

#UONinspire: Reinventing Orientation

Associate Professor Bill McBride, Natalie Downing and Ruth Pring
University of Newcastle, Australia

Emails: Bill.McBride@newcastle.edu.au, Natalie.Downing@newcastle.edu.au, Ruth.Pring@newcastle.edu.au

CONTEXT

In 2016, the University of Newcastle's Faculty of Engineering and Built Environment set out to reinvent its orientation program. The objective of the project was to improve early student engagement and retention. Encouraged by practices observed through international competitor benchmarking, particularly in the United States, the Faculty sought to create an inspiring and interactive orientation experience that would truly engage students and give them a sense of efficacy, empowerment and relevance as they commenced their studies.

PURPOSE

To report on changes to the Faculty of Engineering and Built Environment, University of Newcastle, orientation day format as part of a re-evaluation of our programs and importantly our student on-boarding process.

APPROACH

2016 Orientation introduced two new sessions to the day - named Inspire and Interact. The inspiration for these sessions was based on studies of international universities. The day also had a central theme of 'Be Part of the Solution', which drew together the commonalities of the Faculty's degrees in architecture, construction management, computer science, engineering and industrial design. The theme was also intended to leverage the inclinations of the incoming generation of students, who commonly express a desire to make a positive difference in the world. It also reflects the Faculty's strategic direction for both research and education, which aligns our programs with solving the major challenges - present and future - we face as a society.

The Inspire session featured a series of live presentations and videos from graduates ranging from start-up entrepreneurs, to humanitarian engineers, travelling architects, to CSIRO leaders, to PhD students and a young engineering alumni who works for Disney. The intention was to show the students a spectrum of the unpredictable and exciting possibilities that their degree might lead to - challenging the assumptions they might hold about the Engineering and Built Environment professions. It is hoped this sense of possibility and potential will mitigate the doubts some students experience as they actually commence their studies and wonder whether they are on the right path. Inspire was followed by the Interact session, which engaged the students in a hands-on problem solving activity. The students worked in groups that were deliberately randomised to mix disciplines and encourage new friendships. The activity was simple enough to ensure that students could solve it quickly, but open enough to allow students to develop an infinite range of solutions of varying levels of sophistication.

RESULTS

It is anticipated that a more hands on orientation coupled with reinforcement of career and professional goals through inspiring role models will improve retention. Early indications from university enrolment data indicate a slightly positive effect. Further research and activity in this area will be required to confirm early indications.

CONCLUSIONS

In this paper, the authors will share their experience of designing and implementing this program, including the challenges they faced, the outcomes, and their reflections on what they would do differently next time. They will also share insights from their benchmarking observations and their early findings on how the project has impacted retention.

KEYWORDS

Orientation, retention, student engagement.

Introduction

The University of Newcastle's (UON) Faculty of Engineering and Built Environment has reinvented its orientation program for 2016. The objective of the project was to improve student engagement and retention. Encouraged by practices observed through international benchmarking, particularly in the United States, the Faculty sought to create an inspiring and interactive orientation experience that would truly engage students and give them a sense of efficacy, empowerment and relevance as they commenced their studies.

Discussion

Benchmarking

In May 2015 three members of staff of the Faculty of Engineering and Built Environment spent between one and two weeks visiting institutions in the United States of America. The institutions visited included Rice University, Houston, Texas, The University of Texas at Dallas, Carnegie Mellon University, The University of Pittsburgh, The University of Michigan, Boston University, University of California Santa Barbara, University of Illinois, Rose Hulman and Purdue. From each of these generous partners we learned new and different elements of their approach to student learning, industry engagement, sponsorship and facilities to name a few. One key element of the information gained included an approach, taken by some, to active orientation. In particular, the 'Liftoff' orientation program at Rice University inspired the UON team. The program uses an active approach to student orientation. Freshman students are taken through an activity-based experience and talks from Alumni and current Rice Center for Engineering Leadership (RCEL) students at their orientation. The freshman students gain a sense of belonging and a clear understanding of what they will be studying and why. All student participants are given a t-shirt, including the more senior 'coach' group.

