

AF15/501 MJT

14<sup>th</sup> September, 2016

TO: CR MEZINEC  
CR LOVETT  
CR RICHARDSON  
CR JULIE REIS (DISTRICT COUNCIL OF GRANT)  
DAVID MEZINEC  
SARAH PELLEN  
ALEXANDRA NICHOLSON  
CHIEF EXECUTIVE OFFICER  
MANAGER COMMUNITY SERVICES AND DEVELOPMENT  
LIBRARY MANAGER  
COMMUNITY DEVELOPMENT OFFICER

COPY: MAYOR  
MEMBERS  
TEAM LEADER EXECUTIVE SUPPORT

**NOTICE** is given that the Mount Gambier Lifelong Learning Sub-Committee will meet in the following Meeting Room on the day, date and time as follows:

**LIFELONG LEARNING SUB-COMMITTEE**  
(Committee Room - Level 4)

Friday, 16<sup>th</sup> September, 2016 at 1.00 p.m.

An agenda for the meeting is attached.

Members of the Sub-Committee, please note the date/time of the above meeting.

Other Members not on the Sub-Committee are encouraged to attend the above meeting as your thoughts and contributions will be appreciated.

Lunch will be provided at this meeting.



**Barbara CERNOVSKIS**  
MANAGER - COMMUNITY SERVICES AND DEVELOPMENT

LIFELONG LEARNING SUB-COMMITTEE

Meeting to be held in the Committee Room, Level Four of Civic Centre, 10 Watson Terrace,  
Mount Gambier on Friday 16<sup>th</sup> September, 2016 at 1.00 p.m.

AGENDA

PRESENT: Cr Mezinec (Presiding Member)  
Cr Lovett  
Cr Richardson  
David Mezinec  
Sarah Pellen  
Alexandra Nicholson

APOLOGIES: Cr Julie Reis (District Council of Grant)

COUNCIL OFFICERS: Chief Executive Officer, Mark McShane  
Manager Community Services & Development, Barbara Cernovskis  
Library Manager, Vicki Hutchinson  
Community Development Officer, Alison Brash

COUNCIL OFFICER  
APOLOGIES:

NOT IN ATTENDANCE:

COUNCIL MEMBERS  
AS OBSERVERS:

OTHER EMPLOYEES IN  
ATTENDANCE:

OTHERS IN  
ATTENDANCE:

**WE ACKNOWLEDGE THE BOANDIK PEOPLES AS THE TRADITIONAL CUSTODIANS OF THE LAND WHERE WE MEET TODAY. WE RESPECT THEIR SPIRITUAL RELATIONSHIP WITH THE LAND AND RECOGNISE THE DEEP FEELINGS OF ATTACHMENT OUR INDIGENOUS PEOPLES HAVE WITH THIS LAND.**

MINUTES: moved that the minutes of the Mount Gambier Lifelong Learning Sub-Committee held on 15<sup>th</sup> July, 2016 be received.

seconded

**1. KEY FOCUS AREA – Wellbeing and Resilience - Ref. AF15/422**

The Manager Community Services and Development reported:

- (a) The proposal for the Limestone Coast Region of Wellbeing Submission to the Department of Premier and Cabinet;
- (b) Meeting with the Director Wellbeing & Resilience, Gabrielle Kelly discussing next steps;
- (c) An updated Regional Wellbeing & Resilience work plan has been attached (attachment 1) for discussion at the meeting.

Lifelong Learning Sub-Committee Agenda, 16<sup>th</sup> September, 2016 cont'd...

moved it be recommended:

- (a) The progress report on the Regional Wellbeing & Resilience Collaboration provided by the Manager Community Services & Development be received.

seconded

**2. KEY FOCUS AREA – Wellbeing and Resilience - Ref, AF15/422**

The Manager Community Services and Development reported:

- (a) Training schedule for the implementation of the Wellbeing Workforce/Positive Organisation project has been finalised. Start date for the surveys to commence is the last week of September;
- (b) An updated Wellbeing Workforce/Positive Organisation project work plan has been attached (attachment 1) for discussion at the meeting.

moved it be recommended:

- (a) The progress report on a Wellbeing Workforce/Positive Organisation project provided by the Manager Community Services & Development report be received.

seconded

**3. KEY FOCUS AREA – South East Strategy and Action Plan 2015 – 2018 - Ref. AF15/501**

The Manager Community Services and Development tabled:

- (a) Yahl Primary School approach to digitise a Learning Trails concept for the Cave Garden precinct (attachment 2);
- (b) Little Bang Discovery Club initiative (attachment 3) implemented at the Library.

moved it be recommended:

- (a) The report on the Yahl Primary School Learning Trails and Little Bang Discovery Club be received.

seconded

**MOTIONS WITH NOTICE - Nil**

**MOTIONS WITHOUT NOTICE**

The meeting closed at \_\_\_\_\_ p.m.

## LIFELONG LEARNING SUB-COMMITTEE

Minutes of Meeting held in the Committee Room, Level Four of Civic Centre, 10 Watson Terrace,  
Mount Gambier, on Friday 15<sup>th</sup> July, 2016 at 1.00 p.m.

PRESENT: Cr Meziniec (Presiding Member)  
Cr Richardson  
Cr Julie Reis (District Council of Grant)  
Sarah Pellen  
Alexandra Nicholson

APOLOGIES: Cr Meziniec moved that the apologies from David Meziniec and Cr Mark Lovett be received.

Alexandra Nicholson seconded Carried

COUNCIL OFFICERS: Manager Community Services & Development, Barbara Cernovskis  
Library Manager, Vicki Hutchinson  
Community Development Officer, Alison Brash

COUNCIL OFFICER  
APOLOGIES: Chief Executive Officer, Mark McShane

NOT IN ATTENDANCE: Nil

COUNCIL MEMBERS  
AS OBSERVERS: NIL

OTHER EMPLOYEES IN  
ATTENDANCE: Nil

OTHERS IN  
ATTENDANCE: Nil

**WE ACKNOWLEDGE THE BOANDIK PEOPLES AS THE TRADITIONAL CUSTODIANS OF THE LAND WHERE WE MEET TODAY. WE RESPECT THEIR SPIRITUAL RELATIONSHIP WITH THE LAND AND RECOGNISE THE DEEP FEELINGS OF ATTACHMENT OUR INDIGENOUS PEOPLES HAVE WITH THIS LAND.**

MINUTES: Sarah Pellen moved that the minutes of the Mount Gambier Lifelong Learning Sub-Committee held on 20<sup>th</sup> May, 2016 be received.

