

STORIES OF COLLABORATION IN TE ARA AUAHA

CREATING AND SUPPORTING GREAT GRADUATES

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Foreword

Tēnā koutou

'Stories of Collaboration in Te Ara Auaha' captures some of the exceptional collaborative projects that our staff are involved in. The collection of stories in this publication weave a narrative of innovative thinking, creativity, and extraordinary talent. When initially commissioned, this project was intended to focus on collaboration between our varied schools. Once started, we uncovered that collaboration in DCT spans much further than the stories that you are about to read, including; School to external partners, faculty to faculty, and School to student collaborations.

It is with great pride that I introduce this superb publication and express my gratitude to you all for the time and effort invested in its creation and the collaboration that made it possible. It is clear that as we head into the year 2020, which marks the 20th anniversary of AUT and the 15th anniversary of our Faculty, Te Ara Auaha continues to develop towards our goal of being a Faculty of the future leading the way in Aotearoa and globally.

I hope that you are inspired by these stories to reach out and explore your own opportunities for collaboration as through collaboration, change is possible, and where there is change, there is transformation.

Enjoy the stories

Kia Kaha, Kia māia, Kia manawanui.

Guy Littlefair Dean of Design and Creative Technologies Auckland University of Technology



Dr Amabel Hunting

As the Director of Design Thinking in the School of Art and Design, Amabel teaches collaboration capabilities to her students and supports them to reflect on their roles as effective collaborators.

Amabel is currently in charge of AUT's Design Thinking programme, which is an interdisciplinary course that brings design concepts into a range of academic disciplines. The programme first started as a way for business majors to incorporate design into their ways of thinking within the business world. The topic of design is generally broader than many people realise, and Amabel's programme highlights the 'new' areas, which include UX design and service design, where people who are working in those fields aren't necessarily trained as traditional designers.

"There are two parts to design thinking, problem reframing and then problem resolving," Amabel says, "essentially the first half is really empathising with your user, going in and really understanding what their problem is, defining that and coming up with a whole range of solutions." The whole approach to the design thinking programme is geared towards teaching non-designers how designers think. Interestingly, the theoretical and practical approaches utilised in the programme are considered to be just as useful for designers as they are for non-designers.

The programme itself utilises a range of tools and is focused on user-centered design. Amabel considers this approach to be a very powerful form of education because it has "fundamental capabilities around developing emotional intelligence, around really understanding how to collaborate effectively with others and the role that diversity plays." Students in the current design thinking programme are from business, art and design, science, creative technologies,

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hospitality and events, and engineering. The design of the curriculum requires them to be placed into collaborative groups with students from different academic backgrounds to find effective solutions to a problem while drawing on the strengths of each one of their approaches. "Critical thinking, problemsolving, different approaches for how to look at things, and different skill sets" are the strengths that Amabel has identified within the programme, and she considers the fundamentally collaborative structure of design thinking to result in better outcomes than any of the students could create on their own or from collaborating only with those who share the same academic discipline.

Collaboration in the classroom is another topic taught in Amabel's programme. In the first-year paper, which 300 students have gone through over the past year, there is a three hour session that focuses specifically on the theory and practical approaches to effective collaboration. Students then reflect on their roles as collaborators, their strengths, and what they can bring to the team. "It's not just their subject background but also their approach to collaboration," says Amabel, "what are their defaults, and how do they collaborate? Also, how do you deal with conflict and conflict resolution?"

People will all have different ways of collaborating, and natural levels at which they are open to collaboration, and it is necessary to harness the innate skills of each student by first helping them to understand their built-in strengths and weaknesses as collaborators. "We do lots of practical activities to unpack what the strengths are, and then later on, when we start to get more into the group work, it's about conflict resolution and a nonviolent communication approach that we are developing. Conflict in a group is inevitable, and it is necessary for people to have the skillsets and knowledge to resolve it," says Amabel. Students are paced throughout the programme, and given the right tools and experiences to eventually go on and complete an industry project, as part of a functioning design team tasked to resolve an issue.

To Amabel, when she thinks about design thinking, she says, "it's really about design that looks at addressing business, social, and environmental problems. If you think about traditional design, it may be spatial design or industrial design, but to me, design thinking is really about adapting design to those other spaces." In general, society's model is measured by individual performance and competition, which is not conducive to collaboration. However, design thinking has the potential to help people understand the value in collaborative action and that some concepts or solutions to problems have come into existence as a result of effective collaboration from a design thinking approach. "It's almost like magic occurs when this happens," says Amabel.

> It's not just their subject background but also their approach to collaboration, what are their defaults, and how do they collaborate? Also, how do you deal with conflict and conflict resolution?

Associate Professor

Successfully having secured a Research Programme Bid worth \$8m and a Smart Ideas project worth \$1m from the Ministry of Business, Innovation and Employment's Endeavour Fund, Andrew discusses the importance of working with collaborative groups, and getting to know one another's overall objectives and motivations.

Andrew comes from an academic engineering background, and he conducted his Ph.D. in intelligent anaesthesia monitoring. After working for several years doing programming in the robotics industry, Andrew had an opportunity to make a move into the medical device industry with a startup company called Pulsecor, an Auckland-based company that developed "the next generation of non-invasive cardiovascular assessment technology." While at Pulsecor, Andrew was the Chief Technology Officer (CTO) and led a new blood pressure monitoring cuff project from the conceptual phases through to FDA clearance and European market entry. The new cuff was special because it measured arterial stiffness along with blood pressure. "The idea was that a doctor could still strap on a cuff, and it would give not only the blood pressure but also the stiffness of the arteries which relates more strongly to cardiovascular risk than just the blood pressure alone. It was about a ten-year long project, and it ended up being sold off to an Australian-listed company."

