

# Adding to the Pipeline: Improving Numeracy Skills and Career Outcomes for Low Socio-Economic Status (SES) Students

14 December 2015 to 31 December 2016

Ms Elisa McGowan, The University of Western Australia

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Modifications: Changed to meet WCAG 2.0 accessibility requirements.  
Alternate text inserted for all images. Minor typographical errors corrected.

# Higher Education Participation and Partnerships Programme (HEPPP)

## 2015 National Priorities Pool FINAL REPORT

Adding to the Pipeline: Improving Numeracy Skills and Career Outcomes for Low Socio-Economic Status (SES) Students

14 December 2015 to 31 December 2016

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In accordance with the Conditions of Grant, you must submit to the Department a **Final Report** (Clause 6.1 of Part A) and an **Acquittal Report** (clause 6.4 of Part A).

To meet this obligation, please submit:

- the completed **Final Report** template, in Word and PDF
- the completed and signed **Declaration** form, in PDF
- the completed **Acquittal Report** template, in Excel and PDF.

All documents must be submitted to [equity@education.gov.au](mailto:equity@education.gov.au) by 31 January 2017.

If you require additional guidance or clarification, please contact us at [equity@education.gov.au](mailto:equity@education.gov.au).

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# 1. PROJECT SUMMARY (Conditions of Grant, clause 2.2(a)-(e) of Part A)

## Objectives

Indicate the extent to which the Project Objectives specified in clause 3 of Part A of the Conditions of Grant were met. Where obligations established in the Conditions of Grant were not met, please identify these and provide an explanation of circumstances and consequences.

**Table 1: Project objectives**

IDENTIFIED OBJECTIVE	EXTENT TO WHICH THE OBJECTIVE WAS MET
Address the gap in the awareness of low SES students of the importance of studying STEM (Science, Technology, Engineering and Mathematics) subjects in order to maintain or expand their future career options	1644 students participated in activities with 1066 students completing a survey to determine the impact and effectiveness of the activities. After participating, 97% of students agreed that maths is important in many careers, and 93% of students agreed that maths can be used to solve problems throughout life.  65% of students reported a positive change in their attitudes towards maths.
Design and trial innovative activities for early secondary school students that will link numeracy skills development to exciting career options	Two activities were developed and refined for early secondary school students, with the importance of numeracy and STEM skills being embedded throughout. These two activities were very positively received by schools, and bookings have been made to run these activities again in 2017 as part of the core Aspire program.
Inspire and encourage low SES students to study mathematics and other STEM subjects, by identifying the pathways university study provides to future careers	Careers resources were embedded in both activities and all supplementary resources. 22 university graduates completed a career profile, used to illustrate career pathways to students.  59% of the students surveyed indicated a desire to study at university.

## Project Activities, Milestones and Key Performance Indicators

A detailed statement outlining the project activities, milestones and KPI's is attached (Appendix 1). Some project highlights are included below:

