

DesignInSchools™

DELIVERING OUTCOMES FOR PEOPLE AND PEOPLE AS OUTCOMES

A Collaborative Paper by



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In November 2015 a partnership was formed between two disciplines, education and service design, and two organisations, Macquarie Primary School and Design Managers Australia (DMA).

A project was born, DesignInSchools.

It had a shared intention to undertake, in an inquiry-based school, a formal, reusable professional design process and practice with a real world problem: improving the school's car park experience.

This was a truly co-created opportunity, exploring with a group of 10–11 year-olds* how service design can be used as a creative, problem-solving discipline and how it can extend their current inquiry-based education focus.

We hope both education and design audiences will find something in the experiences of those involved to inspire, ponder or simply delight in the age-less endeavour to not only acquire knowledge but learn how to use it; whether one is over or under the age of 11.

**Throughout the paper the student team is sometimes identified as 'Little People'. This is a deliberate use of the term employed by Macquarie Primary School for its students. This terminology reminds educators that the needs, interests, and motivational drivers of young learners are often more similar to their own, than traditional views of relationships in schools often imply. The emphasis of the learning community is on people, irrespective of their age.*

“I thought it would just be like easy stuff without having to think about anything but it turned out to be kind of like you have to find out whether to make this thing work with that.

Emily, age 10



The implementation of the design wouldn't have been possible without the support of Transport Canberra and City Services, ACT Education Directorate, and expertise from the Australian Federal Police.

WHAT DESIGNINSCHOOLS SET OUT TO EXPLORE

In 2014, DMA undertook a project sponsored by the ACT Government exploring parental attitudes towards encouraging their young children to walk or ride to school: Active Streets. One of the schools they worked with was Macquarie Primary School, and their Principal, Wendy Cave.

The Inquiry and Design processes meet

Wendy was inspired by the research method that the DMA team had proposed for its congruence with the inquiry process that teachers were finessing across the school.

For Macquarie Primary School, they were already five years into a journey of school improvement. Guided by the ambitious priority of providing an innovative education to meet the needs of the community, the education team recognised the significance of placing inquiry at the heart of culture and practice. Over time, they had become increasingly committed to their collective responsibility for developing successful learners, creative and confident individuals and active and informed citizens.

To this end, teachers and students were deepening their appreciation and understanding of learning assets for the 21st Century. The team's core business became, and continues to be, building the identity of learners as:

- Thinkers.
- Collaborators.
- Researchers.
- Communicators.

For DMA, as practitioners in the design industry since 2003 as a company, and with over two decades of experience for the two Co-Principals, the conversations about the School's inquiry-based learning culture sounded completely in tune with their service design experience and practice.

This meeting of processes set both groups on a path towards running a shared project and quickly evolved into an offer to engage students in the problem solving discipline as co-designers.

Essentially, it became an opportunity for students and staff to learn by doing. All that was required was a problem to solve.

As a professional practice DMA operates in a world where creativity isn't evangelised, instead it's pragmatically realigned as 'create to learn' so you can 'design to make'. Having 'fun' is recast as 'purposeful play'. Innovation as a label has little currency except as a result, and where the interest is not in theory, but learning through practice.

That meant that an invitation to DMA to meet the students at the school to share how they experienced research as a viable career path, turned into a significant learning experience and an enduring partnership.

What the Educators wanted to explore

It has been said that innovation thrives on new perspectives, and the first meeting of DMA and the Principal activated an extraordinary realisation. Superficially the work of the design team and teachers could be considered worlds apart. Fundamentally, however, it was so similar.

Through Macquarie's engagement the Leadership Team set out to explore the design process through the lens of inquiry, particularly how the framework could be used to guide teacher facilitation. They were interested to experience and analyse how the process might influence school and classroom culture, shape values, build dispositions and empower young people to determine the future.

What the Designers wanted to explore

With so much education in the design space aimed at the tertiary level and the rise of STEM, what if you were to work with the primary school level – before so much thinking and education routine sticks. Working with adults most of the time, it can be fascinating witnessing their apparent struggle to imagine non-routine ideas or think beyond what they know with others, or even give themselves a break for just a three-hour workshop to let go of everything they know and explore different things, differently.

