

Critical Reflection Essay

Overall WIL Experience

Personal lessons

Over the past two months, working on my own startup has enabled me to learn much more than I would in a traditional classroom setting, and has also provided a valuable opportunity for introspection. I chose Option 2 of the Work Integrated Learning pathways to overcome a longtime barrier: paralysis from feeling “I didn’t know enough” to launch a venture. The most valuable lesson has been recognising that perfectionism hinders entrepreneurship. I’ve learned to embrace uncertainty and step out of my comfort zone, addressing challenges as they appear while staying agile and adaptive. This hands-on approach has enabled me to master the fundamentals of 3D printing, including different filaments, 3D CAD software as well as printing constraints and tolerances. I’ve also sharpened my soldering and programming abilities. Importantly, I’ve learned to conduct stakeholder interviews that validate the problem, rather than simply receiving validation for my product.

One of the highlights so far has been securing funding from UQ Ventures through the Validate program (\$1,500), a symbol of persistence and pitching ability. Further, the creation of my MVP was a significant milestone, and was rewarding to see the core concept work after numerous failed iterations. However, motivation has been my biggest challenge. Some days I wake up enthused and prototype for hours; other days I would question whether the product is worth developing or doubt the product-market fit. On unproductive days, this feeling would exacerbate. I’ve spent many hours writing and debugging code that ultimately wouldn’t work. I also had some troubles getting the microcontroller (the brain of the device) to work, sometimes finding the device would get stuck looping on previous code, requiring me to take the device apart, remove the chip and begin a laborious process resetting it.

To alleviate these challenges, I time-boxed my work around specific problems. If code wasn’t functioning, I’d devote a set time to fix it, then deliberately switch tasks. This prevented tunnel vision and burnout. I also leveraged my network for testing, brainstorming and debugging electrical issues. My design classmates were

particularly helpful in challenging my assumptions about what the device should do, look like and feel like, preventing me from becoming too attached to my initial vision,

In hindsight, I would have recruited a cofounder with programming skills early in the process. This would have freed me to focus on product design, which is my strength and passion. Since my coding abilities are rudimentary, someone with better skills could have been a strong addition to help ideate quicker and provided a collaborator for feature development.

Networks established

UQ Related:

Designers: I have strengthened my connections with designers including, Leon who ran the internship I did last year, Benny and Dan (two industrial designers) who I met this semester.

Peers: I have met several new people in my design and entrepreneurship courses, who have helped me test my product, provide insightful suggestions in and out of class, discuss my progress and challenge my core assumptions.

Entrepreneurship: UQ Ventures facilitators and staff: Tomas, David, Hein and Tyson. UQ Ventures peers: Ned, Tania, Armando, Philip, Ethan, Joh. UQ Ventures Mentors: Noah, Martyn and Elli. UQ Business School: Jack, Tahlia. Other startup founders from iLab and Momentum accelerator programs whom I met during UQ Venture's 'scaleUp' events.

Non-UQ Affiliated:

Industry: ARM HUB staff at their prototyping facility in Northgate.

IP Contacts: Email addresses of lawyers with IP specialisations.

The greatest value I have gained from my network is from my mentors and peers providing feedback on the user experience of my product and engaging in deep conversations with me about my vision, often challenging my assumptions about

what this product should look like, who my target market is, and supporting the development of my iterations by offering constructive criticisms and suggestions about my device.

New Knowledge, Insights and Skills

The Past

Prior to this course, I was well informed about the Design Thinking process, but less informed about the Lean Startup and Effectuation processes. As a design student, empathy mapping and prototyping are tools I have used many times before and are confident in using. Through the Innovation and Entrepreneurship major I have been exposed to the Lean Startup methodology and Effectuation but was less confident with these approaches as I had only grappled with them in a theoretical lens. I knew that Lean Startup was about testing assumptions quickly and cheaply and that Effectuation was about leveraging the resources in your network and surrounding, but not much beyond that.

Key Learnings

Throughout the semester, I have learned that entrepreneurship is not about having the perfect idea from the start, but rather, about experimenting, learning and continuously adapting. The most important insight was understanding that uncertainty is not something to eliminate, but something to navigate through iterations, co-creation and strategic problem solving. This mentality inspired me to start small, test assumptions early and use the resources at my disposal to create progress quickly.

This mindset was central to developing my physical device, which underwent nine iterations. This rapid prototyping allowed me to learn through discovery, working out the correct button spacing, dimensions and ergonomics. Since filament is cheap, I could afford to experiment quickly, learning from each print. This iterative process matches the Lean Startup's build-measure-learn loop, teaching me to validate assumptions through early testing, rather than focusing on the 'polish' of the product

(Ries, 2014). In future projects, I plan to use this approach to refine ideas efficiently, before committing significant time or resources.