**Table 2: Project activities, milestones and KPIs**

TIMEFRAME	PLANNED ACTIVITIES AND MILESTONES	PROJECT ACTIVITIES AND MILESTONES COMPLETED	IDENTIFIED KEY PERFORMANCE INDICATORS	KEY PERFORMANCE INDICATORS OUTCOME
End February 2016	<ul style="list-style-type: none"> <li>- Establish project reference group</li> <li>- Project plan endorsed by reference group</li> </ul>	<ul style="list-style-type: none"> <li>- Reference group established</li> <li>- Project plan endorsed by reference group</li> </ul>	<ul style="list-style-type: none"> <li>- 1st reference group meeting held with representation from the School of Mathematics, Faculty of Education, UWA Careers Centre, and at least 1 school representative</li> </ul>	<ul style="list-style-type: none"> <li>- Project officially launched by the Hon. Julie Bishop MP</li> <li>- Meeting held and guidance received by members of the group, including representatives from the School of Mathematics, Faculty of Education, UWA Careers Centre and Girrawheen Senior High School</li> </ul>
End June 2016	<ul style="list-style-type: none"> <li>- Development of numeracy themed workshops for use during school visits</li> <li>- Activities and accompanying resources developed and trialled</li> <li>- Careers in Maths resource developed, including profiles from across the sector</li> </ul>	<ul style="list-style-type: none"> <li>- Workshop and resources developed</li> <li>- Workshops trialled in classrooms</li> <li>- Career resources developed, including graduate profiles</li> </ul>	<ul style="list-style-type: none"> <li>- 2 workshops developed including the lesson plans, activity details and accompanying resources</li> <li>- Careers in Maths resource developed</li> </ul>	<ul style="list-style-type: none"> <li>- Year 7 and 8 activity and resource development completed</li> <li>- Career resources developed and embedded into workshops and resources</li> </ul>
End November 2016	<ul style="list-style-type: none"> <li>- Numeracy workshops facilitated by volunteer presenters in participating schools throughout Perth and in selected regional Western Australia</li> <li>- Professional development workshop facilitated with representatives from partner schools</li> </ul>	<ul style="list-style-type: none"> <li>- Workshop delivery assisted by a total of 4 volunteer presenters in both Perth and regional Western Australia</li> <li>- Professional development workshops facilitated by a Professor from the UWA Graduate School of Education</li> </ul>	<ul style="list-style-type: none"> <li>- 40 school workshops held and 1000 students engaged</li> <li>- Professional development workshop facilitated with 15 representatives from partner schools</li> <li>- Data collected to measure the effectiveness of the workshops and resources developed</li> </ul>	<ul style="list-style-type: none"> <li>- 70 workshops held engaging 1602 students.</li> <li>- 2 on-campus events held engaging 42 students</li> <li>- 3 professional development workshops facilitated with 30 representatives from partner schools in the Mid West</li> <li>- 1066 post-activity surveys completed by students</li> </ul>

## Highlights and Issues

*Adding to the Pipeline* was formally launched by the Hon. Julie Bishop MP on Friday 11 March 2016, and the project engaged 1644 secondary school students in activities throughout the year. Key highlights, achievements and issues include:

### **Year 7 and Year 8 workshops successfully developed and implemented:**

The workshops developed through this project have been received positively by schools and students alike. Demand from schools was particularly strong, with 70 workshops run across 20 schools in 2016.

Through the Year 7 workshop, students explore the mathematical concepts of measurement, coordinates, angles and kinematics. Their task was to write code to control the movement of a spherical, app-programmable robot towards a target. In the Year 8 activity students applied the concepts of ratio, scale, proportion and measurement to reconstruct the pre-historic shark Megalodon. Students used replica fossil teeth and scale charts to estimate the size of the shark, before creating a scaled model using building blocks. The hands-on workshops demonstrate the relevance of numeracy in diverse careers, and require students to utilise their teamwork, communication and problem solving skills.

*“Kids were incredibly engaged and participated fully... This was an excellent activity that integrated maths and science.”* Head of Mathematics, Coodanup College

Aspire has already received requests from 23 partner schools to run the workshops in 2017, and both workshops have now been embedded into the core Aspire UWA program.

*“The activity provides a fun and informative approach to a subject students often don’t enjoy. Students could see the value of mathematics in different applications.”* Maths teacher, La Salle College

### **The importance of mathematics in all careers was effectively demonstrated:**

The project had a strong focus on highlighting the importance and relevance of numeracy skills across all careers, especially those related to STEM. 95% of teachers surveyed agreed that the activities demonstrated the importance of maths in students’ future career options.

Through the project students were encouraged to make links between numeracy skills, mathematics and careers, with graduate profiles used to illustrate the importance of strong numeracy skills beyond high school. After participating in the workshops, 97% of students agreed that maths is important in many careers and 93% of students agreed that maths can be used to solve problems throughout life.

*“This has made me change my whole perspective on Maths. It’s because I realise how important Maths is in order to get a job.”* Year 7 student, Gilmore College

### **Strong teacher engagement:**

Participating teachers were also asked to complete a survey to provide feedback on the workshops. This information was used to continuously improve the content and delivery of the workshops throughout the project. Teacher engagement in the development and facilitation of the activities has been exceptionally positive, with two focus groups held. A

key outcome of the December focus group was an indication from teachers of a desire to continue to meet to develop additional resources for schools to accompany the workshops, which Aspire UWA will facilitate in 2017. This has resulted in the formation of a teacher working party.

