
<b>Develop an end-to-end schedule for P-TECH</b>	<p>Full calendar schedule of:</p> <ol style="list-style-type: none"> <li>1. Events &amp; activities</li> <li>2. Touch points and data collection of stakeholders</li> <li>3. Meetings for P-TECH Committee &amp; Pathways team</li> </ol>	<ul style="list-style-type: none"> <li>• P-TECH Committee</li> <li>• Pathways Team</li> </ul>	<ul style="list-style-type: none"> <li>• Produced before each year for the year in advance.</li> </ul>	<p><b>Labour</b> – members of the Pathways team and the ILO would provide their time.</p> <p><b>Data Management System</b> – A secure system to collect, store and analyse feedback data.</p> <p><b>Calendar Management System</b> – A system for managing a schedule that provides alerts to upcoming activities.</p>

	4. Periods for program review and reassessment of curriculum			
<b>Develop a clear vision and mission statement for the P-TECH program, outlining the goals and objectives of the program.</b>	The vision and mission statement should align with the overall direction of NSC Strategic Plan and the P-TECH program's success criteria	<ul style="list-style-type: none"> <li>• P-TECH committee</li> <li>• Principal, NSC</li> <li>• Pathways team</li> </ul>	<ul style="list-style-type: none"> <li>• Within the first month of the academic year.</li> </ul>	<b>Labour</b> – This would involve Members of the Pathways team, the Principal, and the P-TECH committee.

## 6. Conclusion

In conclusion, the P-TECH Action Plan presents several key recommendations aimed at enhancing various aspects of the program, encompassed in the key areas of Stakeholder Management, Program Design, P-TECH Environment, and Governance & Structure.

These recommendations have been formulated based on an extensive analysis of the current program through interviews with students, teachers, industry partners as well as an internal review of NSC, and an external review of P-TECH models in Australia and the United States of America.

Implementing these recommendations will contribute to the overall success and sustainability of the P-TECH program at NSC, fostering strong relationships with stakeholders, improving program design, enhancing the program environment, and establishing effective governance and structure.



# Literature Review P-TECH Mentoring Program Rejuvenation

**Date:** August 2023

**Author:** Tammy Corless



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# 1. Introduction

Geelong's economy has traditionally relied heavily on manufacturing, specifically in the automotive sector. However, recent years have brought significant changes due to industry restructuring, technological advancements, and global economic shifts (Geelong Education & Workforce Profile, 2011- 2021). Despite these challenges, the Geelong labor market has demonstrated resilience and adaptability.

The region has experienced growth in sectors such as advanced manufacturing, digital technology, research and innovation, construction and professional services. Efforts are being made to enhance the labor market in Geelong by promoting entrepreneurship, attracting new industries and investment, supporting small and medium-sized enterprises (SME's), fostering innovation and research, and providing opportunities for upskilling and reskilling the workforce (Geelong Education & Workforce Profile, 2011- 2021).

However, the Geelong region also faces labor market challenges, including addressing unemployment and underemployment rates, skill mismatches, and geographical disparities. Certain areas within Geelong, such as Corio, Norlane, and Whittington, have higher unemployment rates compared to the regional average, necessitating targeted strategies for economic and social inclusion (City of Greater Geelong, 2023)

Collaboration between the government, industry, educational institutions, and community organisation is crucial in driving economic growth, creating employment opportunities and addressing the labor market challenges in Geelong (Geelong Education & Workforce Profile, 2011- 2021). The Pathways in Technology (P-TECH) program, initiated by IBM in the US provides such a framework for establishing long-term partnerships with the aim of addressing the shortage of ICT and STEM skills resulting from rapid technological advancements. This is achieved through collaborative efforts with industry partners, offering structured workplace experiences, industry skills development, industry mentoring, worksite visits, paid internships, and potential job

opportunities upon program completions. It accentuates the importance of collaboration between education and industry to bridge the gap between student learning and the skills required by employers. It benefits both students and employers, as it improves employment prospects for students and allows employers to shape the skills of their future workforce (Tasmania. Department of Education, 2018)

In October 2014, as part of its Industry Innovation and Competitiveness Agenda, the Australian Government announced a \$12 million investment to improve the focus on STEM. This included \$500,000 in seed funding over 2015-16 and 2016-17 to test and adapt the P-TECH model in an Australian context (Social Compass, 2019).

Since August 2015, Newcomb Secondary College has engaged in a collaborative effort with its industry partners to develop and implement a tailored P-TECH learning program that meets the needs of the surrounding community. These industry partners consisted of Barwon Health, Bendigo Bank, GMHBA, Tribal and Opteon Property Group, Victorian BioScience Education Centre, Analytics Microlab, City of Greater Geelong, IBM and Royal Geelong Yacht Club. Additionally, tertiary education partners such as Gordon Institute of TAFE and Deakin University were also involved in this initiative (Social Compass, 2019)

The disruptions caused by the pandemic in 2020 and 2021 had a profound impact on the P-TECH program at Newcomb Secondary College. As educational institutions were forced to adapt to remote learning and face-to-face interactions were limited, the program faced numerous challenges that hindered its delivery and impeded the students from reaping its full benefits.

However, as the challenges of the pandemic have mostly subsided, Newcomb Secondary College is taking proactive steps to revitalize the P-TECH program in 2024 and beyond. Recognising the importance of this program for students' educational and career prospects, an action research project is being undertaken to identify the areas that require improvement and develop strategies to enhance the program's effectiveness.

As part of this project, a comprehensive literature review will be conducted to identify success factors supporting effective P-TECH programs both internationally and nationally. In addition, interviews and consultations will be carried out to review the current P-TECH program at Newcomb Secondary College and gather insights into the requirements of industry. The insights gained from this review project will play a crucial role in informing decision-making processes at Newcomb Secondary College, guiding future strategies and initiatives for the P-TECH program to ensure its effectiveness and longevity.

## **2. Methodology**

The sources for this literature review were selected based on their relevance, credibility, and contribution to understanding the success factors and challenges of Pathways in Technology (P-TECH) programs, with a focus on the Australian context. The inclusion criteria encompassed peer-reviewed academic articles, reports from reputable institutions, and relevant government documents published between 2016 and 2023. Priority was given to sources that addressed key success factors such as industry alignment, curriculum relevance, mentoring relationships, student recruitment, alumni engagement, and effective communication.

## **3. Literature review**

P-TECH focuses on training students to be 'workforce ready' and emphasises the role of industry in contributing to this training. Rather than positioning STEM as abstract or theoretical concepts, P-TECH focuses on demonstrating the practical relevance of these skills to students. By providing direct industry experiences and highlighting the real-world applications of STEM subjects, P-TECH actively engages students in their learning (Social Compass, 2019).

The Australian P-TECH model provides a framework for employers to work alongside schools in preparing young people for success in further study and work. The report by Skilling Australia (2017) suggests that while P-TECH incorporates familiar elements such as mentoring, workplace visits, and school-industry collaboration, its uniqueness lies in the integration of these components. The model's distinctiveness stems from its emphasis on long-term partnerships among educators, employers and the community, the combination of various elements within the model, and the structured progression of student learning. Participating secondary students in the P-TECH program follow a dual-track pathway, earning both their Senior Secondary Certificate of Education, featuring a STEM-focused vocational education component, and a subsequent STEM related certificate. This comprehensive support and opportunities offered through the P-TECH model hold particular significance for young people residing in communities with high unemployment. Johnson & Smith (2019) further emphasized the P-TECH model in having a significant positive effect on addressing youth unemployment in high-need communities as a result of the unique blend of academic coursework, industry partnerships, mentoring, and work-based learning experiences that equip students with the knowledge and skills needed to succeed in a rapidly changing job market.

The objective of this literature review is to delve into the key success factors that contribute to the effective implementation of a P-TECH learning program internationally and nationally. Extensive research has highlighted several key strategies that significantly impact the success of such programs, including industry alignment, curriculum alignment, mentoring relationship, staff recruitment, alumni engagement and effective communication.

## **4. Industry alignment**

While industry partners are committed to promoting STEM and community engagement, their participation in P-TECH can be difficult to justify financially. As there are no immediate financial benefits, the allocation of staff time for P-TECH needs to be carefully managed and



justified in terms of professional development. The willingness of industry organisations to invest staff time in mentoring students, organizing work experiences, facilitating site visits, giving presentations at schools, and participating in other activities is a crucial factor in the success of the P-TECH program (Social Compass, 2019).