Alexander Nicholson seconded Carried

### 1. KEY FOCUS AREA – Wellbeing and Resilience

*Goal: Building Communities*  
*Strategic Objective: Encourage the empowerment of the community to lead and self manage their respective desires and aspirations.*

*Goal: Community Well-Being*  
*Strategic Objective: Increase the local awareness and understanding of the range of health issues and needs of the community.*

The Manager Community Services and Development reported:

- (a) The proposal for the Limestone Coast Region of Wellbeing platform has been finalised with the Wellbeing & Resilience Centre at South Australian Health and Medical Research Institute and submitted to the Department of Premier and Cabinet;

Lifelong Learning Sub-Committee Minutes, Friday, 15<sup>th</sup> July, 2016 cont'd...

- (b) The proposal will be presented for consideration in the 2016/17 budget as a regional prototype;
- (c) A meeting with the Regional Leadership group and the Director Wellbeing & Resilience, Gabrielle Kelly is currently being negotiated to discuss next steps;
- (d) An updated Regional Wellbeing & Resilience work plan was attached for discussion at the meeting.

**Cr Mezinec moved it be recommended:**

- (a) The progress report on the Regional Wellbeing & Resilience Collaboration provided by the Manager Community Services & Development be received.**

**Cr Julie Reis seconded**

**Carried**

**2. KEY FOCUS AREA – Wellbeing and Resilience**

*Goal: Building Communities*

*Strategic Objective: Encourage the empowerment of the community to lead and self manage their respective desires and aspirations.*

*Goal: Community Well-Being*

*Strategic Objective: Increase the local awareness and understanding of the range of health issues and needs of the community.*

The Manager Community Services and Development reported:

- (a) Training schedule for the implementation of the Wellbeing Workforce/Positive Organisation project is being finalised. Start date for the surveys and program to commence has been amended to August 2016 to allow for final approval from the Ethics board;
- (b) An updated Wellbeing Workforce/Positive Organisation project work plan was attached for discussion at the meeting

**Cr Mezinec moved it be recommended:**

- (a) The progress report on a Wellbeing Workforce/Positive Organisation project provided by the Manager Community Services & Development report be received;**

**Sarah Pellen seconded**

**Carried**

**3. KEY FOCUS AREA – South East Strategy and Action Plan 2015 – 2018**

*Goal: Building Communities*

*Strategic Objective: Encourage the empowerment of the community to lead and self manage their respective desires and aspirations.*

*Goal: Community Well-Being*

Lifelong Learning Sub-Committee Minutes, Friday, 15<sup>th</sup> July, 2016 cont'd...

*Strategic Objective: Increase the local awareness and understanding of the range of health issues and needs of the community.*

The Manager Community Services and Development tabled:

- (a) The STEM South East Strategy and Action Plan 2015 – 2018 was presented for discussion.

**Cr Mezinec moved it be recommended:**

- (a) **Adam Box be invited to present to Council and the Lifelong Learning Sub-Committee on the STEM South East Strategy and Action Plan 2015 - 2018.**

**Cr Richardson seconded**

**Carried**

**MOTIONS WITH NOTICE** - Nil

**MOTIONS WITHOUT NOTICE** - Nil

The meeting closed at 1.32 p.m.

BJC/MJT

DATED                      DAY OF    2016.

.....  
PRESIDING MEMBER

### Lifelong Learning Key Focus Area Work Plan

#### Wellbeing & Resilience - Collaborative Limestone Coast Regional Wellbeing & Resilience model

Task	Action	Progress Notes
Wellbeing & Resilience Forum	Host at City Hall <ul style="list-style-type: none"> <li>• 4<sup>th</sup> September 2015</li> <li>• 21<sup>st</sup> January 2016</li> </ul>	4 <sup>th</sup> September 2015 – complete 21 <sup>st</sup> January 2016 – complete
Collaborative Limestone Coast Regional Wellbeing & Resilience Prototype for SA	Develop a proposal by early February and provide with a letter to the Premier seeking SA Government support  The Premier's department will then work across government to seek support and funding (likely from multiple sources)  This is a priority project for the Premier  Develop the proposal with SAHMRI  Propose a number of scalable options and costs  Proposal to include: co-sponsors, what our coalition building process has been and mode of delivery  A strong proposal needs to be regional and multi-organisational  It is advisable to be prompt rather than 'perfect' with a proposal to ensure it is with the Premiers department by early February 2016	Ann Aldersey has been engaged to assist with the development of the submission  SAHMRI will be the project lead for the Limestone Coast Region of Wellbeing Project and LCLGA is the lead Regional Partner  Letters of support from all collaborators have been forwarded to LCLGA  Joint LCLGA & WRC SAHMRI letter submitted to Department of Premier and Cabinet (copy attached)  Draft Proposal submitted to WRC SAHMRI for costs to be developed  Proposal submitted to Department of Premier & Cabinet
SAHMRI Techworks Wellbeing & Resilience Training	Deliver in Mount Gambier Mayoral Reception be held for Brigadier General (Ret) Rhonda Cornum on Wednesday, 17 <sup>th</sup> February 2016 Invitations be extended to District Council of Grant Elected Members	Secured 15-19 February 2016 Confirmed Brigadier General (Ret) Rhonda Cornum 15-19 February 2016 in the Limestone Coast Completed

**Wellbeing & Resilience** - Scope a Wellbeing Workforce/Positive Organisation project to lead, measure, build and embed wellbeing and resilience inside the City of Mount Gambier workforce as a significant commitment to building a region of wellbeing inside the State of Wellbeing.