That meant there were some specific aspects of design and young thinkers that DMA wanted to explore. Simply put:

- How do kids think?
- What would it be like to use design to solve a school problem with kids?

What everyone wanted to achieve

While all schools develop their own personalities, there are some challenges that are universal. School car park congestion consumes the time and concern of many a school leader, in Canberra, if not around the world. While improving the car park had been considered and explored over the years at Macquarie, as a context for group inquiry, the impact had been limited. The team became excited and poised for the experience of using the design process, with integrity, to tackle this authentic problem for its community.

Early on the team was cast as "a true project of students making a difference"; and the designers and educators were set on a path towards discovering the relevance of their practices beyond learning and solving.

In this paper, both the Educators and Designers explore some of the key themes that emerged from their experiences:

- Methodology parallels between inquiry-based learning and design as a empathetic problem-solving discipline.
- The power of expertise and contemporary literacies in modern education.
- Real context for real outcomes; a seamless education and professional connection.
- Providing pathways for having humanity through understanding.

METHODOLOGY PARALLELS

One particular hypothesis explored during DesignInSchools was that the two disciplines of inquiry-based education and service design were connected by both their ends and means.



The approach of **inquiry-based education**, as a response to curiosity and need, is to not assume a smooth path to knowledge, but to instead pose questions, problems or scenarios. Teachers become a designer, architect and activator of learning.

The approach of **design** is, based on an agreed intent, to explore the human experience of a system by developing first-hand knowledge, then exploring possibilities through prototyping in order to define a solution that can work for multiple needs. Designers lead and navigate.

Inquiry-based education as a focus

Post World War II, the goals for Western education have been framed by a humanist agenda, positioning education as a vehicle for promoting:

- Social equity.
- Citizens who are successful learners.
- Confident and creative individuals.
- Active and informed citizens.

Contemporary curriculum foregrounds the need for students to be skilled innovators, in order to build and maintain sustainable social and material futures. The intentional work of educators recognises that the best learning happens when students see content as relevant to their everyday lives. Teachers of inquiry guide students through cycles of learning. Students respond to complex provocations and questions by exploring their existing knowledge, undergoing instruction and applying and reflecting on action.

Skilled teachers of inquiry deliberately map connections between the formal curriculum and student activity. This informs both future planning and assessment and reporting of student growth. Inquiry-based education values complexity; educators who follow this approach see real-life opportunities and challenges as rich starting points for interdisciplinary learning.

Service Design as a problem-solving process

As a discipline service design helps understand if services (i.e. the means by which people access what they need from an institution) are working how they are intended to; and how potential or current users want or need them to work or evolve. The approach is collaborative, iterative and focuses on what people actually think, do and use (i.e. their experience). This means business decisions can be made on opportunities for improvement, consideration of strategy to drive effort, how change could impact services, staff and customer experience, and even the way a business works.

In practice that means utilising activities such as:

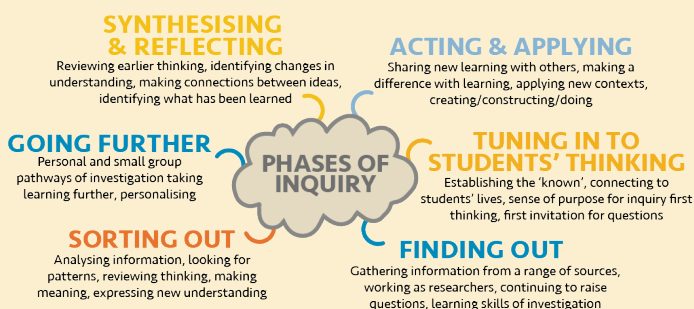
- Prototyping and intent creation.
- Notions of iteration.
- Making to learn.
- Testing and trying again.
- Working together not as the same type of people, but as different people, and that being a strength.

For DesignInSchools, the approach taken, while discipline-aligned and run like a true client-sponsored design project, was never intended to 'train' the students to become 'Designers'. While the project intentionally didn't create artefacts such as customer experience maps or blueprints, or develop stakeholder ecosystems, no method or technique was simplified. The experience was authentic and their learning shaped that experience. There was discussion of people as 'users' and articulation of empathy of different people needing to do different things – and not just the parents and teachers parking their cars.

