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<http://unesdoc.unesco.org/images/0024/002468/246851E.pdf>

9. Blended Learning in a Converged Model of University Transformation

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Abstract

The implementation of blended learning requires a major shift in teaching practice and has implications across many core university services including content, learning interactions, assessment, credentialing, student support and technology. This shift requires that the role of the teaching staff member and student be redefined and the responsibility for learning be renegotiated. The influence of blended learning implementation across the system as a whole can be viewed as integral to and inseparable from other key drivers of the vision of a future university. This chapter describes how student support and blended learning are empowered by a university-wide ecosystem known as ‘Curtin Converged’ to transform learning and teaching, an ecosystem that has been implemented in the largest university in Western Australia. It describes the four principles of the model and illustrates how they are embedded in an ecosystem of policies and practices and how they support blended learning and the student experience. Student support is used as a case profile illustrating the application of the converged model in the context of whole-of-institution change.

1. Introduction

In 2013, Curtin University embarked on a strategic initiative to transform education and position itself competitively in the global higher education market. Technology-enhanced quality blended learning was identified as the key to providing greater access to an engaging educational experience. The need to cater to a diverse student cohort in an international

market provided the catalyst for a model of blended learning known as ‘Curtin Converged’. Curtin Converged encompasses a vision for delivering education anytime, anywhere and on any device while simultaneously driving student and employer satisfaction (Downie, 2012). The model dispenses with the distinction between an on-line and on-campus experience to reimagine a university’s approach to education by focusing on a quality educational experience that prepares students through innovative, richly interactive, personalised learning experiences wherever they are located.

The blended learning ecosystem is situated in a policy framework that shapes the role of blended learning and the student experience within a total system of transformation. The converged model exemplifies the executive-level vision of the university and provides a foundation for combining synchronous and asynchronous delivery, the heart of blended learning, in campus-based, on-line and distributed learning contexts, including delivery approaches that use massive open on-line learning experiences and Open Educational Resources (OER). The principles behind the converged model can be defined as:

- shared learning experiences (e.g., blending face-to-face and on-line);
- flexibility (e.g., any time, anywhere and on any device);
- scale and automation (e.g., digital simulations, game-inspired massive courses and learning analytics); and
- global outreach (distributed learning, pathways and partnerships).

Blended learning arose in the early 2000s as a term for instructional delivery that combined ‘face-to-face instruction with computer mediated instruction’ (Bonk & Graham, 2006). Research has indicated that combining face-to-face and computer-mediated learning has the potential to deliver the ‘best of both worlds’ (Dziuban, Hartman, & Moskal,

2004). A recent US Department of Education meta-analysis of comparative studies between on-line and face-to-face learning found that on-line learning was at least as effective as face-to-face learning and that blended learning approaches were considerably more effective than one or the other used in isolation (Means, Toyama, Murphy, Bakia, & Jones, 2010). Given this finding, the Curtin Converged model aims to take the conventional blended learning approach to a more complex level by integrating digital simulations, gamification and intercultural competencies through global classroom partnerships.

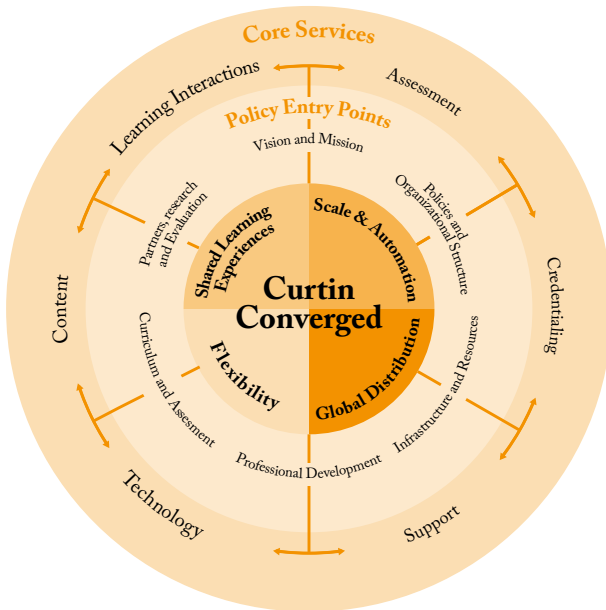
A range of policies has been affected by the implementation of the Curtin Converged model. The policy entry points identified within the university include both top-down and bottom-up strategies of governance and influence that extend across all of the aspects of the structure of the institution as a learning organisation, including its

- vision and mission;
- policies and organisational structure;
- curriculum and assessment;
- professional development;
- infrastructure and resources;
- partnerships, research and evaluation; and
- student support.