As the design matured, I engaged peers, friends and mentors to gather feedback on my MVP. These discussions revealed a key insight about product-market fit: even a technically sophisticated and novel product can fail if it does not solve a real need. In testing, users demonstrated a preference for a compact, handheld device, rather than the original tabletop design I had envisioned. By adapting the size and adjusting the ergonomics to ensure each button was in thumb's reach, I improved usefulness and desirability. This is an example of 'validated learning' where feedback loops transform assumptions into data-driven insights (Blank, 2013). The most valuable learning is that conducting many interviews with diverse perspectives leads to better design outcomes with a stronger alignment to market demands, an approach I plan to carry into my future design work through co-creation with stakeholders.

Early in the semester, I faced a tough decision between developing *Acuity*, or creating a journalling app. I chose *Acuity* since it best aligned with my passions, experience and available skills. Specifically, I already understood the problem space well through my experience as a tutor, had experience with wiring and CAD software, and could access feedback from industrial designers in my professional network. By leveraging current resources and skills rather than chasing unfamiliar ones, I was able to move fast and effectively. This decision reflects the Effectuation principle, 'bird-in-hand', which emphasises starting with who you are, what you know and who you know (Sarasvathy, 2001). Importantly, seeking feedback from Leon, an industrial designer contact of mine, added some ideas to increase the polish and practicality for later iterations. As my network expands, I plan to apply the bird-in-hand principle in future projects, allowing me to experiment in different fields using resources and connections already available to me.

The Future

My WIL experience has had an important impact on my career trajectory, as I intend on continuing the startup I have formed into the future. It has been a long-time goal of mine to invent a product or service and bring it to life, and I see my experience developing Acuity as the manifestation of this journey. The skills and network I have gained over this product-development sprint will continue with me into the future as I further develop the product and eventually build other products as well. My WIL experience has influenced my thinking by giving me the confidence to build a business from the ground up and knowing that I won't have everything figured out from the start but will find the way over the course of the journey.

Course Feedback

I have valued the 1-on-1 consults each week as this has been a productive way to ask questions, check in on progress and receive actionable insights and suggestions.

Suggestions for improvement:

- (1) I thought that the class check-in in week 11 was helpful for gaining insights from other teams about their approaches. I found this was a good way to learn from others and provided a comfortable atmosphere to receive assistance from peers. In future if there was another one of these check-ins earlier, perhaps before mid-sem break, I believe that would be helpful.
- (2) To improve assessment 1, I would add clarification about the 'week numbering'. I mistakenly thought that the weeks were in relation to the uni semester, rather than our own venture. Providing some clarity is a simple fix that could prevent confusion.
- (3) I found this opportunity to create my own startup to be very worthwhile, and I suggest highlighting to future students that WIL pathway 2 might be more work but is also potentially a more valuable / fulfilling way to learn lots about starting a business and about yourself. Personally, I would recommend this option to anyone who has an idea that they haven't acted upon yet.

Reference List

Blank, S. (2013, May). *Why the Lean Start-Up Changes Everything*. Harvard Business Review. <https://hbr.org/2013/05/why-the-lean-start-up-changes-everything>

Ries, E. (2014). *The lean startup : how today's entrepreneurs use continuous innovation to create radically successful businesses* (1st ed.). Crown Business.

Sarasvathy, S. D. (2001). Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency. *The Academy of Management Review*, 26(2), 243–263. <https://doi.org/10.2307/259121>

Entry #1: Low Fidelity Prototype analysis (14/9/2025)

Today was a huge milestone as I completed my first low-fidelity prototype. While I have made prototypes before, this marks the first one that assembles as one complete device and has functioning lights and button clicking effects. This development is important as it signifies that I have navigated prior problems sufficiently to hold all pieces in place which is a great feat for me being new to product design. Applying the lean startup principle of testing cheaply, I designed this without full MVP functionality, as a way of testing the size of the device, how it looks, and to gain quick feedback from users. My key takeaways from this low-fi prototype are learning about 3D printing tolerances and that users had challenges clicking buttons quickly, as they were spaced out too-much that the user had to lay it down on a flat surface and use their pointer fingers. Ideally, I would like the product to be ergonomic, handheld with each button reachable from thumbs. For the next iteration I will:

- move the buttons closer together,
- reduce the overall size of the product,
- make the shape more rounded, to provide ergonomic grooves to hold on better,
- reduce the vertical height to make it slimmer, solder the buttons and code some games to test it in action.

Entry #2: UQ Ventures Mentor Conversations (24/9/2025)

In today's Validate session, we had guest speaker Martyn Asser join us, providing a keynote speech followed by 1-on-1 feedback joined by a range of other mentors. Martyn's talk was based on his personal experience as a door-to-door salesman, and his progression to own his own marketing business, where he now leads a team of salesmen. A key insight I took away from Martyn's chat, is that sales is a "transfer of energy", where the salesperson's enthusiasm and affinity to the product assists with the sale. He mentioned some titbits of psychology, like how giving someone the opportunity to talk about their day is a strong way to make a connection and be on the 'same page'. During the mentor conversations, I told Martyn about my startup and my question to him was:

"What is your advice to someone like myself trying to sell a product that is in part intwined with my identity, as in, how do I navigate rejection of my product without taking it personally?"