Our Environment

The Faculty of Engineering and Built Environment at Newcastle; the School of Electrical Engineering and Computer Science, the School of Engineering covering Mechanical, Mechatronic, Civil, Surveying, Environmental and Chemical Engineering, plus a School of Architecture and the Built Environment which covers Architecture, Construction Management and Industrial Design. In 2017 an organizational change will see the Faculty grow with the discipline of Information Technology from the Faculty of Science. This group will be absorbed into the then renamed School of Electrical and Computing. This will further diversify the specific interests needed to be met during subsequent orientation sessions.

UON Orientation

The traditional format for the Faculty's orientation day was a welcome from the Pro Vice-Chancellor, a peer-to-peer facilitated Q & A session that serves as a general introduction to university, followed by Program Information Sessions and lunch. In past years the orientation 'day' terminated in terms of direct engagement with Engineering staff at lunchtime. Students had access to centrally run activities such as campus tours, an expo and entertainment. This is in keeping with the format used across the Faculties at UON. In addition, the Faculty has always run a session specifically for female students, intended to address the fact that engineering disciplines are typically strongly gender biased.

2016 Orientation for the Faculty of Engineering and Built Environment introduced two new sessions to the day - named *Inspire* and *Interact*. The day also had a central theme of 'Be Part of the Solution', which drew together the commonalities of the Faculty's degrees in architecture, construction management, computer science, engineering and industrial design. The theme was intended to leverage the characteristic motivations of the incoming

generation of students, who commonly express a desire to make a positive difference in the world. It also reflects the Faculty's strategic direction for both research and education, which aligns its programs with solving the major challenges - present and future - we face as a society.

The *Inspire* and *Interact* sessions were co-facilitated by Sarah Pilgrim, Coordinator of the University's SMART science outreach program and Dr Warren Reilly, a Senior Practitioner Fellow in the School of Architecture and Built Environment, who specialises in design thinking and creative problem solving. The Faculty's Pro Vice-Chancellor, Professor Brett Ninness, spoke briefly at the beginning of the session, welcoming students to the Faculty and introducing the theme for the day. The *Interact* session was supported by a team of assistants – comprised of current students, Faculty office staff, and volunteers who are familiar with STEM outreach style activities.

The *Inspire* session featured a series of live presentations and videos from graduates ranging from start-up entrepreneurs, to humanitarian engineers, travelling architects, CSIRO leaders, PhD students and a mechanical engineer who works for Disney. The presenters were given just three minutes to talk. They were asked to relate their topic back to the 'Be part of the solution' theme and to discuss one major project they have worked on, rather than summarising their entire career journey.

The intention of the *Inspire* session was to show the students a spectrum of the unpredictable and exciting possibilities that their degree might lead to - challenging the narrow assumptions they typically hold about the Engineering and Built Environment professions. It is hoped this sense of possibility and potential will mitigate the doubts students often experience as they actually commence their studies, helping to affirm that they are on the right path.

Inspire was followed by the *Interact* session, which engaged the students in a hands-on problem solving activity. The students worked in groups of four that were deliberately randomised to mix disciplines and encourage new friendships. The activity was designed by two fourth-year engineering students who have been involved with a range of outreach activities with school students. It was discipline neutral, so as not to alienate students from any particular degree, and non-competitive – there was no assessment of success or achievement. A team of 'mentors', senior students in later years of the Faculty's programs, were on hand to provide guidance and answer questions. The mentor group were clearly identifiable in distinctive t-shirts.

The activity involved series of timed challenges involving every day materials – a plastic cup, spoon, foam ball, roll of masking tape, rubber bands and chopsticks. It was simple enough to ensure that students could solve it quickly, but open enough to allow students to develop an infinite range of solutions of varying levels of sophistication. The final challenge, for example, was to create a free-standing device that works on its own (no touching or moving) that can move the ball from the spoon through the roll of masking tape to the bottom of the cup (and make it stay there). At the end of the session, students were given the final challenge of 'decommissioning' their kit – separating the parts and repacking them as they originally found them.

Before breaking for lunch, and discipline specific seminars to complete the days activities, the peer Q&A session that has been in use for several years at Newcastle was run. The student body was assembled with a vantage over a table of senior peer students and one selected academic. A facilitator encouraged and managed questions to the table for a period of 30 minutes.

The atmosphere whilst the *Interact* activity was underway was entirely different to any other orientation day session observed at the University of Newcastle. The students were actively engaged – physically, mentally and socially. Whilst on the surface the activity might appear disingenuous or overly simple, and there was a risk that the students would perceive it as puerile, the facilitators succeeded in contextualising it within the 'Be part of the solution,'

theme. They stressed that students were learning about working in teams, working under pressure, thinking laterally, developing efficient solutions, prototyping, testing, and thinking sustainably.