The overall ecosystem (see Figure 1) is composed of three socially organised subsystems that support and guide blended learning at Curtin. At the core of the model are the Curtin Converged principles that support the executive vision. These coupled with key policy entry points lead to a structure of policy and practice drivers, which also creates a system for analysing the core services of higher education, including content, learning interactions, assessment, credentialing, student support and technology (Anderson & McGreal, 2012).

This chapter examines how the Curtin Converged model is embedded in the core services of higher education for each of the entry points. It weaves these sources together using specific examples of policy and practice at Curtin University, the largest university in Western Australia.

Figure 1: Curtin Converged as a driver of policy and core services



Source: <http://blogs.curtin.edu.au/odvce/2013/01/curtin-converged-a-new-model-of-teaching-and-learning/>

2. Institution-wide blended learning policies, strategies and initiatives

Embedding Curtin Converged at several points of entry for policy within the university has required executive leadership, vision and resource allocation to stimulate and support

continuous organisational change. This has affected classroom culture and the expectations of students and has encouraged creative responses from staff in relation to opportunities for new thinking, creativity and engagement in transformational innovation. In terms of the six core services provided by higher education, which include content, interaction, assessment, credentialing, support and technology, future global education trends indicate a migration of services. Some educational programmes will divide into free offerings and globally shared resource spaces, and some will develop a sharper focus on core competencies in basic research, the application of knowledge and excellence in learning and teaching. This new thinking about educational products and their delivery can be discussed through the policy entry points.

2.1 Vision and mission

The university's vision sets a context for strategic planning and decision making that includes blended learning initiatives. Table 1 applies the vision and mission to the core services of the university as a context for blended learning and student support.

2.1.1. Curtin's vision

A recognised international leader in research and education.

Curtin will be a beacon for positive change, embracing the challenges and opportunities of our times to advance understanding and change lives for the better.

We will provide richly interactive and personalised learning experiences for our students, equipping them with leadership skills for the future and valuing them as partners in education and research. Our future graduates will act as long-term influencers of change within society.

Through highly influential research conducted in areas of strategic importance, we will deliver outcomes of significant value to our communities locally, nationally and globally.

2.1.2. Curtin's mission

To change minds, lives and the world through leadership, innovation and excellence in teaching and research.

Table 1: Vision and mission

Policy Entry Point	Effects on Core Services Trends
<p>Vision and mission</p>	<p><i>Content</i> - Most learning content will be free and come from and contribute to OER. The face-to-face phases of blended learning will focus on 'embracing the challenges and opportunities of our times' and achieving 'highly influential research in areas of strategic importance.'</p> <p><i>Learning interactions</i> - The 'richly interactive' component requires active learning and new delivery channels that integrate on-line and face-to-face learning. Blended learning addresses both of these requirements.</p> <p><i>Assessment</i> - 'Personalised learning experiences' are founded on Curtin knowing its students by assessing their knowledge and capabilities.</p> <p><i>Credentialing</i> - A Curtin credential requires a relationship to 'outcomes of significant value to our communities'.</p> <p><i>Student support</i> - Curtin values students 'as partners in education and research'.</p> <p><i>Technology</i> - Distributing knowledge and educational opportunities to the world at any time and in any place requires advanced technologies and, in particular, global leadership in educational technology.</p>

2.2 Policies and organisational structure

As a superior research-based methodology, blended learning (Bonk & Graham, 2006; Stacey & Gerbic, 2008) is viewed as essential to the success of on-line and face-to-face teaching and is highlighted as a policy for preventing the loss of the personal touch of teaching staff across a programme of study. Without a commitment to blended learning, programmes offered exclusively on-line may proliferate for scalability reasons

while risking the loss of human interaction, socialisation and touch points for personalisation that differentiate the university experience. Blended learning offers learning experience in an effective, caring institution that gets to know its students and mentors them towards success. The key to the Curtin Converged model is to maintain a healthy and flexible mix of delivery options at as many points as possible across a programme of study so that students can exercise choice and are able to self-design the most effective study patterns that meet their current life situations. Table 2 illustrates the major effects of policy and organisational structure on the core services of the university as a context for blended learning and student support.