Task	Action	Progress Notes
Staff Training	Manager Community Services & Development and Library Manager undertake training  Manager Regulatory Services and Planning Officer training undertaken	Completed in November 2015  Completed February 2016
Lifelong Learning sub committee awareness training	City of Mount Gambier Regional Health Plan	Completed
Elected Member awareness training	Workshop to be held January/February 2016  Invitation be extended to District Council of Grant Elected Members	Scheduled for 24 <sup>th</sup> February 2016
Develop Wellbeing Workforce/Positive Organisation project	Ensure gender balance with internal Techworks trained staff to achieve sustainable program delivery  Liaise with SAHMRI to: <ul style="list-style-type: none"> <li>• identify baseline data</li> <li>• identify measures</li> <li>• identify costs</li> </ul> Develop lead, measure, build and embed program for Wellbeing & Resilience	Additional training completed  Refined workplace project with WRC SAHMRI using Lead, Measure, Build, Embed model to include the following:  <b>Lead</b> Project plan, communications strategy and plan to ensure project successfully launched; documents owned and monitored by the council Review and input to KPIs, governance structure and finalising program methodology SAHMRI staff time for up to 3 visits to Mount Gambier over



		<p>the program          Project Lead and Research team time in managing SAHMRI deliverables on time and budget across the below phases</p> <p><b>Measure</b>          Three survey rounds in (baseline and repeat in year 1) and an additional round in year 2 includes:          Finalisation of survey questions and individual report scripts          Pilot test of survey          Deployment of online survey via unique survey links to all staff          Third party data management and hosting, ensuring confidentiality of data          Helpdesk support for online survey users and response tracking          Data integrity check/cleansing          Delivery of individual reports/ PERMA scores and commentary          Aggregate reporting to City of Mount Gambier          Submission of ethics application for data collection for research purposes          Evaluation: Including running focus groups/interviews with staff to add qualitative findings in addition to the quantitative survey measurement results.</p> <p><b>Build</b>          Review and provide input/guidance for training roll out strategy which will be led by City of Mount Gambier.</p> <p><b>Embed</b>          Review and provide input/guidance for how to Embed new knowledge into business as usual.</p>
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	Develop the training schedule  Implement the program	Brief the Human Resources Manager  Plan to implement training confirmed from Oct 16 – Mar 17
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**STEM: South East Strategy and Action Plan 2015 – 2018** - “Students have the skills and knowledge necessary to thrive in a STEM world through a focused effort of teaching and learning of science, technology, engineering and mathematics (STEM) disciplines which are connected to real world application and support our students to be creative, connected and powerful learners.”

Task	Action	Progress Notes
Strengthening Education and Industry Partnerships	Creating learning content that is based on current topics/issues that require student problem based involvement  STEM Summit showcasing best practice examples between education and industry that supports effective learning	
Building Community Capacity	Mount Gambier city Council STEM Community Event to engage families in STEM related activities  City of Mount Gambier Library Makers Space. Providing the avenues and area for STEM related learning for community members  Future Innovators Series event at the Main Corner	Held in May 2016  Ongoing program

Reference: AF15/501  
Enquiries to: Alison Brash

21<sup>st</sup> July, 2016

To the Students  
Yahl Primary School  
C/- Chris Morrison  
PO Box 3354  
Mount Gambier SA 5291

Dear Primary School Children,

The City of Mount Gambier recently met with your Principal Ms Morrison to discuss how students from Yahl Primary school may contribute to making Mount Gambier a more interesting place for children.

Creating opportunities for children to learn and explore is really important to our Council, and we hope you might help us do this.

We invite Yahl Primary School to develop some learning trails for children around the Railway Lands and the Cave Garden area. This area includes the old railway station building and nature play area along with the Library, the Main Corner and Riddoch Gallery.

We wish to see learning trails in these spaces so more children can explore our inner-city, and connect with some of the *hidden gems* Mount Gambier has to offer.

We think if you are involved in designing the learning trails then they will be interesting, because you know what kids like, and what technology kids like to use.

We know this project will be a big challenge, and we expect it will involve:

- Research
- Field trips
- Talking to people
- Sharing ideas
- Designing, and
- Testing ideas.

All of these things could help us build a better and more interesting city where children show leadership, get creative, take risks and encourage others to flourish now and into the future.

Our vision is that Mount Gambier is an inclusive city, where people live fulfilling lives. We welcome your help so together our city can do this well.

If you have any questions, or wish to discuss your ideas about this project further, please contact me on 8721 2587 or [bcernovskis@mountgambier.sa.gov.au](mailto:bcernovskis@mountgambier.sa.gov.au) .

Yours sincerely,

A handwritten signature in black ink on a light grey background. The signature is written in a cursive style and reads "Barbara Cernovskis".

**Barbara CERNOVSKIS**  
MANAGER - COMMUNITY SERVICES AND DEVELOPMENT



Children's  
**Discovery**  
Museum

***Little Bang Discovery Club***

**Impacts, Objectives, Outcomes**



## Impact Statements for the Little Bang Discovery Club

Randwick City Library Service was delighted at the opportunity to host the Little Bang Discovery Club...The retention rate of participants over the course of the four weeks was 100 per cent...The programme was incredibly successful at equally engaging both parents/carers and children. The adults asked lots of questions throughout the sessions and seemed to be as interested and excited as the children about the outcomes of various activities and experiments. The Discovery Boxes were very popular...appealing to the children who all enjoyed exploring the contents...The partnership of this Children's Discovery Museum event with the library provided a wonderful opportunity to promote early science literacy.

**Mala Scorse, Children & Youth Services Librarian, Randwick City Library**

Hurstville Library has run Little Bang Discovery Club twice before. It has led to an increase in the borrowing of general science books and a marked increase in experiment books. The series Science Activities, Science Experiments and DK Mini Scientist have all been purchased, although demand is such that there are few on the shelves. The graphic series Building blocks of Mathematics and Building Blocks of Science have been so popular that a second set of each had to be purchased. Our holiday programs now include at least one science program per term. We are looking forward to this year's Little Bang to continue the interest in science and maths.

**Kate Campion, Children & Youth Services Librarian, Hurstville Library**

*Thank you so much for a truly amazing 4 weeks! The children had a wonderful time. It was fascinating to see how their interest and abilities grew from week to week. I thought Sandra's experiment with the jelly was brilliant. Science you can eat - maybe that's an idea for a new lesson?*

**Mum, Hurstville City Library**

*The kids would have loved it if there were more sessions - we will definitely be doing this again.*

**Participant, Hurstville City Library**

What a wonderful program Little Bang Discovery Club is for young children and their parents. We at Ku-ring-gai Library had four interesting weeks of discovering, classifying and experimenting. Our science educator, Wendy Preston showed great enthusiasm and the children showed such eagerness to share their findings! I think that it is an important science program, a program that instils a love of science in children and a program that we would love to have many more times in our Library. Thank you so much Wendy.