**Volunteer engagement:**

Whilst the project was highly successful, and far surpassed the agreed engagement targets, university student volunteer recruitment was lower than expected, with 7 volunteers completing the training program and 4 volunteers assisting with activity delivery in classrooms. This was despite a comprehensive promotional strategy and positive interest from potential students. The low uptake by student volunteers was discussed with students and at the project reference group meeting and it was agreed a scholarship or bursary be awarded to students committing to delivering workshops in 2017 to encourage future participation.

**Resource distribution:**

All resources for the project were developed in 2016, but the dissemination of some resources has been delayed until early 2017. 31 school resource packs were assembled, with 13 already distributed to schools. These numeracy kits contained physical materials that support numeracy development in the classroom as well as extension activities that build on the in-classroom workshops. An overview of the project resources and results will also be shared through equity practitioner channels. This was planned to take place at the EPHEA State Chapter meeting in December 2016, however the meeting was postponed until early 2017 and the resources will be disseminated at that time.

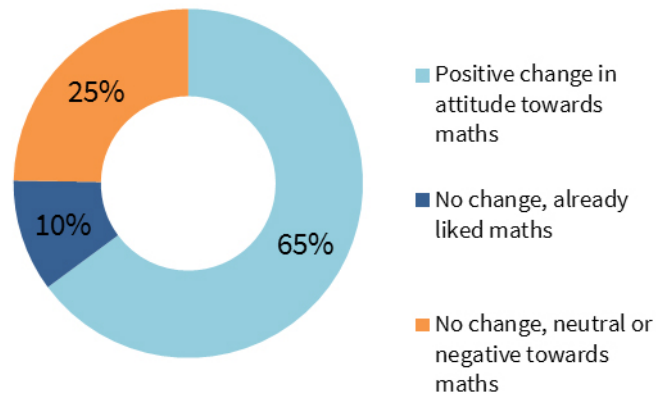
*Did you undertake an evaluation of your project?*

Yes  No

*Please summarise the findings and attach the evaluation report*

The formal evaluation of *Adding to the Pipeline* consisted of qualitative and quantitative data collected from students and teachers, and was primarily aimed at assessing students' attitudes towards mathematics and their understanding of its relevance. The complete evaluation report is attached (Appendix 2).

The anonymous survey completed by 1066 students included questions on their attitudes towards mathematics, higher education and their opinion of the in-school workshops, as well as demographic data. The question "In two sentences, tell us how this event has changed how you feel about maths" received 942 responses and showed that 65% of students felt a positive change in attitude towards maths (Figure 1).



**Figure 1: "In two sentences, tell us how this event has changed how you feel about maths."**

In addition to the student survey, data was collected from teachers through focus groups and surveys to measure the effectiveness and impact of the activities undertaken. 56 teachers completed the post-activity survey. 100% of teachers agreed that the workshops met their expectations, with 45% saying they exceeded expectations.

*"I thought it was an excellent learning activity. Content was fabulous but also gave students opportunity to show cooperation and group work. Students very engaged."* Academic Extension coordinator and Maths teacher, Governor Stirling Senior High School

Where applicable, indicate number of the following resulting from this project:

<b>Student contacts</b>	<b>1644 students engaged</b>
<b>Journal (or other publication) submissions</b>	N/A
<b>Conference Presentations</b>	N/A
<b>Websites developed</b>	N/A
<b>Educational or marketing campaigns</b>	N/A
<b>Community organisations engaged</b>	N/A
<b>Schools engaged</b>	<b>20</b>
<b>Parental/family contacts</b>	N/A



## 2. OTHER PROJECT MATERIAL (Conditions of Grant, clause 2.2 (b)-(e) of Part A)

Table 3: Additional materials produced over the course of the project

TYPE	AUTHOR	DATE OF PUBLICATION	PUBLICATION DETAILS
Maths in Careers Video		2016	In-school activities
Career Profile Posters		2016	Distributed to schools

### 3. ACQUITTAL REPORT (Conditions of Grant, clause 6.4(e), clause 6.7-8 of Part A)

*Have you fully expended the Grant Funds provided under the Conditions of Grant?*

Yes  No

*[If the answer is No, you must state:*

- the amount of the underspend, and*
- the reason for the underspend.]*

*Ensure that the completed Acquittal Report template is signed by an appropriate university officer and attached to this Final Report.*