The vision for blended learning and the Curtin Converged model is the responsibility of the Deputy Vice Chancellor (Academic) and is primarily implemented by Curtin Teaching and Learning, a centralised support service provided to the faculties in all aspects of curriculum, assessment and student engagement in learning.

Table 2: Policies and organisational structure

Policy Entry Point	Effects on Core Services Trends
<p>Policies and organisational structure</p>	<p><i>Content, learning interactions, assessment</i> - Course approval processes and curriculum mapping have embedded checks for every aspect of the Curtin Converged model.</p> <p><i>Credentialing</i> - Unbundling of courses, badging and new micro-credentials are embedded into the university's 'digital delivery strategy.'</p> <p><i>Student support</i> - Blended approaches are embedded into student services and instruction. For example, on-campus and on-line services are combined into holistic experiences.</p> <p><i>Technology</i> - All of the university's data sources and applications are unified via an enterprise 'bus' that allows flexible data communications. This essential infrastructure is needed to enable rapid, scalable, personalised curriculum and supports the many variations required for blended learning in a globally distributed environment.</p>

2.3 Curriculum and assessment

Dedicated academic development teams devoted to assisting teaching staff in transforming programmes and courses have been established within a central learning and teaching quality improvement area known as Curtin Teaching and Learning. The university has four faculties (Health Sciences, Science & Engineering, Humanities and the Curtin Business School) and a Centre for Aboriginal Studies. In each faculty, there is also a Faculty Learning Engagement Team (http://www.curtin.edu.au/learningfortomorrow/future_of_learning/flet.cfm) that provides planning and implementation support for curriculum redesign, offers localised professional development, transforms courses into on-line delivery formats and integrates massive open on-line courses (MOOCs) with other university-wide programmes. Dedicated assessment and curriculum design teams from the central learning and teaching area assist the faculty-based teams as needed.

To provide a structured framework and achieve consistent outcomes, guidelines were created to promote student engagement in blended learning environments, including the following criteria:

- the establishment of benchmark engaging learning and teaching practices in on-line environments;
- the provision of a guide for self- and peer reviews of on-line environments;
- learning activities designed to promote ‘active’ learning in on-line environments;
- consistency in advice given to teaching staff across the university on how to improve student engagement in on-line environments; and

- the promotion of self-directed professional development for teaching staff.

The guidelines distinguish six criteria: on-line environments, learning resources, learning activities, communication and collaboration, student support and assessment. Context 1 describes the minimum on-line engagement criteria and may be appropriate for a unit that is heavily reliant on face-to-face interactions. Contexts 2 and 3 describe the ways in which the affordance of on-line technologies can be exploited to facilitate ‘active’ learning and enhance student engagement in blended learning units (Figure 2).

Figure 2: Criteria and context levels for student engagement in blended learning environments

Online Environments		
Context 1	Context 2	Context 3
<p>Students refer to the Blackboard unit to gain unit information and download lecture and tutorial materials.</p> <p>Online learning space provides the student with access to learning resources, assessment guidelines, and basic communication tools.</p>	<p>Students refer to the Blackboard unit for personal learning needs and as scheduled for collaborative learning activities.</p> <p>Online learning space provides the student with collaborative learning tasks, formative assessments, various communication tools and complex learning activities.</p>	<p>Students engage with the teaching staff and student community via appropriate collaboration tools and in a variety of authentic online learning activities.</p> <p>Online learning space allows the student to be an "active" learner who creates and interacts with the resources of the unity.</p>
Learning Resources		
Context 1	Context 2	Context 3
<ul style="list-style-type: none"> • Learning outcomes explained (See Chp4) • Content easily navigable • Content in manageable segments e.g. modules • Tools and media are appropriately chosen to deliver learning resources • Timely and relevant learning materials e.g. lecture notes, tutorial worksheets • Supplementary resources in e-Reserve or hyperlinked • All resources are current, contextualised and copyright compliant 	<ul style="list-style-type: none"> • Provides lecture recordings such as iLecture, desktop capture, podcasts • Course design takes full advantage of online tools and media • Links to discipline-specific professional associations • Learning materials include resources that require student interaction such as case studies, case examples and simulations • Provides informal learning opportunities 	<ul style="list-style-type: none"> • Media rich resources e.g. videos, animations, simulations or Virtual labs • Student-generated materials augment/enhance learning materials • Students are not limited to the tools and resources used to develop and present understandings • Students are actively encourage to share understandings and resources