Andrew says, "it was a big learning journey, but in the spirit of collaboration, I had a lot of opportunities to work with not only other engineers but also medical professionals who were helping us validate the device. We worked quite closely with Greenlane Hospital and researchers from AUT in the biomedical research area, but also with researchers at the hospital looking at clinical aspects." Andrew found the work to be interesting but also challenging because of all the regulatory work and company management duties that he was also responsible for. Despite all the hard work, Andrew feels that it was a good learning experience. After the Pulsecor project was sold, Andrew decided he wanted to leave management and return to research, he says, "we had a good relationship with AUT and there was an opening at the time, so I came back here around seven years ago."

Andrew notes that there were some inherent challenges in working as an engineer alongside medical doctors in the project. However, Andrew figured out a number of ways to overcome them, he says that "one of the best ways is really spending time with them in their environments and understanding a bit more about what they are dealing with, not only the physiology but also the very practical things like their time constraints, which are quite different from our time constraints. If you really want to work with them, you have to work around those things. It's also understanding what the drivers are, and how a product fits with what the enduser or clinician needs." To understand and collaborate effectively, Andrew feels that a certain amount of time must be spent together physically, so both collaborative groups get to know one another's overall needs and motivations. "Understanding the end-user perspective is a big part of the collaboration."

The medical community has well-received Andrew's medical device projects, but the processes of changing the way that medical professionals practice is a long process, and it means that the projects are constantly ongoing. "From an uptake perspective, I think that is a limiting factor," Andrew says.

Andrew is from the School of Engineering, Computer and Mathematical Sciences and is currently working on a five-year long research project. The project is funded by an MBIE grant under the Endeavour programme and aims to take electrocardiogram (ECG) technology to the realm of wearable medical devices, which would bring the technology to an environment where it's not normally available. The device that Andrew and his team are working on is focused closely on the end-user to understand how the base technology fits into their particular applications. Doing this requires careful consideration on the form of the device, the length of time users must wear the device, along with other factors.

From Andrew's perspective, effective collaboration comes when all parties involved have a strong desire to collaborate. Collaborative partners should also understand the time commitments that are necessary while staying focussed on achieving the long-term goal of the project. "The other thing about collaboration." It was a big learning journey, but in the spirit of collaboration, I had a lot of opportunities to work with not only other engineers but also medical professionals who were helping us validate the device. 99

Gautam Anand

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Anubha Kalra

Associate Professor Andre Lowe

The AUT values of Tika, Pono and Aroha provide a great direction for fostering meaningful collaboration and relationships. I think that myself and my team lead in this space in terms of the values that we live.

Angela Anderson

Leading the way with diverse forms of collaboration, Angela believes collaboration is critical for organisations to succeed. Everyone has something to contribute and through collaboration we can drive positive change and have a positive impact on the various teams in Te Ara Auaha.

Angela is the Faculty Postgraduate Manager in Te Ara Auaha, and she oversees a team of nine staff who work across the schools. A recent structural change to postgraduate coordinators means that they are sometimes embedded in the schools, or they alternatively work from the faculty office in WA Level 6. Angela says that "this change was brought about for the specific purpose of bringing the team together because they were, in some instances, the only postgraduate coordinator within a school. Working in isolation meant that they didn't always have that support of other postgraduate administrators that were also working in isolation." Processes and regulations for postgraduate programmes are quite different from those that apply to undergraduate programmes, so it is essential that the postgraduate team is effectively brought together. "In doing this, it's enabled us to share what we do and look at what we do," says Angela. Postgraduate management also generally requires diverse forms of collaboration, such as close communication with the Graduate Research School and supervisors, so there is a need for innovative structures that serve to facilitate the necessary collaborations and partnerships.

Keeping a constant eye on the state of the new structure that postgraduate staff are under is an important element of Angela's work. "We try to find efficiencies and consistencies in what we do, and really to result in a better student and staff experience. Life for everyone is better if we can streamline what we do." Angela believes that collaboration is important in any organisation and that the AUT values of Tika, Pono, and Aroha provide a great direction for fostering meaningful collaboration and relationships. "I think that myself and my team lead in this space in terms of the values that we live," says Angela, "and I think that whenever you are collaborating as a team, having those values, front and centre makes it a positive experience." Angela hopes that her team can have a positive impact not only within the schools but also within the faculty and university as a whole.

"Collaboration and networking go hand in hand," says Angela, "and the more you can build those networks, the better we are. Fundamentally, we are all here to achieve the same outcomes and goals, and that is to give students and staff a great experience. Only through collaboration can you achieve that."

Dr **Angelique** Nairn & **Justin** Matthews

At Te Ara Auaha, collaborative projects also exist in the form of a department to department partnership as found in the case of Angelique and Justin. A shared interest in the British television dating gameshow called *Naked Attraction* brought these two Academics together.

Angelique and Justin each have diverse academic interests, but the areas where these interests intersect have facilitated their collaboration on a series of academic projects since the end of 2018. Angelique and Justin are lecturers from the School of Communication Studies, Angelique from the Department of Critical Media Communication, and Justin is in the Department of Digital Communication.

The basis of their collaborative efforts originally stemmed from a shared interest in the British television dating gameshow *Naked Attraction*, which Angelique says, "if you haven't heard of it, you're not missing out that's for sure." Angelique and Justin initially began investigating the feelings that New Zealanders specifically held towards the show. Because the collaboration between them was going so well in the initial project, they went on to do other work that drew on the strengths of their backgrounds.

Angelique's background in creative industries and how people work within creative settings has allowed her to apply expertise to projects on current and future research projects in collaboration with Justin, who utilises what he calls "pathways to the digital landscapes" through his teaching practice in digital media and digital communication. Justin says, "being able to be in a situation where Angelique could bring in her understanding about the creative industries, and then I can come in with understandings about how that interfaces with the technological sides that actually shape some of these things. It's also been a collaboration not just in our work, but also in the research process as well." Collaboration, Justin says, is essential to conducting research, but "it's a bit like a black box. You are expected to do it, but you pat your hands on the outside and keep trying to find a doorway. The collaboration was the opportunity to work with someone who has done a little bit more research, and then through that collaborative process, you can learn more on the journey as well." Justin's background and experience with digital tools also ended up being beneficial to Angelique, who brought along her in-depth knowledge of different research methodologies. Justin and Angelique discovered that these elements came together in a way that was mutually advantageous to both of them.

