NEW CURRICULUM FUTURES

Designing a Contemporary Curriculum for the University of Adelaide
A Green Paper, August 23, 2018

Contents

The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn (Alvin Toffler).

Introduction

Like many industries, higher education is facing a future of likely disruption. Machine learning, artificial intelligence, and digitisation are fundamentally changing the world of work and the possible future careers of graduates. It is estimated that 40% of currents jobs will not exist in 20 years' time and that robots will assume the roles and undertake many tasks that are currently performed by humans, including even for highly specialised fields such as surgery and law. If the future of work will be radically different, then it is time to ask whether the education that we provide to our students will equip them to meet this uncertain future. We also have an opportunity to ask whether we should expand our focus from serving only the students we have always served – overwhelmingly school leavers and people between the ages of 18 and 30 – to others, including our alumni – many of them professionals with ongoing career development needs.

The design of our curriculum – what we teach and how we teach it – shapes the Adelaide education. This discussion paper examines key principles that should underpin what we teach and potential models of program architecture. These have been generated from conversations across the University led by Education Specialists and including over 400 staff; student perspectives gathered in forums and via a pop-up Hub conversation with over 30 students and 120 prospective students at Open Day; and industry input from 16 School Principals in the government, independent and Catholic sectors. At the time of writing separate surveys of students and of industry (small, medium and large businesses) are in the field and will inform the final version of this paper. All of these views have been combined to identify points of consensus as well as those areas where differences of opinion are evident.

Purpose

The purpose of this discussion paper is to summarise the views collected through the consultation process and to provide a series of questions about how the university might respond to the principles and models identified in shaping a new curriculum. This paper will inform the institutional Strategic Plan and will be accompanied by a second paper on Future Directions in Learning, Teaching and Assessment which examines in more detail our pedagogy and how we will deliver engaging educational experiences for all of our students.

Rationale

The University of Adelaide's current curriculum model is founded on the 1000 year old tradition of the university as the creator, keeper and disseminator of knowledge. Small numbers of elite students have traditionally joined the community of scholars in the university and been apprenticed into the ways of knowing of the discipline. In this traditional model the university disciplines decide what counts as knowledge and reproduce scholars in the image of themselves. While this model has served universities well it may not continue to do so in the future. The democratisation of knowledge and new knowledge economies mean that today's students have many more ways to acquire, use and create knowledge than were available in the past. Many more diverse students are undertaking higher education with different expectations, support needs and life

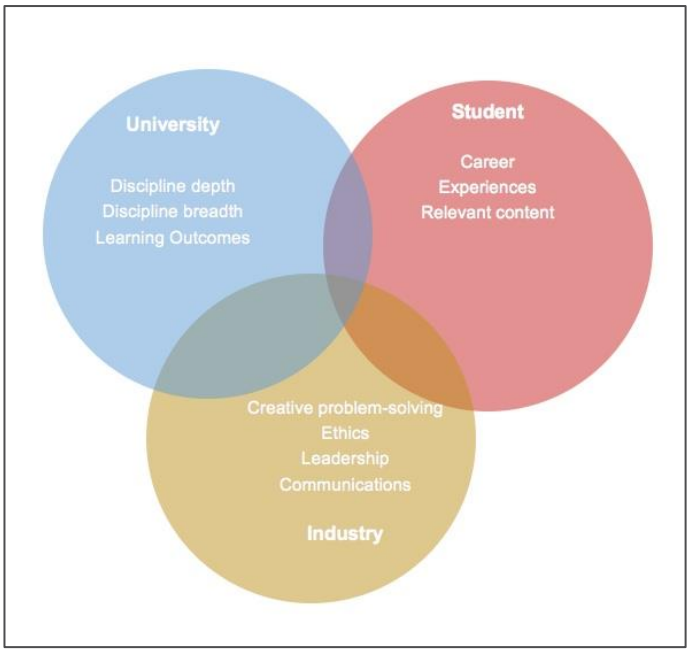


Figure 1: The curriculum has three 'owners' – the university, students and industry. Can we bring them closer together?

experiences; however, to date, the University has not changed the primary audience for our programs. We also know that employers do not believe our degrees always equip students with the skills, attitudes and capabilities to be valuable in the workplace or to thrive in the technology rich, globalised, competitive job markets of the future. Skills and capabilities such as collaboration, creativity, critical thinking, curiosity, debating, dexterity, empathy, entrepreneurship, ethical reasoning, knowledge creation, negotiation, problem-solving, relationship building and resilience.