Learning Activities		
Context 1	Context 2	Context 3
<ul style="list-style-type: none"> Clearly stated expectations of student participation Activities align with unit outcomes and assessment Instructions and feedback on satisfactory completion of learning activities 	<ul style="list-style-type: none"> Activities that facilitate student engagement e.g. blogs, wikis, journals Learning activities are authentic Online activities to support independent learning e.g. formative assessment via quiz tool or group collaboration area Scaffolded activities culminating in a final product e.g. website, performance, demonstration 	<ul style="list-style-type: none"> Student centred learning tasks that extend student engagement and collaboration e.g. creation of digital interviews, peer-review, digital mash-ups Learning tasks have depth, complexity and duration Problem-based learning e.g. simulations Opportunity for self-directed learning

Communication and collaboration		
Context 1	Context 2	Context 3
<ul style="list-style-type: none"> Broadcast messages and alerts to students e.g. announcements tool Peer to peer networking opportunities e.g. discussion boards, email Reference to industry communities and networks 	<ul style="list-style-type: none"> Moderated discussions e.g. staff moderation of discussion boards Social media such as journals, blogs and wikis Virtual classroom - lecturer presentations and facilitated collaboration Teaching staff to role model conduct 	<ul style="list-style-type: none"> Social media such as Twitter, Diiigo, Flickr, YouTube, Slideshare Virtual classroom - student presentations, student collaboration Innovative opportunities for student engagement e.g. student conferences Peer-review is part of the learning process

Student Support		
Context 1	Context 2	Context 3
<ul style="list-style-type: none"> Staff contact information and contact guidelines Student support services are included e.g. library tutorials, referencing styles Faculty-specific help Unit complies with Curtin accessibility policies and standards 	<ul style="list-style-type: none"> iPortfolio integration FAQs Staff and peer to peer support e.g. through social media or discussion boards 	<ul style="list-style-type: none"> Actively promoted linkages with industry professionals through an online community of practice

Assessment		
Context 1	Context 2	Context 3
<ul style="list-style-type: none"> Assessment details expand on unit outline information Sample/exemplar assignments provided Guidelines for assignment submission, return process, notification of marks and feedback provided (See Chp 6) Links to academic resources 	<ul style="list-style-type: none"> Assignments submitted online e.g. through Blackboard Assignment Manager Assignments submitted via Turnitin Feedback and results available to students online e.g. feedback and results recorded in Grade Center and available in My Grades Formative assessments provided e.g. online journal, pre-test quizzes with automated feedback 	<ul style="list-style-type: none"> Authentic assessment options include recorded presentations, essays/reports, blogs, podcast series, videos (See Chp 5) Scaffolded peer assessment Opportunities for reflection and self-assessment (See Chp 5) Audio/video feedback

Source: http://www.curtin.edu.au/cli/local/images/diagrams/105_107.pdf

Table 3 illustrates the major effects of curricula and assessment on the core services of the university as a context for blended learning and student support.

Table 3: Curricula and assessment

Policy Entry Point	Effects on Core Services Trends
<p>Curricula and assessment</p>	<p><i>Content, learning interactions, assessment, credentialing</i> - In each faculty area of the university there are teams of experts in learning design, graphics and media production available to assist teaching staff in creating interactive learning activities. These experts understand the Curtin Converged model and apply it flexibly to various units within a programme of study.</p> <p><i>Student support</i> - A 'retention task force' has been set up to define a policy framework for student support that focuses on student success and relies on the shared responsibility of teaching staff working alongside student services staff.</p> <p><i>Technology</i> - The technology available to students is becoming increasingly mobile. Video recordings of lectures are made every day and can be reviewed by students if they miss a class. All grades are entered and accessible on-line, all of the details of a unit's outline and requirements are available on-line and all assignments are submitted on-line.</p>

2.4 Professional development

Zmuda, Kuklis and Kline (2004) pose a shared vision of continuous improvement in which staff development is the key to transforming the institution into a competent system. The competent system at the institution level is built on the notion that teaching staff function more successfully collectively rather than individually. This vision requires teaching staff to be supported throughout the change process, in which a culture of collective autonomy and accountability is fostered.

The Curtin Learning Institute was established to provide and coordinate a range of professional learning opportunities to support staff in their academic endeavours. These opportunities are specifically designed to assist staff during the transformation of learning practices at Curtin; support the implementation of the Curtin Converged model of teaching; provide a foundation for teaching at Curtin for new staff; support academic career planning and development; enhance teaching quality; and build learning and teaching research capacity.

