INQUIRY LEARNING: BEYOND THE SCHOOL WALLS

By Catherine Barnes

BIOGRAPHY

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A librarian for 18 years, the teacher part in teacher librarian came eight years ago. In the middle there came a Master of Information Management and a passion for not only organising information, and providing access to information, but also educating others in the power of information.

As a Lecturer in Information Technologies, Metadata, Library Management and Cataloguing in the Master of Information Management at the University of South Australia, a desire to educate the next generation of information professionals is played out.

INTRODUCTION

Inquiry learning has been a popular pedagogical approach, which has been supported by classroom teachers, librarians and educational leaders for many years. Whilst the concept of handing ownership of learning over to the students was groundbreaking in its inception, during the past decade there have been a number of innovations in education and society which can be implemented to enrich the model. These innovations, design thinking, student agency and metacognition represent a focus on real-world learning and action.

WHAT IS INQUIRY LEARNING?

Lutheran Education Queensland (n.d.) defines the characteristics of inquiry learning as:

- Genuine curiosity, wonderment and questioning;
- Students actively involved in constructing understandings through hands-on experiences, research, processing and communicating their understandings in various ways;
- Learning takes place in a social context, whereby students learn from and together with others; and
- Learning leads to action which, in turn, involves informing and sharing with others. Through this change can be implemented and advocacy can be enacted.

Inquiry learning is defined by the inherent curiosity of our students. Curiosity is a human quality that drives exploration, investigation and the search for deeper understanding.

Studies published in *Neuron* demonstrated the number of questions asked by a child steadily declines as they grow. At the age of four children ask 300 questions per day, dropping to less than 100 by the time the child is nine.

This can be linked not only to the gradual achievement of knowledge by the child as they mature, but also a decline in the number of new encounters in their day (Gruber, Gelman & Ranganath 2014). This is why it is so important to offer new 'encounters' outside the classroom context, where students can construct their own understandings through experiences and research.

Learning takes place in a social context, so it is important to learn from and with others, within and outside the classroom. The best place to learn social norms and practices is in an environment where you are socialising with people of different ages, experiences and backgrounds. Through the actions enacted on in an inquiry learning process, there needs to be space for further questions and learning, leading to further innovation and entrepreneurship. This leads to one of the more recent innovations in education: design thinking. The Department of Education and Training, Victoria, defines the design thinking process as applying empathy to understand another's needs, brainstorming creative ideas, developing a prototype, testing the prototype and then acting on feedback to modify and refine it until a viable solution is reached (Victoria State Government 2017). In my school we refer to this as 'Purposeful Learning', but sometimes through the requirement for assessment of learning, the student is halted at the prototype stage. A true inquiry project should seek feedback the student can act upon, developing the social practice of reflecting and acting upon constructive criticism. The reflection should not only be on the product, but also the learning process, with students able to develop metacognition skills through reflection on the learning experience.

NECESSARY PREREQUISITES FOR TEACHERS

The inquiry learning process is student-focused; however, often teacher-led. Lutheran Education Queensland (n.d.) defines the necessary prerequisites for teachers to include:

- A culture of curiosity and respectful dialogue;
- Organisational management;
- A deep knowledge of subject matter; and
- Strategies for scaffolding and guiding student thinking, planning and working, giving responsibility and decision making increasingly over to students.

My question is, do teachers really need deep knowledge of subject matter? Aren't there others in our community, within and outside the school who can provide this? For example, in schools I have been involved in I have worked with former lawyers, professional sports people, chefs, archaeologists, nurses, professional clowns, and others who have a deep knowledge of subject matter due to interest and experiences. That is just in our school; in our community we have scientists, social workers, refuse collection managers, and business people, all of whom hold that deep subject matter in context due to their work.

Handing the responsibility for decisions over to students is an important aspect of inquiry learning and builds on the application of student agency in our schools. Paganelli (2017, p. 6) defines student agency as motivation, engagement, and voice, all important aspects of the process. While motivation and engagement

often complement each other, through student voice we are able to see responsibility for action. This is where much of the incidental learning takes place; where there is responsibility, there is growth. Even the youngest students can learn how to use their failures as an opportunity for improvement.

HOW TO IMPLEMENT INQUIRY WHICH ENGAGES DESIGN THINKING, STUDENT AGENCY AND METACOGNITION SKILLS

Each stage of the inquiry process can involve connections with the 'outside' world. When students are gathering information, they need to be encouraged to access a range of sources. Each student's journey will be different, the sources may be primary; some students love interviewing people, whilst others enjoy accessing secondary sources through museums and organisations. The learning needs to be taken in the context of the real-world, with the design thinking approach of developing empathy and creative solutions to a problem in their community. This purposeful approach needs to be applied to both the content of the inquiry and the process. Students need to be able to develop relationships with persons beyond their class, utilising experts and resources they would use in a real-world context.

The product of an inquiry project does not always have to be an internal assessment. Students I have taught have written letters to a Member of Parliament, worked with a council to develop a park near their home, changed the process for dealing with concussion in their sports club and developed products which they have been able to obtain an income from. The strength of their research was gained by including sources, both primary and secondary, beyond their school. Providing sources beyond the classroom improved their case for change.

The success of an inquiry project is in making connections between ideas and how they apply to their lives outside school. One of the wonderful results of learning is when a student writes in their learning reflection that they believe it will help them in their future career, their current part-time job, or they feel they have developed skills in a context outside of the classroom. This not only expresses their growth as a learner, but also in their metacognition skills as they are able to articulate their growth as a learner.