Looking towards the future, students will need to be equipped to navigate a world of uncertainty and are expected to have multiple careers, some in jobs that don't presently exist. Consequently, they will need to continue learning throughout their careers and will be seeking flexible, accessible models of professional development that match their immediate needs as well as evolving interests.

It is clear that we must reconsider what we think students need, what students want, and what employers are asking for and, arguably, work towards a greater overlap between student/industry expectations and university expectations as depicted in Figure 1.

Strategic context

A range of strategic issues are impacting on higher education institutions worldwide. Widened participation across the sector has led to a clear focus by institutions and governments (as the funders and regulators of higher education) on student outcomes and the quality of provision. Rising enrolments have increased pressure on the public funding of higher education leading to further regulatory oversight and a focus on return on investment and the emergence of

performance-contingent funding. University education has been transformed into a consumer good with students positioned as customers, leading to demands for transparency and improved information to enable informed consumer choices. In a resource constrained environment competition has intensified with new entrants in developing markets able to offer a quality product at a cheaper price, and non-HE providers offering different products tailored to student's aspirations. Digital disruption has changed the way knowledge is consumed and acquired and impacted on methods of instruction. The emergence and uptake of data analytics across the sector now informs more sophisticated market segmentation and quality assurance and quality enhancement, demonstrates value to students, and improves the student experience.

Aligned to the transformation of students into customers there has been change in focus of educational provision towards student experience and engagement including a shift towards more active, personalised and digitalised learning and focus on employability and competency-based learning. This is changing the role of educators with increasing interprofessionalism and the unbundling of traditional academic roles as students are seen as partners in their learning.

This is the strategic context in which we take stock of what we offer to students in the way of degree programs and consider how our curriculum needs to change if it is to meet future challenges.

Consultation process

Between July 20 and August 22 consultations across the University were undertaken. This included a series of Faculty roadshows presented by Professor Pascale Quester, Deputy Vice Chancellor Academic, and conversations led by the 65 Education Specialists of the University. These conversations, supported by the Teaching Excellence portfolio of the Division of Academic and Student Engagement, resulted in meetings and workshops in every Faculty and in many schools and other groups including Communities of Practice, Faculty Advisory Board meetings and individual conversations. Education specialists summarised these conversations using a standardised format to aid in drawing out relevant information. In addition a website form was open for general submissions throughout the period. Students were engaged in two forums, a pop-up feedback board in the Hub and via a (still ongoing) survey, and prospective students and families were engaged via the same Hub pop-up on Open Day. School principals were engaged via a forum with Professor Quester. Industry engagement is ongoing via a survey which is, at the time of writing, still in the field. Details of the submissions received can be found in the Appendix.

All of the submissions were incorporated into a database from which common themes were identified organised around the following concepts.

- Models of curriculum architecture
- Principles of curriculum content
- Pedagogy
- Barriers to and enablers of change

How this paper is organised

The paper first discusses a set of concepts which cut across the principles of content, models of architecture and pedagogy. These are the ideas that must inform our approach to curriculum design. In Figure 2 (on the next page) they are depicted as pillars supporting our curriculum and pedagogy. The paper then examines the principles of content and models of architecture and finally discusses some important considerations for curriculum redesign at the University. Throughout the document quotes from the submissions received are used to illustrate key points.

What is curriculum?

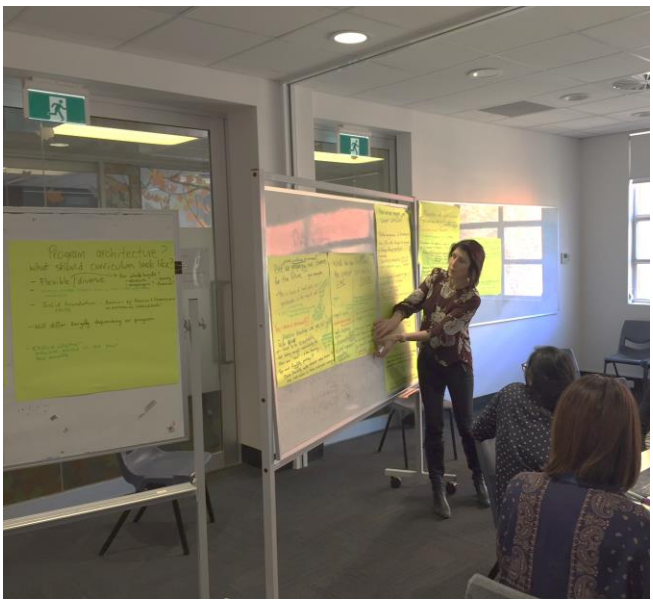
There is no one agreed definition of curriculum. It is about what we teach – broadly the content of our curriculum, and how we teach it – broadly the curriculum architecture. It is inextricably linked to our pedagogy and approaches to learning and teaching although curriculum and pedagogy are not the same thing. A narrow understanding of curriculum might consider it to be a list of the subjects that we teach, whereas an expansive understanding might encompass the whole of the student experience. A common way of conceptualising curriculum talks about the formal curriculum (the content of what we teach) the informal curriculum (the student support and other services that wrap around the student learning) and the hidden curriculum (features of the organisational culture that are not articulated but are experienced by members of the learning community).