The criteria and contexts for student engagement in blended learning environments (Figure 2) are supported by on-going and embedded professional development. This means that learning and training opportunities that focus on active and highly engaged student learning are offered continuously. Blended learning is encouraged as a theme within faculty-led grants and is further encouraged in the structures and policies mentioned thus far. In this view, professional development is considered not as a singular freestanding workshop, but as an on-going and inseparable part of being an instructional leader at Curtin University.

One-on-one professional development is embedded into each faculty via Faculty Learning Engagement Teams that work to make learning experiences as compelling and engaging as possible through five strategies:

- methods of personalisation and support that adapt to students and require their decisions;
- activities that require higher-order thinking, problem solving and creativity;
- multimodal resources, some of which are constructed by students;
- collaboration that is culturally and globally diverse and engaged in at any time and in any place; and

- feedback that is timely, specific and oriented towards performance improvement.

Workshops that support the strategies are offered by the central learning and teaching directorate and within each faculty as led by the Dean of Learning and Teaching and supported by the Faculty Learning Engagement Team.

Faculty-led research into the effects of blended learning are encouraged by yearly grants from the Teaching Excellence Development Fund (TEDF –<http://ctl.curtin.edu.au/research/tedf.cfm>), which funds year-long projects that involve innovative, effective and sustainable teaching approaches to developing student interaction and engagement. For example, in 2015, a management teaching staff member in the Curtin Business School developed an exemplary unit that included templates and processes suitable for internal and on-line delivery and blended/flipped classroom modes for multiple courses in multiple locations.

Table 4 illustrates the major effects of professional development on the core services of the university as a context for blended learning and student support.

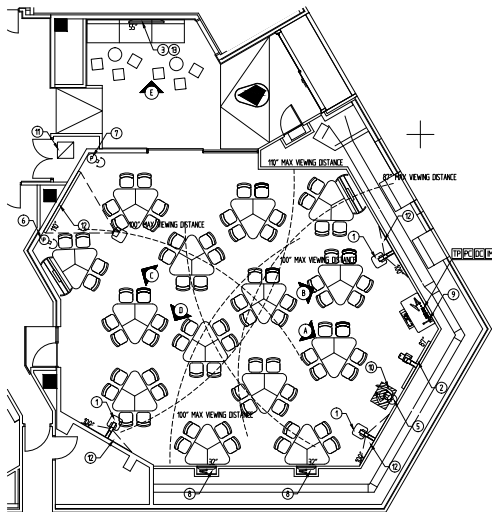
Table 4: Professional development

Policy Entry Point	Effects on Core Services Trends
<p>Professional development</p>	<p><i>Content</i> - Student engagement guidelines, which are made available in an on-line and printable format, guide professional development for blended learning.</p> <p><i>Learning interactions</i> - Teaching staff are encouraged to integrate authentic, reflective and collaborative learning experiences when designing student-centred learning practices. In addition, the technology infrastructure is evolving to collect and use data from event-based interactions to provide learning analytics information and inform actions related to students, teaching staff and others. Event-based data are the most highly detailed source of learning interactions data.</p> <p><i>Assessment</i> - An 'ecosystem' approach has been developed that places assessment at the centre of curriculum design, institutional improvement processes and instructional design and effectiveness. Curtin will build an adaptive assessment system with scalable automation at its core and train and develop teaching staff to use it.</p> <p><i>Credentialing</i> As policy and procedure work has only just begun to focus on 'unbundling' and 'micro-credentialing', professional development has not yet started in this area.</p> <p><i>Student support</i> - In each faculty there are a number of student support experts who deliver service directly to students and are available for professional development within each faculty.</p> <p><i>Technology</i> - Professional development uses technology intensively to deliver on-demand information and on-line training and to build and sustain communities of practice. Required training is automated so that all teaching staff know which workshops they have completed and which remain to be completed. All of the types of training are available in blended modes, featuring face-to-face and on-line components.</p>

2.5 Infrastructure and resources

The infrastructure and resources supporting blended learning include physical learning space redesign, high quality video conferencing and Internet access in classrooms, automated video recording of lectures, speech reinforcement technology and collaboration networking. In addition, it cannot be overemphasised that professional development structures such as embedded Faculty Learning Engagement Teams; on-line policy and practice support websites; and funding mechanisms are vital resources that support the continuous cultural shift required to make globally available blended learning a new norm of delivery. Curtin views synchronous on-line learning as a form of face-to-face learning and can thus distribute blended learning techniques across its entirely on-line delivery systems. This stands in contrast to the early forms of ‘eLearning’ that were largely asynchronous (and thus inferior to blended learning).