A qualitative study by Muhammad-Rogers (2020) examined experiences and perceptions of six P-TECH industry partners in a large urban school district in Texas. The theme of value alignment emerged when participants were asked about their companies' missions and goals as the basis for their interest in partnering with P-TECH. Some industry partners reported that participating in P-TECH has increased community awareness of their organisation and its activities. This awareness is generated through interactions with students and teachers, participation in career expos, and media coverage of P-TECH activities. Leveraging value alignment with company missions and goals is seen as crucial in attracting partners to participate in P-TECH, despite the financial challenges associated with their involvement.

## **5. Curriculum alignment**

Another theme in the success of the P-TECH program is the alignment of curriculum with industry requirements. Participants in the Muhammad-Rogers (2020) study suggested that improving skills mapping and involving industry partners in curriculum design could address these areas for improvement. When industry partners are given a greater opportunity to actively participate in the curriculum design process, it not only allows them to provide valuable insights and expertise but also cultivates a sense of ownership and commitment towards the program. By involving industry partners in shaping the curriculum, their perspectives on current industry needs, emerging trends, and essential skills can be incorporated effectively, ensuring that the education provided aligns closely with real-world demands (Hurewitz, 2021).

Skill Mapping plays a crucial role in helping educational institutions identify the academic, technical and professional skills required for students to excel in 21<sup>st</sup> century careers. The official

P-TECH website suggests that such a collaborative process can analyse the entry-level positions within the industry to determine the technical and professional skills necessary for a successful career, define the required skills and identify any industry specific learning requirements. This collaborative approach not only enhances the relevance and practicality of the curriculum but also strengthens the connection between education and industry supporting authentic project-based learning, either in the workplace or at school (Skilling Australia, 2017).

## 6. Mentoring relationships

The mentor relationship between young people and industry personnel is pivotal to the success of the program. Students are motivated by hearing the personal stories of industry experts and, in particular, the obstacles they have had to overcome and the often non-linear career path they have taken to get to where they are. Where industry employees have been willing to open up to students, share their stories and be honest about their own limitations, students have been able to relate and envisage more options for themselves (Social Compass, 2019).

According to Hunter et al (2016), multiple research studies identify common measures of effective mentorship to be; increased school attendance rates, higher school completion rates, improved academic performance, better classroom engagement, attainment of post school employment, reduced risk-taking behavior such as alcohol and drug abuse, greater resilience and self-esteem, improved relationships with family and friends, and community participation. These measures are often dependent on; careful selection and close monitoring of mentor-mentee relationships and the provision of training, assistance and support to mentors.

Key strategies found in research include the schools being involved with mentor selection, having clear and agreed protocols or outcomes prior to mentorship, providing efficient feedback avenues for mentee and mentor and a clear communications model for the mentor and mentees such as a closed Facebook group.

## 7. Student recruitment

Recruitment efforts to introduce and enlist students are pivotal to the program's success. Research findings suggest that most student participants in P-TECH are nominated by staff (Hunter et al, 2016). Students must be highly engaged and committed to being successful in the P-TECH model and therefore recruitment is key to success.

Research shows that families are key influences on student academic success and retention. P-TECH families may need guidance about successful ways to support their children along the challenging path they have chosen. It is important to identify the messages, information, and types of support that families will need at the start of the program, as well as in each year of coursework.

Some key strategies identified in this review as being essential for recruitment included hosting recruitment events, including information sessions with representatives from the school, industry, other P-TECH schools and alumni students and events to showcase the workplace and professional skills students are gaining through P-TECH (Social Compass, 2019).

By actively involving industry guest speakers, P-TECH schools enhance students' understanding of various careers, broaden their perspectives, and provide practical insights for their endeavors. These speakers play a crucial role in sharing their professional experiences and the essential skills required for success in their respective industries. Suggested guest speakers include, former P-TECH students employed by the industry partner or related industries, current industry partner employees/mentors and community representatives from similar or related industries. One example provided by ptech.org (2023) suggests hosting themed weeks focused on specific career tracks, incorporating speakers from various functions across social media, gaming careers and entrepreneurship. Further to that is the suggestion of organizing a monthly speaker series event, featuring virtual sessions moderated by students and recorded for future reference. During these sessions, inviting industry professionals to speak to their job experiences

helps families better understand the value proposition. Schools may also build in additional opportunities to engage families in the dialogue and include them in the P-TECH experience through internship showcases and additional enrichment opportunities. Further, these sessions provide an opportunity for students and parents to recognize the advantage of P-TECH placements as opposed to other student and industry mentorship programs.

## **8. Alumni engagement**

The challenge of keeping in touch with P-TECH students once they complete their programs and graduate is daunting. However, both schools and alumni can benefit from doing so. Schools can tap into the insight P-TECH alumni can provide about their experience in the P-TECH program and alumni can benefit from an ongoing connection with their host P-TECH organisation. Alumni help explain the advantages of participating in a P-TECH program to parents and prospective students and provide valuable insights to the post-graduate experiences for current students and P-TECH staff members. The P-TECH host school should have a way to collect/store alumni information as students graduate that can be either, shared with industry partners or utilized to quickly communicate opportunities, offerings etc (Muhammad-Rogers, 2020). Research suggests benefit to utilising alumni to 'give back' to current students through, speaking on panels, being mentors and supporting with work preparation.

## **9. Effective communication**

Effective communication emerged as a key theme in the evaluation of the Pathways in Technology Pilot paper (Social Compass, 2019). Consistent communication, buy-in from senior-level staff, and communication systems across organisations were emphasized. Overall, collaboratively developing systems and effectively communicating in order to build trusting relationships among and between the industry partners and schools helps to advance the PTECH partners through the various stages of strategic partnerships in order to implement the program.

Through the review, interviews with industry stakeholders and school teachers in particular revealed that schools were sometimes unclear about what they could reasonably expect in terms of industry contributions to the program. Likewise, schools did not always understand the requirements that industry organisations have in terms of allowing students on-site. Conversely, industry partners did not necessarily understand the time-consuming bureaucracy involved in organising parental permissions for workplace visits. Further to this some industry partners had expectations that the skill level of students would be higher. Therefore, establishing feedback loops and systems for effective communication are essential for advancing partnerships, sustaining relationships and staying on top of changes, such as staffing, that happen within companies.

Further to this, clear communication with the community regarding the aims of the P-TECH program was also highlighted. Interviews with stakeholders revealed initial skepticism from teachers, students and families due to previous experiences with programs that failed to meet expectations, were poorly implemented, or lacked proper funding. To overcome this skepticism and garner enthusiasm for the program, school executives play a crucial role in clearly articulating the programs' objectives and desired outcomes, providing solid evidence of its value to teachers, students and parents.

While existing literature provides valuable insights into the success factors and strategies related to the implementation of the P-TECH model, there are still some gaps and limitations that need to be addressed.

The existing literature primarily concentrates on the P-TECH model in the United States, while further longitudinal research is needed to evaluate the effectiveness of the model specifically within the Australian context. Additionally, there is a notable gap in research that examines the impact of COVID-19 on the continued implementation and success of P-TECH programs across Australia. These research gaps are crucial for informing strategies to revitalize and enhance the program at Newcomb Secondary College.



While existing studies highlight the positive outcomes and benefits of the P-TECH model, there is a lack of comprehensive long-term impact evaluations. Future research should explore the long-term effects of P-TECH on students' educational and career trajectories, as well as on the economic development of communities with high unemployment.

While literature emphasizes the importance of industry partnerships, there is a need for research that examines the sustainability of these partnerships over time. Understanding the long-term commitment and engagement of industry partners, as well as the challenges they face, will contribute to the ongoing success of the P-TECH model.

## 10. Conclusion

Geelong's economy has undergone transformative changes driven by industry restructuring, technological advancements, and global economic shifts. Despite these challenges, the Geelong labor market has displayed resilience and adaptability, with growth observed in sectors such as advanced manufacturing, digital technology, research, innovation, construction, and professional services. In response, initiatives are being implemented to bolster the labor market through entrepreneurship promotion, investment attraction, SME support, innovation and upskilling opportunities. However, the region faces labor market disparities and challenges, including unemployment rates and skill mismatches in specific areas.

Collaboration between government, industry, educational institutions, and community organisations is pivotal for Geelong's economic growth and addressing labor market issues. The Pathways in Technology (P-TECH) program, a successful initiative initiated by IBM in the US, offers a framework for establishing long-term partnerships. The program bridges the gap between education and industry by providing structured workplace experiences, industry skills development, mentoring and potential job opportunities for students. This collaboration benefits both students and employers, aligning education with the skills required by employers.

