Future Ready Graduates

Embedding employability in the curriculum: Strategies for the development of future-ready employability attributes within advanced and research informed programmes

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February/March 2020

Future Ready Graduates

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Acknowledgments

We would like to acknowledge Ako Aotearoa for providing the opportunity to research this important topic.

To everyone who participated in this research and in our workshops, we thank you for your valuable contributions and insights which informed our thinking and greatly enhanced the quality of our work.

We particularly want to acknowledge the project team members who attended numerous meetings and advised us on multiple issues. They were Tim Watts (NZAGE), Dr. Rob Wass (University of Otago), Assoc. Prof. Annette Dunham, Dr. Barbara Kensington-Miller, Prof. Gavin Brown, Prof. Jennifer Curtin, Peta Moberley, Dr. Sean Sturm, Assoc. Prof. Jennifer Lees-Marshment (University of Auckland) and Dr. Bernadette Knewstubb (Victoria University of Wellington). The project benefited greatly from your collective wisdom.

Thank you to Dr. Qian Liu who provided consistent support throughout the project and to Prof. Helena Cooper-Thomas for being both a team member and our critical friend. Finally, we are grateful to Dr. Edward Elder for his assistance with our research and writing.

Prof. Susan Geertshuis and Narissa Lewis
March 2020

This report is an output from the project" Embedding employability in the curriculum: Strategies for the development of future-ready employability attributes within advanced and research informed programmes", co-funded by Ako Aotearoa.

To download the report, go to the Ako Aotearoa website at: https://ako.ac.nz/knowledge-centre/embedding-employability-curriculum/

Published by:
Ako Aotearoa
PO Box 756
Wellington 6140

www.ako.ac.nz

Date: November 2020

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Executive summary

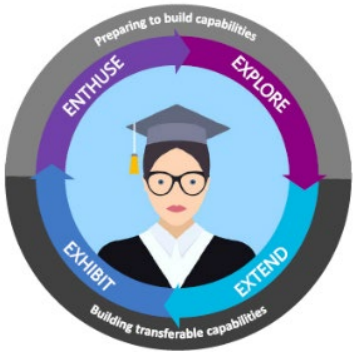
Background - The starting point for this project was the recognition that university graduates need to be equipped for an uncertain and rapidly changing world and for changes in the nature of work. While there is broad agreement over the generic 'future-ready' employability related capabilities graduates will need, there is less consensus over how these attributes can be taught or developed.

Aims - The aim of this project was to discover, trial and disseminate effective and efficient means of embedding 'future-ready' capabilities in advanced and research-informed university courses.

The partnership - With the financial support of Ako Aotearoa, three universities and one employer association formed a partnership to develop and deliver the project. They were: the University of Auckland, University of Otago, Auckland University of Technology and the New Zealand Association of Graduate Employers.

The studies

- Study 1 identified constraints which limited university lecturers' capacity to develop graduate employability. These related to time, course and assessment requirements, legacy policies, student pushback, awareness, attitudes of colleagues and institutional hierarchies. Teaching staff had a narrower view of employability than is found in the literature.
- Study 2 was a conceptual study, which drew on multiple research literatures to develop a pedagogical framework. The framework is designed to inform the design of courses which seek to develop students' future-ready employability capabilities.



- Study 3 reports on interviews with university staff who have a reputation for successfully developing future-ready employability related capabilities in their teaching. A distinct employability mindset was discovered. This study also confirmed the validity of the framework. The framework was meaningful to and practiced by respondents. They were able to make suggestions to improve and enrich the theoretical work.
- Study 4 assessed the extent to which the pedagogical framework could be adopted by others. The results were positive in that attendees at workshops left having applied the model and having developed detailed plans for achievable changes to their teaching and courses.

The outputs

- A project website (www.futurereadygrads.ac.nz) was developed to host project resources
- Seven short and two substantial case studies were written
- Run sheets, material and guidance for six workshops were made available
- Guidance and briefing sheets targeting students, teachers and employers were prepared
- The project was publicised at 21 events

Conclusion - The project fulfilled all its objectives and provides a valuable resource for research-intensive universities meeting the challenges of embedding future-ready employability capabilities within their courses.

Background

The need to prepare our students for their futures is unarguable (Scott, 2016). Faced with a rapidly evolving environment, our graduates need a number of future-ready employability related and generic capabilities. To be future-ready, students need to be: flexible, proactive, open to uncertainty, resilient, ethical, lifelong and self-managing learners who are able to cope with and stimulate change (Bowles et al., 2019; Hirschi, 2018). If universities are to equip students for the future of work, then they need to develop disciplinary knowledge and bring about substantial shifts in students' skills, attitudes, attributes and values (Penprase, 2018).

Researchers confirm that the changes to enterprise and work anticipated in the wider world apply equally to New Zealand (Halteh et al., 2018; Jenkins, 2018). The attributes or capabilities students need in order to be future-ready or 'work ready plus for tomorrow' (Scott, 2016, p. 9) are recognised by universities and captured to a greater or lesser extent within their graduate profiles (Bond et al., 2016; Oliver, 2008). For example, the capability framework proposed by Scott (2016) aligns neatly with the aspirations and themes of the University of Auckland Graduate profile (https://www.auckland.ac.nz/en/students/forms-policies-and-guidelines/student-policies-and-guidelines/graduate-profile.html). The issue for universities is not over what these broadly expressed attributes should be; the issue is now about identifying the scope and standard (Oliver, 2015), as well as devising teaching mechanisms to support progressive development (Pham & Saito, 2019; Yorke & Knight, 2007a) and to evidence capabilities (Hughes & Barrie, 2010; Oliver, 2015).

The fact that students are graduating without the capabilities employers require despite universities' aspirations, is a constant theme in the literature (Azevedo et al., 2012) and employers exhibit some consistencies in their identification of graduates' shortcomings (Chhinzer & Russo, 2018; Cunningham & Villaseñor, 2014). What is more, our students also indicate that universities need to do more and better (https://www.glsnz.org.nz/files/1468361988403.pdf p.87).

Universities aspire to address employability (Stephenson & Yorke, 2013) through their curricular (Jackson, 2015) and co-curricular activities (Clark et al., 2015). In 2015, Universities New Zealand summarised university initiatives to produce employable graduates (https://www.canterbury.ac.nz/media/images/careers-and-employment/UniversitiesNZ-Producing-employable-graduates-Nov2015-FINAL.pdf).

It is apparent that there is a cross-sector commitment to preparing students for their futures. However, there is an implied assumption that employability is about careers advice and work experience. While these initiatives are necessary, they are insufficient (Yorke & Knight, 2007a). There appears to be a mismatch between the aspirations for students, which are lofty, and the mechanisms universities have for developing employability, which seem modest. In the Universities New Zealand

document, there is no mention of curriculum-based initiatives, coherence, theory, change management or academic development.
Nor is there mention of assessment and little of curriculum design. Having said this, there are clearly pockets of expertise in each university from which much can be learnt.

In 2016, a partnership developed which began to question existing practices and consider the challenges and opportunities presented by the need to prepare our students for an uncertain future. The partnership included representation from four New Zealand universities and the New Zealand Association of Graduate Employers (NZAGE). The university partners were: the University of Auckland, Auckland University of Technology, University of Otago and University of Victoria at Wellington. The partners represented a number of disciplines including: Science, Business, Medicine, Education, Arts (History and Politics) and Academic Development. More detail about the partners can be found in Appendix 1.