*\*IMPORTANT NOTICE - Unspent 2015 National Priorities Pool Grant Funds*

- Grant recipients must fully expend these 2015 National Priorities Pool funds in the project period for which the grant is made and report on this expenditure to the Commonwealth, including the amount of any unspent funds.*
- If a provider fails to spend the full amount granted it in respect of a year, the unspent funds may be recovered by the Commonwealth.*

# DECLARATION

I declare that:

- I am authorised by the university to sign this Declaration on its behalf, and
- to the best of my knowledge, the information that I have provided in the **Final Report** and **Acquittal Report** for the HEPPP 2015 National Priorities Pool project *Adding to the Pipeline: Improving Numeracy Skills and Career Outcomes for Low Socio-Economic Status (SES) Students* is true, correct and accurate in all particulars.

I understand that:

- The provision of false or misleading information or the making of false or misleading statements to the Commonwealth is a serious offence under *the Criminal Code Act 1995 (Cth)*.
- If any actual or potential conflict of interest arises, I must notify the Commonwealth immediately in writing of the facts giving rise to the actual or potential conflict of interest and to take such steps as the Commonwealth may require so as to resolve or otherwise deal with any conflict of interest that may arise.

I agree to publication of the Final Report on the Department of Education and Training website, once accepted by the department.

**Title**            Professor  
**Name**            Dawn Freshwater  
**Position**        Chief Executive Officer (Vice-Chancellor)  
**Signature**

# Appendix 1

## Project Activities, Milestones and Key Performance Indicators

**Table 4: Project activities, milestones and KPIs (expanded)**

TIME FRAME	PLANNED ACTIVITIES AND MILESTONES	PROJECT ACTIVITIES AND MILESTONES COMPLETED	IDENTIFIED KEY PERFORMANCE INDICATORS	KEY PERFORMANCE INDICATORS OUTCOME
End December 2015	<ul style="list-style-type: none"> <li>- Recruitment of project staff</li> <li>- Project plan developed</li> <li>- Establish governance structure</li> <li>- Plan scoping exercise by inviting teachers and students from current equity partner schools to attend an on-campus event in January</li> </ul>	<ul style="list-style-type: none"> <li>- Staff recruited</li> <li>- Project plan developed</li> <li>- Project reference group established</li> <li>- Scoping exercise completed</li> </ul>	<ul style="list-style-type: none"> <li>- Staff contracted</li> <li>- Complete project plan</li> <li>- Project reference group convened</li> <li>- Teachers and students invited and commitment gained for on-campus numeracy themed event to be held in January</li> </ul>	<ul style="list-style-type: none"> <li>- Project officer and support staff recruited and orientation completed</li> <li>- Project plan completed</li> <li>- Membership of the Project reference group confirmed</li> <li>- Details for the on-campus maths summer school confirmed</li> </ul>
End January 2016	<ul style="list-style-type: none"> <li>- Facilitate on-campus event for students to scope ways in which the project can complement and support schools in numeracy education, and investigate connections to career development</li> <li>- Evaluation strategy developed</li> </ul>	<ul style="list-style-type: none"> <li>- 2 on-campus numeracy events held</li> <li>- Evaluation strategy developed</li> </ul>	<ul style="list-style-type: none"> <li>- 40 secondary school students to participate in an on-campus numeracy themed activity and complete baseline survey</li> <li>- Teachers from current partner schools participate in a focus group</li> <li>- Evaluation strategy developed including templates and a schedule for implementation</li> </ul>	<ul style="list-style-type: none"> <li>- 21 students attended a campus-based, week long numeracy summer school held during the school holidays, coordinated in partnership with Girrawheen Summer School (January)</li> <li>- 21 Kiara College students attended on-campus STEM themed workshops focussed on chemistry and numeracy (March)</li> <li>- 1<sup>st</sup> focus group meeting held with 3 teachers</li> <li>- Evaluation methodology outlined in project plan and approved by reference group</li> </ul>
End February 2016	<ul style="list-style-type: none"> <li>- Establish project reference group</li> <li>- Project plan endorsed by reference group</li> </ul>	<ul style="list-style-type: none"> <li>- Reference group established</li> <li>- Project plan endorsed by reference group</li> <li>- Workshop development</li> </ul>	<ul style="list-style-type: none"> <li>- 1<sup>st</sup> reference group meeting held with representation from the School of Mathematics, Faculty of Education, UWA Careers Centre, and at</li> </ul>	<ul style="list-style-type: none"> <li>- 1<sup>st</sup> reference group meeting held and guidance received by members of the group</li> <li>- Members of reference group</li> </ul>