The end is not the solution

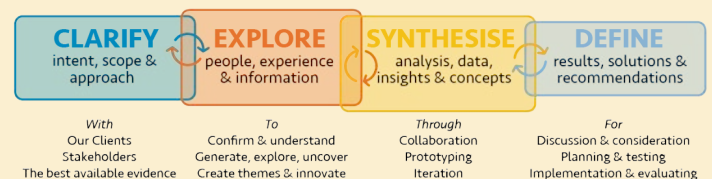
For both disciplines what was confirmed was that the end point was not necessarily the answer or the solution. Inquiry-based education engenders curiosity and a means by which to explore that. Design provides a repeatable and scalable practice to learn and solve. The means by which the right answer was arrived – the exploration, the scenario exploring, the experimentation – and the resulting knowledge and learning that was created along the way was of as much value as the solution itself.

Inquiry-based Learning applied at Macquarie Primary School



Kath Murdoch Model

DMA's Service Design Approach



“I also enjoyed testing the prototypes and going out there. You really felt like you were making a change when you’re out doing something physical.”

Eliot, age 11



REAL CONTEXT LEADS TO REAL LEARNING

DesignInSchools was a deliberate engagement with students as a design team delivering on a real design problem. It was driven by an exceptional and creative teaching group looking to add to their existing education approaches, but the core concepts and approach are applicable in any school.

Designers led the process, but students led the solutioning. Over six structured modules students learnt how to apply their existing skills to a new methodology – Service Design. Students were led in all design techniques but self-defined their particular interest and specific techniques they wished to pursue. And School Management received a focused, professional artefact around design problem.

DMA constructed and delivered its standard design process, based on a proven methodology. Moving through the key process stages or intent, research, analysis, prototyping, testing and documenting, what DMA saw was how the Little People were able to work within the process, within the roles and within a multi-disciplinary framework.

A pragmatic design process

The design process was constructed to move across six sessions – much the same as a standard design project. Each session focused on:

- A stage of the design process.
- The techniques required.
- Practical application of these techniques.
- Reflection and review.

Much of the reflection approach built on DMA's design ethos – *learning through doing* – in collaboration with expert educators, who introduced techniques such as:

- Glossary use, where students define the meaning of a term themselves before using it.
- Split-screening, where active self-reflection on the process is undertaken during the process itself.
- Physical refreshing of the group to enhance standard design approaches to capability building – sometimes the students just needed to have a run around to get their minds back in focus.

The process was dynamic and responsive to a real and 'actual' design question – the 'safety' of the school car park had been a recurring theme for Macquarie for many years. Having such a contextual design question or problem, meant the design team could undertake many of the activities (research, prototyping, observation) within the actual space in which the solution would be delivered. In some ways this was above and beyond what a normal client of DMA would allow. The Project Sponsor/Principal allowed the methodology and process to flow, but added to that by anticipating and encouraging disruption of the physical space and community through prototyping.

Physical prototyping and measurement

The area of the design process that can be overlooked in professional settings – data gathering, analysis and measurement – were strongly supported in DesignInSchools. With the agreement of all parties the project was extended beyond its original time frame so that a dedicated two-week program of data capture and measurement of prototype testing could occur. As well as this taking 'class time' the design team were rostered on before and after school, at a busy time of year for them.

This part of the process not only embedded the importance of evidence gathering and analysis of data, it highlighted to the team that the process can be altered, improved and extended if it brings the right results. This wasn't an artificial six-week design process – it was always responsive and dynamic in order to generate outstanding outputs (*the design*) and outcomes (*improving the experience of the car park*).

Process to artefact

The design process was also focused on the output – a design specification with elegant solutions that were responsive to the many users of the car park. The product output – the Specification – had to enable action after the design process was finished. It had to not only be documentation of the outcome of the project, but also a guide to implementation and a key communication device to engage the broader school community.

What occurred, due to the Little People being encouraged to take on a range of roles, was that the design process flowed seamlessly into the implementation phase. The process supported multi-disciplinary collaboration – NOT the creation of 18 designers. Because design on its own doesn't change things. The legacy that is left behind is within the people you design with and for. That is who changes things.