The partnership was fortunate in securing financial backing from Ako Aotearoa for a project that began in January 2017 and completed on 1st October 2019. This project built on previous Ako projects. Most notable of these were 'Graduate outcomes: Are they driving learning? And who knows about them?' (https://ako.ac.nz/knowledge-centre/graduate-outcomes/) led by Rachel Spronken-Smith and colleagues (2017), and 'Making the Invisible Visible: Illuminating undergraduate learning outcomes beyond content and skills' (https://ako.ac.nz/knowledge-centre/illuminating-undergraduate-learning-outcomes/) by Barbara Kensington-Miller and partners (2019).

The project's aims

The focus of the project was on individual academics, and the project's ambition was to enable teachers to work within their existing university courses to build students' future-ready employability related capabilities[1]. Furthermore, the project aimed to discover, trial and disseminate effective and efficient means of embedding the development of future-ready employability capabilities in advanced and research-informed curricula.

[1] The words 'future-ready' are used to avoid readers mistakenly understanding employability capabilities as meaning technical knowledge and skills relating to pre-existing work roles and/or as skills relating to securing employment. This project understands employability capabilities to be generic attributes that are thought to equip students for their future lives in an uncertain and rapidly evolving world and for work roles that may not as yet exist.

The project's main objectives were to:

- Build understanding of effective curriculum-based pedagogies for developing future-ready employability attributes;
- Build a guiding framework and tools for lecturers, programme designers and leaders in learning and teaching, and;
- Trial, evaluate and disseminate effective practices across settings.

The sections that follow describe the work achieved through the project. Appendix 2 provides an overview of this work.

The research

Four research studies systematically worked towards achieving the project's aim of developing, testing and disseminating a robust framework for building employability within courses. Study 1 captured the knowledge of practicing teachers to ascertain their perspectives and assess their priorities and needs. Study 2 reviewed the literatures on pedagogical approaches and resulted in a preliminary framework to meet teachers' needs. Study 3 validated the framework through interviews with exceptional teachers. Study 4 assessed the extent to which the framework could be communicated and adopted. These studies addressed the main objectives of the project.

Each study is described as follows:

Study 1. Teachers' perspectives on the development of employability capabilities

University programmes claim to develop graduate capabilities within courses (Oliver, 2015) and prepare students for their futures (Bowles et al., 2019). In some instances, capabilities may be explicitly taught. In others, they may be given space to be executed and either assessed or left unassessed (Clarke, 2018). Alternative strategies, such as internships or co-curricular activities, are also useful as part of a multifaceted endeavour to build employability. But in isolation, they may have little effect (Knight & Yorke, 2003). Acquiring complex, interrelated skills, individual beliefs and social capabilities involves slow, strong and deep learning of a transformational nature (Yorke & Knight, 2007b). These perspectives appear frequently in the literature and may or may not be shared by teaching staff.

Aims
The project team set out to discover what teaching staff thought about their role in developing employability capabilities. The aim was to explore staff perspectives on the capabilities students need and their role in teaching these capabilities and preparing students for their futures.

Method
Interviews - Using a snowball approach, 20 volunteers were interviewed. The first set of participants were secured by invitation at the project's kick-off workshop, and each participant was invited to suggest others who the researchers might talk to. Thus the sample is not random; it is biased towards those who are interested in developing employability capabilities.

Findings
Most respondents provided a shortlist of capabilities which they regarded as relevant to employability. The majority of capabilities identified were skills rather than attitudes, values or dispositions. Most participants appeared not to have had many

opportunities to think about the future capability needs of their students and relate them to their teaching. The dominant strategy reported by interviewees for developing employability capabilities was to introduce work relevant exercises and assessments into the classroom. Respondents often reported that they provided opportunity rather than explicit teaching on the assumption that capabilities would emerge. Concrete examples of teaching employability capabilities tended to be of opportunities to develop observable skills such as those involved in giving a presentation.

Whilst none of the respondents rejected the idea that universities should prepare students for their futures, many explained that they were not sure how to perform this aspect of their role. This was voiced by one respondent as "I think a lot of us in teaching have done it by trial and error rather than a solid pedagogy" (Transcript 3). Respondents identified a host of other constraints which limited their capacity to develop employability. These related to time, course and assessment requirements, legacy policies, student pushback, attitudes of colleagues and institutional hierarchies.

Conclusions and next steps

In response to the results of Study 1, a set of design principles for an intervention were developed. It appeared that a sustainable and impactful intervention should:

- Provide an opportunity for staff to consider the future-ready capabilities students need;
- Develop a research-informed pedagogy for developing future-ready capabilities that it is easy to learn and apply and works within systemic constraints.

Study 2. Framework development

As is clear from the background information and from Study 1, ambitions for graduates are extensive. There is recognition that the development of disciplinary knowledge is valuable, but needs to be accompanied by the development of multiple generic capabilities. However, teachers are uncertain how to bring about these transformations in the classroom, lacking both time and pedagogical expertise and reporting that they are hampered by multiple contextual constraints.

Aims

This study aimed to develop a research-informed pedagogy for developing future-ready capabilities. The objective was to develop a high-level pedagogical framework that can inform practice. The aim was to provide teachers with a flexible and theoretically informed framework for developing students' capacity to navigate their lives and cope with the uncertainty and rapid change their futures are likely to bring.

Method

The researchers conducted a conceptual analysis (Machado & Silva, 2007) drawing on social (Young & Collin, 2004) and cognitive (Entwistle, 2003) theories of learning, the theory of transformative learning (Mezirow, 1991), and research on the transfer of training (Perkins & Salomon, 1992) to identify archetypal principles in developing generic future-ready capabilities. Once the principles were recognised, the teaching practices and learning experiences thought to contribute to each dimension were identified.

Findings

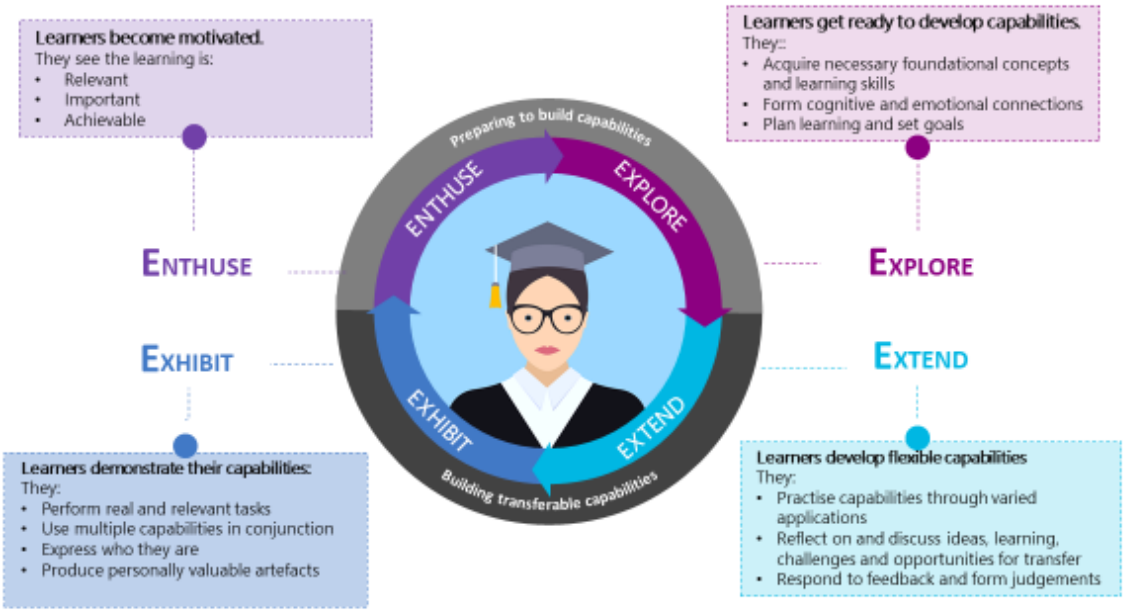
Four general principles or dimensions of learning and teaching were identified. They were:

- Motivation - Students need to be enthused about a course or topic: They need to see it as relevant, important, and achievable.
- Preparedness - Students need to actively explore a new topic: They need to build holistic frameworks and engage in 'big picture' thinking to understand and plan for their learning. They need to have the conceptual and learning resources required to complete the journey.
- Practice and challenge - Students need to expand their initial thinking: They need opportunities to practice, generate and test ideas, manage uncertainties, reflect, discuss and respond to feedback.
- Performance - Students need opportunities to perform capabilities in realistic situations and in conjunction with others.