EVERYTHING IS ONLINE NOW?

With the move to electronic resources, many of which schools cannot afford, it is my belief that we need to go back to the source of the information, primary sources, more than ever. For example, our local university library has fewer hard-copy books than our high school library; they have taken a digital preferred approach. At university, more students are using data-driven research rather than qualitative or secondary sources, so what does this mean for how we teach?

Dobber, Zwart, Tanis and van Oers (2017, p. 210) states that 'Teachers should enculturate students to embrace inquiry and encourage them to act like academic researchers'. To take this approach means using data and connections between the data to make inferences. For example, the media would have us believe Australia has a growing teen drinking problem, Australian Institute of Health and Welfare (AIHW) data shows the proportion of young people abstaining from alcohol increased from 72% in 2013 to 82% in 2016 (AIHW 2017). This fact would not be known to the student if they only accessed news media secondary sources. Through accessing primary sources such as data and experts in the field, our students are positioned to make informed judgements. In the world of 'fake news' and bias, this is one of the best skills we can teach our students.

HOW DO WE ACCESS THESE EXPERTS?

Not everyone has experts available in their school community. There may be some work required by leadership, teachers, and students to form these connections and relationships. An example of a school leading the way in this is Annesley Junior School. This small primary school in Adelaide has a program of 'Thought Leaders'; experts available when the need arises. This includes professors, business people, MPs, futurists who make themselves available '… when their experience, skill set and networks can benefit student learning' (Annesley website, 2019).

In my own school community, a student initiative has been enacted called 'Share your Career Day'. This was developed by a group of students who had attended an activity at our local university. The students were able to meet with staff who were experts in their field, opening their eyes to a number of careers and stories of how the staff came to be in their current career. These students realised they were fortunate to have this experience and wanted to provide the same experience to all Year 10s at our school. They made contact with members of the school and local community who were engaged in a variety of professions and asked them to speak to the Year 10 cohort about a few key aspects. This assisted many students in choosing their subjects for Senior years and a possible pathway for them.

Galleries, libraries, archives and museums all offer opportunities for our students to access primary and secondary resources. The staff there are experts in their fields. The Art Gallery of South Australia's vision is even 'beyond the classroom'. When enrolling at our school, all students are given an application form for the local public library. This is returned with the standard enrolment forms and enables students to access the library for excursions, extending their sources and enjoying the programs. This is a mutually beneficial relationship as the public library receives more youth members who are then able to use their services at times the school is not open.

A number of tertiary institutions allow membership for the community, with special consideration given to secondary school students. Many provide this at no cost to the student or school and offer services beyond resource access, such as presentations on

information literacy, academic honesty and orientation to university life. It is worth investigating for your school, even if a link to a tertiary institution is your only consideration.

One of the research tips I provide to students is when using a secondary source to not only assess the reliability of the author, but if the author is a possible primary source for them. Many articles have the email address of the author at their institution or organisation listed. Many university websites have databases of 'research experts'. With carefully crafted emails and questions, my students have had many valuable responses.

A couple of years ago, one of my students was investigating the environmental sustainability of hiking the Kokoda Track. She had hiked the track herself as part of a youth leadership program and happened to have some water purification tablets left. She emailed the company that produced the tablets with questions related to ingredients and their own studies on the effects on the environment. The response was detailed, informative and valuable to her investigation. Whilst acknowledging bias, she was able to achieve her aim of considering an aspect of something small in the scheme of the greater topic.

For the past four years, I have worked with a small group of students who sought to assist new students to the school in their transition. Their idea was to create a product that could be used to orientate students to the school. It was decided to create a 360 tour of the school (similar to Google Maps). Each had strong technology skills but the challenge and area of learning was the requirement to work with external organisations to make their product a reality. Meetings were held with our local university who were testing beta software which could achieve the project aim, followed by discussion with the company developing the software. The students were also required to investigate, request quotes and purchase a 360 camera from a local camera store. Through the use of the Design and Technology facilities at school, they built a stand for the camera. These

sound like basic tasks for a fully grown adult but these students, who were all highly able, struggled with the communication processes involved. Talking to adults, negotiating prices, discussing contracts and plans and then applying to our principal for the money were all tasks which stretched them beyond their comfort zone. Unlike many of the other 'connections beyond the classroom', this interaction was not altruistic; these organisations treated it as a business transaction. This project was not just a demonstration of the inquiry learning process, but design thinking, entrepreneurship, student agency with a strong focus on metacognition. The students thrived and are much better for the experience.

BEYOND THE SCHOOL WALLS FOR ALL OF US

With the focus on inquiry learning in schools, there is also a strong growth in universities. Many courses require students to undertake projects involving relationships with industry and the community. Even in our own staff professional development, one of the first activities undertaken when exploring change in a school is a study tour of other like, or different, communities. Consultants to government and businesses are essentially external sources of knowledge and skills to assist organisations with their own inquiries.

OUR ROLE AS TEACHER LIBRARIANS

There have been many different titles given to teacher librarians over the last 20 years, some positive, others not so. In actuality the teacher librarian is often at the coalface of implementing innovations in education, such as design thinking, student agency and metacognition, all in how we run our inquiry learning program. How about we don't worry about what we are called and focus on our core business of creating connections for students, be it with books, online resources, humans or otherwise.

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