TIME FRAME	PLANNED ACTIVITIES AND MILESTONES	PROJECT ACTIVITIES AND MILESTONES COMPLETED	IDENTIFIED KEY PERFORMANCE INDICATORS	KEY PERFORMANCE INDICATORS OUTCOME
	- Work commences on resource development	commenced with guidance from reference group	least 1 school representative - Agreement on project plan	includes representatives from the School of Mathematics, Faculty of Education, UWA Careers Centre and Girrawheen Senior High School - Project plan approved - Project officially launched by the Hon. Julie Bishop MP
End April 2016	- Volunteer presenters recruited from current university students - Evaluation strategy developed - Project reference group reviews progress	- Recruitment of 5 volunteer presenters - Evaluation strategy developed - Progress reviewed and endorsed by reference group	- 20 volunteer presenters recruited - Evaluation strategy finalised - Endorsement of progress by reference group	- 5 volunteer presenters recruited (see <i>issues</i> outlined above) - Evaluation strategy finalised - Progress reviewed and endorsed by reference group
End June 2016	- Development of numeracy themed workshops for use during school visits - Activities and accompanying resources developed and trialled - Training program developed for student presenters - Careers in Maths resource developed, including profiles from across the sector	- Workshop and resources developed - Workshops trialled in classrooms - Training program for student presenters developed and implemented - Career resources developed, including graduate profiles	- 2 workshops developed including the lesson plans, activity details and accompanying resources - Volunteer presenter training program developed and training commenced - Careers in Maths resource developed	- Year 7 and 8 activity and resource development completed - Volunteer training session held with 3 university students - Career resources developed and embedded into workshops and resources
End July 2016	- Numeracy workshops trialled in classrooms and activities/resources reviewed by participating teachers - Volunteer presenters trained on workshop delivery - Project reference group reviews progress	Workshops refined after teacher feedback received in classroom trials Volunteer presenters trained in workshops Progress reviewed by project reference group	20 volunteer presenters trained Endorsement of progress by reference group	Volunteer recruitment strategy reviewed, a further 4 volunteers commenced training (see <i>issues</i> outlined above) Progress reviewed and endorsed by reference group
End November 2016	- Numeracy workshops facilitated by volunteer	- Workshop delivery assisted by a total of 4 volunteer presenters	- 20 volunteer presenters engaged in	- 4 volunteers assisted in delivery of 17

TIME FRAME	PLANNED ACTIVITIES AND MILESTONES	PROJECT ACTIVITIES AND MILESTONES COMPLETED	IDENTIFIED KEY PERFORMANCE INDICATORS	KEY PERFORMANCE INDICATORS OUTCOME
	<p>presenters in participating schools throughout Perth and in selected regional Western Australia</p> <ul style="list-style-type: none"> <li>- Activity resources distributed to maths teachers</li> <li>- Resources disseminated through equity practitioner channels nationally</li> <li>- Professional development workshop facilitated with representatives from partner schools</li> <li>- Evaluation strategy implemented and data collected</li> </ul>	<p>in both Perth and regional Western Australia</p> <ul style="list-style-type: none"> <li>- Activity resources distributed to maths teachers present during workshops</li> <li>- Dissemination of resources through equity practitioner channels postponed until 2017 (see challenges above)</li> <li>- Professional development workshops facilitated by a Professor from the UWA Graduate School of Education</li> <li>- Data collected through student and teacher surveys</li> <li>- Workshops evaluated through data collection, teacher feedback, and anecdotal data</li> </ul>	<p>delivery of school workshops</p> <ul style="list-style-type: none"> <li>- 40 school workshops held and 1000 students engaged</li> <li>- 20 resource packs distributed to teachers in participating schools (metropolitan and regional)</li> <li>- Professional development workshop facilitated with 15 representatives from partner schools</li> <li>- Data collected to measure the effectiveness of the workshops and resources developed</li> </ul>	<p>workshops (see issues outlined above)</p> <ul style="list-style-type: none"> <li>- 70 workshops held, engaging 1602 students.</li> <li>- 31 resource packs comprising activity extension resources and numeracy teaching resources assembled; 13 resource packs distributed in 2016, the remainder to be distributed in 2017.</li> <li>- 3 professional learning workshops facilitated with 30 representatives from partner schools in the Mid West</li> <li>- 1066 post-activity surveys completed by students</li> <li>- Feedback received from teachers and school staff regarding the effectiveness of the workshops and resources</li> <li>- Resources and workshops refined in response to collected feedback and data</li> </ul>
December 2016 – January 2017	<ul style="list-style-type: none"> <li>- Data reviewed, analysed and summarised</li> <li>- Project reference group reviews draft final report</li> <li>- Final report completed and submitted including: <ul style="list-style-type: none"> <li>- Key achievements outlined</li> <li>- Progress against Key Performance Indicators</li> <li>- Evaluation Report</li> <li>- Outcomes of project and resources disseminated</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Data reviewed, analysed and summarised in the final report</li> <li>- Reference group reviewed final report</li> <li>- Final report completed and submitted</li> <li>- Project results to be disseminated through the WA EPHEA chapter, NCSEHE and partner schools in 2017.</li> </ul>	<ul style="list-style-type: none"> <li>- Evaluation completed and the results incorporated into the Final Report</li> <li>- Final Report for the Project completed and submitted to Department of Education and Training and disseminated to stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>- Evaluation completed using data collected from 1066 student surveys and 30 teacher surveys</li> <li>- 2<sup>nd</sup> Teacher focus group held to collect further information for evaluation</li> <li>- Final report completed and submitted</li> </ul>