This work was synthesised into a working paper for the website and following further research was later extended into a conceptual analysis suitable for submission to a higher education journal (Geertshuis et al., n.d.).

Simultaneously, the partnership collaborated in efforts to simplify the findings, developing a framework that could be used as a communication and training tool. The framework was summarised as having four dimensions: Enthuse, Explore, Expand and Exhibit (see Figure 1). It seemed to meet the design principles of being relatively simple and easy to explain.

Figure 1. The pedagogical framework



Conclusions and next steps

Given that the framework was derived from the research literature, its application and validity concerning daily teaching practice in New Zealand was unknown. This led to the third study, which investigated whether the model aligned with the practices of academic teaching staff who were successfully embedding future-ready employability capabilities in their courses.

Study 3: Validation of the framework and further exploration

There are a number of practices that are claimed to be relevant to developing future-ready employability capabilities, but their efficacy is often contested (Chan et al., 2017). They include strategies such as: group work, problem-based learning, project work, enquiry-based learning, field trips, internships, workplace learning and more. This study aimed to go beyond these general active learning techniques to see if there were distinct ways to develop future-ready employability capabilities. Additionally, the informants in Study 1 expressed several systemic issues that were beyond their control and noted that they had limited spheres of influence. For example, even if teaching staff felt internships or field-trips might be effective, they reported being unable to initiate such interventions. Therefore, the scope of this study was limited to discovering distinct ways to develop future-ready employability capabilities that could be implemented within the confines of regular credit courses. This means that any findings would be of potential utility to the maximum number of teachers.

Aims

To assess the validity of the pedagogical framework and identify relevant teaching practices.

Method

The study adopted a positive deviance approach (Chan et al., 2017). This is an approach taken by researchers who are seeking examples of individual practice that are unusual and successful in addressing resilient problems in situations that may be beset by systemic complexities. An account of this method can be found on the website. The study set out to identify positively deviant practices and, later on, positively deviant people. A set of criteria were agreed, and partners submitted details of practices and people they believed met the criteria. The intention was to investigate and evaluate these sources of data to assess their efficacy and fit with the pedagogical framework.

Findings

Although the search for positively deviant practices revealed many teaching techniques, no unique pedagogies or approaches were discovered.

The interviews with positively deviant people, however, were much more enlightening. Interviewees were invited to comment on the draft pedagogical framework. To many interviewees, the model appeared almost obvious, even commonsensical. To others, it seemed to be almost a revelation, a capturing of what they had been doing instinctively. Most could readily comment on all dimensions, identifying multiple ways to address individual dimensions and other teaching practices that served two or more dimensions simultaneously. Thus, the results were reassuring in terms of the face validity of the framework. The feedback and critique from interviewees were used to refine the framework and the list of relevant practices.

The question remained, however, over why these teachers appeared to successfully embed future-ready employability capabilities in their courses when other members of staff did not or could not. Further analysis revealed that the answer seemed to lie not in which specific techniques were used, but rather in the flexible use of multiple strategies and this flexibility seemed to be driven by a particular mindset. The analysis suggested that positive deviants had what the researchers came to call a 'future-ready mindset'. The mindset was characterised by four distinctive features: a focus on the future; a student-centric mentality regarding students as agential individuals; a concern with what happens within the teacher's sphere of influence, and; a passion to make a difference.

Conclusions and next steps

The findings of this study were reassuring in that the pedagogical framework was consistent with the practices of positive deviants. However, the study also discovered that the positive deviants had quite distinct mindsets. The discovery of the mindset casts doubt on the utility of the pedagogical framework. While the framework is consistent with the practices of positive deviants, it remains unknown whether the majority of teaching staff, who do not share these mindsets, can be supported to act in ways that positive deviants act. This was the subject of the fourth study.

Study 4: Adoptability testing

Ako Aotearoa's national projects are about impacting practice. In the final study, the researchers wanted to establish whether the pedagogical framework could be used to guide course design and teaching and so to enhance the degree to which future-ready employability capabilities are embedded within the programmes of research-intensive universities.

Aims
The aim of this study was to assess the adoptability of the pedagogical framework.

Method
An educational design approach was adopted (Easterday et al., 2016). The project partners agreed over-arching design principles for the intervention and a series of exploratory workshops were designed and delivered addressing different aspects of the project objectives and the project partners agreed to over-arching design principles for the intervention. These two streams of activity were used to inform the development of a final set of six nationally delivered workshops. Additional fine-grained design principles were agreed to guide the continuous refinement of the final set of workshops.

The workshops were advertised within three universities and at national (2) and international (1) conferences. After each workshop, evaluation data were collected, participants were invited to comment, and the design team wrote a reflection. In addition to analysing the evaluation data, participants' self-reviews and course plans, which they prepared during workshops, were analysed. The workshops were delivered as 2-hour and 3-hour sessions.

Findings
The evaluation data sat approximately at ceiling for all workshops with the vast majority of respondents rating their experiences extremely positively. This is probably because even the initial workshop was the result of at least a year's work, several preparatory workshops and a good deal of trial and error. The evaluation data, therefore, although very reassuring, did not inform continuous improvement. The reflections by the delivery team and a small number of participant informants were valuable and helped in adjusting content, refining timing and simplifying the workshop structure.

Analyses of participants' self-reviews and plans showed that the model was understood – this was inferred from the appropriateness of comments under each dimension. Participants were able to produce plans for achievable change. It was also evident that there was a wide disparity in the detail and sophistication of reviews and plans amongst attendees. The project has successfully developed a low floor, high ceiling design. That is, participants, irrespective of level of expertise, can access the concepts, use the material and gain from it.

Table 1. Percentage endorsement of the design principles (N=48-72)

Participants say that:	*% Agree*
The workshop is accessible to those who have little pedagogical or employability background	92
The workshop is relevant to participants' teaching and learning	96
The workshop adds to the perspectives of those who are experienced in employability and familiar with pedagogical theories	88
The forms and template are easy to use and will be used in the future	87
They are motivated to try out something new	98
They have gained skills in embedding employability in the curriculum	73-92
They would recommend the workshop to others	96

The positive outcomes of the workshops have to be viewed in light of the recruitment method. All participants were volunteers who presumably are interested in employability and open to changing their practices. It would be interesting to deliver the workshops to a reluctant group of participants.

All workshops were delivered by the same team and led by the same individual. Run sheets and facilitator guides are available, but there were no data from other workshop delivery teams. Thus, while it is convincing that participants in the workshops find the ideas adoptable, it remains unknown whether the workshops themselves can be adopted by others.