**Shoba Abraham, Children and Young Adults Services Librarian, Ku-ring-gai Council**

## Impact Statements for the Little Bang Discovery Club

Ryde Library Service provides library facilities for both the City of Ryde and Hunter's Hill Municipality to enhance children's development and learning. The library actively encourages children to develop literacy and numeracy skills with the provision of resources, activities and services which stimulate children's imagination and interest and also supports quality parenting and school education. Over the last few years the library has offered the Little Bang Club for young people aged between 3 and 5yrs. With the introduction of this program we have added and expanded our science and technology collections to include material that will also support the STEM curriculum within local schools. These items include books, DVDs and kits.

**Gabbi Wyllie, Children and Youth Librarian, City of Ryde**

The Little Bang Discovery Club has been a real hit with Ku-ring-gai residents. During the past 3 years we have offered the club to preschool children age 3 to 5 years and to school children in school years K-2. The club has been presented all of the four Ku-ring-gai libraries during this time. Titles have been bought to complement the program in particular science books which include science experiments. Science experiments remain a popular part of our lending statistics. Our statistics reflect a steady interest in this area from an anecdotal perspective from what we know. There is a spike in this particular area when we are conducting the Little Bang Discovery programs. We hope that there is continued sponsorship as this has made this program affordable and helps create younger learners experience a new style of programming that we would not usually have access to.

**Michelle Cairns, Children's and Youth Library Officer, Ku-ring-gai Council.**

*Discovery @ Home activities were great. Allowed the whole family to participate.*

*Discovery @ Home was a great time with daddy completing homework.*

*It makes science sound really fun to my children. We actually run some of the experiments in our home schooling group and the children love it.*

*Father and mother involved in the Discovery @ Home activities.*

*The experiment my child chose was to roll objects down our steep driveway – an experiment involving the whole family. We soon had neighbouring families joining in and bringing their wheeled toys to use!*

**Extracts from Feedback Sheets**

## Little Bang Discovery Club

Children's Discovery Museum engages families in activities that provide enquiry-based play, imaginative role-play, adult-child playtime and support for learning. These programs aim to increase a child's life-long love of learning, raising educational aspirations and providing more opportunities, and so build capacity in communities with young children.

The *Little Bang Discovery Club* (LBDC) is a program designed for pre-school aged children and their adult carers to participate together in enquiry-based learning. A series of four workshops provide experiences and situations that challenge participants to observe, think and explain how and why things happen. Children use safe, everyday tools and materials to engage in discovery and manipulative investigations while carrying out simple experiments and observations, in collaboration with their carers. Details of the program's content are included at **Appendix One**.



IMAGE: D. Stocks

**Figure 1: Introducing young children to discovery-based play fosters a love of learning**

LBDC was first run as a pilot program in partnership with Randwick City Council at Bowen Library, Maroubra in 2011. This initial set of workshops demonstrated the feasibility of the program, and it has since enjoyed steady growth across Sydney and NSW. In 2012, LBDC ran at 4 Greater Sydney libraries; in 2013 it ran at 9; in 2014 it ran at 12 and in 2015 it again ran at 12 Greater Sydney libraries.

In 2015, the first regional librarians were trained to present LBDC themselves. The pilot program for training was held with a librarian from Narrabri. Before running the LBDC, Narrabri decided to hold a



Science Fair in the library using the LBDC table top activities to test the water for science presented by the library and to whet appetites. The librarian has never seen the library so full and a library event has never had such a huge response. There were 100 kids in attendance and 40 – 60 parents. Feedback includes “Thank you for all the time and effort.” “It was great having science books on display as well.” “Fabulous array of stations to visit.” “Super awesome” “The children loved it.” The only negative comment due to the overwhelming response was “A little crowded for group experiments.” The subsequent LBDC had a “great response from the kids and parents.”

In November, 15 librarians from the Riverina Science Hub attended LBDC training at Wagga Wagga library and Wagga Wagga then ran a LBDC themselves. Feedback from their adult co-learners includes “Brilliant”, “More sessions” and “Well done, great activity”.

## Objectives

Enquiry-based play uses the natural curiosity of children to develop their skills, knowledge and confidence in exploring and explaining their world. By promoting a process of shared discovery in its *Little Bang Discovery Club*, Children’s Discovery Museum seeks to instil confidence in families to engage in enquiry-based investigations; encouraging children to ask questions and attempt to explain why things are the way they are. This type of enquiry-based play is open-ended, there being no correct answers. It relies, however, on developing ‘logical thinking’ and the concept of ‘evidence’.

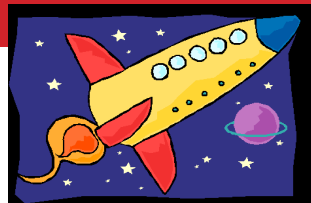


Figure 2: Families share in the joy of discovery, leading to further enquiry in the home environment

The program is designed to empower children, as much as their accompanying adult companions. Both adult and child are seen as equal co-learners / collaborators in the investigative process. (Adults report gaining much the same as their child, if they do not already have experience in scientific enquiry). As they learn how to find answers together, many parents will be encouraged to share the joy of exploring with their child, with the confidence not to feel threatened by 'not having all the answers'.

Children's Discovery Museum aims to develop *Little Bang Discovery Club* into an effective learning program, where families engage in shared activities that enhance learning outcomes. It is hoped that participants will gain cognitive skills in expressing themselves and explaining concepts; physical skills such as pouring an accurate quantity of water, reading from a ruler or using a stopwatch, and acquire new knowledge about the natural world.

With these new skills, confidence and capacity for enquiry, Children's Discovery Museum anticipates that discovery-based learning experiences will become a family norm, leading to further enquiry in the home environment.



**This is to certify that**

---

**participated in the  
Little Bang Discovery Club**

**Location:** \_\_\_\_\_

**Signed:** \_\_\_\_\_ **Date:** \_\_\_\_\_



Little Bang Discovery Club is an initiative of Children's Discovery Museum Limited and Randwick City Council  
[www.childrensdiscovery.org.au](http://www.childrensdiscovery.org.au)

A Certificate is usually presented to all Little Discoverers at the final session

## Outcomes

### PROGRAM REACH

In addition to the direct engagement of participants and their carers, feedback from program participants reports an additional indirect reach to other family members through participation in take home activities.