Social media was employed to further amplify the engagement generated by the *Inspire* and *Interact* sessions. A hashtag #UONinspire was promoted, encouraging the students, facilitators and assistants to share comments and photos. A live feed from Instagram and Facebook was projected onto the screens in the venue so that participants could engage beyond their immediate group. At the end of the *Interact* session, an Instagram video was used to show the students a solution to the final challenge which was developed earlier by the fourth year students who had designed the activity itself. Students continued to use the hashtag at other sessions during orientation week. The social media strategy had the added benefit of sharing the students' experiences with the broader community.

The development and implementation of the *Inspire* and *Interact* sessions was not without its challenges. The project relied on a collaborative approach across business units, all of which were already under significant workload stresses. The design of the *Interact* activity was much debated with various other scenarios considered but dismissed due to their complexity. The success of the activity depended on the use of the University's Great Hall, which was also required for conventional orientation activities earlier on the same day. This resulted in the logistical challenge of clearing the space of hundreds of chairs and laying out tables and activity kits for 600 students – all within an extremely short time frame. It was also difficult to secure *Inspire* speakers from certain discipline areas and the ideal diversity was not achieved. However, despite these challenges, the Faculty embraced the risk of trying something new and was rewarded with what was almost certainly its most engaging orientation to date.

As part of a strengthened focus on the transition to university, the Faculty also piloted post-orientation follow up workshops for students in weeks 3 and 5 of semester. These were: Get Ready (the fundamentals for new students), Get Set (resources for study success), Get Connected (student groups, professional bodies and industrial experience), and Get Inspired (advice from students who've recently graduated). These workshops were designed to provide timely practical information and inspiration to reconnect students with their big-picture objectives, therefore helping them overcome typical periods of doubt or uncertainty about their study choices and their capacity for success. Whilst for those students that attended these optional sessions the feedback was extremely positive, the number of students making use of these sessions has encouraged the faculty to embed the important aspects of these sessions into the first of the new professional practice courses planned for 2016.

Post session analysis

Students across the University were surveyed at the conclusion of the orientation day using a survey instrument designed to judge the engagement of students across all five University of Newcastle faculties and their respective orientation programs. Across all 13 questions the Faculty of Engineering and Built Environment rated more highly than the other University of Newcastle faculties, with 90% of our students indicating that Orientation was an enjoyable experience.

Furthermore, in May of semester one, two voluntary student focus groups were convened and a range of questions were put to those students in attendance. A summary of their responses is presented below.

“All students agreed that the hands-on activity at the UON *Inspire* session was the highlight of Orientation Day. They enjoyed working with their hands on something, and felt that it was a fun way to get to meet fellow students. Students also found it particularly interesting when they were shown alternative solutions to the activity that demonstrated things that they would learn as they moved through their studies.” - Internal UoN focus group report 2016

"It got me engaged. Hands on projects are what I find most engaging. Sitting in the audience – I can sort of remember those details. But at the table, working with other people, that's what I remember from that day."

"The group task was fun. It was interesting to see people's thought processes depending on their different views and stuff like that."

"I did like how they had fourth year students in the crowd. They came up with their own solutions and you could see what training and knowledge would actually pay out to do."

Unfortunately, most students also reported that the connections to people met during the *Interact* and *Inspire* sessions were not maintained. We suspect that this is in part due to the groups being of mixed students who still identify quite strongly with their chosen discipline even in this early stage of University.

The focus group results indicate that a number of students would like information on 'day to day' life at University, 'how does a lecture work', what items should be brought to class etc. Elements of this will be considered for the 2017 orientation day.

Those students from the construction management cohort felt that the 2016 orientation session was 'too engineering' focussed and suggested that a splinter orientation for the architecture and construction management students would be advantageous. This feedback about relevance may, in part, be due to the fact that the scheduled construction management presenter for the *Inspire* session cancelled their attendance with insufficient notice to enable a replacement presenter. In 2017, the faculty will endeavour to make more robust contingency arrangements for the presenters from each discipline, to ensure relevance for every cohort. With the pending inclusion of Information Technology students, representation across all disciplines will be even more challenging.