Additionally, most participants in the project workshops were responsible for individual sessions/classes and for semester long courses/modules and, therefore these comprised the main focus of the adoptability testing workshops. However, the project also trialled workshops that addressed whole institution and whole programme issues. When working at this scale, the challenge is not so much about how to apply the pedagogical framework in teaching, it is about identifying ways to: support the application of the framework; support an employability mindset in others; remove barriers to change; enable facilitatory drivers; ensure coordination and progressive development of capabilities across courses; and attend to equity and individual differences in the student body. The project team have not had the opportunity to deliver such workshops to staff senior enough to effect institutional change.

Finally, it was not possible to track participants for any length of time and assess whether they put the plans developed in the workshops into action. This is a serious shortcoming.

Suggestions for further research

The four research studies described above could be reinforced and extended in the following ways:

- Replication by other researchers, perhaps in institutions other than universities.
- Follow-up studies to assess the extent to which the plans developed in workshops are realised in courses.
- Expanding the unit of analysis and scope of data captured from individual lecturers to curriculum design teams, ideally, including students and external partners as well as lecturers.
- Extending the focus from front-line teachers to staff with leadership responsibilities.

Case studies

Nine case studies were produced. They serve primarily to illustrate the practical applications of the theoretical perspectives, to assess transferability and to broaden the base of the project.

Two substantial case-studies supplement the four research studies. One case addresses students' employability development at a programme level rather than at a course level. The other substantial case study describes a mechanism for awarding credit for co- and extra- curricular learning.

The programme-wide case study illustrates the role of programme leaders in supporting others in their efforts to embed employability in the curriculum. If employability capabilities are to be progressively developed through the duration of a programme, a whole of programme approach must be adopted. This necessarily involves efforts to monitor, communicate and co-ordinate across courses to ensure that all capabilities are fully addressed. Throughout the project, a faculty-wide initiative was monitored, and this is offered as a case study. The case documents the way in which job aids can be used to facilitate a shift to whole of programme approaches to curriculum development. Two workshops were also developed, one targeting programme leaders and one which takes a whole of institution approach to equity in employability development.

In our application for funding, we noted the perceived value of extra- and co-curricular activities. Throughout our project, we repeatedly heard about the role of such activities but failed to find any examples of New Zealand universities able to offer credit for such activities on any scale. We also identified significant equity issues, gaining the impression that the students who would benefit most from broadened curricula were the least likely to engage in non-credit activities. Rather than documenting these challenges, we identified a successful model from overseas and offer it as a case study. The case study on the SLICC programme from the University of Edinburgh contains sufficient detail for New Zealand universities to explore implementation in their institutions. It offers a means of enabling students to work in authentic environments to demonstrate their ability to work with change, uncertainty and complexity.

Seven less substantial cases were also written. Three one-page cases were written to illustrate the challenges teaching staff face when thinking about embedding employability into course curriculums (see also Study 1). One of these case studies shares the perspectives of educators charged with supporting Māori and Pacific Island students, which provides a voice to an important target group and enables readers to better understand the challenges of both staff and students who work in the Māori and Pacific Island space in research-intensive institutions. It also enabled the partnership to assess the transferability of the research.

Four one-page cases were written around positive deviants (see also Study 3). The cases were used in some workshops as part of the effort to help participants appreciate the distinctions between the mindsets of positive deviants and the dominant practices in our institutions. In particular, the case studies reflect a willingness amongst positive deviants to relinquish control to students and a sensitivity to students' current and future needs.

More details on the cases can be found in Appendix 3.

Guidance and tools

The pedagogical framework

The pedagogical framework has been developed through multiple iterations. It is in a form that is intuitively appealing and easy to learn. A suite of resources have been developed to support its application.

Workshops

The project has developed and evaluated sessions to address the following employability issues:

Employability issue you want to address	*Length of workshop*
- We want to explore what capabilities students need and how they relate to our graduate profile	1 hour
- We want to explore the challenges teaching staff face in embedding future-ready employability capabilities within their courses	1 hour
- We want to demonstrate that teachers can teach a wide range of capabilities	2-3 hours
- We want to embed future-ready capabilities in our university courses	2-3 hours
- We want to explore embedding future-ready capabilities in our programmes and qualifications	2 hours
- We want to explore equity of opportunity in employability development at an institutional level	3 hours

All materials are readily available on the website so that individuals can use the tools, and academic developers can deliver the workshops (https://www.futurereadygrads.ac.nz/workshop-materials/). All of the workshops can be used with individual teaching staff or teaching teams. Four workshops are devoted to considering what capabilities students need and how they can be developed. Two workshops consider leadership and planning issues rather than course and session design. Two of the workshops are suitable for students as well as staff and can be used to examine student perspectives on future-ready capabilities and their development. Appendix 4 provides a brief and illustrative extract from the facilitator's guide for the national programme of workshops entitled "Teaching future-ready capabilities' (the full 20-page text can be found here under the heading *'We want to embed future-ready capabilities in our university courses'*).

Tools

During the workshops, participants were provided with samples and tools. These are now available on the website and can be used by individuals or groups or teachers. Appendix 5 includes a course review and reflection tool for teachers who want to assess the existing teaching in light of the framework.

The website

The future-ready grads website (https://www.futurereadygrads.ac.nz/) has been up and running throughout the project and will be supported for an additional 12 months. It includes details of the workshops, the research, case studies, guidance, informative videos, and an extensive series of blogs (Appendix 6). Screenshots from the website can be found in Appendix 7.

The Guides

Guides for teaching staff

The guidance for teaching staff introduces the literature, the employability challenge and the pedagogical model. It advises teaching staff on how to avoid and handle student push back. It invites teachers to engage with the materials on the website.

Guide for employers

The guidance for employers introduces the literature and the model. Its main focus is on the challenges of transfer and the means by which they can maximise the transfer of new graduates learning from universities to the workplace.

Guide for programme designers

This guide introduces the challenge and the model. It provides guidance on means of facilitating others in embedding employability in their teaching; progressive development; and slow, deep and strong learning.

Guide for students
This guide introduces students to future-ready capabilities. It explains the challenges of transformational learning and the emotional roller coaster that may be involved.

A full list of guides and a sample can be found in Appendix 8.

Dissemination and collaboration

The project partnership met on 15 occasions for formal meetings. Additional regular meetings were held by the project lead and sub-groups of colleagues. These took place daily or weekly as the project moved through its phases.

Multiple dissemination events were hosted by the partnership to brief colleagues within their institutions. Fourteen presentations (other than workshops) were made at various higher education educators' gatherings. Several hundred people have been touched by the project with over 160 attending workshops. A list of conference papers and articles is provided in Appendix 9.

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Appendices

Appendix 1: The partnership

Full name	Organisation	Role
Organisational leads and academic development		
Professor Susan Geertshuis	University of Auckland - Business School	Principal investigator, coordination
Dr Rob Wass	University of Otago	Otago lead, academic development, research, dissemination
Tim Watts	New Zealand Association of Graduate Employers	Project design, steering and evaluation. Dissemination.
Dr Barbara Kensington-Miller Dr Sean Strum	University of Auckland - Centre for Learning and Research in Higher Education	Academic development, research, dissemination
Faculty representatives for teaching and research		
Professor Jennifer Curtin Associate Professor Jennifer Lees-Marshment	University of Auckland – Arts	Case studies, research, dissemination, implementation, policy and practice innovation
Professor Helena Cooper-Thomas	AUT - Business	
Professor Gavin Brown	University of Auckland – Education	
Dr Annette Dunham	University of Auckland - Medical and Health Science	
Careers advice and co-curricula		
Brendon Potter	University of Auckland	Advice and leadership relating to transition out, co-curricula case studies, student support
Equity and research		
Narissa Lewis	University of Auckland	Equity, Māori and Pacific Island perspectives, curriculum design.