Angelique and Justin both feel that collaboration is also about being open, trying new things, and stepping outside of your comfort zone. An important new experience for Angelique was with quantitative research data analysis programmes, that were introduced to her by Justin. Before they connected, Angelique was accustomed to interrogating her research data manually, but Justin came in with software tools that added efficiency to the process, while at the same time accommodating larger and more complex sets of data.

"I think the collaboration thing is so important," says Justin. "There is a lot of talk that you need to be the sole author or do stuff on your own, but it can be quite a lonely journey, and I think collaboration is vastly valuable. It keeps you from falling into your own echo chamber, and it forces you to have to go through the processes that collaboration does, which is finding the best way forward." Collaboration was that opportunity to work with someone who has done a little bit more research, and then through that collaborative process you are able to learn more on the journey as well.

Anke Nienhuis

Thinking about the impact and cost that plastic waste has on AUT and the environment, Anke utilises her product design skills to collaborate with engineering lecturers and students on a project to recycle, in first instance, milk bottles. A story of collaboration between the School of Art and Design and the School of Engineering, Computer and Mathematical Sciences.

Anke is the Programme Leader and Lecturer in Industrial Design in the School of Art and Design. She is very experienced in facilitating collaborations between industry partners and industrial design students, having come from industry herself. Anke is currently working on a research project that resulted in many collaborative interactions between industrial design and engineering students at AUT. The project encompasses research and teaching, says Anke. "My research is about recycling or reusing waste materials. This particular research project is done in collaboration with two engineering lecturers, and we are integrating it into our teaching. Industrial design and engineering students have been working on this project that involves the recycling of the many plastic milk bottles used at AUT, a valuable but unrecognised resource." "We had our third year industrial design students choose between three different projects, one of them was this recycling project done in collaboration with engineering. The other two projects were also done in collaboration, but with industry. One with design acency Blender and one with furniture manufacturer PLN Group. All projects had innovative and exciting outcomes."

In the scope of the recycling project that Anke is working on, internal collaboration most often comes in the form of group work, something that most students are already accustomed to. In the external collaborations with industry partners, students are given a project brief and then work on that brief for a set number of weeks. "This semester the industry input was even more than usual, where the company actually commits to seeing their group of students at least once a week for ten weeks, giving them feedback in group sessions as well as individually and attending all student presentations. They also see their lecturer regularly of course!" Anke considers this practise-led approach beneficial for the students, to get real-world experience, make industry connections and also simply because it allowes the students to visit the factories and offices of the companies they are collaborating with.

The milk bottle recycling project was founded on the creation of ideas of what could be done with discarded plastics and then bringing those ideas to life through a collaborative partnership between the industrial design and engineering departments. Anke says that AUT's city campus alone uses around 60,000 milk bottles per year, and the milk bottles have to currently be sent off-campus. Anke thought, "What if we could make use of this valuable resource and actually make useful products out of it?" This question led to design students researching ideas of what could be made from this plastic. The engineering students got involved by looking at how this plastic could be transformed into products, specifically looking into the making of sheet material from the milk bottles. They worked on the project for the entire year developing this machinery, while industrial design students worked on product ideas for ten weeks. Anke says, "The industrial designers informed the engineers about the desired outcomes and who in turn advised on appropriate manufacturing methods for these product proposals."

The current milk bottle recycling project is only the first phase of Anke's research endeavour, working towards a machine that can make the required sheet material out of the milk bottle and other plastic. "Over summer the engineers are actually going to build this machine and in the new year we can start using the sheets to make desired products. You might even be able to heat the plastic again and form it into 3 dimensional shapes, so in a way, it could do more than wood." There is also the potential for this material to be used in 3D printing and that might be the next phase of the project. There are some inherent challenges to working with milk bottles, including the cleaning, collecting and storing of the bottles, as well as some material challenges. These challenges will ultimately serve to enrich the experience of students who will utilise several collaborative relationships and experimental techniques to figure out the best approach and uses for the milk bottle plastic. Part of the research will be the design of the system.

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"From a public relations point of view, this is a great project," says Anke; however, if the project is going to reach its fullest potential, it will be necessary to obtain additional and ongoing funding." There could, however, be a valuable return on any investments, and Anke points out that "if we were making items that we need at AUT from the milk bottles, we would lower

our carbon footprint and save money by not having to buy and ship new items, often from overseas, and by not shipping the discarded bottles away. Down the track we can also recycle the products we have made again, if they are broken, worn out or no longer needed, and make them into new products." This innovative approach could be the way of the future in terms of handling plastic waste, and once Anke's sheet producing machine is completed, she says it will be easy to make the sheets just about anywhere. "It's milk bottles now, but in the future, it could also be PET or even 3D printed paper pulp, as paper is actually the biggest stream of waste here at AUT."

AUT's city campus alone uses around 60,000 milk bottles per year, and all these discarded bottles are sent off campus. "What if we could transform this valuable resource into useful and innovative products and create a circular economy right here at AUT?



Dr Averill Gordon

The School of Communication Studies Head of Department – Public Relations, Dr. Averill Gordon, is also co-developer of the GlobCom project. Annually this collaborative project involves approximately 150 students from 15 universities in 12 countries spanning five continents!

Averill is a public relations researcher who is concerned with how virtual teams can identify and develop interactions that are guided by effective collaboration and communication. The PR industry is known for demanding rapid responses, and improved collaborative relationships may serve to overcome team limitations while also ensuring timely responses across teams, even if they are located in different geographic regions. Averill's research is pedagogical in nature and based on experiential problem-based learning.