For the purpose of this Curriculum Design consultation we are interested at a high level in the content of what we teach and the way we structure our educational offerings in terms of pacing, timing, sequencing and progression. It is helpful when thinking about the content of the curriculum to consider three aspects:

- disciplinary learning
- interdisciplinary learning
- capabilities/attributes development

The balance that we strike between these three aspects informs both of the key questions we have asked during this consultation:
- What should be the principles underpinning curriculum content?
- What models of curriculum architecture will deliver this?

How we decide to balance disciplinary learning, capabilities development and interdisciplinary learning will shape the models of curriculum architecture that we prefer. New models of curriculum architecture may be needed to deliver on principles of content that may be different to those we have now.



Education Specialist A/Prof Corinna van den Heuvel leading a Faculty Curriculum Conversation

Pillars

Flexibility

Our curriculum must be flexible to accommodate the diversity of our students. Flexibility must drive decisions about curriculum content, architecture, pedagogy and administrative and organisational structures that will enable change.

> *Flexible both in content and architecture to allow students to study what suits them when it suits them, and to broaden our demographic.*

Quality

Our curriculum must emphasize the quality of the educational experience and build on the disciplinary expertise and research excellence that is at the heart of the institution.

> *Quality should drive curriculum, it should be taught by experts who are given freedom to teach in the most effective ways for their discipline.*

Relevance

The education we provide needs to be relevant to the aspirations and interests of our students, and the skills, attitudes and attributes desired by employers.

> *Students of today will be faced with increasingly complex challenges in the years ahead. We need to ensure that the students who graduate from our programs are equipped to meet these challenges otherwise we risk a rapid slide towards irrelevance*.

Inclusion

We must embrace diversity of students and staff as an asset that can be harnessed by the institution to increase student engagement and success.

> *A revised curriculum should not only be for a diverse range of students, but should use this diversity of student background and experience as an asset. Some reflexive and collaborative content may allow students to learn not only from us, but from each other.*

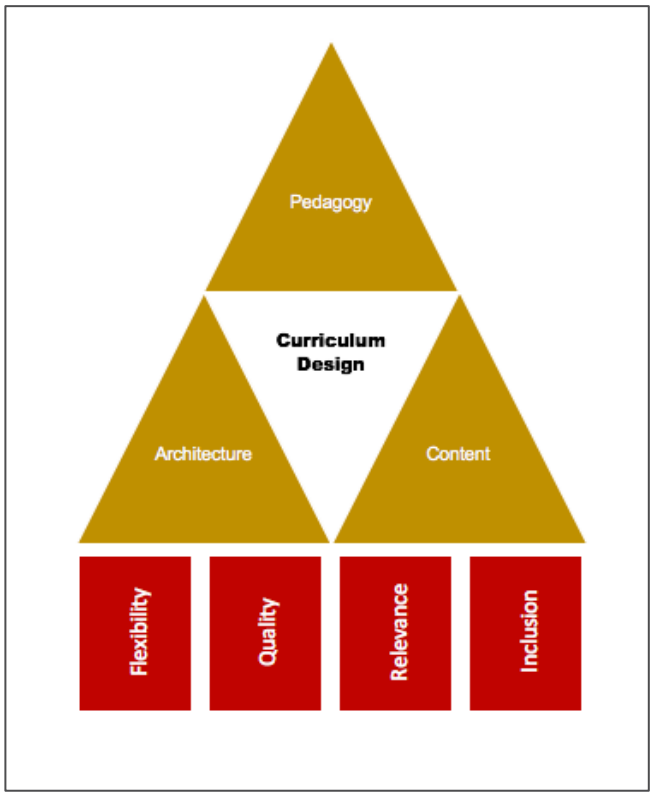


Figure 2 Curriculum Design and Pillars

Principles of curriculum content

Development of fundamental capabilities

With a view to enhancing the resilience (to future disruption) and employability of graduates there was broad agreement that our curriculum needs to change the balance between development of discipline expertise and broader capabilities. However, where the line ought to be drawn between how much focus on content and how much on capabilities was not clear. A number of submissions argued that one size will not fit all.