TIME FRAME	PLANNED ACTIVITIES AND MILESTONES	PROJECT ACTIVITIES AND MILESTONES COMPLETED	IDENTIFIED KEY PERFORMANCE INDICATORS	KEY PERFORMANCE INDICATORS OUTCOME
	through state EPHEA group, partner schools and through NCSEHE networks nationally in 2017			

# Appendix 2

## Evaluation Report: 2015 National Priorities Pool

### 1. Project Objectives

The objectives of the Adding to the pipeline project were to address the gap in the awareness of low SES students of the importance of studying STEM (Science, Technology, Engineering and Mathematics) subjects, to expand students' future career options and identify university pathways to careers. This was achieved through the design and implementation of two innovative activities for early secondary school students that linked numeracy skills development to future careers.

The provision of resources and professional learning opportunities for teachers was also a key component of the project.

*"All the teachers who attended from Nagle have been implementing the strategies given to us at the workshop. It was a very valuable experience."*

Mathematics teacher and workshop participant, Nagle Catholic College.

### 2. Monitoring and Evaluation Methodology

A reference group was set up at the initiation of the project to provide oversight. The group included representatives from the UWA School of Mathematics, UWA Faculty of Education, UWA Careers Centre and Girrawheen Senior High School.

Formal evaluation of the in-school numeracy workshops was undertaken with students and teachers from participating schools. Students and teachers were asked to complete a post-activity survey, and both qualitative and quantitative data was collected for evaluation purposes. In addition, 6 teachers participated in a focus group in December 2016 where further feedback on the project was collected.

Feedback was also collected from teachers who participated in the professional development workshops through an online survey.

### 3. Participation Numbers and Student Demographics

In total, the project engaged 1644 students across 20 schools, with 1602 students engaged through the in-school numeracy workshops.

**Table 5: In-school workshops: student participation by region and year**

REGION	YR 7	YR 8	YR 9 AND UP	TOTAL
Perth (9 schools)	416	409	0	825
Peel (3 schools)	226	80	52	358
Mid West (5 schools)	102	41	59	202
Gascoyne (3 schools)	78	66	73	217
<b>Total</b>	<b>822</b>	<b>596</b>	<b>184</b>	<b>1602</b>



1066 students completed post-workshop surveys. Of the students surveyed, 13.6% identified as Aboriginal or Torres Strait Islander, 28.3% were from non-English speaking backgrounds, and 48.3% of students could not identify a family member who had previously attended university.

#### 4. Project Outcomes

Adding to the pipeline achieved a range of outcomes for the students and teachers who participated. These included:

- Raising students' awareness about the importance of studying mathematics in order to maintain and expand future career options, especially in STEM pathways;
- Improving students' attitudes towards mathematics; and
- Supporting numeracy teaching and learning in partner schools through the provision of resources and professional learning opportunities.