Averill runs a yearly collaborative project called GlobCom that involves approximately 150 students each year from 15 universities in 12 countries and across five continents. The GlobCom project begins by giving public relations students from different geographic locations a live brief from a multinational company that details a particular issue. Students then work in virtual teams with other students from different universities in different time zones to develop a comprehensive global proposal. There are ten teams in total, with two students from each country per team. Lecturers all work as a virtual supervisory team amongst themselves as the students create communication proposals for their clients. Students and lecturers then travel to an international GlobCom conference where they have an opportunity to meet their virtual teammates in person for the first time before they present the proposals that they created as virtual collaborative teams.

"It's a very collaborative project," says Averill. "The lecturers all collaborate too. I'm the vice president of GlobCom and also the team mentor, so I liaise between the student team leaders and the lecturers." One of the issues", Averill explains, "are the time zone differences, especially for New Zealand because we are the outlier in terms of time zones." The other big challenge of the project is for students to work collaboratively in a virtual team where they aren't able to use visual cues. "Even if they are looking at each other on Skype, you don't really get a good understanding. It's also a lack of social cues, which creates huge misunderstandings."

Even identifying a virtual team leader is very hard because everyone has to vote for a team leader who they haven't met." Averill's research has concluded that leadership is very different in the virtual world than it is in the real world and that participants must be "directive as well as empathetic." To improve the efficiency and efficacy of collaborations in the project, Averill ensures that appropriate adaptations are made, and more structural models are developed each year. "We have looked at well-known models of leadership in face to face teams, and we have applied them to virtual teams, and we found that those don't apply, so we have had to develop our own," says Averill. One of the interesting findings, according to Averill, is that apologising apparently weakens the structure of a virtual team. "So, the thing is," says Averill on the topic of virtual team collaboration, "never apologise. Explain, but never apologise. Explaining really helps."

Professor David Robie

Creating creative spaces that enable collaborative initiatives is an essential part of the Pacific Media Centre. The Centre particularly focuses on diversity and marginalised groups that receive little media coverage.

Professor David Robie is the Director of the Pacific Media Centre and an experienced journalist who has a special interest in issues that are often overlooked in the Asia–Pacific region. David is the editor of the Pacific Journalism Review (PJR). The journal is published both as a hard copy and online on AUT's Tuwhera indigenous research platform. This journal focuses on research and topics from the South Pacific, Asia–Pacific, Australia, and New Zealand. He also manages Pacific Media Watch, digital analysis of Pacific journalism and media, and is a publisher of the Asia Pacific Report and distributed through ForeignPolicy.nz and Knowledge Basket.

The Pacific Media Centre (PMC) began in 2007 and is a research and publication unit within the School of Communication Studies at AUT. David explains that the objective of the PMC was to "create a creative space for a range of collaborative initiatives such as journalism and documentary making within the social sciences. We also have a particular focus on diversity and marginalised groups that don't get much media coverage." The PMC currently serves as an important space for postgraduate students specifically as they create story projects, image portfolios, video, and other multimedia on Asia-Pacific focused issues.

At the beginning of 2016, David and his colleagues founded a new current affairs and news website called Asia Pacific Report (APR), which used the basic structure of the previous platform called Pacific Scoop that ran from the year 2009 to 2015. The Pacific Media Centre Online website has also recently relaunched with more visually aesthetic elements and an improved user interface. PMC online is a resource based on media that features a whole collaborative range of media stories and portfolios, which at the same time, promotes innovative research that is taking place within the department. Asia Pacific Report has a much bigger global audience than PMC online, only a guarter of which is based in New Zealand. A large portion of traffic to APR comes from Indonesia, which David presumes is due to their coverage of the political situation in West

Papua. David says, "most media in New Zealand, apart from Radio New Zealand Pacific, don't really cover West Papua, even as this crisis is going on at this moment and over the last two weeks, and yet where is the coverage? It's staggering, and I find it unconscionable."

PMC exists as a collaborative space for students to learn from one another and work together. Even though it operates on limited resources, students can gain valuable experience through their projects and also through monitoring media from other parts of the Asia Pacific region such as the Bearing Witness climate change project. PMC also boasts several external industry partnerships, for example, with Radio New Zealand who collaborates with PMC generated content and provides a larger platform. Other collaborative PMC partnerships are found in Fiji, Papua New Guinea, and with individual journalists and academics around the region, and include the University of the South Pacific's journalism programme and the Centre for Southeast Asian Social Sciences (CESASS) at Universitas Gadjah Mada in Yohyakarta, Indonesia. Internal partnerships within AUT include an advisory board that is made up of members from across the university and the wider industry. The board is currently presided over by Associate Professor Camille Nakhid from the Faculty of Culture and Society, Social Sciences department

"We very much target stories and issues that we feel are not being terribly well covered by the mainstream media," says David. Due to its name, the PMC often is assumed to be solely Pacific focused, but, according to David, "we are actually an eclectic and a very broad stream if you like. It is very much a collaboration between social sciences and the school of communication and mainly individual staff in the social sciences. David acknowledges that collaboration can be challenging at times due to the foundational structures of the university environment that can form what David calls a "silo mentality." "It's very much an educational process with our colleagues as well, to say this is what we do, and this is where we can collaborate. I hope that the university will continue to be more supportive and encouraging for ventures like this in the future."

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Collaboration is essential for David's work and the PMC as a whole as it facilitates a range of different research initiatives, while at the same time enabling postgraduate students to approach topics in unconventional ways that will adequately address complex issues and topics. David also highlights the fact that the media itself is inherently collaborative with teams of people being involved. As such, David believes it is very important for PMC to continue providing opportunities for team building and collaboration to take place with internal and external partners.

pmc.aut.ac.nz asiapacificreport.nz

> PMC's objective was to "create a creative space for a range of collaborative initiatives such as journalism and documentary making within the social sciences.

Gregory Bennett

Recently, Gregory has engaged in a collaborative project with the Antarctic Heritage Trust and Dr Barbara Bollard, Conservation Scientist and Director of the DroneLab and the ArtScience Centre at AUT, to create an immersive virtual reality experience of Sir Edmund Hillary's hut. Working together with external partners is essential, especially when so many specialised skills from different teams are required to provide the public with an experience of this historical heritage site.