As the program aims to encourage shared discovery in families, at least one adult will accompany children to each session and are actively involved in all activities. In over 80 per cent of cases, children were accompanied by their mother, usually on her own (70 per cent of all responses) but otherwise with a partner or grandparent. This compares to less than ten per cent of respondents reporting that a child's father attended the program.

This disparity in the engagement of fathers at sessions is partially addressed through the Take Home component of the program. While the data is limited to that collected from just four *Little Bang Discovery Club* sessions held in June and July 2014, when the feedback form was reviewed, approximately 50 per cent of these responses indicated that the father joined in during home activities. This data complements comments from previous years that highlight family involvement at home, such as 'allowed the whole family to participate' and 'was a great time with daddy completing homework'.

*Little Bang Discovery Club* was originally designed for pre-school aged children. While the majority of bookings still cater for this three to five year old age group, feedback from participants and requests from host libraries has prompted extension of the program to older children, generally at times after school for children between five and eight years old. Not only does this allow Children's Discovery Museum to increase the number of programs on offer, and the number of people engaged through the program, it also provides an opportunity to adjust the content and format of the program to better cater for this older age group.

*Little Bang Discovery Club* is gradually being introduced to more community libraries and other centres that already offer programs to families with young children. In offering the program to other areas of Greater Sydney, again in partnership with public libraries and community centres, Children's Discovery Museum is fulfilling its aim to positively impact local community access to quality learning programs. This also contributes to a further objective of establishing the library as a community resource for science discovery.

Children's Discovery Museum has also committed to providing subsidised programs in certain instances to ensure access to learning opportunities for vulnerable families such as those on low-

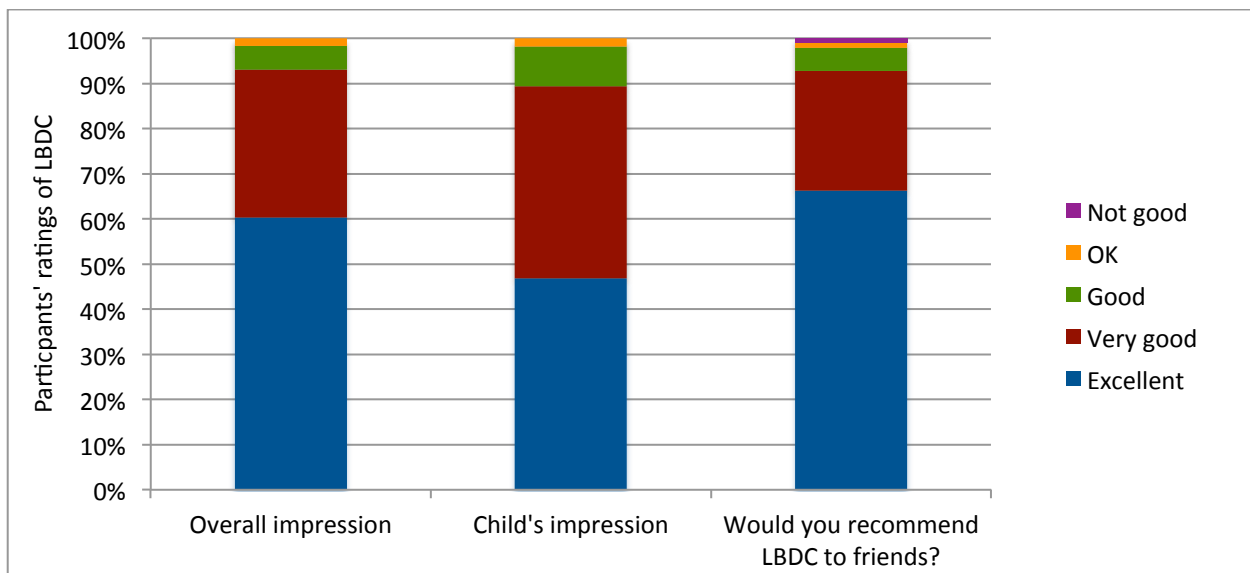
income, or from indigenous or other marginalised communities. It is expected that income generated from paying participants/host organisations will cover the presenter fee and replenish materials consumed for this expansion.

Other opportunities for Children’s Discovery Museum to extend its reach includes promoting its programs and objectives through relevant interest groups and professional associations, such as the Australian Library and Information Association (ALIA), especially the ALIA Children’s and Youth Services Group. Further recognition and promotion may be gained through presenting papers or posters on the program and its outcomes at relevant conferences or in appropriate publications.

**LBDC was presented at ALIA conference (15-19 September, 2014), and received Highly Commended in the Children’s and Youth Services Bess Thomas Award.**

### AUDIENCE ENGAGEMENT

Feedback on the *Little Bang Discovery Club* is very positive, with approximately 90 per cent of adult respondents rating their overall impression of the program as ‘Excellent’ or ‘Very Good’. When asked for their children’s impressions, participants gave similarly positive feedback. Nearly all participants also claimed that they would recommend the program to friends (**Figure 3**).

