

Conor Ryan Laidlaw Summer 1 Reflective Report

During the course of undertaking various activities over the Summer I have seen a progression of both my academic and leadership skills and goals. I have made this progression through completing two core leadership sessions as a part of the programme, attending some optional Laidlaw events and completing a research project and capitalising on some external opportunities it presented.

The first leadership session was based around leadership methods and behaviours and project management skills. This session allowed me to really begin the process of understanding how I behave in terms of leadership and would fare when put in the situation of managing a project (such as my summer research project). Even though myself and the other scholars have been chosen for this programme to be a part of the next generation of leaders, when going through the pre-work before this session myself and the other members of my ALS saw how we each had a more open form of leadership behaviour where we were happy to progressively refine our goals overtime instead of working from an already complete picture. This session concluded with a Q&A with the new provost, Professor Linda Doyle. The Q&A allowed me to see how eager Professor Doyle is to take on this new challenge of being the provost, and make history as being the first female provost. Listening to what she had to say and how she answered the questions has encouraged me to be even more open to new opportunities and responsibilities. This whole session gave me a nice baseline to begin forming my goals.

Another Laidlaw event which helped me to pinpoint skills I want to develop was the talk from the NASA aerospace engineer Allen Chen. This was an event I was excited for since his field isn't too dissimilar to my own. One of the key messages from the talk that really impacted me was that "a leader who is irreplaceable is a leader who's failed." This message sounds fairly clear when stated directly but would not seem so obvious otherwise. Leaders in various fields who have become irreplaceable can often be glorified as their irreplaceability can highlight the impact they had on their respective field. Allen's talk also allowed me to use his knowledge of exact leadership experiences along with the leadership theory from the leadership sessions to formulate my leadership objectives. This talk also demonstrated how working on the fundamentals of leadership is as important as working on the higher level skills even when you're managing projects to send complex rovers to explore another planet!

The next leadership session focused on effective leadership and leadership styles, trust, and effective networking. Each of these sections had their own insights which allowed me to complete the process of putting together my leadership goals for the time being. I discovered that developing my skills to suit the authoritative, democratic and coaching leadership styles will help me be the leader I want to be in the future as those styles allow me and others within a group to work effectively towards a collective goal and I would also be equipped to help others develop and improve individually outside of achieving a collective goal. It was still clear to me however, that working on the remaining styles is still important in order to have the most complete set of skills. In the next section even though it was already clear, I saw the importance of trust, or at least trust in a professional sense. It also allowed me to incorporate the building of trust into my goals of developing the various styles of leadership. The democratic style highlights the trust a leader has in their team and the authoritative style can show the trust a team has in their leader. We were also split into groups to discuss different aspects of trust and how it could be built or broken. This revealed to me how trust can be eroded away by numerous things and for it to be built it involves a methodical but still natural process. These ideas then flowed nicely into the next section of the session where we discussed networking and building a rapport with

others. Heading into this section I figured I had a good idea of the importance of networking and the ways to go about it. However, in the session I learned that even though I had the right idea in places there was some depth to the ideas that I was missing. I have taken on board this advice such as using a subject line that grabs someone's attention in an email and aim to incorporate it into how I go about networking in the future. During my time in the programme I know I will be presented with many new opportunities to meet others so using this advice will allow me to effectively achieve my networking goals.

These sessions were completed just before or during the early stages of my summer research project. This meant that I had plenty of time during the course of my project to put the knowledge I got from these sessions into practice and work on the goals I had put together. The goals that I found to be achievable were to develop my presentation skills and to be more comfortable in the spotlight, along with my communication, critical thinking and self-knowledge and awareness skills. The attributes falling under these headings were areas I felt would be easiest to improve in when completing the project from home.

My project did not get off to a great start as the first two days of work required compiling the software I was to use for the entire project, but for some reason it would not work and I had to start from scratch on the Wednesday. To overcome this problem I used project management and logical thinking skills. This was a delay more so than a setback and I knew it was going to be overcome and the project could still be completed as planned only with the unfortunate side-effect of losing some time. Even though it was not nice to begin the project with a delay I feel that it was of some benefit since it was only a small issue and it got me engaging my critical-thinking and problem solving skills for project management immediately rather than having to engage them if something arose in the final week.