Gregory, also known as Greg, is the Head of Department of Visual Arts and Digital Design in the School of Art and Design. His primary focus is around animation, visual effects, and game design. Virtual reality (VR) is another one of Greq's interests, because, he says, "it pulls from each of the other three disciplines in a way that they all come together. He adds, "In VR there's been a big uptake in terms of entertainment products and experience, but also how VR can be used for things like heritage projects. It runs from the spectrum of heritage preservation in digital form, and this can be sites or artifacts in digital form, but it also brings experiences of heritage sites to audiences who can't physically visit them." The experiences that VR offers are unique and Greg has a great appreciation for the types of collaboration and teamwork that are necessary to successfully develop and produce a truly immersive VR experience.

A collaborative project that Greg has worked on recently was in conjunction with the Antarctic Heritage Trust, who oversees Sir Edmund Hillary's hut next to Scott Base in Antarctica, originally built in the 1950s and then later restored. "The hut was established when they made a trip to the South Pole with Sir Edmund Hillary. They did it on these tractors. There were several other scientific explorations that were spearheaded from there as well," says Greg when explaining the importance and significance of the site's heritage. Several departments at AUT also worked in collaboration with The Antarctic Heritage Trust to create an immersive VR experience of the fully restored hut. Greg says the project itself was hugely collaborative and started with a trip to gather the spatial data in Antarctica, which involved a small team led by Dr. Barbara Bollard from GIS science. The team's 3D mapping strategies incorporated the use of drones and other specialist imaging technology. In light of their academic focus that is also on environmental science, the team also monitored various effects of climate change and human impacts on Antarctica. An Auckland-based VR company called Staples VR also supported the project by loaning a 3D LIDAR scanner to Barbara and her crew to provide 360° scans of the hut's interior for the immersive VR project. The amount of digital data was huge, says Greg, "you end up with massive file sizes between the photogrammetry and 3D LIDAR, the files are made up of thousands of dots that are in 3D. This is just the beginning of the process."

Once the data from the hut and its detailed interior arrived back in New Zealand, another important collaborative effort took place. Greg recruited some AUT postgraduate students to help process the raw data, which can be many terabytes in size, to render files that were of a more manageable size. The following stage involved the filling in of gaps present in the visual data. These gaps occur when there are reflective surfaces or other factors that don't allow the LIDAR to record data in a particular place. The process of filling in the gaps is done mostly by hand and took about eight months to complete because all of the missing pieces must be completely constructed and retextured by using Photoshop. Greg and several of his students undertook this task, and the results boast some amazing detail of the hut's interior that was painstakingly created with careful consideration and skill.

Greg says, "these multifaceted projects require a whole bunch of technical skills and knowhow, and where design can fit in this is applying the appropriate visualisation and also the development and creation of an actual narrative experience is part of what we provide for the science and heritage." The future outlook for these projects and employment possibilities is positive, but there is a need for the continued collaborative involvement of specialists with a range of skills in animation, modeling, texture art, and game design.

"Part of the problem with these projects is the scope," says Greg, "and with something like the Antarctica project you find out what you can and can't do but once you have been through that collaborative process a few times you start to know what you can and can't do."

 VR also brings experiences of heritage sites to audiences who can't physically visit them. 99

Jarek Beksa

A Lecturer in the School of Engineering, Computer and Mathematical Sciences, Ph.D. Candidate and CEO of Sonnar, Jarek is committed to creating an inclusive user experience for both sighted and non-sighted users.

Jarek came to New Zealand from his native Poland to pursue a Ph.D. on accessible user interfaces, and a project called Audio Gamehub – a collection of games for people with visual impairments. Jarek's main motivation was to find out how blind people could play games on smartphones and touchscreen devices.

Jarek's initial motivation to undertake this task came when he met a blind person while living back in Poland. During a conversation with this person, Jarek asked, "how do you spend your free time? Do you play games?" to which his acquaintance replied, "nobody makes games for us." This realisation was very problematic for Jarek, who has a strong affinity for gaming. "The feeling that someone can't access games is really bad, and I decided to change it. That's why I came here."

As a Ph.D. student at AUT, Jarek recruited some students to help him initiate a Kickstarter campaign to fund his project. Thanks to the success of the crowdfunding campaign and an AUT grant, a set of initial audio-based games was successfully launched. Jarek went on to establish a blind gaming company, Sonnar, which was also supported by an investment from AUT Ventures.

The project overall proved to be a great success, and in just over two years, there were more than 200,000 game downloads, along with excellent user reviews of the products. A big break for Jarek and his team came in 2018 when he received a phone call from a Google representative to inform him that Sonnar had been nominated for the Google Play Awards. "We were the first Kiwi app in that contest," says Jarek. "We didn't win, but being a finalist in such a contest was a great recognition."

The work that Jarek and his team do require a high degree of collaboration with a diversity of people both within and outside of AUT. One significant collaboration

came in the form of a partnership with New Zealand's Blind Foundation, who had been looking for a developer to build an Amazon Alexa application that would make audiobooks accessible to members of the blind community. "We built the application, and from that, we gained more experience in making Alexa apps. We also started making games and other projects using smart speakers and voice technology. If you are blind and you can talk, then you can access them in a very easy way, plus it's easy to learn, and the devices are very affordable."

Over two years, Jarek and his team learned that Alexa also simplifies the internet for older people who have limited experience in using technology. "Alexa allows you to talk to it just as if you were talking to a human. One example from the Blind Foundation is a 97-year-old lady, and she started using Alexa to access audiobooks. That was incredible." Another interesting discovery came in the form of an email from a man who utilised one of Jarek's Alexa apps to play a game with his sighted wife for the first time in his life. "It's not just about one blind person playing alone; it's about a whole family. Our games are unique because multiple players can play on one device at the same time. I think that's fantastic".