The Australian Government's investment of \$12 million in STEM education, including the adaptation of the P-TECH model, demonstrates the commitment to enhancing workforce readiness. Newcomb Secondary College embarked on a collaborative effort with industry partners to create a tailored P-TECH learning program. Despite pandemic disruptions in 2020 and 2021, the college is revitalizing the program in 2024. An action research project is underway to identify areas for improvement and develop strategies for program effectiveness.

The literature review highlights key success factors for P-TECH programs, emphasizing industry alignment, curriculum relevance, mentoring relationships, student recruitment, alumni engagement, and effective communication. Industry alignment necessitates careful management of industry partners' time investment and alignment of program objectives with company missions. Curriculum alignment involves industry participation in curriculum design to ensure practical skills alignment. Mentoring relationships between industry professionals and students contribute to program success. Effective student recruitment involving families and alumni, plays a vital role. Alumni engagement helps maintain connections and provide insights to current students.

Effective communication emerges as a crucial factor, emphasising collaboration, clear communication, and expectation management between schools and industry partners. However, research gaps persist, notably in the Australian context and the impact of COVID-19 on P-TECH programs. Long-term impact evaluations and sustainability of industry partnerships require further exploration.

To enhance Newcomb Secondary College's P-TECH program, this comprehensive review informs decision making processes. Insights gained from the review will guide future strategies and initiatives, ensuring the program's effectiveness and longevity.

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# P-TECH Internal Review

**Date:** September 2023

**Author:** Dylan Mulgrew

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# **1. Executive summary**

This report is an internal review to the P-TECH program at Newcomb Secondary College.

The report has been developed to provide an objective view on factors that may affect the program and is to be read with the view of providing constructive information to support enhancements to the program.

This report accompanies an external review and a stakeholder engagement survey. It is therefore noted this report will not review other programs or seek feedback from stakeholders.

## **1.1 Internal Factors**

The report has noted the following factors that have been reviewed:

### **1.1.1 Newcomb Demographic Profile**

### **1.1.2 Newcomb Secondary School**

### **1.1.3 Pathway Program**

### **1.1.4 P-TECH Program**

# **2. Newcomb Demographic Profile**

## **2.1 History of Newcomb**

Newcomb is a suburb located in the City of Geelong, which is situated in the state of Victoria, Australia. While Newcomb is a unique suburb, its history is intertwined with the broader development of Geelong.

During early European occupation the area was known as “Breakwater”, referencing a rock ford built on the Barwon River to provide fresh water for the burgeoning town of Geelong, and became a center for the horse racing and pastoral industries. The most notable local structure is the heritage-listed St Albans Homestead (1873).

The expansion of Geelong's industrial sector, particularly in manufacturing and trade, led to a growing demand for housing in the mid-20th century. Newcomb, with its proximity to the city center and the waterfront, became an attractive location for residential development. Subdivisions were created, and new housing estates were established to accommodate the increasing population.

During the 1950s and 1960s, Newcomb experienced rapid growth as a residential suburb. The availability of affordable land and housing, along with the development of necessary infrastructure and amenities, attracted many families and individuals to settle in the area. Newcomb became known for its post-war housing styles, including weatherboard and brick veneer homes.

Over the years, Newcomb has continued to evolve and develop. It has become an economically diverse community with a mix of residential, commercial, and light industrial areas. The suburb is well-served by schools, shopping centers, parks, and recreational facilities, catering to the needs of its residents.

## 2.2 Current Demographic Profile

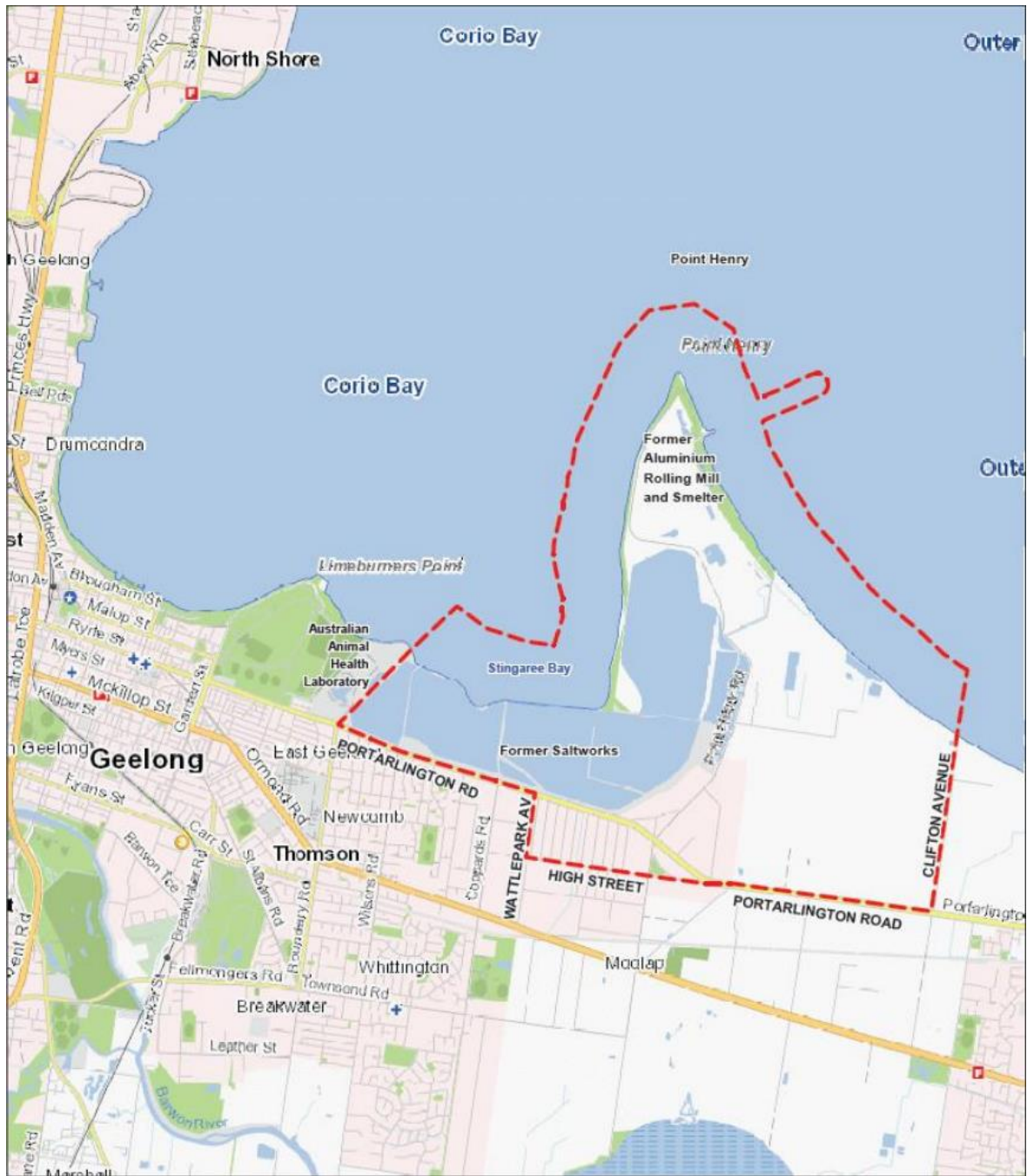
### 2.2.1 Population & Geography

As recorded in the 2021 census, the population of Newcomb was 4,704 (up from 4,283 in 2001).

Although Geelong is a fast-growing city, Newcomb's unique zoning with commercial and industrial sites on its outer border as well as the former saltworks/ALCOA site means the area has limited capacity for population growth.