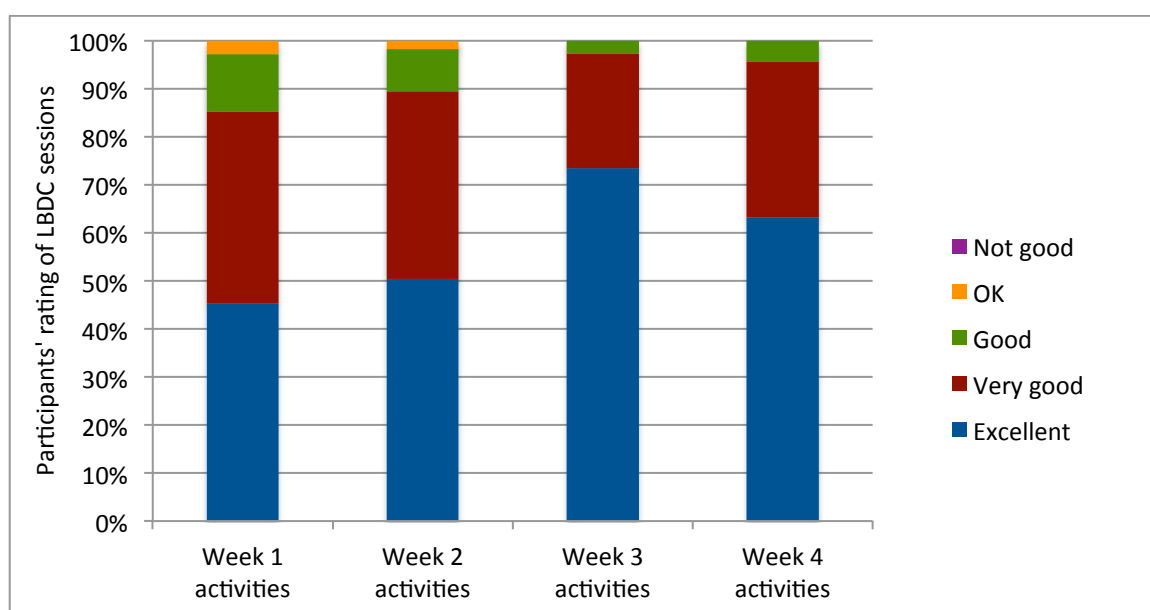


**Figure 3: Participants overwhelmingly provide positive feedback on the Little Bang Discovery Club program**

To determine which aspects of the program are most engaging for children, participants were asked to provide feedback on individual sessions. The *Little Bang Discovery Club* program is divided into four one-hour sessions, the objectives and content of which are described in **Appendix One**.

All sessions have hands-on activities at their heart, with Week Three focusing on experimenting with a range of table-top activities for children to explore. Week Four continues this theme with further table-top science as well as a science fair where children demonstrate their own home-made science experiments. Participant feedback has indicated a preference for these sessions that contain the highest number of interactive and experimental activities (**Figure 4**).

This is supported by the responses to questions designed to draw out preferred activities and additional comments provided through the feedback forms. Comments have suggested that the first two weeks are not as interesting as Weeks Three and Four. For example, *'Week 1 and 2 were a bit boring. Bring on the experiments straight away to keep the kids and adults interested'*.



**Figure 4: Reported impressions of each weekly session rate those with the most hands on activities more highly**

Consideration of the types of activities that participants most enjoyed provides support for the types of activities being explored during the *Little Bang* sessions. Participants were asked to 'Please list the top three things you did at Discovery Club' or (in more recent feedback forms) 'Which three activities did you like the best? Why?'

While the rating of weekly sessions at **Figure 4** suggest a preference for sessions in Weeks Three and Four, this further exploration of activities demonstrates the activities in Weeks One and Two are also appreciated. 'Measuring', 'Collecting' and 'Balancing' are activities that are explored almost exclusively in the first two sessions, and all included in the top five ratings.

'Experimenting' was the highest scoring response. This could be interpreted as a general preference for any of the activities, or could equally refer to the Week Three Session, which is described in the program as 'Experimenting'. This second interpretation would support the preference for Week Three

in the ratings above. **Figure 5** is an image of adult-child interaction around a simple, yet one of the most popular ‘table-top science activities’ provided to LBDC participants.

While the collected data mostly highlights actual experiments, parents also mentioned other learning outcomes of the program within their top three preferred activities. These include skills such as observing and recording, problem solving and listening, and other more general benefits of participation such as developing ‘an understanding of science is’ or ‘new ways of thinking’, and ‘access to objects not found at home’. These results are further supported by the comments collected in feedback.

At the end of each of the first three Little Bang sessions, participants are given a task to complete at home. These typically involve exploring the contents of the Discovery Box and expanding on the skills and concepts explored during the sessions.

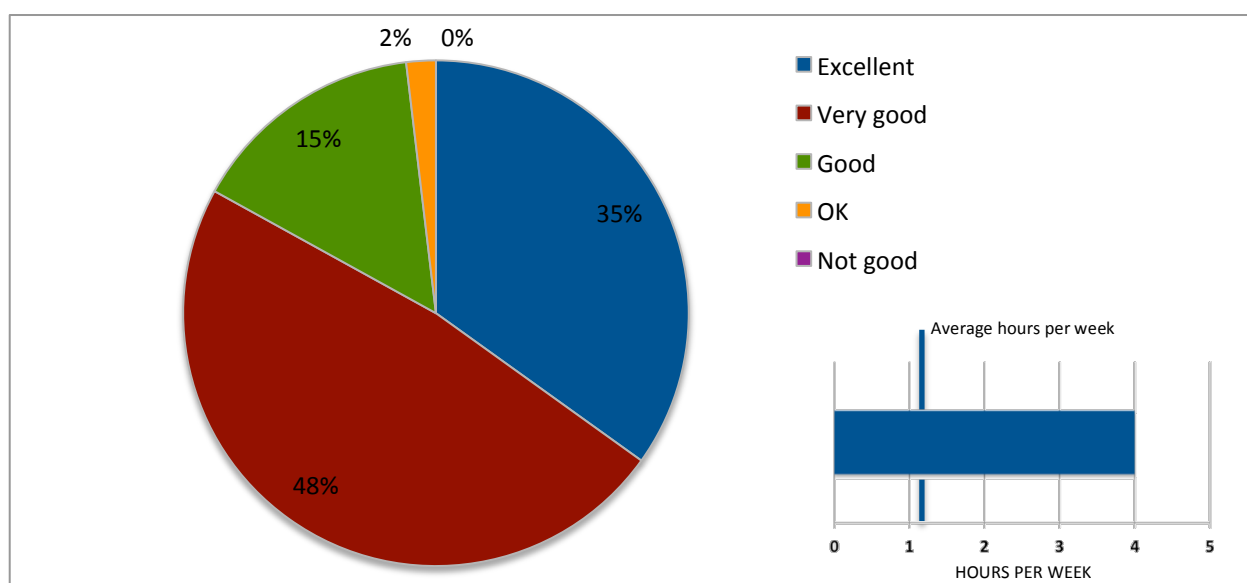
**Figure 5** The Tornado Tube is one of the most popular demonstrations



Through participating in the program, we will take away  
*“the idea of experimenting, asking questions and recording information.”*

Participants reported spending between zero and four hours per week exploring suggested activities at home, averaging at just over one hour per week (**Figure 6**). Several comments refer to not being able to do as much at home as they would have liked, for a variety of reasons including lack of enthusiasm or concentration, and the inability of a parent to spare any time to guide the child through activities due to other family, home and work commitments. On the other hand, some comments refer to the child’s eagerness to continue the Discovery activities at home, and how other family members became involved in the task. In contrast to comments about need for time for parental support, one respondent espoused how it was ‘great that the activities didn’t require adult intervention [as it was] good for kids’ sense of competence.’