Figure 3: Floor plan for Room 105.107



Source: http://www.curtin.edu.au/cli/local/images/diagrams/105_107.pdf

Working alongside architects and information technology staff, a scholar with a research and teaching background in education has led the physical space redesign. Over 50 traditional classrooms and lecture halls have been converted into collaborative learning spaces with flexible seating, multiple displays and a variety of multimedia capabilities (Figure 3). All of the rooms are listed on-line (http://www.curtin.edu.au/cli/learning_spaces/cls.cfm) along with capacity and equipment details. Teaching staff can request these rooms through central timetabling when planning their programmes and courses (Figure 4).

Panoramic view of 105.107

Figure 4: Details for Room 105.107



Source: http://www.curtin.edu.au/cli/learning_spaces/building_105.cfm

Room Type:	Stage 2 Flexible Distributed - Video and Web-conferencing enabled
Room Capacity:	102 seats
Projector/S:	4 projectors

<p>Additional Features:</p>	<ul style="list-style-type: none"> • Dual data projectors installed at the front of the room (content and far end in distributed mode, primary and secondary display in presentation mode) • Video camera at front of room to capture students at each pod • Ceiling-suspended microphones to allow for furniture flexibility in video-conferencing mode • Pressure mat (capture zone) at front of room for presenter to stand on when presenting content from the front of the room to a far-end site (enables a close-up immersive camera shot from the lecturer camera) • NOTE: There are NO pod PCs in this venue • Document camera • Wireless desktop sharing from any guest media device* • Apple TV for true iOS desktop sharing* • Speech reinforcement through lapel microphone • Hearing augmentation for the hearing impaired • iPad mirror of touch panel control • Guest media interface @AVIP - HDMI and VGA • iLectures recording light • Ability to display two independent content streams on displays • Lecturer camera, lapel microphone and capture zone microphone routed to resident PC for software-based distribution
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Radcliffe (2009) proposed that key aspects of pedagogy, space and technology were critical to the robust development of next-generation learning spaces. The physical space and on-line and embedded infrastructure provide permanent resources that support blended learning. Funding the professional development and resources required to stimulate innovative thinking and instructional experimentation further enhances the use of such spaces. Teaching and learning awards, grants, scholarships and fellowships are also part of the infrastructure and are designed

to offer opportunities for Curtin staff to build capacity and be acknowledged for their teaching practices and outstanding contributions to student learning. Staff can receive recognition through teaching awards granted at the faculty, university and national levels.

For example, eScholars (<http://ctl.curtin.edu.au/research/escholars/eScholars.cfm>) has funded numerous examples of blending and other innovations over the years, and its replacement, the new TEDF (<http://ctl.curtin.edu.au/research/tedf.cfm>), supports teaching staff to develop innovative projects and capacity-building initiatives that foster excellence and scholarship in learning and teaching. Video documentation of instructional staff projects is shared as a Web-based professional development resource (<http://blogs.curtin.edu.au/cel/category/escholar/>). In addition, a variety of grants are offered through the Australian Government’s Office for Learning and Teaching. Table 5 illustrates the major effects of infrastructure and resources on the core services of the university as a context for blended learning and student support.

Table 5: Infrastructure and resources

Policy Entry Point	Effects on Core Services Trends
Infrastructure and resources	<p><i>Content, learning interactions, assessment</i> - Incentives created to stimulate the creation of blended learning with student support are integrated with physical and financial infrastructure and resources.</p> <p><i>Credentialing</i> - Innovation in pedagogy stimulated by grants leads to new game- and challenge-based educational offerings, which in turn drive the discussion of alternative forms of credentialing.</p> <p><i>Student support, technology</i> - Students have 24-7 access (during and outside class time) to session recordings automatically documented in the collaborative learning spaces.</p>

2.6 Partnerships, research and evaluation

Curtin Teaching and Learning works in partnership with teaching staff and faculty leaders on the evaluation and research of funded innovation projects. As the literature related to blended learning is replete with examples, Curtin encourages new avenues in which blended learning may be just one part of a complex improvement project involving new technology, new assessment approaches and other innovations. Table 6 illustrates the major effects of partnerships, research and evaluation on the core services of the university as a context for blended learning and student support.