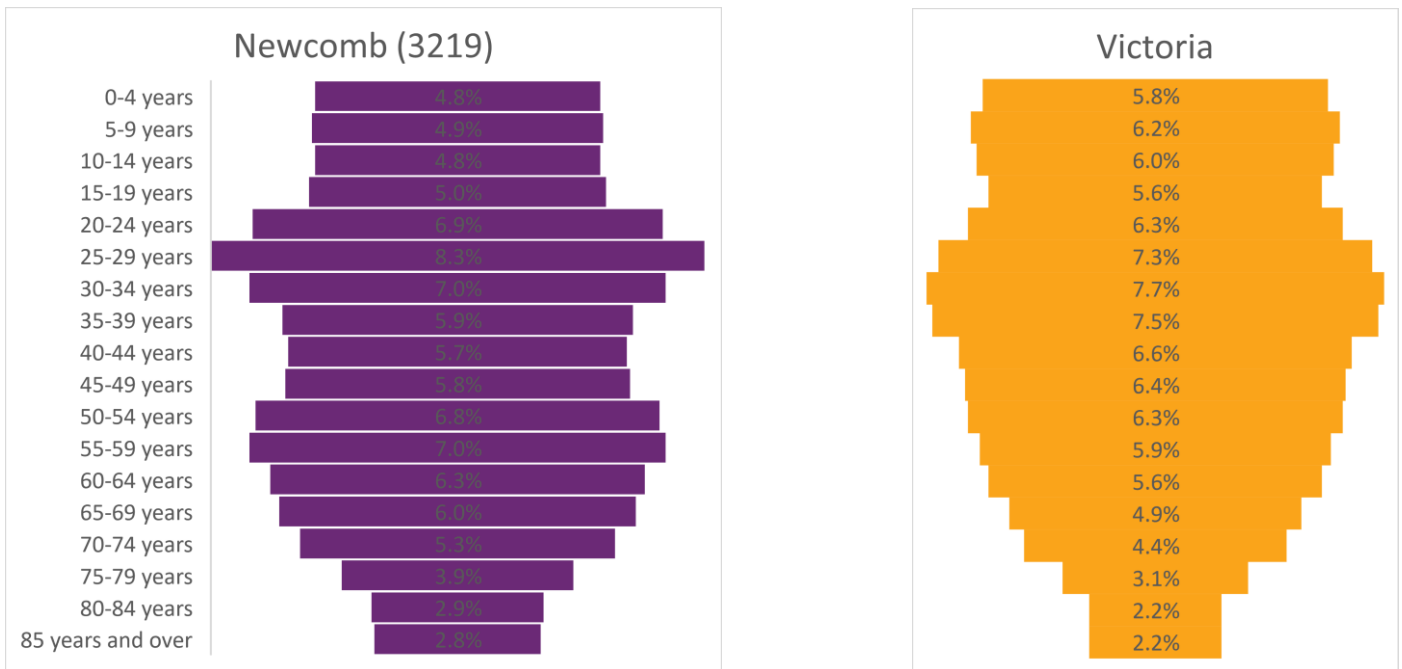


Growth from site expansion will be highly dependent on the investment in the The Moolap Coastal Strategic Framework Plan & ALCOA's Point Henry Concept Master Plan which would offer both environmental, industrial and residential land use in short reach of the Newcomb area.



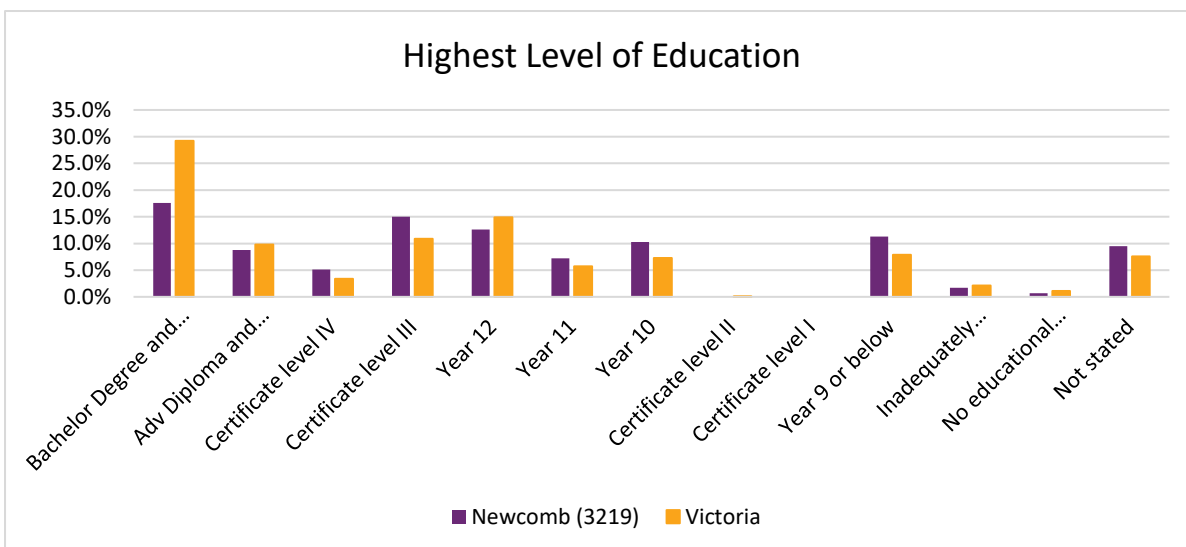
## 2.2.2 Ageing Profile

Newcomb's population is aging, over the past two decades it has seen a shift to an older cohort in comparison to the Victorian average.



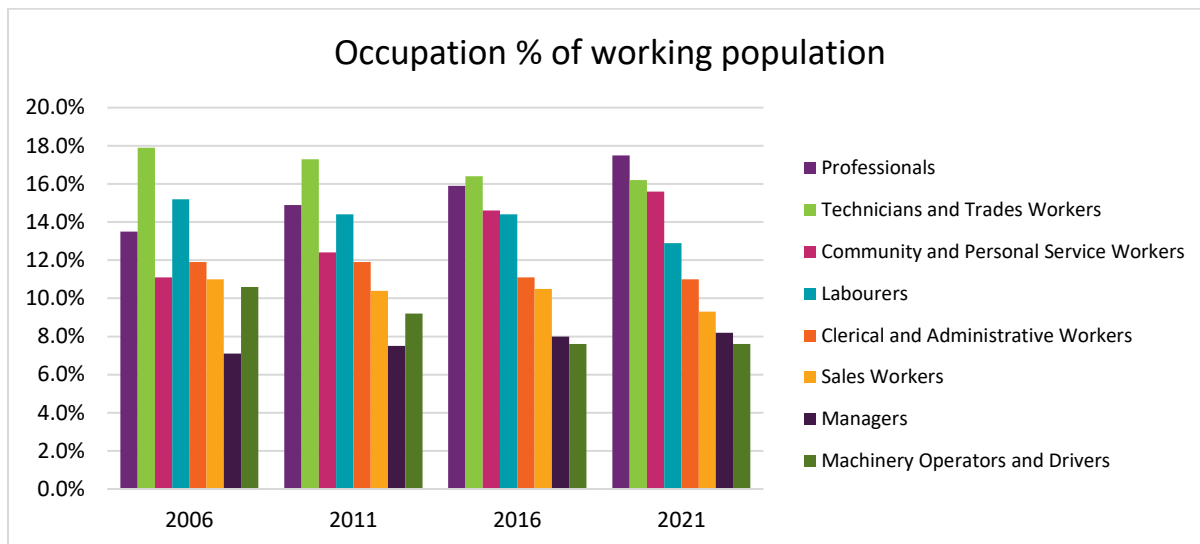
## 2.2.3 Education

In comparison with Victoria, Newcomb's residents have a smaller proportion of achieving Year 11 or above educational completion and attaining Certificate III & IV qualification. There is also a noticeable variance between Newcomb residents and the Victorian average attainment of a bachelor's degree and above qualification.



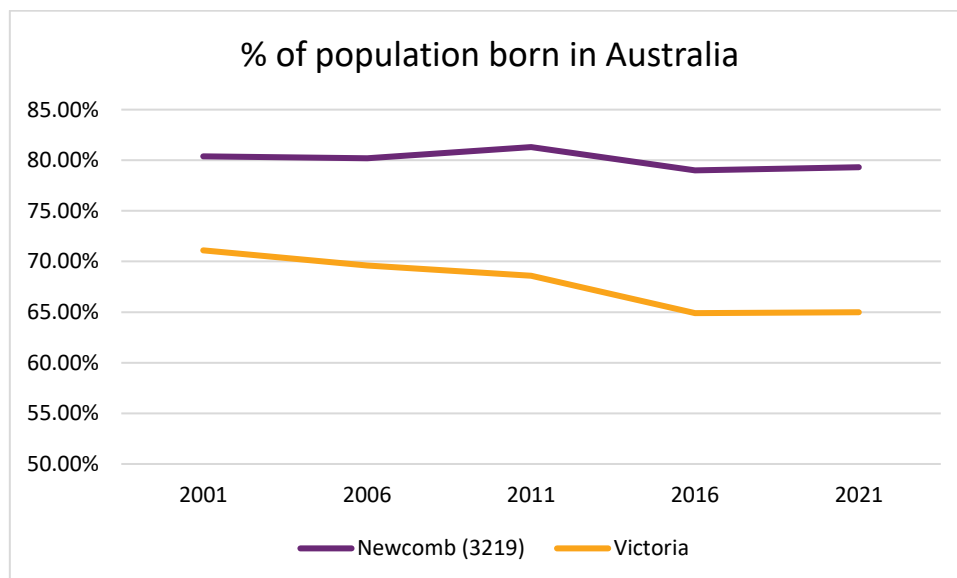
## 2.2.4 Employment

Over the past two decades, Newcomb has seen a shift in the employment profile of the suburb. There has been a decrease in residents who are employed in Trades/Technicians & Machinery Operator positions, while there has been an increase in residents employed in the Professional Services & Community/Personal Services industries.