Overall, most respondents regarded the take home activities positively, with 83 per cent rating them as either ‘Excellent’ or ‘Very good’ (**Figure 6**). As previously mentioned, the involvement of other family members was a feature of the comments, with references to the involvement of fathers as well as younger and older siblings being made. Other positive comments refer to the types of things the child did (‘measured anything and everything at home’), and the environment in which the activities were undertaken (‘Great to have suggestions for home activities to do in peace and quiet with individual child – the group sessions were lots of fun but sometimes too distracting’).



**Figure 6: Most people rated home activities positively and reported spending on average just over an hour a week on these tasks, often involving other family members**

## LEARNING OUTCOMES

What are the expected learning outcomes for a discovery-based play activity for young children? To begin with, it depends upon how we define 'learning'. Anderson et al (2002) suggest that learning can be regarded as both a process and a product encompassing several dimensions, including socio-cultural, cognitive, aesthetic, motivational and collaborative aspects. In the context of the *Little Bang Discovery Club*, these criteria may be defined as:

*Socio-cultural*: meaning-making events and the ways in which a child interacts with activities in the context of their prior knowledge and experiences.

*Cognitive*: construction of knowledge through interaction with objects and people.

*Aesthetic*: considers personal emotional and embodied responses to experiences and activities.

*Motivational*: describes how a child might direct his or her own learning, such as being asked to make choices, accepting challenges or to work collaboratively with peers.

*Collaborative*: includes many of the styles above, but in particular may include co-construction of learning between the child and an adult.

Learning is not a necessary consequence of play, but it play can be linked with creativity, problem solving, and other cognitive and social experiences (Rennie & McClafferty, 1997). The learning benefits of play in Little Bang sessions will depend upon the socio-cultural context that determines how children interact with activities and objects, as well as the motivational aspects of learning, where children can make choices about how to interact with objects and engage in activities. *'Play is a process that is freely chosen, personally directed and intrinsically motivated. That is, children and young people determine and control the content and intent of their play, by following their own instincts, ideas and interests, in their own way for their own reasons'* (Playwork Principles Scrutiny Group 2005, cited in Gleave & Cole-Hamilton, 2012, p.4).

As an example of how this is achieved, the classifying activities in the first week's session allow children to group their items in their own order or pattern. Parents are specifically requested not to direct their children's decisions, with the explanation that there is no right or wrong way to sort their objects. Given these loose instructions, children will come up with many ways of sorting their objects, based on their observations and influenced by their prior knowledge and experiences.





**Figure 7: The simple task of sorting coloured sticks and toys uses socio-cultural and motivational learning processes**

While independent play and learning are important, one of the principal objectives of the *Little Bang Discovery Club* is the encouragement of collaborative learning between children and their adult carer. Play between parents and their children can help children's development, and may be critical in the early development of children's positive behaviours. In addition, when playing with parents, infants' and toddlers' behaviour is more complex and creative, of longer duration and more symbolic than when playing alone or with peers or siblings (Gleave & Cole-Hamilton, 2012).

Children learn by interacting with others. This does not need to be formal or forced. Adults support children's learning by simply valuing the learning that is taking place, showing interest and responding to their needs (Tegel, 1999). In the *Little Bang Discovery Club*, parents are actively encouraged to participate and guide their children, but asked not to do experiments for them. Observations of adults guiding children during activities suggest that they struggle to let their children make mistakes or to do things on their own. When they can resist the urge to orchestrate outcomes and simply support their children's learning, they are surprised and rewarded by what their children achieve.

*"She took great pride in completing the activities and was engaged with the concepts."*

The four week program of *Little Bang Discovery Club* covers a range of concepts and skills, which are detailed in **Appendix One**. Assessing the learning outcomes in terms of these ideas and skills is difficult, and probably not the most important aspect of the program. Instead, parental feedback refers more to learning outcomes of gaining new ideas that can be explored further. Ideas such as making observations and recording information, and relating collecting and weighing to cooking activities, are suggested as benefits that they will take away from the program.

## **OTHER OUTCOMES**

It is not only learning outcomes that families take away from participating in the *Little Bang Discovery Club*. Many of the responses collected included descriptions such as fun, enjoyable, interesting – a positive outcome for the program and its aim to promote a love of life-long learning. This enjoyment can prompt families to undertake similar activities as a result. For example, one participant reported that *'we also visited the Powerhouse Museum, where they had a couple of experiment shows.'*

Children's Discovery Museum aims to make shared learning in the home environment an accepted norm. When asked *'What one thing will you take from this program to continue with your child?'* over 85 per cent of respondents' comments referred to doing more experiments or discovery activities at home. In recent feedback, almost all respondents agreed with the statement *'Since participating in the Discovery Club, I am more confident about doing science and discovery-based activities with my child'* with one additional comment stating that the parent was *'maybe not more confident but more motivated'*.

As previously reported, engagement of the family in a shared activity is another outcome of the program. While a reported 80 per cent of children are accompanied by their mother to weekly sessions, the feedback reports far more varied engagement with other family members in at home activities, particularly the increased involvement of fathers in this component of the program, from less than 10 per cent at sessions to approximately 50 per cent at home.

The host partner arrangement with local libraries and community centres adds another dimension to the positive outcomes of the program. As a primary service of local government, and hence funded by rate payers, libraries are expanding their programs and facilities to remain relevant and to demonstrate that they reflect the needs of the community. Beyond being a source of information services, libraries are promoting their social role and their role in life long learning. For example, in a study of library users in the United States, Zickuhr, Rainie and Purcell (2013) found that some 41 per cent of those who had visited a library in the past 12 months had attended to bring a younger person to a class, program, or event designed for children or teens.

Programs such as *Little Bang Discovery Club* support this expansion of the role of libraries, by not only bringing families into libraries but also providing opportunities for libraries to share their resources with an engaged audience. The program commonly draws upon a library's resources to demonstrate concepts, making links to collections, for example, or using the toy library to engage children in activities. Librarians are also encouraged to display books and other resources that families might borrow to further pursue the scientific ideas explored during the program.

