



## Frog Watch Research Report

### Research methodology

Sheridan Research Institute was commissioned by the Learning and Creativity Team of the Western Australian Museum to conduct a small-scale research study to capture the impact of the Alcoa Frog Watch Project. The research methodology involved observations of pupil groups during the project, interviews with project staff, focus group interviews with the students at the end of the project and analysis of questionnaires completed by pupils, parents and teachers at the end of the project.

### Brief project summary

The Western Australian Museum and Alcoa have been collaborating since 1995 on the Frog Watch project to support conservation, information and education on frogs in Western Australia. As part of this ongoing project, it was decided, in 2012, to develop a teaching resource to equip teachers with knowledge, ideas and a tried-and-tested process to develop a frog-habitat at their school as a learning project.

Due to the Learning and Creativity team of the Western Australian Museum's commitment to both creativity and authentic student-centred decision-making, the team decided to involve a group of young people in the process of developing the teacher's resource.

Both of these topics have also been highlighted by the Commissioner for Children and Young People in WA, Michelle Scott, as strategic priorities for organisations working with young people in WA:

*"...creativity can significantly boost the wellbeing of children and young people, including their confidence, motivation, resilience and educational achievement across the curriculum." (Michelle Scott, Report of the 2012 Thinker in Residence Western Australia)*

*"We need to listen genuinely to children and young people, give careful consideration to their views and use their insights to inform our work in meaningful and respectful ways." (Michelle Scott, Involving Children and Young People: Participation Guidelines)*

A group of 20 students (Year 1 – 6) from Beckenham Primary School worked with staff from the Museum, outside consultants and a project teacher for 1 day a week as an Extension project over a period of 1 term. The project teacher (a teacher from the school) was seconded to the Museum for a period of 6 months to work exclusively on the Frog Watch project.



The students participated in a hands-on inquiry-based learning process, following the steps of the inquiry process as follows:

- Discovering;
- Questioning and Planning;
- Collecting, Sifting and Sorting;
- Processing Information;
- Creating and Reviewing;
- Sharing; and
- Reflecting.

The final outcomes that the students were working towards was the creation of a frog habitat in their school grounds, but the rich learning along the way was worthy of further investigation.

This report aims to give a snapshot of the key characteristics that contributed to the success of the project and to capture the impact that the project had on the young people involved and on the project teacher.

### **Key success factors**

A thematic analysis of the qualitative research data indicates that there are five key features that contributed to the success of the project, each illustrated with specific quotes from the research data below.

#### **1. Authentic, cross-curricular inquiry-based learning**

This project was an authentic, cross-curricular inquiry-based learning opportunity for the students. They utilised their creative and critical thinking skills, as they were involved in questioning, researching, planning, reflecting and ultimately creating their own frog habitat.

*“... there were a lot of questions.”*

*“Usually the teacher just tells us things. Here we had to figure out things for ourselves.”*

The students could see how this type of learning could be transferred to different subject areas and to normal classroom contexts:

*“... it can teach you about most of the subjects.”*

*“You can use it [this style of learning] anywhere if you are allowed to”*



## 2. Student agency

Another key success factor was the ownership in decision-making that was afforded to the students through real student agency throughout the project. When asked what made the project special, several students commented:

*“It was the freedom of choosing our topics and expressing ideas that made it special.”*

[The best bits of the project were] *“...deciding ourselves and controlling our learning.”*

*“We had a say in our pathway of learning”*

This freedom to direct their own learning is in contrast to the amount of agency students are afforded in normal classroom settings:

*“We have bright ideas but we can’t share it in class that much and now we can express it.”*

*“The teacher shouldn’t make all the decisions since it might be wrong. We did all the research.”*

## 3. Expert access

The secondment of the project teacher to the Museum for a period of 6 months provided great access for the teacher to subject-specific as well as pedagogical expertise. Whilst the teacher and the school benefited from this arrangement, the access to expert museum and consultant staff also proved advantageous to the students:

*“... the big people use technical terms which is good for our vocab.”*

*“... it had a lot of inspiring people.”*

*“... we met inspiring people what do care about the environment as much as we do.”*

## 4. Engaging head, heart and hands

The project engaged students’ head, heart and hands as they learnt how to think, feel and act in the context of environmental sustainability.