A reasonable consensus about the development of a foundational program of capabilities and skills emerged which would include things such as:

- critical thinking and problem solving
- ability to reason verbally and qualitatively and construct compelling arguments
- data literacy and ability to reason quantitively
- digital literacy
- professional skills (communication, teamwork, ethics, interprofessional collaboration)
- creativity and innovation
- empathy and social awareness
- intercultural competencies
- self-directed learners (to increase resilience to future disruption of industries)

> *A rational system would be designed to produce well-rounded and generally educated graduates, able to turn their mind to many different kinds of topics with aplomb, and literate in the broadest sense: culturally literate, mathematically literate, able to reason critically and ethically.*

Enhancing employability

All submissions reflected the need to ensure that our educational offerings prepare students for future careers, while acknowledging the uncertainty that accompanies predictions about the future world of work.

In this context, many submissions suggested that students needed to develop the fundamentals of the discipline, together with core capabilities and attributes, and an ability to apply this knowledge in real-world contexts. For many this would be best achieved through industry placements and working more closely with industry to shape courses and assessment.

> *A balanced curriculum consisting of fundamentals and applications, supported by developments of practical and professional skills will encourage life-long learning and enable … graduates to meet future challenges.*

However, there was tension between making space in the curriculum for a clearer focus on employability and industry experience, and developing sufficient knowledge and skills to apply. For some a 4 year degree (with multiple entry and exit points and flexibility as discussed on p. 8) would allow room for both.

> *Maybe we need to offer 4 year degrees with all the additional value adding that we do, it means we can include the rigor that needs to underpin our degree with space to do the more focused learning and/or broadening. It means an additional year without income, which may not be palatable to students.*

While students and prospective students thought the idea of internships or placements was sensible they were concerned about how this would be financially supported. Similarly, a 4 year degree, while creating more room to include more capabilities development and applied project based learning (in house or in industry placements), may not be attractive given the extra debt and time incurred (this needs further investigation with more student data).

> *Of course, academics are incredibly important however you can't teach experience. Giving students the chance to engage in a real work place would be priceless.*

A number of submissions talked about the need to embed career readiness/employability from the beginning of degree programs. This could be offered as part of a 'common core' and commenced from the first year of study.

> *Similarly, it is essential that thinking, reasoning and writing skills together with career development skills and work integrated learning opportunities are explicitly embedded into this core program 'spine.'*

The use of authentic assessments which utilise the skills and knowledge needed in an applied setting and portfolios in which students could collect evidence of their learning in experiential settings and around capabilities development was also seen as important. This was often tied to experiential and inquiry-based, project or problem-based learning, and in some disciplines to research-based education, reflecting the principle of flexibly applying concepts to different disciplinary contexts.

However, there were some dissenting opinions:

> *one contributor … questioned the value of preparing students for the job market if the jobs are in such a state of flux anyway…[and]… observed that it was reductive to approach education, and students, merely from an employment perspective. Education was about preparing students for life.*

Interdisciplinarity

There was good agreement from staff, employers, school principals and students that structured interdisciplinary study would assist students to develop the capabilities and aptitudes that are needed for the future world of work

> *The curriculum should be based on a core of discipline and professional fundamentals but should also include flexible opportunities for cross-disciplinary learning. This is critical for long-term employability of graduates in a changing workplace.*

However, broadening electives were not seen as necessarily the best way to encourage this.

… the current approach of requiring students to study courses in other disciplines does not necessarily bring the maximum benefit of interdisciplinary learning…Sometimes there may no rational and plausible relationship between a specialisation…and the elective subjects students choose from other disciplines.

Students also identified the challenges in compulsory broadening:

No, if you know your career path you shouldn't be forced to take an unnecessary subject

Although recognising there may be benefits:

Having a breadth of subjects should be highly recommended if not compulsory as it would lead to more intelligent and informed people

This speaks to a consistent tension in many submissions regarding the relative positioning of disciplinary content, broader capabilities development, and interdisciplinary learning.