This impact has not yet been quantified; however, conversations with library staff indicate that their collective experiences are positive.

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## Appendix One: *Little Bang Discovery Club*

The *Little Bang Discovery Club* is a four-week hands-on program that combines everyday objects and experiences with genuine scientific enquiry methods to engage children and their adult co-learners in scientific exploration and learning through hands-on discovery-based activities.

The course is divided into four one-hour sessions, as well as activities for children to do at home.

### SESSION 1: COLLECTING AND CLASSIFYING

In the first session, junior discoverers become familiar with the qualities it takes to be a scientist. The ideas of being observant and taking notes on what we see are introduced, and they are encouraged to ask lots of questions. We talk about how we sort things at home before exploring the items in the 'Discovery Box', sorting, measuring and matching the contents to learn about collecting and classifying. These concepts are further explored using collections of toys, coloured sticks or blocks, and each other.

Participants are asked to make a collection at home during the week and to bring it to the following week's session to show and discuss.



Figure 8: Sorting and classifying coloured sticks

In feedback, 'collecting and classifying' as a combined response is rated amongst the top five activities that participants enjoy. Collecting on its own was still nominated as the fourth highest rated activity, although only a single respondent specified classifying itself as a preferred activity (**Figure 9**). A few comments in this component of the feedback also refer to kids 'understanding what science is', and learning about the skills of observing, recording and discussing.

Making the collection is the only Take Home activity specifically mentioned in feedback comments.

*"Collecting and classifying encouraged my children to explain their process and see different relationships between objects."*

## SESSION 2: MEASURING

This session is all about weighing and measuring – one of the first and most important skills of early discoverers. Building on the skills learned in Week One, children learn how to use measurement as a way of sorting and matching or classifying objects. They identify the various tools for measuring within their Discovery Boxes and discuss the properties these instruments are used to measure, such as height, length, time and temperature.

The concepts of weight and balance are then explored using a see saw to try to match the weights and balance two people. Small individual balances are then used to balance unevenly weighted objects. Children then use this information to make a mobile at home.

Measuring and balancing both individually appear within the top five favourite activities reported in feedback. Making a mobile is also frequently mentioned and is the 11<sup>th</sup> most popular item (**Figure 9**).



**Figure 9:** Participants have reported that they *"liked measuring and recording because it was easy to understand."*

### SESSION 3: EXPERIMENTING

In the third session participants put their measuring, observation and recording skills to the test. They are encouraged to ask lots of questions and are introduced to the concepts of fair testing and prediction.

The first part of this session involves more sitting and observing and listening than in other sessions as participants observe several experiments that require them to think about the properties of various objects as they either roll or slide down a slope, and to predict the outcome. Some comments in the feedback suggest that the listening and theoretical components of the Little Bang Discovery Club are less engaging than hands-on experiments. This includes comments such as, 'less theory, more experiments' and 'bring on the experiments straight away to keep the kids and adults interested'. In contrast, there are many responses that demonstrate the perceived value of this aspect of the program. In comments in the feedback, some parents have acknowledged the importance of introducing children to 'new ways of thinking' and reinforcement of skills such as listening and hearing what other children have to say.

In the second half of the session, a variety of hands-on table-top science experiments offers a balance to the theory of the first half. This is where the idea of discovery-based learning is truly applied. Children and their adult carers are given free range to explore a range of activities that demonstrate many scientific concepts. These include:

- Tornado tubes and vortexes (fluid dynamics)
- Magnetism
- Floating eggs and density
- Blue Tac shapes and buoyancy
- Musical coat hangers and how sound travels through a solid
- Spinning tops
- Charge and static electricity (paper and comb)

*"The tornado in a bottle made a real impression on my son."*

It is these individual experimental activities from this session and Week Four that respondents mostly name when asked to rate their favourite activities. As illustrated in **Figure 9** the top five table-top activities named are:

1. Tornado tubes and vortexes
2. Musical coat hangers

3. Bottled lightning
4. Magnetism
5. Floating eggs and buoyancy

In terms of improving the Little Bang program, it is probably the activities that are not mentioned that are most relevant. These are: charge and static electricity; disappearing tree logic puzzle, and tube sounds. As previously discussed, the program facilitators are exploring how to improve upon these activities.

To finish off the session, children are asked to think about designing their own experiments to undertake at home and then present at a science fair in the final session.

#### **SESSION 4: SCIENCE FAIR**

Children take part in a mini science fair, sharing what they have discovered in their own home experiments. When showing their experiments to the rest of the group, children are encouraged to talk about what question they set out to answer, what materials or equipment they used, what they did and what happened.



**Figure 10:** In the final week children share science experiments done at home with the group.



No one is forced to participate in the science fair. If children are not comfortable standing in front of the group they may speak from where they are seated. In some instances children will share their experience independently, while in other cases the parents do most of the show and tell themselves.

After the science fair is completed, participants are able to explore further table-top activities. Popular experiments from Week Three are repeated and supplemented with others, including:

- Balance nails
- Shapes in pin point
- Bottled lightning (charge and static electricity)
- Tube sounds

To conclude, each child graduates with a participation certificate. This complements a passbook that they have stamped each week.

### **THE DISCOVERY BOX**

Each participant is given on loan a Discovery Box to take home for the duration of the program. The Discovery Box contains a variety of exciting items and activities to explore between sessions. This extension of the program to the home environment often results in engagement of other family members in the discovery activities, with feedback demonstrating that both parents and siblings enjoy joining in the take home tasks.

*“They loved the contents of the box and how the contents interacted with each other.”*

The Discovery Boxes provide a useful guide as to the usability of various items for both young children and their co-learning adults. The contents have been refined since the initial pilot program to provide more ‘scientific’ (safe and age-appropriate) tools. The current contents of a Discovery Box include:

#### Tool to enhance observation:

- Magnifying glass

#### Tools for recording data

- Pencil and notebook

#### Tools for measuring:

- Ruler
- Tape measure
- Thermometer
- Timer

Discovery items:

- *Little Bang Big Book of Discovery*
- Chop stick
- Magnet
- Rainbow glasses
- Coat hanger

Consumables:

- Blue tac
- Cork
- Plastic cups
- Rubber bands
- Plastic take-away container
- Make-a-mobile kit (with sticks, string and beads)