DesignInSchools has led to process improvement in both the education and design fields. DMA has incorporated a number of the education approaches for reflection and capability building back into its professional design practice and Macquarie staff continue to integrate design process elements into their inquiry-based teaching and school leadership approaches.

THE POWER OF EXPERTISE

For educators it is essential to provide opportunities that build knowledge, skills, attitudes and values to support students in navigating their way through the ever-changing world.

DesignInSchools connected students with each other, their community and their learning in the most authentic way. It also provided them with an opportunity to learn about their strengths and how these could be utilised by the collective group to achieve a common goal.

Exploring the design process proved to be an effective framework that aligns with Macquarie Primary School's core philosophy of inquiry-based learning. Tuning students into clarifying the intent of the project set them up to understand the community in which they live, manage and question themselves as learners and ultimately participate in a project effectively to make positive change.

This design framework truly positioned learners as local and global citizens. By exploring, collaborating, analysing and synthesising information, they drew on insights and concepts that allowed them to contribute, to sustain and to improve the school and the community that surrounds it.

Learners within an authentic process

The rich context for learning gave students an invitation to engage with design. There was a strong sense of purpose and responsibility as students collaborated, and built an outstanding partnership with DMA. This was not just another task students were doing at school, the authentic nature of the car park problem empowered them as leaders.

The project honoured the fact that no two learners are exactly the same. There were key interest groups that formed as students worked to and challenged their strengths and areas for improvement. Some students found purpose in questioning and analysing the data collected, others took to prototyping and testing. Regardless of each individual role, students collaborated in a way that every person was acknowledged and valued. From this came a much deeper reflective learning experience.

The passion wasn't the car park, it was making positive change. Students truly owned their involvement in the project, they could see the work they'd done and that it was of significant importance.

This project drew heavily on educational psychologist Lev Vygotsky's notion of 'apprenticeship'¹. This is the idea that quality learning happens when a more experienced 'other' guides one or more people through the application of knowledge for a real purpose. Pedagogically, teachers and designers deliberately placed learners in what Vygotsky called the 'zone of proximal development' (ZPD). ZPD is a space where students can be both more challenged and successful than they would if working independently, due to the intentional support of experts. In this way, DMA:

- Supported students with interdisciplinary knowledge and skills.
- Explicitly modelled the skills in action.
- Taught students necessary dispositions for working successfully as designers in the real world, such as positivity, resilience and discipline.

Educators in a design environment

To ensure quality inquiry practices, teachers must see and model themselves as inquirers too. Scepticism about the application of the design process to student learning was thought about critically. It was important for the teachers involved to question how something as structured as the design process would still open students to think creatively.

For the educators involved that was, and still is, the most valuable part of their own learning. Using the design process has given them another framework for creating learning environments rich in purpose and passion where curiosity is not just encouraged but inspired.

CONTEMPORARY LITERACIES

The Melbourne Declaration for Australian Schooling² reminds educators of their responsibility to develop active and informed citizens. In terms of contemporary literacy, this means growing learners as critical consumers and creators of multi-modal texts for multiple and increasingly wide-spanning audiences.

Macquarie Primary School's education team responds to the challenge of growing successful readers in a complex, and changing communications environment through the lens of Luke and Freebody's Four Resources Model³. Teachers intentionally provide opportunities for students to develop knowledge and skills required for distinct though inter related roles, all necessary, and none alone sufficient.

The Four Resources Model

- As *code breakers* students decode the conventions of written, spoken and visual texts.
- As *text users* they understand the purposes of different texts for different cultural and social functions.
- As *text participants* students learn to comprehend texts.
- As *text analysts* they build understandings as to how texts position readers, viewers and listeners.

A significant dimension of the DesignInSchools experience from the educational perspective was its effectiveness as a context for building literacy for, and through, inquiry. Print-based text on paper was not privileged, as so often becomes the habit in education. Instead, the design process validated the place and importance of listening, speaking, reading and writing, as the designers explored and constructed texts that included interviews, maps, and graphs. Each one had an authentic and meaningful place.

The authenticity and investment students had in the outcome served as a powerful scaffold to their success. Playing to strengths served efficiency in the process, promoting engagement and collective efficacy through teamwork. Speaking and listening were, in this way, appropriately foregrounded.