…capabilities could be developed through both discipline and interdisciplinary learning…[but] a deep understanding of technical and theoretical concepts were required to be able to apply the knowledge to open ended and complex problems.

And emphasizes that the guiding idea of flexibility is, in part, about offerings that match what students want and need, and that recognise the diversity of the study body.

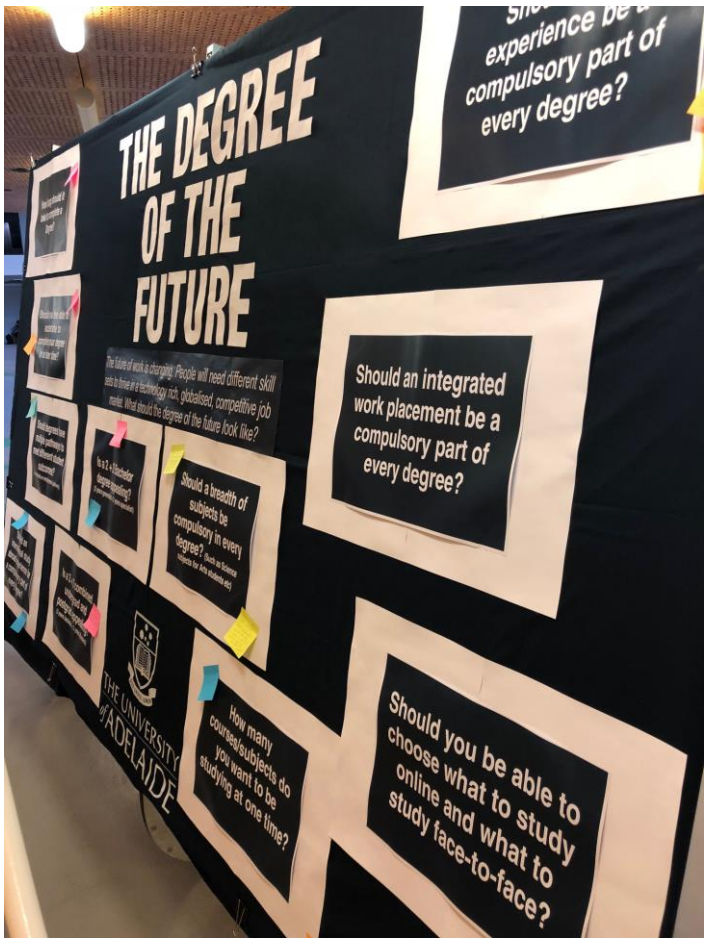
Lifelong learning

A number of submissions engaged particularly with the possibility of meeting new (to the University) markets of postgraduate professional development students and creating a culture of lifelong learning with the University of Adelaide for our alumni.

Particularly, but not only, at a postgraduate level, we see great opportunity for the University to explore more targeted and agile creation of learning opportunities designed to address industry and community needs. Education should not be something that is sought solely before you enter your career, but should be engaged with throughout, to support Adelaide graduates throughout their career and beyond.

Questions

- Should we make room in our curriculum for more emphasis on capabilities development?
- Should interdisciplinarity become a significant feature of the Adelaide curriculum?
- Should the Adelaide curriculum incorporate work placements for all students?



Pop up Curriculum Conversation in the Hub at Open Day

Models of curriculum architecture

While there was no consensus about preferred models of curriculum architecture there was a strong consensus around the idea that flexibility should guide our curriculum design.

> *Flexible in terms of program structures (length, breadth and depth), timing (program entry points and exit points), scheduling (when and how individual units of study are taken) and evidencing of learning (providing a variety of ways for students to demonstrate what they have learned).*

In terms of curriculum architecture this would mean a flexible architecture that included:

- multiple entry and exit points including sub-Bachelor
- possibility of acceleration for students who want it
- microcredentials for postgraduate study especially (but also envisaged for other students to collect towards a qualification)
- more flexible timetables
    - block and carousel models favoured by some
    - trimesterisation and intensives also favoured by some
- modularisation

Degree length

There was reasonable support for the idea of a four year degree; however, there was no consensus about how the degree might be put together. Some suggested a 2+2 model with generalist followed by specialist study. This could incorporate a sub-Bachelor exit point after two years. Others favoured a 3+1 model with the fourth year being for honours or for an industry placement. There was little discussion or apparent support for the 3+2 model (3 year generalist Bachelor followed by 2 year specialist Masters), although there were some suggestions of a 2+3 model with a 2 year generalist Bachelor program (accelerated) followed by a 3 year graduate school program. Student views collected by the time of writing suggest that students may have concerns about the cost and time commitment of additional years of study and would need to convinced of the benefits.