Table 6: Partnerships, research and evaluation

Policy Entry Point	Effects on Core Services Trends
<p>Partnerships, research and evaluation</p>	<p><i>Content</i> - As the world of information is increasingly becoming open, free and accessible to everyone, the future of higher education is wrapped up in its ability to harness this information to create value, improve livelihoods and continually expand the frontiers of knowledge. Partnerships are vital to this enterprise.</p> <p><i>Learning interactions</i> - Curtin is working to create an enterprise-level system for adaptive curricula and assessments that has 'event-based' data related to every learner interaction during a learning process at its foundation.</p> <p><i>Assessment</i> - Curtin is developing a global partnership to create 'Open Assessment Resources' for OER, with the aim of improving assessment practices and the value of learning objects that bring education and access to the world.</p> <p><i>Credentialing</i> - Curtin became a partner of the edX Consortium in 2015, which seeks out new ideas about credentials, unbundling and working with global partners in the top 200 universities around the world.</p> <p><i>Student support, technology</i> - Curtin's investment in games for future students aims to create new forms of partnership with parents and students, which is also the aim of the institution's efforts with employers via a partnership with the Chamber of Commerce. These projects are creating a Web-based engagement with students in non-academic areas that enhance graduate employability</p>

2.7 Student support

Student support at Curtin is one of the liveliest and most sought-after resources on campus (<http://life.curtin.edu.au/>). A central website organises ‘all things Curtin’ that are of interest to students. The interaction of the academic experience with the rest of Curtin life is deep and on-going and provides many opportunities for students to assist and receive assistance from peers and experts. In this section, we outline how student support for academic innovation is organised and how Curtin is evolving new technologies that fit into the on-going work of the university. We comment on three paired relationships between the student support infrastructure and blended strategies in terms of the other three parts of the converged model: *flexibility*, *scale and automation* and *global distribution*.

To begin, student support in academic life has elements in each faculty and in a central team at Current Students (<http://students.curtin.edu.au/>). The central site is organised to help students find help for ‘*student essentials*’ such as enrolment, examinations, forms, graduation, money matters and other necessary information; ‘*study resources*’ such as bookshops, on-line studying, academic support labs, learning support teams, library resources, rights and responsibilities and scholarships; ‘*life at uni*’, including information related to housing, transportation, community and recreation; and a ‘*help is here*’ section that provides links to information about careers, international students, security and more. Any issue arising as a result of a change in a programme or a course or due to the pressures of a flipped classroom in a blended learning unit (e.g., understanding the pre-work needed to succeed, creating a schedule for productive self-directed learning) can be addressed within the system. A formal complaint system allows students to lodge anonymous concerns, or a student can seek out personal help at a counter service.

Flexibility is offered via a 24-7 responsive service and on-line form-driven communications. Self-directed forms of instructional delivery are not new to the university. These strategies predate blended learning initiatives at Curtin, perhaps because the university has a significant proportion of international students (n=38%) with campuses and programmes in more than one time zone and country (e.g., Singapore, Miri, Perth, China and Sri Lanka). Over the years, this situation has led to an awareness of the need for always-on, always-available services and to the realisation that self-directed self-service is the preferred method of supporting people. The university has evolved to take advantage of on-line delivery and currently has 89 degree programmes available in blended and fully on-line configurations. Furthermore, 83% of courses at the university have ‘flipped’ components, where students experience on-line learning as preparation for face-to-face sessions. The Curtin Converged model holds that the student should be able to choose the optimum mixture of access and availability to meet their needs.

Flexibility in learning also extends into co-curricular opportunities. A recent innovation involved the university’s co-curricular Leadership Centre, which developed a self-directed learning experience called the Leadership Challenge, delivered anywhere and at any time on desktops and mobile tablets. The authoring, delivery and data analytics platform known as the Curtin Challenge is designed to support mobile self-directed learning by individuals or teams and provides event-stream data about the choices and actions of learners and the products they create, providing high resolution details for analytics. Current offerings on the platform include leadership, career and English language support. If the student chooses, the mobile self-directed leadership activities can be made part of a special diploma opportunity – the Curtin Extra certificate – that rewards co-curricular learning. In this case, the on-line

portion is blended with in-person leadership activities. The on-line modules document the decisions and actions taken by the student during self-study and form an important model for the future of flexible content delivery in both informal and formal curricula.