At the beginning of 2019, Jarek started a bilingual Te Reo Māori/ English audio book project. As Jarek does not speak Te Reo, this project naturally required close collaboration with Te Reo Māori experts and Te Ara Poutama. Jarek formed a collaborative partnership with one of AUT's Te Reo Māori lecturers, Hemi Kelly. Hemi had previous experience in publishing bilingual children's books and suggested that Miriama Kamo's book Stolen Stars of Matariki be featured on the Alexa app. Miriama approved of the project and voice actors, graphic artists, and sound designers were also brought on board. The project has been a success and has a significant recognition of being the world's first bilingual story available on Alexa and Google Home devices.

66 Nobody makes games for us. **99**

larek says there often ends up being many decisionmakers on projects such as these, and he stresses the point that building and maintaining good networks and relationships is of critical importance, and if it is all approached the right way, then doors will open. Even if a particular project is outside of someone's scope, it is possible for them to contribute to projects that they are excited about. For example, when Jarek was first getting started on the Kickstarter campaign, a colleague with social media knowledge played an integral part in bringing the campaign to a broad audience, which ultimately helped improve the success of the fundraising initiative. "Many people were very interested in getting involved with making games for blind people, and audiobooks that support Te Reo Māori. It's unique and also a good

cause."

Associate Professor Monique Redmond & Technician Harriet Stockman

Community collaboration entails the ability to create a temporary community and build reciprocal relationships. Monique and Harriet are interested in how collaboration can create a context for creating and sharing.

Monique and Harriet are part of an artist collective called Public Share who have been 'making' together since 2014. Public share is a visual arts-based collective made up of six current members, all of which have gone through AUT's visual arts postgraduate programme. Associate Professor Monique, who is a Lecturer at the School of Art and Design, explains how Public Share first assembled for an event called the Engaging Public Symposium. This event was a social art practice participatory conference held at the Auckland Art Gallery and curated by Zara Stanhope. The goal was to bring together art practices that exist within in the socio-political realm.

"We ended up staging a tea-break event which happened between proceedings at the conference," explains Monique. "Our interest in the event was about material making, sociality, and sharing." The morning tea event began as all of the attendees emerged from the keynote speaker's presentation and were provided with ceramic plates created by Public Share, which they were then able to take home with them. The event was well-received by attendees, and Monique says, "a key factor is that we made the objects from local clay that we sourced ourselves, and then hand made them as a collective." The objects that Public Share creates act as a social conduit and "situate bigger ideas around things to do with worker's rights, materiality, or sociality depending on the context of which the project is happening," says Monique.

After the project's success at Auckland Art Gallery, a second staged morning tea event took place at Fulton Hogan worksite at the Te Atatu Interchange in 2014." This location also happened to be the site where the clay for the plates at the first event had been sourced.

"We took the event back to the people who had given us the clay that we used in the objects," says Harriet. "We knew it was good clay because it was right next to the old Auckland Brick and Tile site. They delivered a tonne of it to us on the back of a truck."

Monique considers the events to be powerful in their ability to create what she calls a "temporary community," where participants representing various groups are brought together through the shared objects. In the case of the Te Atatu interchange event, the temporary community through the clay objects were between the members of Public Share, the employees of Fulton Hogan, and the other attendees of the event. Fulton Hogan were interested in the event from the first time Harriet contacted them, and the company was happy to provide the clay for the project. Monique explains that the event is about creating a reciprocal relationship, "we go back (to the site of where the clay was sourced), we call it a 'return to site' event. We go back and stage a morning tea or something similar in the context of the particular project." The Fulton Hogan workers specifically wanted mugs, so Public Share created these from the local clay and then went back to present them. For the event, "Fulton Hogan actually shut down their worksite and actually allowed a 30-minute tea break on that day," says Monique, "which is amazing because we are interested in tea break legislation. The legislation changed in March of 2015; it used to be an automatic right to have two ten-minute tea breaks in the working day, but it was changed under the National-led government, and it had to be negotiated. The second change to tea breaks happened in May 2019 when Labour reinstated it."

Associate Professor Monique Redmond

Technician, Harriet Stockman

> We will keep practicing until it doesn't make sense to us anymore. As an art practice, we are interested in how collaboration can create a context for making and sharing.

Dr. Stefan Marks

Stefan shares that teaching tools are more effective and meaningful in a three-dimensional space, especially if they incorporate collaborative teamwork.

Stefan has been a computer programmer since the age of eight, and says he has always had an interest in "making things on the screen move." As Stefan took his programming interests into the academic realm, he focussed on human-computer interactions and virtual reality (VR) and 3D environments. For his Ph.D. project, Stefan created what he calls a "medical task-based teamwork trainer" that explored the possibility that facial expressions and head gestures have on communication in a medical setting. "It turns out that they don't," he says, "but it does make a difference of one second in a ten-minute procedure, which is insignificant for me." Now at AUT, Stefan's research focuses more on VR than 3D.

Stefan is a Senior Lecturer from the School of Colab: Creative Technologies. The school is founded on combining disciplines such as computer science, art and design, and engineering for students, while also providing instructors from diverse academic backgrounds opportunities to bring breadth to the programme. The name Colab references the collaborative nature of the department itself. As such, it's imperative that instructors can think in broad terms about their academic backgrounds and how their knowledge can work in conjunction with their colleagues in ways that may seem unconventional. Stefan believes that this creates a unique, diverse, and forward-thinking environment. "It's all over the place, and that's good," says Stefan about the extensive list of academic backgrounds that represent the department. He adds, "Once you have been here as a staff member for a certain amount of time, you don't want to go back to the monoculture of the degree that you came from."