## 2.2.5 Cultural Diversity

Newcomb has not had a shift in the cultural demographic over the past two decades, which is a deviation from trends seen in the rest of Victoria. For example, the proportion of Newcomb (3219) residents with both parents born in Australia is 62% compared to Victoria with 42%.





## 3. Newcomb Secondary College (NSC)

### 3.1 History of NSC

#### 3.1.1 Timeline

Newcomb High School (now Newcomb Secondary College) was established in Newcomb, Geelong in 1969. It was built to service the communities of Newcomb, Whittington, East Geelong and Moolap, as these suburbs grew to accommodate new families moving to the area for work at Alcoa, Ford and the textile factories.

Leon Touzel was Newcomb's first Principal, serving in that capacity until 1975. The school began as only Form 1 (Year 7) and in a small number of portable classrooms. The year 1974 was the first time that Newcomb had all 6 forms.

The second Principal was Mr Alphonse Smale, who led the school from 1975 into the late 1980s. During this time the school grew to include the main buildings that are still in use today, although many of them have been refurbished. Throughout the principalship of Mr Smale, the school commenced the change of school colours, from the original brown and gold to green and white.

In 1988, the former Assistant Principal Mr John Scanlon moved into the permanent position of Principal. The school grew with the area, and peaked at approximately 1100 students, reaching from Clifton Springs, Drysdale and Ocean Grove into East Geelong. The establishment of Bellarine Secondary College Ocean Grove campus in 1985 meant that Newcomb lost many students from the peninsula.

In 1990 the state government began changing the names of schools in the state sector. Newcomb High School, having only been established for just over 20 years, was required to change to Newcomb Secondary College.

It was also around this time that Newcomb South Primary School was closed, and Newcomb Secondary College absorbed the building and grounds into the present site.

Finally, during the late 1980s and early 1990s, Newcomb was part of the then successful shared campus programme that involved students being bused between Newcomb Secondary College, Geelong East Technical School (later James Harrison Secondary College) and Matthew Flinders Girls High School. This meant that the students from the three schools had a wider range of subjects and could take subjects at any one, or a combination of, the three schools.

In 1995, Mr Scanlon retired, and the principalship was taken over by Mr Alan Davis, who at the time had been Assistant Principal, and prior to that had been a teacher for some time at the school in the English Department.

During Mr Davis' time as Principal, the school merged with James Harrison Secondary College (JHSC), requiring the JHSC students and staff to move to the Newcomb Secondary College site.

Although this presented a major adjustment for all stakeholders, the transition was a smooth and successful one, increasing student numbers to over 1000 students. The first year of the fully combined school was 2002.

After the merger, the school was commenced a major refurbishment project, which saw four of the school's main buildings gutted and rebuilt within the existing frameworks. The facelift took several years but was finished in time for the school's 40th birthday.

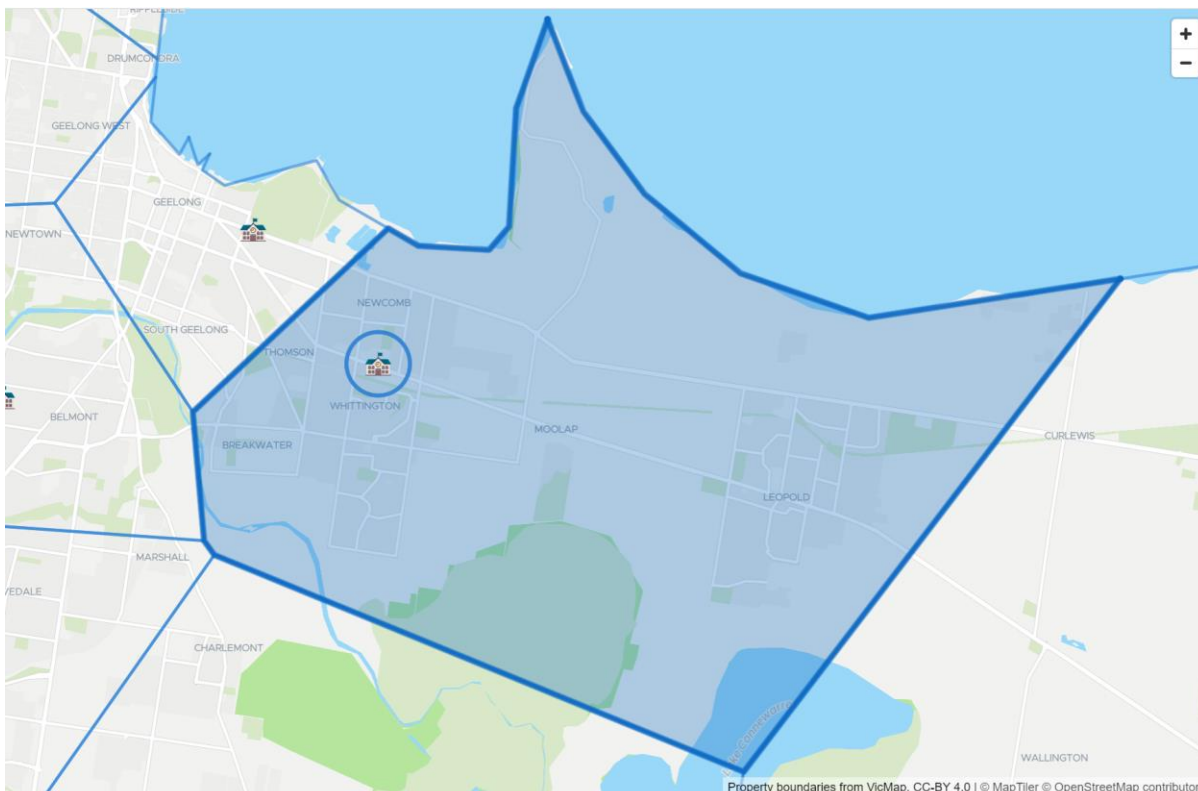
In 2006, after the retirement of Mr Davis, Mr Phil Honeywell was appointed Principal and served in the role until his retirement in July 2023. Current Principal, Mr Scott McLeod, was appointed to lead Newcomb Secondary College from July 2023.

In 2012, it was decided that the school colours would undergo a transformation from the green and white to the navy blue and white that it is now.

In 2022 the school completed another major refurbishment which saw the addition of a 140-seating capacity auditorium.

### 3.1.2 School Zoning

The current zoning for NSC include the suburbs of Newcomb, Thompson, Breakwater, Whittington, Moolap & Leopold.



## 3.2 Curriculum Overview

### 3.2.1 Years 7-8

Students in Years 7 and 8 will complete a prescribed course which aims to give students experience in a variety of subjects that develop wide range of skills.

During Years 7 & 8, students will complete the following subjects:

- English
- Humanities
- Mathematics
- Science
- Visual Arts
- Indonesian
- Physical Education
- Performing Arts
- Getting Ready for the Outside World (GROW)
- Wood Technology
- Metal Technology
- Food Technology
- Fabric Technology

### 3.2.2 Years 9-10

In Years 9 and 10, students continue to study the core subjects, but also choose from a range of other subjects that are related to the key learning areas while focusing on specific topics. Many of these subjects combine students from Years 9 and 10, and run to a two-year programme, allowing students to undertake the subject for two years without repeating the same content.

Also at Year 10, students can undertake a school-based apprenticeship, and in some cases can begin undertaking a Vocational Education and Training (VET) course in conjunction with their other subjects.