As previously discussed a 4 year degree would permit room for balancing a capabilities and/or interdisciplinary curriculum with development of deep discipline knowledge.

Multiple entry and exit points

Increased flexibility in terms of entry and exit points would mean that recognition of prior learning both formal and work-related would need to be incorporated into the program designs. This notion also linked to the idea of microcredentials and stackable degree programs which would allow students to accumulate credit via multiple means and enter degree programs at different points.

Acceleration

The ability for students who want to accelerate to be enabled to do so was broadly supported, typically envisioned as being enabled by trimesterisation and/or intensives. Where the vision supported the unbundling of courses from programs, acceleration would be driven by the student's own decisions about what to study, when. Acceleration was seen to increase the attractiveness of programs by reducing time commitments, while at the same time allowing able students to challenge themselves. However, caution was also expressed that not all subjects lend themselves to the compressed timetables needed for trimesterisation or intensives, and some concern about student and staff welfare in a structure without significant breaks from learning and teaching were also raised.

> *While flexible (block, accelerated, unbundled etc) were considered necessary, value was also seen in semester breaks where students have opportunities to mature, explore, work, and undertake practical experience. While some learning could be condensed, the duration of the learning was also considered as important for some aspects*

Microcredentials and modularity

The attractiveness of microcredentials especially, but not exclusively, for postgraduate study was highlighted. Microcredentialing was seen to be especially attractive to the potential market of professionals seeking professional development but not necessarily complete qualifications. In this context short non-award courses were seen as a valuable opportunity for both learning and development of professional networks. Online offerings may also be attractive to busy professionals.

> *… the CPD sector [are] cashed up because they are either in established careers or their work will pay for it. They also relished the networking opportunity resulting from doing a block course with colleagues across a range of industry sectors … and the crossfertilistion that brings.*

Block model

The block model – in which courses are taken one at a time over compressed terms of 4-6 weeks – was supported by some and not by others.

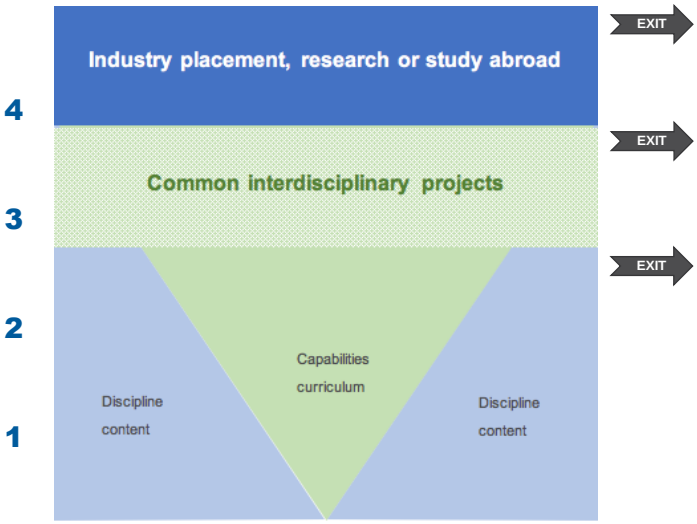
> *… the block model … could increase flexibility for some students, and aid resilience (if a student fails one iteration of a course they may not have to wait a year to attempt it again). However, there would need to be adequate resourcing for intensive assessment, which could prove burdensome for staff*

Questions

- Should we extend the Adelaide undergraduate degree to 4 years (model to be determined)?
- Should the first year adopt a block model to support retention and engagement?
- Should we create a common core/spine that could include a capabilities curriculum and/or interdisciplinary learning?

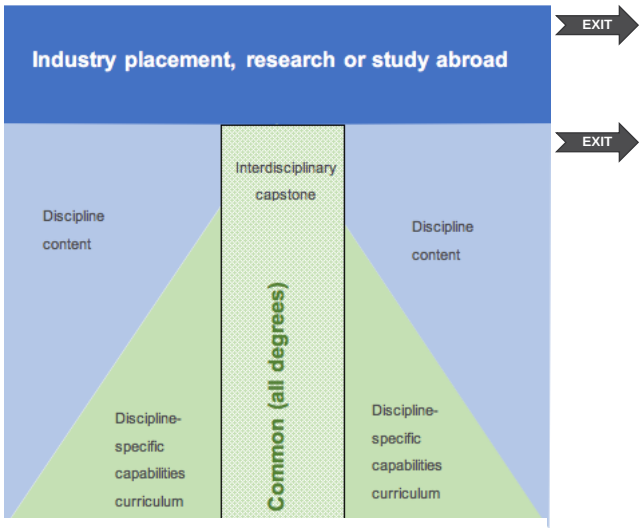
How could this look for undergraduates?