Some of the collaborative projects that Stefan has worked on in the past have involved internal



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partnerships within Colab: Creative Technologies along with external partnerships. He has also offered his computer programming skills to collaborate with and assist Ph.D. and masters students who go through the programme. These initial collaborations between him and students have even rolled out into other. more long-term projects, such as the time he helped a Ph.D. candidate develop a programme that would take soundwaves and develop them into physical 3D prints. That initial collaborative project then led to the Sleeping with Bees project, which incorporated the recording of high and low-frequency sounds from a beehive to understand how those sounds influence the growth of the beehive structure itself. Stefan and his student then created a plastic 3D model of the sound-based beehive structure and placed it into the hive. The bees then provided what Stefan calls their "feedback," which represented a form of "interspecies communication." This particular project allowed Stefan and his students had to weave together and understand each other's different ways of thinking while at the same time collaborating with a different species altogether, through the use of specific technology. A secondary benefit of the collaboration is that Stefan got to learn a lot about beekeeping!

Stefan's openness to various ideas recently led him to a novel collaborative project with Dr.David White, a Senior Lecturer from the Biomedical Engineering department in the School of Engineering, Computer, and Mathematical Science. David approached Stefan with a proposal to create a model of his nasal cavity based on a scan of his head. David had also apparently waited until he had a cold to do the scan so that the blockages could be clearly illustrated. An honours year student extracted the nasal cavity as a 3D model, "at which point I learned a nose is more than just a hole into your lungs," says Stefan. At David's request, Stefan was able to take the data from the model and turn it into a VR experience in about five minutes. "Now it's floating in the middle of a virtual room," says Stefan. "It's turned into a tool that we use to explore and play around with the data, and we also use it in class."

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 You need different disciplines to work together to create something that is more than the sum of those parts. When people work to inform each other, that is where I see the magic happening.

> The main functionality of the nasal cavity in VR is for classroom applications, and its intricate detail allows for more of an unstandardised experience for students who are studying nasal cavity structures. "It's beautifully complex," says Stefan.

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Stefan believes that the richness of academic outcomes is greatly improved when a collaborative approach is taken, "you need different disciplines to work together to create something that is more than the sum of those parts. When people work to inform each other, that is where I see the magic happening."



Professor

Stephen Reay

What makes a good collaboration and what makes a bad collaboration? These are the questions that Steve asked when developing his card game-based collaboration toolkit called *initiate.collaborate*.

initiate.collaborate is the result of a collaborative effort that involved the team at Good Health Design, Professor Nicola Kayes from the Centred for Person Centred Research (Faculty of Health and Environmental Sciences), and Dr.Claire Craig from the Sheffield Hallam's Lab4Living. The development of the initiate. collaborate toolkit resulted from Catalyst: Seeding Funding provided by the Ministry of Business, Innovation and Employment (MBIE) and administered by the Royal Society of New Zealand, which allowed Steve and his team from AUT to explore collaborations with the team in Sheffield, England. Both teams came together to put forward ideas and concepts on what makes a good collaboration. These include factors that make some collaborations successful while others are unsuccessful, the characteristics and attributes of strong collaboration, and how teams can set themselves up for effective collaboration. "It's very much around identifying what a project is and, more importantly, what it isn't," says Steve. "Just having those conversations upfront, it's like a manifesto that you create, a project manifesto for how you are going to work together."

Steve describes initiate.collaborate as a "gamified self-facilitating workshop," that allows teams of people from different disciplines or worldviews to help them connect on a base level to form an understanding of what the project is, and what it isn't. initiate.collaborate started specifically for design for health collaborations, and there is a specific version for that purpose. However, there is also a version that is suitable for facilitating any form of collaboration. "It's really for a project kickoff," says Steve, "It's really amazing, it asks you to identify different perspectives that surround your project." The cards then allow people from different backgrounds to understand the perspectives of their counterparts while understanding what it is they are doing and why they are doing it.

According to the toolkit development team's findings, Steve says, "What we have found in the projects that we have worked on is that when you are open-minded, generous, flexible, and curious as a group, things went well. If people had pre-determined fixed ideas about what they are doing and weren't those things, you get a few months into it, and you spend all your time fighting and arguing, and it just goes really badly." When different disciplines, such as design and health intersect, it is often challenging to bring the different attributes together in a meaningful and effective way, and Steve's past experiences of facilitating collaborative efforts have been embedded into the initiate. collaborate programme. "When people use it", explains Steve, "there is just this ahh hah moment, and it just takes you collectively together to step back from the project."

Groups of six to eight people generally utilise the game, and it takes an hour and a half to go through the entire workshop. It is also beneficial because it has been designed to be self-facilitating, which means that groups and organisations who are collaborating can utilise it over and over again without the expense of hiring a facilitator. The programme itself focuses on values, creative activities, and roleplays. "It's really fun and it brings a group together in a way that lowers hierarchies. It's really engaging and fun, but it also just supports the team in realising the things they actually need to be thinking about," says Steve.

initiate.collaborate Good Health Design online

> Just having those conversations upfront, it's like a manifesto that you create, a project manifesto for how you are going to work together.

Tania Smith

Tania plays an essential role within the Te Ipukarea Research Institute in supporting and organising the smooth running of the collaborative projects that they are engaged in. Utilising a combination of skillsets from professional and academic staff are essential for the Te Ipukarea Research Institute and has led to meaningful partnerships with the likes of Google, Spark, and Colenso BBDO.

Tania believes that creative collaboration is essential in obtaining "different viewpoints from different areas of the spectrum. Whether it's art, language, documentary, video, or social media."

Tania is the Executive Assistant within the Te Ipukarea Research Institute, and she was involved in working with the team that developed the Kupu Māori language app. This innovative and groundbreaking Māori language learning app was the result of a collaboration between Google, Spark, and Colenso BBDO. The Te Ipukarea team were linked in because of their responsibility to look after the Te Aka Māori language dictionary.

Tania had the task of being the liaison for the team and organising the complex logistics and sharing of information that went along with the collaborative development of the Kupu app. Additionally, Tania coordinated with Te Reo Māori language translators to ensure that all translations and transcriptions were absolutely correct.