The quality of the collaborative text construction, and the genuine sense of shared ownership, provided powerful evidence of learning.

“I really enjoyed prototyping because we were working together and we would come up with ideas and then we would make it and then we would be like oh no maybe we could be like where could we improve that.”

Olivia, age 11



“It was a really lovely project to be involved in because it had this great sense of connectedness and mobilisation and I think that came from the way DMA and the service design approach really connected skills with emotion...”

THE OUTCOME FOR PEOPLE

The project outcomes have been multi-faceted and the expectation is that the impact will continue to be seen and felt over time.

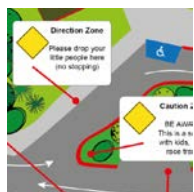
An improved car park experience

Firstly, the result achieved was an improved car park experience for all users. The Little People in the design team transitioned into an Implementation Team. They held the Principal, who was armed with a detailed Design Specification, accountable for delivery; with five solutions:



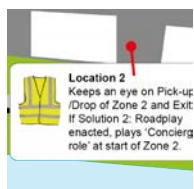
Solution 1: Representation and Reality

A map showing functional zones, layout and peak/off-peak usage guidance is available to all new parents/carers and accessible electronically (website, facebook) to all users.



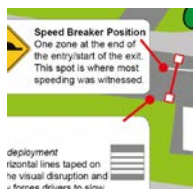
Solution 2: Sign Zones

Updated and refreshed road markings, that clarify zones, and adjust the layout to aid functionality of all users (i.e. parents/carers, students, staff, walkers, drop-off/pick-up users, visitors). Accompanying signs are a mix of instructional messages and friendly-toned guidance.



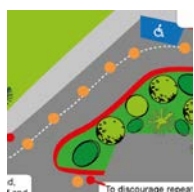
Solution 3: VIPs (Very Important Presence)

The physical presence of people in the car park at peak times on a volunteer basis has been established. The School calls them 'Vesties' and "they are invested in creating a positive car park user experience" (as well as wearing high-vis vests).



Solution 4: Speedbreaker

A concrete speedhump has been installed at the entrance to focus the drivers attention as early as possible on the mixed use environment they are moving into.



Solution 5: The Great Divide

A designated 'safety zone' is enacted by use of cones and Vesties at the peak 15 minutes in the morning and afternoon. The divide effectively splits the road in half and 'forces' drop-off/pick-up behaviour (not park and stay in a drop-off zone). The impact on the flow in peak periods cut entry-to-exit travel time from 55 seconds to 25 seconds.

With only minor refinements from implementation lessons, the five solutions have been in action since the improved car park was launched on 17 October 2017.

Educators as leaders, partners, managers

For the School, part of the Project's success has been around teaching the Macquarie Executive and teachers about distributed leadership, and that it includes students and the community. The project provided ways of working with the entire community to support them all to be leaders – family, students and staff, to mobilise change for the better in the school.

Modern day educators need to see themselves as human resource managers, connecting students with the right experts at the right time to enhance the learning process. This experience was an example of this concept in action. Designers worked in partnership with educators to create an authentic real-world experience for students to engage in.

Design Intent, Design In Practice

For the Designers, interested in exploring "How kids think?" and "What it would be like to use design to solve a school problem with kids?" the surprise was that the process, effort and approach didn't need simplification for the school environment.

Design Activities

Kids can think differently but they needed to be given a pathway to follow and encouragement. For the Little Designers, their points of comparison for design tasks were art, school projects and special subjects where they created learning based on a specific topics. Perhaps because this was an inquiry-based environment, the design activities set were never questioned – they just did it. This is starkly different from projects with 'older' people where the process can be debated in lieu of continual discussion.

Collaboration

The power of a clear intent, and purposeful play enabled all the team members to break down elements and learn about how they work together in visual and verbal ways. It seemed intuitive to the students that in order to delve into complexity, the learning was done by the doing. Because everyone involved was not the same or played the same role, the value of conversation was that it *was the work* and everyone was invited into the conversation.

In addition, it was clearly observable that the Little People didn't just 'work together' but that they organised themselves to 'work together'.