2 + 1 + 1



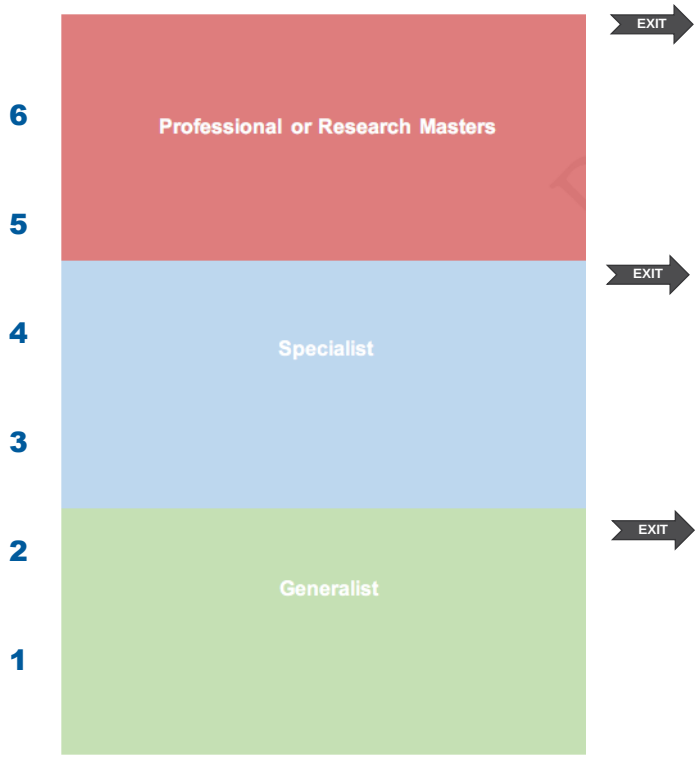
In this model students could exit at year 2, 3 or 4 and the focus would gradually widen from discipline content to capabilities culminating in the third year in interdisciplinary projects with an optional fourth year of placement, research component or study abroad.

3 + 1



In this model students could exit at year 3 or add an optional fourth year and the focus would gradually intensify from broad capabilities to deep discipline content. A common core for all students would culminate in an interdisciplinary capstone. Capabilities development could be customised to the discipline specific needs.

2 + 2 + 2



In this model, students could exit after 2 years with a sub-Bachelor generalist qualification, add another 2 years for a Bachelor (Honours) in a specialist

Questions

Would these models match the pillars and deliver on the principles?

What would you change?

Pillars

Flexibility

Quality

Relevance

Inclusive

Principles

Development of fundamental capabilities

Enhancing employability

Interdisciplinarity

Life-long learning

Issues to consider

If the principles identified are to guide a significant change in the curriculum and produce a new model/s of curriculum architecture there are a number of matters that must be attended to.

Student engagement

Student engagement and approaches to learning and teaching are inextricably linked with curriculum and cannot be meaningfully separated from them. A number of submissions focused on the continuing importance of student engagement and the student learning experience (on campus and online). The underpinning concept here was of student belonging and connectedness.

> *Learning and teaching should be based on an interpersonal connection between teachers and learners. Staff and students should have a sense of belonging and community.*

> *Online learning should be used to augment face-to-face learning. When online learning is used, it is important that it is underpinned by an interpersonal connection: there needs to be a person at the other end of the computer network*

Staff development and resourcing

To ensure quality is maintained in the face of potentially radical change, sufficient resources for staff development to deliver new curriculum and learning and teaching approaches will be needed.

> *There may be a need to train staff to be entrepreneurial towards program development embedding teaching/training as part of research partnerships with industry.*

> *The educators (academic staff) need to be trained so that they can successfully implement the models to enrich the current teaching and learning experiences of the students.*

Academic and learning support staff workloads were also repeatedly raised as a potential barrier to change. Other resourcing issues identified included the resourcing needed to implement extensive change to programs and courses across the University; support for new teaching spaces that permit potential new models of learning and teaching delivery; and support for increased student advising if a more flexible program model with increased student choice were to be introduced.