Martyn explained that rejection from a sale goes both ways. He said that it is not them rejecting you, it is them simply saying the product is not right for them at that point in time. Martyn's advice was a valuable point of self-discovery as he made me realise that a sales rejection goes both ways. As in, I am looking for the right people to buy my product, and if someone declines the offering, it is equivalent of me finding out that they aren't the right fit. In this Ventures session, I also met Ned and Tania, who are two other participants with projects in adjacent problem spaces, expanding my network and creating opportunities for collaborations.

Entry #3: Feedback from Leon, Isaac and Sean (9/10/2025)

Today I met with Leon, a designer who led my internship last year. I reached out to him, as I figured I should leverage design expertise in my network to validate the physical design of the product, and get his thoughts on the user experience of the device. Overall, Leon was impressed with the form factor and size and gave recommendations of integrating a rechargeable battery. This was a useful insight as I had previously thought using double-A batteries would be the best option, but I agree with him that a rechargeable battery gives the device a more polished, higher quality feel, rather than a toy (which often use double A's). Leon's perspective was valuable as being a designer himself, he is very in-tune with the design thinking approach and was able to suggest different experiments that I could run cheaply. These included, adding rubber feet to the design to prevent it from slipping if using it on a tabletop, playing with the finish of the device, potentially have a clear or frosted component, and adding a speaker to give more potential game modes (e.g. a game that requires a user to remember a sound and a colour, increasing the complexity and requiring closer concentration. After this, in my design class I spoke with two of my classmates Isaac and Sean who assisted with more in-depth feedback and prolonged experimentation with the device. I learned that the 'Colour memory' game instructions were unclear, as both users required my assistance to understand how to play the game correctly. I also received suggestions about other use-cases for the device, such as a mental warm-down or a 'reset' game that allows you to 'cleanse the mental palette' after a bout of focused work.

Entry #4: Ventures Validate Interview (15/10/2025)

This morning, I attended the ARM HUB facilities as part of an excursion for a design course that I tutor (Design Prototyping). This exposed me to another potential avenue of expertise and resources, as this facility is dedicated towards helping startups and organisations prototype and develop their products. Although their facilities are more tailored towards engineering-based startups, (e.g. Robotics and Aircraft), I got the business card of the lead engineer who might be able to get me in touch of a injection-moulding facility, which could help me prototype on a larger scale.

In the afternoon, I travelled back to UQ for my presentation as part of the Validate program. This consisted of a 10-minute conversation with Tomas Piccinini, showcasing my startup's progress and evidence of validation. After, I asked Tomas if he knew of anyone that could help me understand Intellectual Property in greater detail, to which I was provided with some email addresses of contacts that could help me.

*Later that week on Friday I received an email from the Validate team informing me that I had won \$1,500 to assist me in funding operations of my startup! This was a key milestone that signifies two things: (1) the Validate team see potential in my idea, pitch and product. (2) I have dedicated money which I will put towards larger-scale prototyping to offer my first product on market.

Entry #5: UQ Ventures Startup Showcase (18/10/2025)

Today I attended UQ Venture's Startup showcase, an event with a mixture of keynote speakers (Luke Anear from SafetyCulture), panel conversations from previous iLab competitors, workshops and networking opportunities with likeminded individuals. Hearing Luke's keynote speech, I was inspired to continue pushing through with my startup, even if it feels like I don't have everything figured out currently. Luke shared how tackling new problems day-by-day becomes part of the fun and shared how his journey was a path of experimentation and learning through failures. His story is reminiscent of the Lean Startup principles as he described starting his company from his garage, and spending money on trial-and-error development, learning from mistakes as quickly as possible. Luke shared a valuable point about being 'comfortable with uncertainty' and how 'speed is the new currency' that allows small firms to outpace larger organisations. I found this perspective insightful, and it gave me more confidence to continue pushing my project towards commercialisation, even if I sometimes feel out of my depths. In the second half of the day, I attended the 'Funding Seminar' led by UQ Venture's Yazz and Vanessa. In this session, I learned the different types of investment and their pros and cons. This allowed me to clarify the terms 'funding', 'equity' and 'capital', and dispel the myth that Venture Capital is the optimal pathway for startups. In my case, a valuable conversation with Vanessa informed me that crowdfunding is likely an optimal source of funding for my startup, as it allows me to maintain equity and control. At this point, Angel investment and venture capital misaligns with my vision, mostly because they carry strict expectations of profitability and are often biased against product inventions. I'm more interested in providing impact for a select niche market, exposing my deeper belief that chasing profit leads to mission drift, and deviates from the spark that got the startup moving in the first place.