In Year 9 & 10, students choose subjects based on the following model:

- English
- Maths
- GROW (connected to our Gordon program)
- Humanities (minimum one unit, from a range of possibilities)
- Science (minimum one unit, from a range of possibilities)
- Physical and Health Education (minimum one unit, from a range of possibilities)
- Arts (minimum one unit, from a range of possibilities)
- Technology (minimum one unit, from a range of possibilities)

- 3 units chosen in the student's areas of interest (from a range of possibilities)

The GROW program in Year 9 includes Morrisby Profiling – Career profiling for students.

In Year 10 the GROW program includes work experience currently offered as a one-week block in Term 2 and/or Term 4.

### **3.2.3 Years 11-12**

#### **Victorian Certificate of Education (VCE)**

The VCE is a senior secondary certificate of education recognised within the Australian Qualifications Framework (AQF).

The VCE is the primary pathway for students pursuing university studies in Victoria. It offers a wide range of subjects across various disciplines, including English, Mathematics, Sciences, Humanities, Arts, and Languages. Students can select subjects based on their interests and intended career paths.

#### **Vocational Education and Training (VET)**

VET programs offer industry-specific training and qualifications. Students can gain practical skills and industry experience in areas such as hospitality, engineering, information technology, automotive, health, and more. These programs often include structured work placements and lead to nationally recognized certificates or diplomas.

#### **Victorian Certificate of Education – Vocational Major (VCE-VM)**

The VCE has expanded to include the Vocational Major, meaning you can study a new 2-year vocational and applied learning program within the VCE.

The VCE-VM will develop the students personal and practical life skills. It will help the student to prepare for the next important stage of their life.

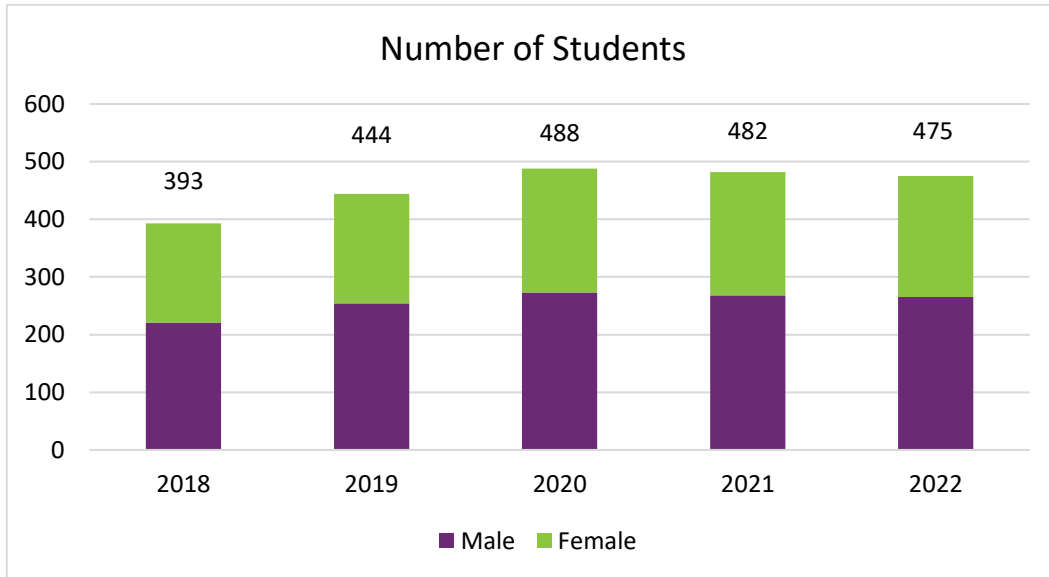
#### **School Based Apprenticeship and Traineeship (SBATs)**

Senior high school students in Victoria can engage in SBATs, which allow them to combine part-time employment in an industry with structured training. SBATs provide valuable work experience, on-the-job training, and the opportunity to gain a nationally recognized qualification while completing their secondary education.

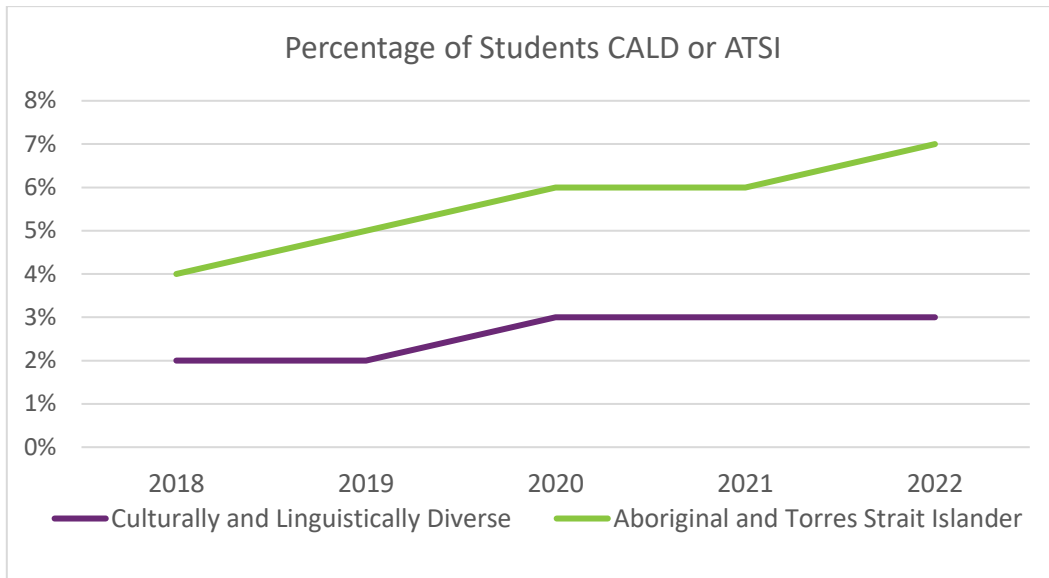
### 3.3 Key Metrics

#### 3.3.1 Students

At the end of the 2022 school year, NSC had 475 students enrolled. Since 2018 the number of students enrolled at NSC has been growing at a rate of 5% per annum, with a steady female/male ratio of 44:56.



Whilst the rate of Culturally and Linguistically diverse (CALD) students remain relatively steady, NSC has noticed an increase in the ratio of Aboriginal & Torres Strait Islander (ATSI) students. The ATSI increases are consistent with a higher ATSI population living in the 3219 postcode (1.9%) compared to the Victorian average (1.0%) and the CALD figures are consistent with the 3219 postcode having a lower rate of immigration (31.2% at least 1 parent born overseas) compared to the Victoria average (52.2% at least 1 parent born overseas).

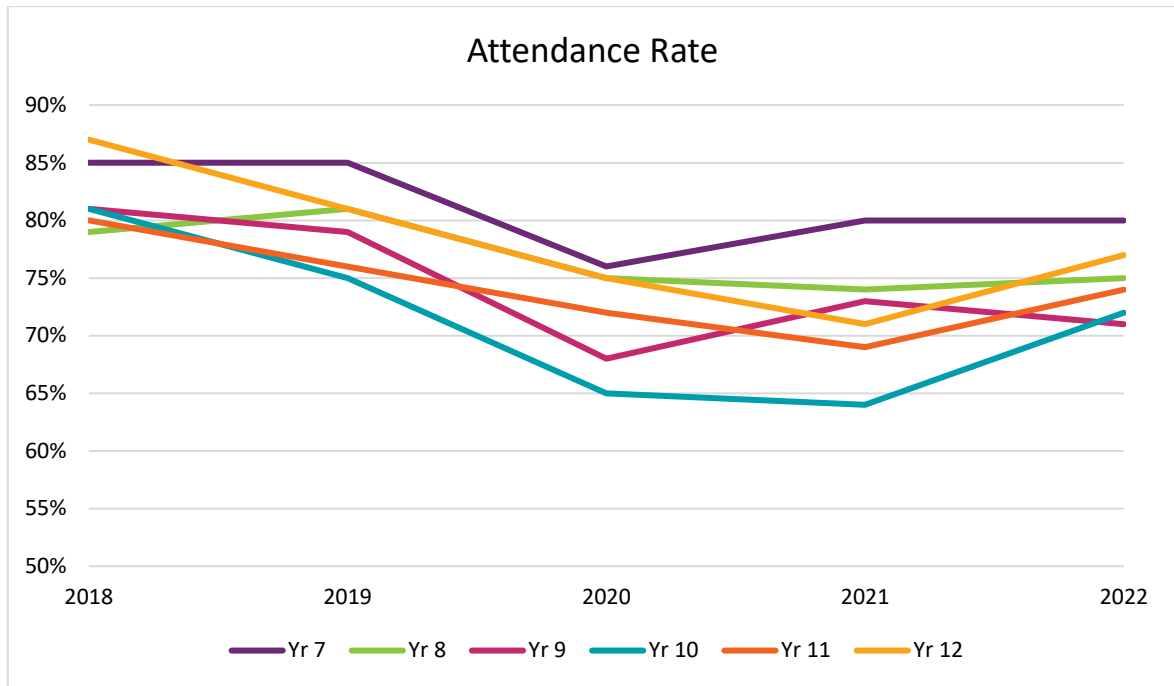


Before the Covid pandemic, student completion rates across NSC’s programs were quite high. Over the 2020 & 2021 school years, NSC prioritised student wellbeing rather than course completion which resulted in several students taking longer to complete their qualification than scheduled. This in turn affected the completion rates, however, as the table below demonstrates, completion rates increased in 2022.