Researchers		
Qian Liu -July '18-March '19 Edward Elder -May-Sept '19	University of Auckland	Literature search, data collection, analysis, report writing.
Unfunded Senior Advisors		
Professor Rachel Spronken-Smith	University of Otago	Graduate profiles
Bernadette Knewstubb	University of Victoria, NZ	Employability research
Peta Mobberley	University of Auckland	Careers advisory

Appendix 2. Project summary

The Future Ready Grads Project

Future Ready Graduates

THE PROBLEM

The Future of Work

Universities are charged with preparing their graduates for their future employability, but that **future is unknown**. Current thinking is that our graduates will need a host of **personal and professional capabilities** if they are to thrive in their lives and careers. These **capabilities are captured in universities' graduate profiles**

The Teaching Challenge

Interviews with **teaching staff** revealed that while they are **committed to preparing student** for their futures they are **unsure about what this means** for their teaching practice. Many interviewees were uncertain how to **teach 'future-ready' capabilities** especially when it involved bringing about **transformative changes in students' thinking and beliefs**

The Proposal

- Develop an **evidence-based pedagogical framework** for developing future-ready capabilities that is **easy to understand and apply**
- Develop **resources to support others** in applying the framework

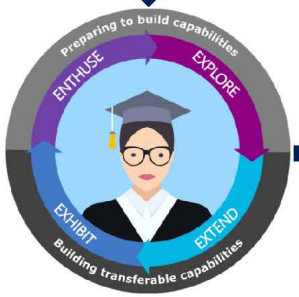
THE SOLUTION

The Partnership

AKO, The University of Auckland, nzage, University of Otago, AUT

The Project

- **Reviewed the literatures** on learning theories and capability development
- Developed a **simple summary framework** to guide teaching for transformation
- **Developed, tested and iteratively refined** the framework through a series of four studies
- Designed and evaluated a **suite of resources** to support changes in teaching practices
- Delivered a **national programme** of workshops



RESOURCES

Reports, Guides & Case Studies

In addition to formal reports and articles we have prepared short guides and case studies for:

- **Teaching staff**
- **Programme leads**
- **Employers**
- **Co-curricular providers**
- **Students**

Tools and Resources

Tools, templates and workshop materials is available for teaching staff and academic developers to support the following:

- Identifying future-ready employability capabilities
- The challenges of developing future-ready employability capabilities
- Embedding future-ready capabilities in sessions
- Designing courses for transformational teaching and future ready capability development
- Embedding future-ready capabilities in programmes and qualifications
- Levelling the employability playing field

CONTACTS

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- Associate Professor Jennifer Lees-Marshment (j.lees-marshment@auckland.ac.nz)
- Brendon Potter (b.potter@auckland.ac.nz
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- Dr. Qian Liu (qian.liu@otago.ac.nz

www.futurereadygrads.ac.nz

Appendix 3: Case studies

This appendix includes a complete list of case studies and a sample case for illustration. The names of the people in these cases are pseudonyms.

List of case studies

Title	Link
Case studies relating to study 1	
- Highlights from our conversation with Aroha	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/09/Case-Study-Aroha.pdf
- Highlights from our conversation with Bradley	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/09/Case-Study-Bradley-1.pdf
- Highlights from our conversation with Paul	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/09/Case-Study-Paul-1.pdf
Case studies relating to study 3	
- Highlights from our conversation with Alison	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/09/Case-Study-Alison.pdf
- Highlights from our conversation with Fern	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/09/Case-Study-Fern.pdf
- Highlights from our conversation with Gail	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/09/Case-Study-Gail.pdf
- Highlights from our conversation with Ian	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/09/Case-Study-Ian.pdf
Substantial case studies	
- A whole-of-programme approach to embedding capabilities in the curriculum	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/09/UOA-Faculty-Case.pdf
- The SLICCs Programme at the University of Edinburgh	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/10/SLICC-Case-Study-V3.pdf

Sample case - Study 2: Highlights from a conversation with an informant

Introducing Aroha
Aroha works in one of New Zealand's universities and takes a special interest in Māori and Pacific Island students. Her current role is employability related.

Employability Capabilities
As we start talking, I notice that Aroha seems to have multiple industry contacts whose opinions seem to inform her views of employability. She says that employers want to see that students have relevant experience, including experience working in teams and developed communication skills. She notes that students need to be able to communicate and think in the way business people do. They also need to be able to present themselves to business and explain how they can contribute to it.

Aroha also adds a capability that I had not heard from any other interviewees. She says we should equip students with the skills to investigate societal needs and how they could join and help communities.

Embedding employability in courses
Aroha is aware of a number of courses where students undertake projects and address real-world issues. She thinks these courses provide students with opportunities to develop relevant skills.

When I ask about embedding employability in courses, Aroha calls for a shift in mindset from a content focus to one where lecturers ask themselves "how can I help students achieve and what are their needs"? She believes this would place an added burden on over-pressed academic staff and questions whether staff's previous experience actually leaves them unaware of employers needs and whether they are equipped to deliver a broader curriculum.

Aroha is a strong advocate of students getting experiences outside their university courses.

Supporting Māori and Pacific Island students
When I ask about any provisions that are valuable for Māori and Pacific Island students, Aroha is reluctant to comment. She rightly points to the diversity within these cohorts. She notes that some Māori students thrive in work placements with Māori organisations and suggests that the whanau culture is familiar and supporting. However, Aroha is also of the view that Māori and Pacific Island students thrive in many other environments, so long as they are made to feel welcome. She shares her view that knowledge of Te Tiriti o Waitangi is sometimes missing in organisations and if they are to make students feel welcome, that this is a substantial omission. Aroha indicates that we should set our students up with realistic expectations and some tactics for dealing with different work environments.

Aroha mentions offering workshops on CV writing and interview techniques have not been of much interest but organised trips to see large organisations have generated a lot of interest. She says the trips open up students' minds to new possibilities. She says it is important to connect students with a range of employers early in their degrees. She believes that we need to seek out the less active and aware students who leave things too late.

Aroha shares her impression that many Māori and Pacific Island people have the goal of helping others. This motivates their career choices, but they need to be shown a wider array of opportunities that would enable them to meet this goal. She implies that this ethic is not the focus of most employability initiatives. Aroha also says that this could and should be a model way of thinking, but in mixed groups this gets lost as Māori and Pacific Island ways of thinking are swamped by the dominant culture.

When asked what theory or philosophy guides her work, Aroha refers to whanaungatanga, a relationship based principal focused on belonging and trust.

Researcher notes: This informant has an understanding of employability that is about being able to secure employment on graduation. With regards to employability capabilities, she has similar views to other interviewees and emphasises the importance of teamwork and communication. She also adds the notion of community awareness and action. With regards to the barriers to embedding employability in courses, the informant shares the view of many other interviewees: seeing academics as focused on content, largely unaware of the employment market, time pressed and somewhat over-burdened. This informant adds a new dimension to our understanding of employability, being able to share her views on the particular needs and strengths of Māori and Pacific Island students. Although mildly expressed, her voice is suggesting radical changes in our approach to careers services and the development of our students.