Primacy of discipline content in some areas

Although the majority of submissions were largely positive and many accepted the need for change, some of those who led the conversations with their colleagues cautioned that there is a significant proportion of academic staff who strongly believe that discipline content is more important than the development of more general capabilities and would be unlikely to support change that reduced the primacy of discipline content.

> *While I recognise the need for interdisciplinary content, and support the explicit teaching of some enterprise skills, I also strongly believe that students need to develop a deep disciplinary base with related key competencies.*

The balance between disciplinary content, capabilities and interdisciplinary learning is fundamentally about what our education is for and who our students are. To encourage engagement with these questions will require a concerted and inclusive effort to develop a shared vision and purpose around the Adelaide education.

> *… a clearly articulated vision accompanied by a strategic plan will eventually shape and influence who we are, whom we serve, what we teach, how we teach and what we aim to achieve with such activities.*

Evidence-base for change

A number of submissions highlighted the need to ground any change to the curriculum in evidence – both about what the problems are that we are trying to address and about what has already worked in other contexts.

> *We need to know what the problems really are, and design solutions to target specific problems.*

> *…it would be beneficial to have a more robust evidence-based approach to the rationale for some of the proposed changes*

Alignment with other institutional strategies

In the development of any new curriculum model it will be important to ensure that it aligns with other institutional strategies and frameworks including the Strategy for Learning, Teaching and Assessment, the Indigenous Education Strategy, the Internationalisation Strategy, the Digital Capabilities Framework, the Employability Framework (in development) and the Retention and Success Plan.

Practical barriers to and enablers of change

Organisational structures and systems

Flexibility in organisational structures and systems was highlighted as a key enabler of change including specifically:

- more flexible funding arrangements for courses (to avoid "the EFTSL wars")

> *Our current structures do not really facilitate this; course offerings are driven by competition for EFTSL rather than academic merit, faculties are loathed to leak EFTSL to other faculties even if a student's academic program would benefit from interdisciplinary work*

- flexible unit value of courses

> *We should be able to offer shorter and longer courses where students get choices that enable them to do 2 units or even 1 unit that, provided it met program rules for sequences of learning*

- more flexible course and program approvals to enable rapid responses to emerging industry needs (e.g. in the defence industry)

> *… as sections of the defence industry boom there will be great opportunities for employer mandated short programs. We will need to be able to respond quickly to fill this need.*

- more flexible or different faculty structures particularly to facilitate interdisciplinary teaching and learning and permit combinations of programs/degrees that are currently not available

> *There should be a great deal more interdisciplinarity in our offerings. This is currently discouraged by the Department/School/Faculty structure. We should consider reorganising academic units.*

Accreditation/registration of professional programs

Accreditation of professional programs was raised repeatedly as something that needed to be protected in any change to the curriculum. For some this was considered non-negotiable.

> *as a degree leading to admission to [the profession], the … degree is subject to professional accreditation rules. … Any curriculum reform would therefore have to occur within the parameters set by accreditation requirements.*

Whereas for others there was the possibility developing more flexible approaches that still met accreditation requirements.

> *It is essential that we continue to offer accredited pathways to maintain alignment with entry requirements for the profession - accreditation serves as a necessary outcome for our students in enabling global mobility as well as assurance for international students as to both the quality and rigour of their qualifications. However, we believe that it is possible to provide this balance, and support in identifying the requirements for entry into accredited fields through information and guidance rather than through (our current) more rigid structures.*

Appendix – Summary of engagement

Engagement counts

- 222 staff (roadshows)
- 192 staff (ES led conversations)
- 25 website submissions from individuals
- 40 students
- 120 prospective students
- 16 school principals

Education Specialist led conversations

- All five faculties (with support from ADLT in some cases)
- Discipline of Physiology, School of Medicine
- School of Education
- ECIC
- School of Mathematical Sciences
- School of Agriculture, Food and Wine
- School of Biological Sciences
- Adelaide Law School
- e-Learning COP
- School of Mechanical Engineering
- School of Computer Sciences
- School of Psychology
- School of Civil, Environmental Engineering
- Australian School of Petroleum
- School of Earth Sciences
- Adelaide Business School
- School of Chemical Engineering
- School of Animal and Veterinary Sciences
- Diversity and Inclusion in Teaching COP
- School of Electrical and Electronic Engineering

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