Completion Rates	2018	2019	2020	2021	2022
VCE	93%	96%	97%	88%	96%
VET	86%	95%	62%	59%	75%
VCAL	60%	71%	42%	46%	56%
Number of Yr 12 students in VET	47%	36%	37%	29%	39%

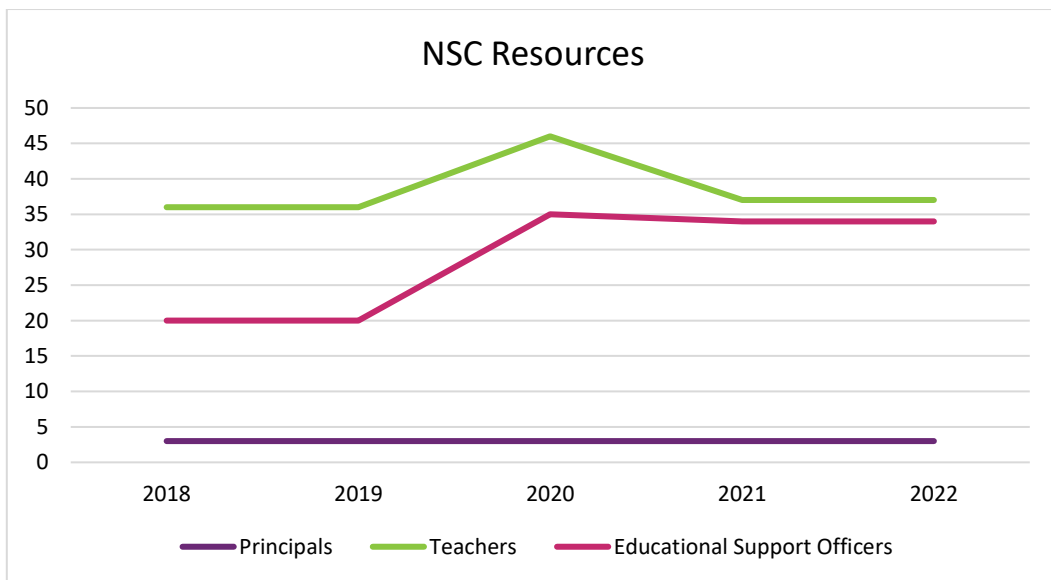
Along with completion rates, school attendance rates also decreased during the Covid pandemic. The requirement to undertake remote learning during the long lockdowns Victoria endured had a significant impact on attendance rates at NSC.





### 3.3.2 Teachers

As at 2022, NSC had 37 teachers, 34 support officers, 2 assistant principals and 1 principal. Both the number of teachers and the educational support officer increased over the Covid pandemic with the number of teachers decreasing slightly between 2020 - 2021.



### 3.4 NSC Priorities

Newcomb Secondary College has set several goals in their 2023 Annual Implementation Plan (AIP). These goals have identified key metrics that need attention and provide clear, tangible targets to measure against.

These goals are:

1. In 2023 we will continue to focus on student learning - with an increased focus on numeracy - and student wellbeing through the 2023 Priorities Goal, a learning Key Improvement Strategy and a wellbeing Key Improvement Strategy.
  - a. Target - Student growth for each Year 7-10 student is equal or greater than they have achieved previously.
2. Improve student learning outcomes.
  - a. Target - Percentage of students in Year 9 in the top 2 bands in NAPLAN, Reading increases to 14.5%, Writing increases to 5%, Numeracy increases to 16.5%.
  - b. Target - As Covid impacted this NAPLAN data set for 2022 - this resets these targets. Reading increases to 59%, Writing increases to 61%, Numeracy increases to 60%.
  - c. Target - Increase the VCE All Study score to 26.5, Increase the English mean score to 24.8, Increase the Further Maths Study Score to 28.5.
3. Improve student wellbeing outcomes.
  - a. Target - Increase the percentage of students with less than 20 days absence to 35%.
  - b. Target - Increase the positive endorsement of Student Voice and Agency to 47% & Attitudes to attendance to 66%.
4. Strengthen partnerships, pathways and transitions.
  - a. Target - Increase the percentage of completion rates to be greater than 85%. Percentage of students in further education & training or full-time employment to be greater than 75%. Percentage of students with a completed and reviewed career action plan to 80%.
  - b. Increase Year 7 student enrollment for 2024 to 95.
  - c. Increase trust in students and parents to 30%.
  - d. Increase sense of connectedness to 50%.
  - e. Increase positive transitions to 65%.
  - f. Parent participation to remain greater than 80%.

## 4. Pathway Programs

### 4.1 Structure

The Pathway Program at Newcomb Secondary College is an integral part of the school ethos, and central to its overarching strategy. The vision is to expand student awareness of career options and then creating a pathway to that goal.

Through Years 7-12, Newcomb Secondary College offers a wide range of programs where students receive career, pathway, and industry exposure as they discover, explore and plan for the future.

Uniquely, NSC is constantly looking to engage industry into the curriculum to bring real world problems to students so that they can see firsthand what these careers and industries do.

#### 4.1.1 Years 7-8

Less direct career-based engagement is driven in the early years of secondary school. Industries and opportunities begin to be introduced to Year 7 and 8 students through industry-based problem-solving projects. Examples include the Barwon Water & City of Greater Geelong projects where students were given a problem brief, asked to think through solutions and then present them to the industry partners.

#### 4.1.2 Years 9-10

Through the GROW program, students have compulsory units directed towards getting ready for the future.

In Year 9, the core aim is:

- To introduce students to the concept of employability skills.
- To develop student's workplace skills and confidence inside the workplace.
- To help students develop a better understanding of careers that are best suited to them.
- To give students a 'real world' experience of the workplace and various career paths on offer in the future.
- To help students develop their financial literacy skills.

In Year 10, the core aim is:

- Examine work and how it changes over time.
- Learn of the options available after Year 10.
- Develop interview and job seeking skills.
- Update a resume and employment folder.
- Develop a personal career plan.
- Complete work experience.

### 4.1.3 Years 10-12

Due to the senior years being focused on qualifications for leaving school, the pathway program is focused on attaining relevant qualifications and scores to facilitate their post-school journey.

## 4.2 Programs

Career Programs that students will have the opportunity to undertake include:

- P-TECH – Pathways in Technology
- VETDSS – Vocational Education and Training Delivered in Secondary Schools
- SBAT – School Based Apprenticeships and Traineeships
- Head Start Program
- Geelong Tertiary Futures Program (Year 9)
- My Career Insights (Year 9)
- Work Experience
- SWL – Structured Workplace Learning
- Victorian Tertiary Admissions Centre (VTAC) Workshops

## 5. P-TECH Program

### 5.1 History at NSC

Newcomb Secondary College was the first secondary school in the Australian P-TECH program. Principal Phil Honeywell recalls, 'At the time, manufacturing was closing down in the region; Ford, Shell, Alcoa etcetera. We came up with some suitable areas for students to look at: health, IT, and business (and innovation in business). That was controversial, as it didn't fit straight into 'STEM'. In 2016 we started exposing Year 9 students to the idea of P-TECH, then started beginning students in the program in 2017.'