The Kupu app, however, is only a small part of what Te Ipukarea does, and Tania is proud of her role and of her department, who are an integral part of the Te Whare o Rongomaurikura (Centre for Language Revitalisation) – the division's international arm.

Te lpukarea has also been developing an online dictionary for Cook Island's languages, which requires close collaboration with elders in the islands to ensure authenticity and accuracy in language recording and translation. On many islands, the elders are the only residents that speak the indigenous languages with complete fluency. Therefore, the project aims to preserve and promote the speaking of these languages among younger Cook Islanders both at home and abroad. In order to undertake this project, the voices of the elders were recorded, transcribed, checked for accuracy, and added to an excel spreadsheet. Finally, the collection of words were uploaded to the online dictionary. Tania adds, "We don't actually claim ownership of the dictionary; it actually belongs to the people of the Cooks."

Te Ipukarea was also gifted the Vagahau Niue manuscript from Wolfgang Sperlich. Tania says, "we have developed that online dictionary as well, but it has yet to go live to the people of Niue."

A small team represents Te Ipukarea and unfortunately lost two important Professors over the last 18 months -John Moorfield, the author of Te Aka, and Te Wharehuia Milroy. After the team's sad loss of these two integral members, there was a subsequent work overload. Tania and the team had to work together closely to keep on top of their projects. Additionally, Tania was assigned extra responsibilities such as checking Te Reo Māori word entries on the Kupu app spreadsheets for imperfections such as missing macrons, correct use of double vowels, and other fine details. Tania says, "for me, this was at times a challenging task because I am not a speaker of the language, but I have worked with the language for 20 plus years with Professor Ka'ai and Professor John Moorfield until his passing. I know the language, and even though I am not a speaker of the language, I can identify misspellings."

Tania says Te Ipukarea is accustomed to collaborating with both internal and external teams, and they have recently become aligned with Te Ara Auaha at the beginning of the year. "DCT has a Māori staff caucus, and part of that was to develop criteria around contestable funding for Māori staff. For that, we have been working with academics and people from different backgrounds, and it's been a really good experience." Tania believes that it is essential for professional staff to be included in collaborative projects, adding that "professional staff have a lot of expertise that is often not tapped into." To adequately improve professional staff involvement in collaborative projects, Tania feels that perceived institutional barriers between academic and professional staff need to be broken down. "It's not an issue here in this department thankfully," she says before adding, "but I have worked in a place before where it was very hierarchical; it just comes down to the culture of each institution."

> Professional staff have a lot of expertise that is often not tapped into.

Associate Professor Verica Rupar

Verica is from the School of Communication Studies and is the newly-elected chair of the World Journalism Education Council (WJEC). Collaborating closely with Dr. Parma Nand from the School of Engineering, Computer, and Mathematical Science, they were able to automate the analysis of the twitter tweets Verica was studying.

Verica's area of research is comparative journalism, media, and politics, and has worked as a journalist and taught journalism at the tertiary level in New Zealand, Serbia, Australia, and the United Kingdom. An ongoing collaborative project that she has been working on since the national elections of 2014 is on political reporters' use of Twitter during elections. Verica's goal with the study was to find out who journalists talk to and who they talk about. Verica says she wanted to use Twitter "because it is a new journalistic tool whose use becomes transparent during the election time."

Because the focus of Verica's research has to do with comparison, there is an inherent element of collaboration that she must utilise to achieve her goals. During her first round of study of political reporters' use of Twitter during elections in 2014, Verica used an excel sheet and used mechanical coding of all tweets published by about 50 political journalists who produce anywhere from one tweet a week to five tweets a day. Verica's experience with the mechanical coding of tweets proved to be rather difficult and time-consuming. Therefore, Verica reached out to her colleague Dr. Parma Nand, who is a Senior Lecturer in the School of Engineering, Computer and Mathematical Science, who was able to successfully set up an automated programme for analysis of the Twitter tweets that Verica was studying. "I gave him a list of keywords, and he set up an app that allowed us to do fast processing of these tweets. It shortened the time that we needed for coding the tweets," says Verica.

The findings of the study revealed that journalists talk to three general groups through tweets during the elections – Politicians, other media, and the public. Verica explains that "what is most interesting is that in all three elections, more than 70% of mentions in the election tweets by political reporters who are covering elections are to other journalists. So, they are talking to each other." One way of interpreting this is that journalists work as a gated community, and there is a contradiction there because they work in the public interest in a highly contested time, but their safe zone is the journalistic community. The paper that Verica produced with the help of Parma's programme has now been published at several conferences.

Verica is also part of another long-term collaborative project called Worlds of Journalism, which started at a comparative journalism conference in Porto Alegre, Brazil, in 2006. While at the conference, Verica connected with a group of journalism studies scholars from around the world who were all interested in identifying what factors are universally applied to journalists and journalism practice, and what elements exist that are culturally and contextually detrimental to journalism practice. As a result of this collaboration, a study took place which assessed the journalistic norms and values from 18 different countries. At the time, Verica was living in between New Zealand and Australia, and there were already researchers conducting the study in those countries, so it was agreed that Verica would conduct the survey in Serbia where she had lived and worked as a journalist in the past. Because of the initial collaboration in 2006 and the subsequent multinational study that took place, the Worlds of Journalism book has just been published. "It now has 67 countries involved," exclaims Verica, "that's the

biggest comparative study in journalism nowadays. Around the world, we have used the same questionnaire, and this book unpacks the values of journalistic work." Verica contributed to two chapters of the book, one on journalism autonomy, and the other is on understanding change in journalism.

> Verica feels that it is always important to talk to people and look for similarities research interests practice. When similarities are identified between people, then it more likely that a collaborative relationship could naturally form. you meet people who as you do, it's a selfconfirmation, and relax a little bit there are other who you don't know are doing similar who think similarly. always a fantastic make connections."

I gave him a list of keywords, and he set up an app that allowed us to do fast processing of these tweets. It shortened the time that we needed for coding the tweets.







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