In the post-activity survey, 97% of responding students agreed that maths is needed in many careers and 93% agreed that maths can be used to solve problems in everyday life. 56% of students felt that the activities motivated them to work harder at school, and 59.3% of students surveyed planned on attending university after school.

Students were also asked "In two sentences, tell us how this event has changed how you feel about maths." The coded responses are shown in Figure 1 (942 responses).

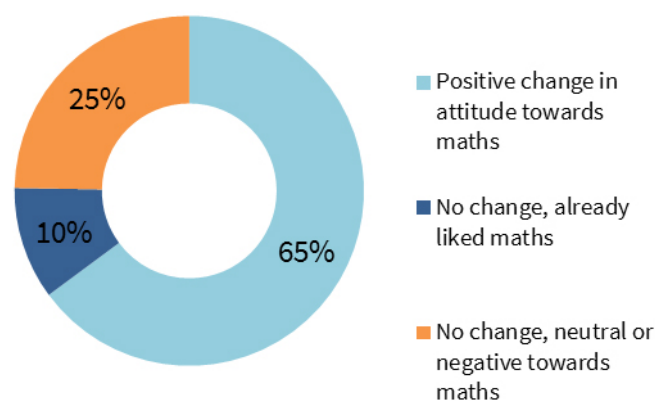


Figure 2: "In two sentences, tell us how this event has changed how you feel about maths."

56 teachers completed post-workshop surveys. 45% of the teachers felt that the workshops had exceeded their expectations, with the other 55% responding that their expectations had been met. 100% of the teachers felt that the workshops had a positive impact on their students and 95% agreed that the activities demonstrated the importance of maths in students' future career options.

Six teachers participated in a focus group in December 2016 as part of the evaluation process. Feedback was overwhelmingly positive. The teachers commented that the in-school workshops were engaging and well-designed, and that the activities supported mathematics learning in schools through clear links to the Australian Curriculum. The teachers at the focus group also commented that they were so inspired by the project that

they would like to continue to come together and could provide guidance on the development of further resource to accompany the workshop materials. As a result a teacher working party will be convened in 2017.

30 teachers attended the professional learning workshop and 7 responded to a post-workshop survey. Teachers responded favourably about the workshops, with 86% of respondents indicating that they were likely to implement the strategies demonstrated and 86% responding that the workshops exceeded expectations.

*“Very hands on and loved the equipment we were given so we could use it straight away...which I did!”* Mathematics teacher, Professional Learning Workshop

## Appendix 3

### Testimonials from Teachers and Students

*"I feel more excited to do Maths at school. I also know how important maths is in everyday life."* Year 7 student, Governor Stirling Senior High School

*"This event has changed my viewpoint about maths because it made me feel that mathematics isn't always about numbers. It is also about problem solving. Maths is also used in every aspect of your everyday lifestyle."* Year 8 student, Ballajura Community College

*"This changed how I feel about maths because it made me realise that math can be fun."* Year 7 student, Gilmore College

*"This has made me change my whole perspective on Maths. It's because I realise how important Maths is in order to get a job."* Year 7 student, Gilmore College

*"Before this event, I saw some aspects of Maths unnecessary but now I see how many opportunities Maths could give me."* Year 8 student, Joseph Banks Secondary College

*"Was absolutely superb – we are now buzzing with ideas."* Mathematics teacher, Mandurah Baptist College

*"I thought it was an excellent learning activity. Content was fabulous but also gave students opportunity to show cooperation and group work. Students very engaged."* Mathematics teacher, Governor Stirling Senior High School

*"The students were engaged, excited and learning. The presenters were extremely organised and have spent a lot of time developing the sequence of activities. I would welcome Aspire UWA back to my classroom again."* Mathematics teacher, Girrawheen Senior High School

*"The Mathematics activity engaged students and gave them opportunities to use their logic and problem-solving skills in a practical context."* Anonymous, Teacher Focus Group

*"Students' views about Maths have changed since the last presentation. They show more motivation to learn Maths."* Anonymous, Teacher Focus Group

*"All the teachers who attended from Nagle have been implementing the strategies given to us at the workshop. It was a very valuable experience."* Mathematics teacher, Nagle Catholic College

*"Very hands on and loved the equipment we were given so we could use it straight away...which I did!"* Mathematics teacher, Professional Learning Workshop