Scale and automation are critical to reaching the university's mission of global distribution of personalised learning. Automation is used to enhance human-to-human interactions by replacing routine activities and enabling a massive scale without a loss of personalisation. For example, a formative quiz administered to stimulate practice and memory of the key terms in a field no longer requires grading by a human; rather, a survey of strengths, interests and aspirations for learning can be automatically analysed to provide recommended options for learning. Curtin University sees scalability and automation as an opportunity to reset the highly valuable role of teaching staff and mentors to enhance human interactions and the effectiveness of learning and teaching.

Global outreach of the university's knowledge and resources is greatly enhanced by the blended learning model. When thinking about 'anytime, anywhere' student experiences around the globe, the combination of on-the-ground and in-the-cloud learning brings the university's knowledge and expertise out to the world and brings the world to Curtin. One area of innovation of great interest to the university is the gamification of authentic team-based problem solving of regional and global challenges. Supported by blended learning experiences for on-campus students, students from anywhere can form collaborative teams and compete at any time to undertake grand challenges such as addressing the United Nations Sustainable Development Goals. The problem-solving context blends face-to-face pairs of students working with globally remote pairs in small teams who are competing for top prizes and recognition (including academic credit, badged skill acquisition and letters of commendation).

3. Issues and challenges

The primary challenge of implementing Curtin Converged is ‘balance.’ As not all delivery options can exhibit every possible flexible configuration, a balance is required. A related policy and strategy have been promoted through an improved programme review process known as the ‘assessment, review and transformation’ process. This process quickens the pace of review and takes stock of changes required at a global level to ensure that a programme addresses its requirements in the context of the Curtin Converged model.

Scalability involves changing the mind-set towards personalised massification and dealing with big data. How can programme, course and instructional delivery be scalable, more automated and yet personalised? How can we personalise education in an era of big data? The new breed of blended and digital learning experiences creates hundreds to thousands of times more data, as the event stream of a digital learning experience can typically create hundreds of records per minute. The capability required to make the most of this information through near-real-time and post hoc data analytics is transferrable to other parts of the university only if the university builds a capacity for learning analytics and conducts data-driven analyses of questions such as how it can find and recruit the best students; how teaching staff are supported to create the best possible learning options; how its learning resources are leveraged to achieve the maximum success for all students; how teaching staff grow and evolve as researchers and scholars of learning and teaching; and how alumni are engaged in outreach, mentoring and recruitment efforts.

To enable scale and automation without losing the human touch requires data science knowledge and teaching staff capacity for innovation and research into new digital media design approaches. These new approaches may include game-based learning design, which has features such as transparent goals; immediate automated feedback; student

agency and choice; and a compelling narrative that motivates engagement, practice and achievement, all of which support scalability. Creating a scalable learning experience requires a shift in thinking about learning design as a deliver-and-test model to an experience-the-challenge model. Such a shift in thinking requires experts in subject matter to become part of a digital storytelling and game designing team and for traditional instructional designers to embrace new methods of engagement and delivery. Curtin is committed to introducing these kinds of new approaches into the production of learning experiences via MOOCs, game-inspired learning units, small partially open learning experiences and open-ended challenges while enhancing traditional blended learning units.

Finally, of the many challenges confronting global outreach, perhaps the most acute include maintaining focus and vision while coordinating and collaborating with an increasing number of partners. Achieving such openness while maintaining vision requires executive leaders who are confident about the future, willing to take risks and active in advocating for change.

4. Conclusion

This chapter describes how a university vision of blended learning is empowered by an ecosystem involving three organised subsystems – a model of converged resources and processes for global influence; policy entry points for advocating continuous improvement and change; and the core services of the university. It explores the complexity of this model and presents the notion that blended learning within the university context must now be considered as an interrelated web of policies, practices and principles to successfully achieve whole-of-institution change.

Curtin University is committed to achieving its vision and mission. The university and its staff have engaged in a

transformational process with several collaborating and intersecting initiatives under the banner of Transforming Learning @ Curtin. Blended learning in the more complex Curtin Converged model has been and will continue to be an important part of the university's interlocked strategies and is a good example of the key precepts of being research based, data driven and courageous in innovation. These precepts combined with the guideposts of shared learning experiences, flexibility, scalability, automation and global distribution are required to help the university stay on track as it makes continuous investments for the future. These investments include the people, time and funding required to undertake sustained innovation, rethink the business and delivery models and use technology to fulfil the university's aspirations to be a recognised international leader in research and education.

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