The commencing industry partners for the Geelong P-TECH program were Barwon Health, Tribal, Opteon Property Group, Bendigo Bank, GMHBA, City of Greater Geelong Council, Barwon Health Service BioLAB, Royal Geelong Yacht Club, Analytical MicroLabs (AML), IBM and Blood Toyota. The tertiary education partners were The Gordon and Deakin University.

The program commenced with Certificate III qualifications in Business, Laboratory Skills and Information and Communications Technology (ICT) with students aligned to partner organisations who could support the development of these competencies. Over time, the model has started to broaden with automotive qualifications being introduced and school-based apprenticeships being included.

The program has been impacted by Covid with the core function of the program, the mentor/mentee relationship, being difficult and sometimes impossible to maintain during the

pandemic. With NSC returning to in-classroom learning and the community operating to the “new normal” in a post-Covid world, P-TECH has recommenced and relationships with industry partners resumed.

## 5.2 Program Structure

P-TECH is an exciting learning opportunity for students to embark on a unique learning pathway – completing their Year 10 subjects whilst at the same time studying an industry supported Certificate III in a field such as Information Technology, Business/Finance or Lab Skills. The program is also available to Year 11 students.

In completing these studies, the P-TECH Program provides students with an industry mentor as well as gaining real experience in their chosen pathway.

## 5.3 Industry Partners

### 5.3.1 Pre-Covid

Prior to the Covid-19 pandemic, partnerships were very strong in the Geelong P-TECH program. New partners had come on board, and none had left in the three years since commencement. There was a local sense that ‘word is getting around’ about P-TECH, and the general benefits of schools partnering with local businesses. Although seed funding provided by the federal government for the Geelong P-TECH pilot has ceased, the partner network meetings continued. As stated by one partner, ‘it’s a really good tool to have those meetings each term. By sharing ideas and coming together, everyone sees what’s happening, and what can improve.’

The ongoing maintenance of the program and its various networks and relationships is a significant undertaking for NSC staff, but with the support of the partners it is handled with efficiency. Whilst it is successful, the responsibility is large. As noted by one partner, ‘To keep the program running, it needs a lot of TLC’.

### 5.3.2 Post-Covid

As part of the 2022 School brochure, NSC provided their industry partnerships with the following partners:

- Australian Laboratory Services (AHL)
- Analytical Micro Labs
- Avalon Airport
- Barwon Health
- Bendigo Bank
- Biolab
- Blood Toyota
- Challenge Meats

- City of Greater Geelong
- Deakin University
- Ford
- GMHBA
- Geelong Technology Group
- The Gordon
- IBM
- IXL Metal Castings
- Jayco
- LL7Co Hair Salon
- Opteon
- Royal Geelong Yacht Club
- RunwayHW
- SC Technology Group
- Tribal Group

## 6. Challenges and Opportunities

### 6.1 Opportunities

- The Moolap Coastal Framework Plan would provide growth opportunities for the region as well as increase investment into the Newcomb area.
- A large young adult population who will be in workforce for years to come.
- The suburb employment mix moving away from trade & machinery operators and into more professional & community care roles.
- School zoning includes the Leopold area which has seen a recent expansion in residential development. Further development may provide growth to the school enrolment numbers.
- The “GROW” program at NSC instills a culture of forward planning for students and gets them thinking about programs like P-TECH early in their secondary school journey.
- Except for the Covid years, NSC has relatively high completion rates which demonstrates student commitment to their future.
- Large number of P-TECH industry partners provides a variety of options for students.

### 6.2 Challenges

- Newcomb has an ageing population which will create an increased demand on community services.
- Educational attainment levels are below state averages with higher rates of people leaving school before completing Year 12.



- Attendance rates are not yet back to pre-pandemic levels which has increased the difficulty in engagement with students.
- The variety of options for students to choose from in career planning may be overwhelming.
- The large number of P-TECH industry partners creates a significant workload to maintain the relationships.

## 7. Conclusion

Newcomb Secondary College is a proud school with a unique history and an exciting future. They are part of a changing community landscape with development opportunities and changing demographics.

Newcomb Secondary College provides a diverse offering to students and has a strong program managing the end-to-end career planning lifecycle of a student in their Pathway Program.

Newcomb Secondary College faces some interesting challenges and opportunities over the coming years; however, they are well placed to take advantage of them.

## 8. References

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<https://www.newcombsc.vic.edu.au/>
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<https://www.bellarinesc.vic.edu.au/>



## P-TECH Survey Questions

**Date:** August 2023

**Authors:** Allana Bedggood

Leanne Green

*The questions were asked using an online survey tool, we have chosen not to share the answers to protect the anonymity of those who kindly shared their views on the P-TECH program with us.*

**1. How did you participate in P-TECH?**

- Student
- Industry Partner

**Student questions**

**2. What industry did you complete your placement in?**

- Banking
- Health
- Real Estate
- Science
- Council
- Technology
- Community
- Other (please list)

**3. Are you still working in the same industry?**

- Yes (I am enjoying where I work)
- Yes (looking for work elsewhere)
- No

**4. How did you hear about the P-TECH program?**

- Teacher nominated me
- Parent
- Friend
- Other (please list)

**5. Please indicate how strongly you agree with the following statements**

**5.1 I found P-TECH beneficial to my career**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**5.2 The P-TECH program increased my confidence to apply for jobs**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**5.3 The P-TECH program increased my confidence to apply for jobs**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**5.4 The P-TECH program increased my confidence to apply for jobs**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**5.5 I gained a sense of achievement completing the P-TECH program**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**5.6 Overall, I am satisfied with the P-TECH program**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**6. What part of the program provided the greatest benefits?**

- Mentoring
- Work experience
- School based learning
- Other (please list)

**7. What other parts of the program did you benefit from?**

- Free text

**8. Please indicate how much you agree with the following statements about Newcomb Secondary College (NSC) during the P-TECH program**

**8.1 I found the regular contact from the NSC Co—Ordinator useful**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**9. Please indicate how much you agree with the following statements about your P-TECH mentor**

**9.1 I met with my P-TECH mentor regularly**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**9.2 The amount of time I had with my mentor met my needs**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**9.3 My mentor helped me to develop my career goals**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**9.4 My mentor helped me to identify other careers available to me**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**10. What challenges did you have in completing the P-TECH program? (select all that apply)**

- Industry partner wasn't the right fit
- Mentor wasn't the right fit
- Access to work uniforms
- Difficulty getting transport to work experience
- Lack of equipment (e.g. computer, internet, tools etc)
- Limited computer skills
- Financial difficulties
- Family responsibilities
- Health and wellness
- Lack of interest/boredom
- Social reasons
- Work commitments
- I had no challenges
- Other (please list)

**11. Please tell us about any other challenges you faced completing the P-TECH program**

- Free text

**12. What were the BEST parts of the P-TECH program?**

- Free text

**13. What didn't work for you in the P-TECH program?**

- Free text

**14. What IMPROVEMENTS would you suggest for the P-TECH program?**

- Free text

**Industry Partner questions**

**15. What industry do you work in?**

- Banking
- Health
- Real Estate
- Science
- Council
- Technology
- Community
- Other (please list)



**16. Please indicate how strongly you agree with the following statements regarding support from Newcomb Secondary College during the P-TECH program**

**16.1 The school was easily contactable with any questions or concerns**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**16.2 The school responded and actioned concerns raised**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**16.3 The frequency of contact from the school was adequate**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**16.4 I received enough information about the P-TECH program prior to the commencement of P-TECH**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**16.5 I understood the time commitment involved in P-TECH**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**16.6 The P-TECH program was well coordinated**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**16.7 The school provided the resources to be successful in the P-TECH program**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**16.8 I felt sufficiently trained**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**17. Please provide any specific examples of support that you received from Newcomb Secondary College**

- Free text

**18. Please provide any details of additional support that you have benefited from in the P-TECH program**

- Free text

**19. During the P-TECH program, how frequently were you in contact with a staff member from Newcomb Secondary College?**

- Weekly
- Fortnightly
- Monthly
- Other (please specify)

**20. Please indicate how strongly you agree with the following statements**

**20.1 I helped a student gain a greater insight into the possible career pathways**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**20.2 I feel I positively impacted the student's life**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**20.3 The P-TECH program was beneficial for our business**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**20.4 I would recommend the P-TECH program to colleagues**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**20.5 I would recommend the P-TECH program to other businesses**

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree
- Unable to judge

**21. What attracted you to becoming involved in the P-TECH program?**

- Free text

**22. How has your industry benefited from mentoring local students?**

- Free text