Appendix 4: Workshops

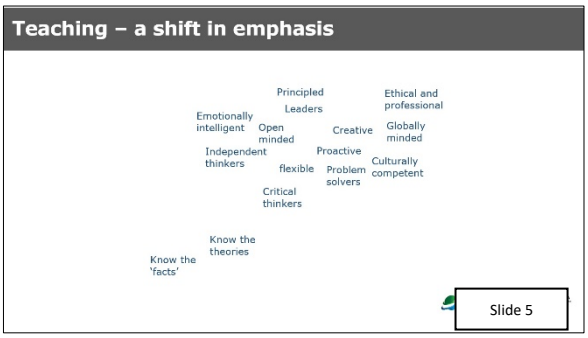
This appendix includes a sample section from the facilitators guide developed for the National programme of workshops

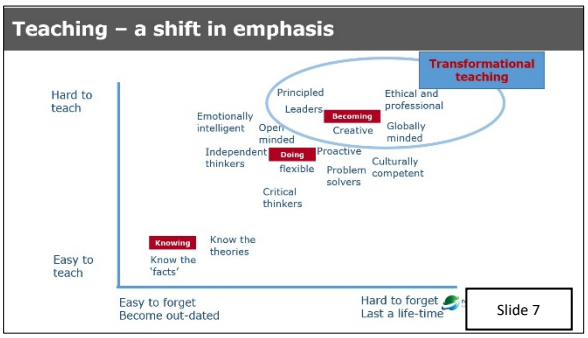
Part C: Transformational teaching and the 4Es framework (25 min)

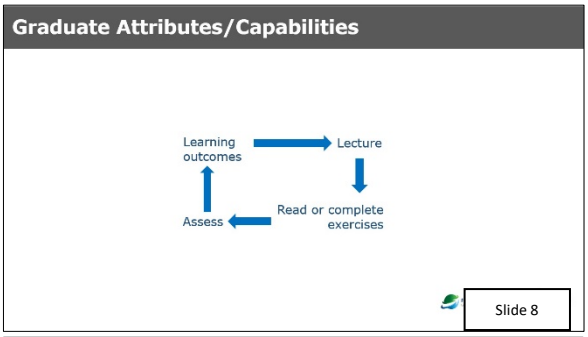
Objectives

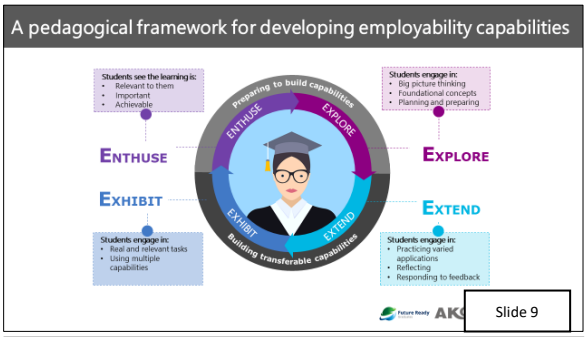
This part describes the shift in the teaching practice and presents the 4Es framework. Participants use the framework to review their courses.

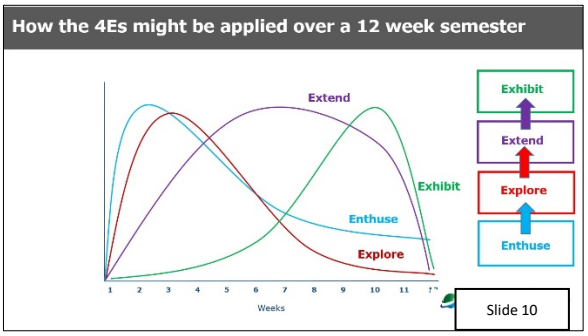
Use the following slides.

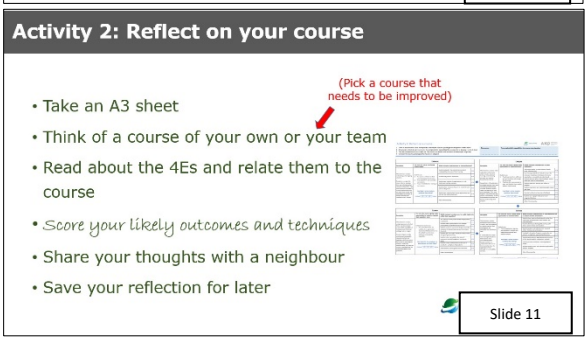












Activities and timing

(7 min) Drawing on the capabilities identified in Part B, explain that in order to develop capabilities in our students, we need to move beyond teaching students to 'know facts and theories' – we need to teach students to 'do more' and 'be more'. Point out that we are used to teaching people to know more. The project's research showed that teaching staff are unsure about how to teach students to become more. To help staff by providing a simple summarising model, the literatures on transformative learning, transformational teaching and the transfer of learning were reviewed and a pedagogical framework developed (slides 5-7). Describe traditional teaching approaches (slide 8) and contrast this with the 4Es framework (slide 9). Stress that the model is robust, being informed by a wealth of research.

(18 min) Give participants the reflective tool (**Activity 2 sheet**). Remind them to work on a course that needs improving – some people find this hard – they want to look expert in everything – you can suggest that they work on a 'friend's' course if they are stuck.

Ask participants to review their course against the reflective tool and share their thoughts. Rove around the room to answer questions and explain the framework.

By the end of this exercise, participants should be familiar with the framework. Some will be buzzing with ideas for their courses already. One or two may still think this is nothing to do with their discipline – try to use the feedback time to make it clear that you can and should embed employability capabilities within discipline learning.

Resources

- Presentation slides for facilitator
- Pen per participant
- Activity 2 sheet "reflect on your course" per participant

Appendix 5: Sample tools

This appendix includes a sample blank course reflection tool and a completed preliminary plan for teaching a new capability.

Reflect on a course

1. Think of a course that could be improved.
2. Identify the future ready capabilities that could be or are developed in your course – write them down
3. Take each quadrant in turn – read the description and assess what students and employers might say
4. Consider the teaching strategies

Your name

The course:

The employability capabilities the course could develop:
Do more -
Be more -

ENTHUSE

Description	You know the course is enthusing students when:	Which strategies have been used to foster enthusiasm?	
This dimension is about motivating and energising students. People are energised to invest effort in activities they see as being positive, relevant and possible. If we want students to engage in transformational learning we need them to view the learning on our courses as being achievable and relevant to their futures.	Students say: 1. The course is relevant to their current and ideal future selves. 2. They expect they can succeed in your courses. 3. They are excited about learning in your courses. **How likely it is that students would say these things?** Unlikely 1 2 3 4 5 Likely	Students establish the potential personal and employability relevance of their learning	Y/N
		Students set goals for themselves	Y/N
		Students are inspired through exposure to role models and exciting examples	Y/N
		Students have choices so they are in control of what and how they learn	Y/N
		Students are supported and encouraged so they feel safe and that they will succeed	Y/N
		Other. Please specify:	

EXPLORE

Description	You know the course is giving ample opportunities for exploration when:	Which strategies have been used to foster exploration?	
This dimension is about initial explorations into a topic, which includes planning learning, contextualising concepts and grasping foundational material. People find it difficult to learn unrelated concepts; they seek conceptual and emotional meaning. Students need to relate new learning to their prior knowledge. They need to gain a fine grained and big picture understanding of their proposed learning if they are to 'own' and manage their progress.	Students say: 1. They know what they will learn, why and how they will manage their learning. 2. They have the basic concepts in place and the tools they need to advance their learning. **How likely it is that students would say these things?** Unlikely 1 2 3 4 5 Likely	Teaching is related to what students already know, value and feel	Y/N
		Learning is possible for all– {students learn the necessary vocabulary /techniques /concepts, expectations are explicit and understood}	Y/N
		Students discover where their thinking is limited, what they need to learn and why	Y/N
		Students plan their learning and reflect on progress	Y/N
		Students experience and explore concepts, values and views	Y/N
		Essential surface level learning is facilitated and basic concepts are mastered	Y/N
		Students are engaged in big picture and integrated thinking	Y/N
		Other. Please specify:	