Every week of the project I participated in two meetings that involved myself, my supervisor and his research group, and three 3rd year students from my course who were doing their own project as part of an internship with the School of Maths. The first of these meetings involved everyone giving details of the research they had been doing for the past week and giving an overview of what they would be doing in that week. Participating in this meeting each week gave me the chance to be more comfortable in the spotlight while I explained the details of what I had been doing and they gave me a chance to improve my communication skills as well. The second of the weekly meetings involved one person from the group giving a presentation on the work they were currently doing. This gave me a chance to add some depth to my knowledge of the field I was doing research in and in the final week of my project I had the chance to present it in its entirety to the whole group. This was a big opportunity to work on my presentation skills as I had to put together a PowerPoint detailing my work on the project, present my PowerPoint to the group adding an in depth explanation to it, and answering questions on it afterwards. This was a great experience and one of the highlights of the project for me as my presentation skills were one of the key skills I felt I had the chance to develop during the project and this was a big chance to do a good presentation and begin crafting a template to use in future presentations.

During the second week of my project I had the opportunity to attend a virtual conference based on the field I was researching in. This was a great opportunity for me that I welcomed as I had the chance to listen to leading researchers in the field give talks on what they were researching. Some of the talks also managed to give me some help with my project which was a welcome bonus. I did not have the chance to directly develop many leadership skills during this conference as I was only listening to the talks and there was not any networking opportunities since it was completely virtual. This experience helped me with my progress in the Laidlaw programme as it helped me have a better idea of how I could continue my research next summer during the LIA section of the programme. I got

to listen to researchers from various universities from around the globe who collaborated with each other and different companies as well. This has given me some extra knowledge on places I could go for my LIA experience and the work I could do for it as well.

At the scheduled end of my project I made the decision to continue for another week as I needed more time to have the complete set of results that I needed to draw the necessary conclusions for my project. This was due to the fact that my project was completed entirely from doing computer simulations and in the later stages of the project I was running the simulations on the supercomputer Kay at ICHEC which sometimes required queuing, for which the length of time in the queue was impossible to have predicted. This once again reinforced the idea that patience is key when dealing with project delays and is a good attribute to have a part of a complete project management skillset. This did not limit the results I could get from my project, only some more time was required. This delay also brought the project full circle in way since the project began with a delay that required me to engage my critical-thinking project management skills and it ended that way as well which allows me to see that those are skills I have definitely had the chance to improve during the project.

Another thing the project allowed me to do was to capitalise on the chance to directly learn from my supervisor and others in the research group on topics outside of the project itself. This was harder to do in an online setting than it would have been if I was able to come onto campus for the project. The highlight which came from being able to do this was when I went to discuss a new physics theory with my supervisor but he had not even heard of it whereas myself and one of the postgraduate students in the group had. Coincidentally, soon after this discussion my supervisor came across a seminar to be held where a talk was to be delivered from one of the pioneers of this new theory which I was then able to attend and even take part in the Q&A section as well. This example highlights how engaging in something not directly linked to my project gave me an unexpected opportunity. I would also consider myself as someone who always has a desire to learn whatever I can and this mindset is further reinforced here where something new can be shown to a principal investigator in charge of a university research group by an undergraduate student.

Overall, this summer has given me lots of new tools to use to develop my leadership and academic skills. It has also allowed me to better understand how I currently lead and how I want to be able to lead in the future and put to together specific goals with a plan in place to achieve them. I have highlighted my collaboration and communication as areas which could be improved and have directly had the chance to do so. I then also improved other leadership attributes particularly in the areas of research and project management, critical and creative thinking and self-knowledge and awareness. I have come out the other side of these experiences as a better academic and leader with further clarity on where and how to improve heading into the next stages of the programme.