### a. Head

Students learnt significant new scientific subject knowledge by using intellectual skills like thinking, researching, questioning and learning.



*"I found I asked a lot of questions but I never used to."*

*"... I get to do new things and change how I look at them now."*

#### **b. Heart**

Exposure to the project partners and the project activities gave students opportunities to develop a stronger sense of care for the environment and the role that animals play within the ecosystem.

*"... before I came to Frogwatch and I saw a natural environment, I thought it was just natural but I didn't think about the animals and the ecosystem."*

*"Learning that animals have a big role in life that they could die or live from."*

*"... we met people who care about the environment as much as we do."*

#### **c. Hands**

The project also had a significant hands-on component. Students didn't just learn and talk about the environment; they got involved in creating a physical artefact – the frog habitat in their school grounds.

[The best bit was] *"... building the frog pond."*

*"She enjoyed building the ecosystem and going on excursions."*  
(Parent)

### **5. Real focus on learning, but in a fun way**

The final key success factor was that there was a real focus on learning, but in a fun way. 100% of the children mentioned learning as a key outcome. The project was not just about building a frog pond for them – they had a strong awareness of and ability to articulate the learning that came from the project. It also nurtured their love of learning. All 20 participants said they want to learn like this more often.

*"... it was a fun way of learning about ecosystems and frogs."*

*"It's fun to meet other people and learn new things."*

[The best bit of the project was] *"I learnt new things."*



*"We learnt differently rather than how we learnt in the classroom."*

*"I did [enjoy participating in Frog Watch] because we were learning about something different for a change and also because we could realise how important frogs actually are."*

*"... it's really fun and it's good to learn new things."*

[The best bits of the project were] *"... learning about mysterious things about frogs."*

*"It was very fun and enjoyable to know more about frogs."*

*"... it is very fun to learn about a topic."*

*"... it's fun, not like normal work."*

*"I noticed at the time she was excited about it and wanting to talk about what she learnt on Frog Watch days." (Parent)*

### **What was the impact on children?**

Frog Watch had a profoundly positive impact on the students involved in the project. An analysis of the data from student interviews and questionnaire responses by students, parents and classroom teachers has indicated positive gains for students in 7 different areas as outlined below.

#### **1. Science learning**

The students showed significant gains in science learning at a level at least two years ahead of their chronological age. All classroom teacher respondents noticed gains in the students' science content knowledge about frogs, ecosystems and the environment. The students were able to demonstrate advanced use of scientific terminology and real in-depth understanding, not just knowledge acquisition, of factors like environmental interactivity.

*"I learnt a lot of new science words."*

*"... checking the turbidity and pH levels."*

[I learnt] *"... about eco-systems, wetlands, frog threats and diet, photosynthesis."*

*"I learnt loads of things like food chain ecosystems and much more. I also learnt a lot about FROGS!"*



## 2. Learning in other subjects

Apart from science learning, the project also provided ample opportunities for students to improve their skills in other subject areas, e.g. writing, spelling, measuring, calculating and drawing.

*“I learnt about maths – how many plants we need; how much water in the pond; health – how frogs live; what they do. I learnt about how to research in many different ways and how to draw frogs.”*

*“... the big people use technical terms which is good for our vocab.”*

*“Spelling – how to spell hard words.”*

*“I discovered that I like writing more than I thought I did before and now I like writing reports and reviews”*

## 3. Enhanced teamwork skills

Working with students from different ages (Year 1 – 6) had a profoundly positive impact on student’s social development. The students had a very strong sense of awareness of the teamwork skills that they developed, including sharing, helping each other, balancing different opinions and co-constructing ideas.