EXHIBIT

Description	You know the course is giving ample opportunities for students to exhibit their capabilities when:	Which strategies have been used to enable students to exhibit their capabilities?	
This dimension is about designing assessments that foster and demonstrate employability capabilities. It involves much more than setting a test on a topic. People will gain most by developing employability relevant artefacts and applying realistic processes. By the end of their degrees students need to be demonstrating that they can work at a standard that the professions expect from graduates.	Employers or alumni say: 1. The assessment tasks are realistic, of an appropriate standard and that students who do well will have the most advanced employability capabilities **How likely it is that employers or alumni would say these things?** Unlikely 1 2 3 4 5 Likely	The relevance of any assessment to employability is explained	Y/N
		Students have opportunities to use multiple employability capabilities simultaneously	Y/N
		Industry advice on assessment design ensures the relevance of tasks and appropriate performance standards	Y/N
		Students get meaningful individual feedback early enough to guide learning	Y/N
		Industry input is provided in the guise of customers, potential employers, mentors or judges	Y/N
		Students create artefacts that can be used in society, the workplace or by students	Y/N
		Achievements are recognised and celebrated	Y/N
		Other. Please specify:	

EXTEND

Description	You know the course is giving ample opportunities for extension when:	Which strategies have been used to foster extension and so prepare students for transfer?	
This dimension is about building on initial learning in such a way that students are able to transfer their learning from the classroom into their future lives. It is very difficult to apply new learning to situations that have not been encountered before. People need time to practice new skills and to think explicitly about the application of new concepts in employability contexts.	Students say: 1. They can apply their learning appropriately in multiple and superficially dissimilar and realistic contexts **How likely it is that students would say these things?** Unlikely 1 2 3 4 5 Likely	Students have opportunities to practice what they have learnt in progressively more complex and integrated ways	Y/N
		Students thinking is challenged by working with diverse points of view and situations	Y/N
		Students analyse and reflect on their own and others' thinking and performance	Y/N
		Feedback is formative, frequent, constructive and relevant to important aspects of performance	Y/N
		Students anticipate the applications and limitations of their learning within employment contexts	Y/N
		Learning is social, sometimes involving external people	Y/N
		Students tackle wicked and authentic employability relevant problems	Y/N
		Other. Please specify:	

Future Ready Graduates: www.futurereadygrads.ac.nz | Susan Geertshuis (s.geertshuis@auckland.ac.nz) | Qian Liu (q.liu@auckland.ac.nz)

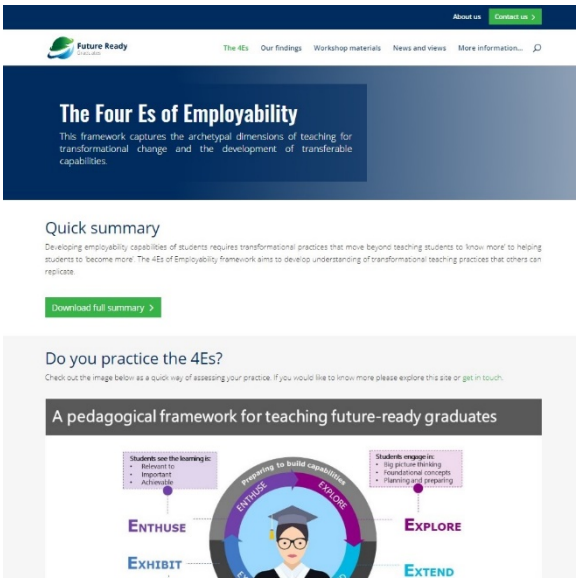
Appendix 6: Blogs

Blog title	Link
Mission almost impossible: how do we prepare future-ready graduates?	https://www.futurereadygrads.ac.nz/2017/06/16/testing-the-blogging-thing/
Embedding employability in the curriculum workshop – the challenges teachers face	https://www.futurereadygrads.ac.nz/2017/06/16/embedding-employability-in-the-curriculum-workshop/
University and beyond: embedding employability and life into the curriculum	https://www.futurereadygrads.ac.nz/2017/06/19/university-and-beyond-embedding-employability-and-life-into-the-curriculum/
Pedagogies for Employability	https://www.futurereadygrads.ac.nz/2017/10/17/pedagogies-for-employability/
employABILITY for students	https://www.futurereadygrads.ac.nz/2017/11/15/employability-for-students/
Non-traditional students and employability outcomes	https://www.futurereadygrads.ac.nz/2017/12/04/non-traditional-students-and-employability-outcomes/
The 4Es model to embed employability in the curriculum	https://www.futurereadygrads.ac.nz/2018/12/12/the-4es-model-to-embed-employability-in-the-curriculum/
Applying translational research principles to the Future Ready Grads Project	https://www.futurereadygrads.ac.nz/2019/08/20/applying-translational-research-principles-to-the-future-ready-grads-project/
Community of Interest in Employability	https://www.futurereadygrads.ac.nz/2019/09/12/community-of-interest-in-employability/
Attending the 'Embedding Employability in the Curriculum' workshop at HERDSA 2020	https://www.futurereadygrads.ac.nz/2019/09/20/attending-the-embedding-employability-in-the-curriculum-workshop-at-herdsa-2020/
Why is offering our students co-curricular and extra-curricular experiences not enough? And a brilliant idea all the way from Scotland	https://futurereadygrads.blogs.auckland.ac.nz/2019/09/26/why-is-offering-our-students-co-curicula-and-extra-curricula-experiences-not-enough-and-a-brilliant-idea-all-the-way-from-scotland/

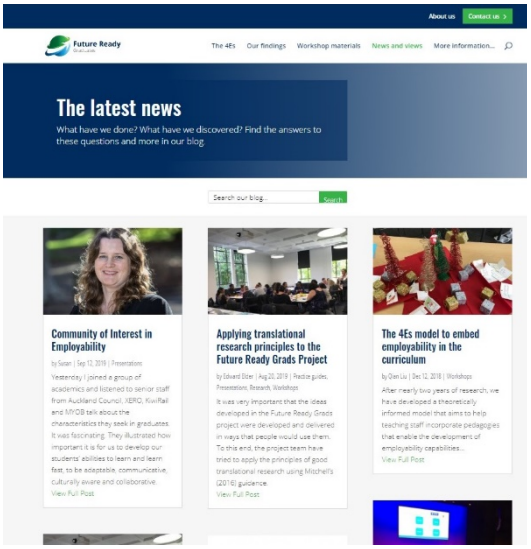
Appendix 7: Website screenshots

This appendix includes sample pages from the website to illustrate the visual design, tone and breadth of information.