"When discussing other aspects of the inspire and interact day, most students commented that they did not find the Q&A panel useful, as there were many questions that were only relevant to the person asking (such as which Maths they should do)." - Internal UoN focus group report 2016

These comments stem from the fact that the University of Newcastle does not mandate minimum mathematics skills for entry, but does engage an internal filtering process to ensure the success of students entering the engineering programs without sufficient mathematical background. Students entering without a recent New South Wales ATAR are automatically blocked from enrolment into the first calculus based Mathematics course embedded in all engineering programs. Students can sit an invigilated computer based diagnostic test and if successful the enrolment block is lifted. Despite the quite detailed information provided to all incoming students about the inclusion and impact of the mathematics foundation course into their program of study, many students remain unsure of the process associated with this. Irrespective, in response to this, for 2017 we will introduce a hashtag where students can post questions as they arise throughout the day. These will be answered as much as possible on line, and through a volume ranking we will be able to use popular questions as seeds for the Q&A session which is planned to be retained.

"I prefer asking questions that are one-on-one basis with a mentor or more experienced student. I remember meeting one of the panel members afterwards, and I had way more questions then."

"I would like a smaller group too. There were just a lot of people in the Q&A."

"It was just full of people who had trouble with enrolment and how to fix those problems, and what Maths to do."

Naturally a FAQ has been formed from this and previous years' sessions which is available to all students through the 'askUoN' portal. A monitored repository for all of the Faculties FAQ's providing an email service for questions that are not covered in the relevant FAQs.

Focus group participants were also asked to give feedback on what inspired them to pursue their program of choice:

“When discussing pathways to UON, most Engineering students spoke of an interest being sparked early in life, either by a specific product like a video game, or a hero in the discipline like Edison. However, Construction Management students spoke more broadly about enjoying hands-on work and activities, rather than pointing to a specific body of work or person. All students seemed to be enjoying their early semester experiences, and were looking forward to their future at UON.” - Internal UoN focus group report 2016

Engineering Students

“My hero is Edison. He is very interesting. He was always a hero for me.”

“One of the really solid games I used to play was made by Daniel Ramal. I only know of him from his blog posts and his methodology that he made using that game. That’s what really developed my passion for game design, and from that I’ve just decided that having a Software Engineering degree was going to be for me.”

“I found out about this guy – this Mechanical Engineer as it turns out – creating a portable version of a kidney dialysis machine, so essentially replicated the function of a healthy kidney, on a scale that was more practical than having to do into hospital once a week for dialysis. I thought wow, that’s something that could really change the game, and that’s what sparked my interest.”

Construction Management Students

“I’ve always enjoyed construction. I did it in school. Missed out on a few apprenticeships so I just made my way to Uni. I thought if I couldn’t get an apprenticeship I still wanted to be part of the industry so I thought I’d just go into management.”

“I just liked construction at school and I didn’t want to go a trade so I just checked Uni to look at what degrees they had, and saw Construction Management.”

Results

Overall, the *Inspire* and *Interact* sessions were a very positive change with strong student engagement throughout the entire day. Fears that student attendance would drop in the post lunch sessions were proven to be ill founded with visually, a very high return rate of students indicating a solid sense of engagement and perceived value. There are naturally areas that can be refined, areas to be reduced, and areas to be expanded. Foremost in the exercise for all Universities investigating a more tactile orientation session, is that many of the attendees are still seeking amelioration of anxiety associated with ‘day 1’ so perhaps ‘mundane information’ about campus navigation and essential items for day 1 require a higher visibility for students than what was present in the 2016 orientation.

Whilst the full impact of our measures to address early student engagement appears quite positive, and certainly sufficient to warrant a similar approach of the 2016 orientation day for the 2017 orientation session. The full impact on student retention is more difficult to isolate given the many other interventions that are now in place.

Conclusion

Overall the implementation of *Inspire* and *Interact* sessions as part of the Faculties reinterpretation of University Orientation was received exceptionally well. The use of this form of orientation will be used again in 2017, informed by the student feedback gained in the 2016 deployment. Student feedback about the value of ‘doing something’ resonates with the faculty’s current educational philosophy of ‘be part of the solution’.

As always, there remains a tension between meeting the students perceived needs in these sessions, and overloading all attendees with ‘fine grain’ details that will quickly saturate their

attention spans. The managing of student expectations in the orientation sessions will continue to be part of a more successful orientation program into the future.