*“It was quite fun [working with children from different ages] because now I have met new people and made new friends.”*

[The best bit of the project was] *“meeting all new friends.”*

*“I found it fun [to work with other children] because we all had different ideas to share.”*

*“It was better [to work with children from different ages] because there were a lot of questions.”*

*“We could help teach younger kids and the older ones helped us.”*

*“I learnt how to co-operate even better and how to study with older and younger children.”*

*“My favourite things were working with people I don’t know.”*

[I learnt] *“... that they [other children] will have different opinions to me.”*



*“... the bigger kids would help you and the smaller kids you can help.”*

#### **4. Environmental awareness**

The students learnt lots of science facts about the environment, but the project helped them to develop a much deeper sense of caring for the environment that is likely to remain with them for a long time. They told their parents how they need to look after the environment and their perspectives on the environment have changed.

*“I will never look at the environment the same way again.”*

*“I learnt how important frogs are to an ecosystem and if you took them out the ecosystem would fall apart.”*

*“She’s more aware now of the importance of frogs and their usefulness. Also, she’s now aware of the frog’s habitat and how to take care of their habitat.” (Parent)*

#### **5. Development of creative and critical thinking skills**

The inquiry-based learning process provided ample opportunities for students to use higher order critical and creative thinking skills. They developed a strong awareness of the progress in their thinking skills. One classroom teacher also particularly noticed how the project students used more critical thinking strategies in class.

*“I’m a good thinker”*

[I learnt] *“... what ideas I had.”*

*“I have bright ideas.”*

*“... participating in Frog Watch is a way of expressing your ideas.”*

*“We have bright ideas but we can’t share it in class that much and now we can express it.”*

*“It was the first time in school that I had to express my ideas. [Now] I feel very intelligent and motivated to express my ideas to the community.”*

*“I give more ideas in class now”*



## 6. Enhanced parent/child relationships

One of the most surprising, unexpected outcomes was the positive impact that the project had on parent/child relationships. The project created something real for parents and children to talk about and many of the students have transferred the learning to the home context where they encouraged parents and siblings to build frog habitats with them at home too.

*"I've built a frog habitat at home"*

*"... telling my mum about where frogs lay their eggs."*

*"I started making a frog pond at my old dad's house."*

*"... my brother and I made a frog pond together and I showed him about the objects."*

## 7. Improved confidence and self-esteem

The project students showed significant pride in the products they created: the frog habitat, the drawings and the book capturing their work. The success that they experienced in terms of creating the project outcomes has no doubt had a positive effect on their confidence levels and self-esteem, as is evident in the statements below. The gains in confidence and self-esteem are, however, not just a matter of self-perception. Unprompted, 2 out of the 5 classroom teachers reported increased confidence of the project children in their class.

*"I found I asked a lot of questions but I never used to."*

[I learnt] *"... what ideas I had."*

[I learnt] *"... I have good ideas."*

*"I learnt that I should challenge myself more and do more things like Frog Watch a lot more."*

[I learnt] *"... I can work in groups."*

[Q: How do you feel now?]

A: *"Smart"*

[I learnt] *"... I have a lot of knowledge that was not used for a long time."*

[I learnt] *"... I actually am smart."*





### **Impact on the project teacher**

Interviews with the project teacher revealed that the Frog Watch project also had a powerful impact on her. The opportunity to be seconded to work with the Museum for 6 months and to gain access to expert knowledge was a wonderful learning opportunity for the teacher. As a result she gained new knowledge and could learn about environmental sustainability with the students. *“I was a student with you. I now look at the environment differently.”* Although the teacher was already an experienced practitioner of inquiry-based learning processes, the project gave her the opportunity to immerse herself in this style of teaching like never before: *“I had free reign to do inquiry learning flat-out without the constraints of curriculum and targets.”* Another significant learning experience for the teacher was re-discovering the importance of adaptability in planning when she had to abandon the original project plan when the children exceeded all expectations within the first few weeks. She had to re-plan and take away the glass ceiling. The success of the project and the positive impact it has had on the students has increased her commitment to continue inquiry-based teaching when she is back in a normal classroom setting.

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