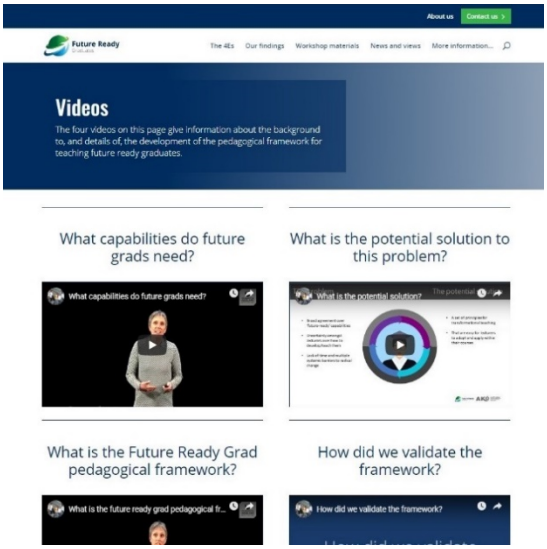
The home page for the website is: https://www.futurereadygrads.ac.nz/



The 4Es: https://www.futurereadygrads.ac.nz/the-4es/



News and views: https://www.futurereadygrads.ac.nz/news-and-views/



Videos: https://futurereadygrads.blogs.auckland.ac.nz/videos/

Appendix 8: One-page guides

List of one-page guides

Guide title	Link
One-Page Guide for Teachers (The Pedagogical Framework)	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/10/One-Page-Guide-Teachers-Framework-2.pdf
One-Page Guide for Teachers (Enthuse)	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/10/One-Page-Guide-Teachers-Enthuse-1.pdf
One-Page Guide for Teachers (Explore)	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/10/One-Page-Guide-Teachers-Explore-1.pdf
One-Page Guide for Teachers (Extend)	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/10/One-Page-Guide-Teachers-Extend-1.pdf
One-Page Guide for Teachers (Exhibit)	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/10/One-Page-Guide-Teachers-Exhibit-1.pdf
One-Page Guide for Programme Leaders	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/10/One-Page-Guide-Programme-Leaders-1.pdf
One-Page Guide for Students	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/10/One-Page-Guide-Students-1.pdf
One-Page Guide for Employers *	https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/3/200/files/2019/10/One-Page-Guide-Employers-1.pdf

- See this sample guide on the following page

Guide for employers

Future Ready Graduates

The Issue

It's a big investment taking on a new graduate and companies want students to fit in quickly, apply their skills and become productive employees.

Employers' questions and what we learnt

Can graduates take what they learnt at university and apply it in the workplace?
Your graduates will have developed a wide range of capabilities at university. However, taking learning from one place to another is difficult. It is known as the **transfer challenge**, but employers can help.

How can we help graduates relate their university learning to their jobs?
Asking graduates to analyse tasks and relate components to past experiences helps them build bridges between what **they already know and what they need to do**.

Will graduates need to adapt their talents to the workplace?
Yes! Knowledge and skills are **situated**. Even though graduates have relevant learning, they **need to learn, practice and adapt** to your ways of doing things.

How can we help graduates fit in and become productive?
Graduates cannot work independently until they know what their company is about and what is expected of them. **They need plenty of guidance and feedback if they are to maximise your ROI**.

Should we look to "re-educate" graduates and forget what they learnt at university?
All knowledge is built on previous understanding – that is how our minds work. Suggesting people ignore what they already know makes future learning very difficult and it shatters confidence.

Analysis

Use these questions to determine whether you are helping new recruits to transfer their learning from university

Supporting new recruits

- Do you set high expectations and explore how tasks draw upon the attributes graduates gained at university?
- Do you help students realise how and what they need to learn?
- Do you make it safe to make mistakes and do you recognise progress?
- Do you listen to graduates, working with them to analyse how they can bring their skills and knowledge to bear in their new roles?
- Do you help students learn the written and unwritten rules of your organisation?

Supporting their managers

- Do managers get full information on new graduates' university discipline, their strengths, interests and experience?
- Do your managers understand the learning transfer challenge and how to support people in transition?
- Do your managers have links with local universities and have a positive and up to date view on the purpose of higher education?

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This guide was made possible by funding from AKO Aotearoa and the University of Auckland. The project was executed by partners from the University of Auckland, the University of Otago, Auckland University of Technology, and the New Zealand Association of Graduate Employers.

www.futurereadygrads.ac.nz

Appendix 9: Publications and conference presentations

Conference papers delivered

Brown, G., Cooper-Thomas, H., Curtin, J., Dunham, A., Geertshuis, S., Knewstubb, B., Lees-Marshment, J., Lewis, N., Liu, Q., Kensington-Miller, B., Mobberley, P., Sturm, S., & Wass, R. (2019, July). *Teaching for transformation: The 4E's of teaching future-ready graduates*. Higher Education Research and Development Society of Australasia Annual Conference. Next Generation, Higher Education: Challenges, Changes and Opportunities. Auckland, New Zealand.

Geertshuis, S. (2019, June). *Teaching future-ready graduates equipped for the 4th industrial revolution*. The Higher Education Futures institute (HEFi) conference. Birmingham, United Kingdom. Retrieved from https://www.birmingham.ac.uk/Documents/HEFI/HEFi2019-Conference-Abstracts-Book.pdf

Geertshuis, S. & Albashiry, N. (2018, November). *Mapping and embedding graduate profile capabilities in the tertiary curriculum with the support of an online mapping tool*. Tertiary Education Research in New Zealand Conference. Wellington, New Zealand. Retrieved from herdsa.org.nz/ternz/2018/programme.htmlRetrieved from herdsa.org.nz/ternz/2018/programme.html

Geertshuis, S., Lewis, N. (2017, November-December). *Non-traditional students and employability outcomes*. Tertiary Education Research in New Zealand Conference. Palmerston North, New Zealand. Retrieved from http://www.herdsa.org.nz/ternz/2017/pdfs/TERNZ_2017_Proceedings.pdf

Geertshuis, S. Lewis, Lewis N. and Liu, Q. (2019, July). *Teaching future-ready graduates: Implications for changing academic practices.* Higher Education Research and Development Society of Australasia Annual Conference. Next Generation, Higher Education: Challenges, Changes and Opportunities. Auckland, New Zealand.

Geertshuis, S., Lewis, N., Sturm, S., Wass, R., & Hubbard, P. (2017, June). *Pedagogies for employability*. Higher Education Research and Development Society of Australasia Annual Conference: Curriculum Transformation. Sydney, Australia. Retrieved from http://herdsa2017.org/d/HERDSA2017-Abstracts.pdf

Geertshuis, S. A., Wass, R., & Lewis, N. (2016, 1 December). *Embedding employability in the curriculum. Tertiary Education in New Zealand Conference*. Dunedin, New Zealand. Retrieved from https://guidebook.com/guide/82933/event/14846243/

Lewis, N. (2017, November). *Employability in tertiary education and its impact on staff*. 6th Aotearoa NZ Organisational Psychology and Organisational Behaviour Conference. Auckland, New Zealand.

Lewis, N. (2017, June). *What about me? Ensuring equity in employability practices*. Higher Education Research and Development Society of Australasia Annual Conference: Curriculum Transformation. Sydney, Australia.

Geertshuis, S. (2019, October) *Future-ready graduate and professionals.* New Zealand association of graduate employers annual summit. Auckland, New Zealand

Journal articles submitted

Geertshuis, S., Wass, R., & Liu, Q. (n.d.). Developing future-ready capabilities for the Fourth Industrial Age: A conceptual analysis and application of learning theories. *Higher Education Pedagogies*, *Submitted*.

Journal articles in preparation

Three papers are to be submitted during 2020. Their provisional titles are: 'Barriers to developing students' capabilities: The impressions of university teachers in New Zealand', 'Positively deviant: A unique teaching mindset' and 'An education design approach to developing pedagogical practices in university teaching'.