Time

The project spanned six months, with six sessions running between 1½- and 4-hours. The sessions were held before, during or after school hours and needed to be flexible with the school schedule. The amount of time and effort that went into the work was no different to a client project with 'older' people.

From this experience the Project experience cemented a firm belief that everyone has a place in crafting how their world can be improved.

...And that there was building of real skills that come from the curriculum with experiences like surprise and excitement and curiosity and that was a really powerful and pleasurable thing to be a part of.

Brendan Briggs, Deputy Principal



***“[DesignInSchools] helped me learn that everything we do relates to something in our lives.*”**

Patrick, age 10

THE OUTCOMES AS PEOPLE

One of the underlying aims of DesignInSchools was to explore the oft-stated notion that children are inherently creative.

This statement is often made in the design world when lamenting the inability of adults to ‘be creative’ and DMA were keen to see this untapped creativity in action. The result, of course, was that some of the Little People were naturally ‘creative’, some were not. Within that, some were creative in a solutioning sense, some in a visual design sense and some were creative with data and analysis.

Providing pathways to having humanity

What was surprising and pleasing to the Educators and Designers, was the observation of the pathways provided for the design team members went well beyond the singular notion of design unlocking creativity. Pathways were established – both overtly and subtly – for the Little People to explore emotion, empathy, curiosity and wonder as well as evidence. This connection of the emotive with the discipline of data, extrapolation and ‘proof’ allowed the students to navigate their own way through a disciplined process. They delivered solutions that were designed to provide enhanced experiences for the community (their fellow humans) but they were also connected through a sense of purposeful wonder.

The project also supported the students to understand the complexity of ‘responsibility’. They learnt that:

- A focus on ‘kids as creative and adults as approvers’ was not substantial for the very real context in which they worked.
- They were supported to understand that adults don’t know best any more than they as Little People know best.
- The single view of a parent had no greater weight than the opinion of a kindergarten student.
- The Principal set the boundaries of intent, but didn’t have the solution.
- The responsibility of the design team wasn’t to ‘enjoy the activities and have fun’, it was to develop and deliver
- Meaningful and implementable design solutions for an entire community.

The project provided students with an authentic opportunity to experience what it feels like to enhance an experience for members of the school community. Students felt that the project they were contributing to was purposeful and were therefore motivated to persist when the work became challenging.

Beyond creativity to creating

Supporting the students to understand the design process has also enabled them to approach other complex problems with confidence and the skills required to work methodically. They now understand that answers to a problem are often not clear immediately and not having an answer straightaway is all part of the a sustainable problem-solving process.

Supporting the team to understand this responsibility, with the framework of empathy and humanity that drives all DMA design approaches meant the Little People were positioned to

not only learn themselves in the design process, but be ready to evolve to be implementers for the community – which they did in subsequently implementing all of the design recommendations in the physical space.

The impact of the project is best summed up by feedback from the school’s Deputy Principal, Brendan Briggs:

“The entire project has been one of the most inspiring, sophisticated and meaningful learning projects that I have seen in my entire career. I have loved watching DMA bring teachers and learners along together in the process, breaking down traditional barriers and encouraging learning about design, project management, communication and leadership in a real context.”

The design project itself dispelled parental car park myths, presented real solutions that have been tested to work, and gave the decision-makers the tools to action with evidence and confidence. Importantly it inspired a group of young people to design and be part of the design process.

ACCOLADES AND AWARDS



Winner: 2016 Service Design Best Overall Good Design Australia
Winner: 2016 Best Service Design: Education Good Design Australia
Finalist: ACT Education Partnership of the Year 2016
Nominated: A'Design Award Service Design Category 2016

FOOTNOTES

1. Vygotsky, L.S. (1978). Mind and society: The development of higher mental processes. Cambridge, MA: Harvard University Press.
2. All Curriculum in Australia is underpinned by the ‘Melbourne Declaration on Educational Goals for Young Australians’ (2008). The Declaration articulates nationally consistent future directions and aspirations for Australian schooling agreed by all Australian Education Ministers.
3. Luke, Allan & Freebody, Peter (2003) Literacy As Engaging With New Forms Of Life: The Four Roles Model. In Bull, Geoff & Anstey, Michele (Eds.) The Literacy lexicon. Prentice Hall, Sydney, Australia.

