



**Flexible Learning
Association
of New Zealand**

Inception to Infinity

Places, spaces and time for learning

9-11 April 2018, Massey University, Palmerston North



Welcome message from the President of FLANZ

Kia ora,

A warm welcome to the Flexible Learning Association (FLANZ) 2018 conference. The FLANZ executive and the organising team are excited to provide this opportunity to meet, share and motivate. I believe it is when we come together in a supportive environment that we make our greatest gains, individually and as a sector. Connecting, understanding and collaboration are essential elements of learning, teaching and research practice.

The conference theme, inception to infinity, encourages us to investigate the different opportunities for learning that are emerging from the rapidly changing world of digital technologies. Our keynote speakers and delegates' research presentations will provide the context and new thinking that enable exploration of the changing environment of 21st century learning and teaching.

Coming together in place and time is increasingly challenging so it is essential we capitalise on the potential of this face to face experience. The organising committee has done a fabulous job of providing an environment where rewarding and meaningful understanding and connections can be made. Technology can enhance our experience, so we encourage you to follow and contribute to the conference via Twitter: #flanz18.

We also understand that building knowledge and relationships needs a varied diet. The FLANZ conference aims to feed your soul as well as intellect with opportunities to discuss with colleagues, new and old, scattered through the proceedings and a fun conference dinner to celebrate new and renewed friendships and understanding.

I look forward to meeting you, hearing your stories and learning with you. I trust that the affirmation you both receive and provide, coupled with new understanding from world leading experts, will motivate and enable you to take your practice to new and exciting places.

Nāku noa



Ralph Springett

President, FLANZ

Learning Technologies Group Manager, WelTec and Whitireia

Tena Koutou, tena koutou, tena koutou katoa
No tawahi oku whanau. Engari,
Ko te Manawatu toku kainga pumau
Ko Tararua te maunga
Ko Kahuterawa te awa
Ko Whitiwhiti taku papakainga
No Ralph Springett ahau
Tena Koutou, tena koutou, tena tatou katoa



FLANZ

FLANZ (previously known as DEANZ) is a national association committed to fostering growth, development, research and good practice in distance education, open learning and flexible delivery systems for education.

FLANZ is made up of individual and institutional members mainly from within New Zealand but also from the Pacific Rim.

Distance, open learning and flexible delivery systems use educational and telecommunications technology such as printed materials, video or teleconferencing, e-mail, internet and television. They aim to give students as much control as possible over what, when, where and how they learn.

Our membership comes from all sectors within education – pre-school, primary, secondary, vocational and tertiary. We are committed to lifelong learning.

Membership is open to anyone or any institution with an interest in distance education and/or open learning. Our members include students and parents of students as well as education providers.

The aim of this association is to foster high standards in the practice of distance education in New Zealand.

This will be achieved by:

- Ensuring that the spirit of partnership embodied in the Treaty of Waitangi, Te Tiriti O Waitangi, and the articles of that Treaty are honoured by FLANZ;
- Undertaking activities which are seen by the Association to be in the interests of distance education in New Zealand;
- Advising and making representations on any matters relevant to distance education in New Zealand;
- Establishing and maintaining liaison with the international distance education community;
- Promoting discussion about research and development in distance education, disseminating the results of relevant research and identifying areas in which research and development is particularly needed;
- Organising regular conferences, special interest seminars and workshops on distance education; Regularly publishing a newsletter, refereed annual Journal and other publications (such as conference proceedings) from time to time.

FLANZ Executive Committee

Ralph Springett—President

Keryn Pratt—secretary

Kalina Vladinova-Aylor—Admin

Rachel Whalley—Treasurer

Kathryn MacCallum—Web Editor

Derek Wenmouth

Maggie Hartnett

Belinda Lawrence

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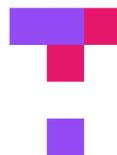
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Kia ora

On behalf of the Organising Committee, I welcome you to the 2018 FLANZ conference held at beautiful Massey University campus in Palmerston North.

The FLANZ conference is a biennial event with this year marking the first time the conference has been held under the new name for the association. This year's conference brings together a stellar line-up of keynote speakers, supported by a range of high-quality workshops, presentations and posters.

In keeping with the theme of the conference – Inception to Infinity – we encourage you to engage across the broad spectrum of topics and we look forward to stimulating discussions mixed with a healthy dose of fun.

Noho ora mai

Duncan O'Hara

Conference Committee Chair

CONFERENCE INFORMATION

VENUE LOCATION

The conference is located in the Social Sciences Lecture block on the Massey University campus in Palmerston North. Please refer to the map later in this document

CAR PARK

Parking is located in the main parking carpark. Please refer to the map at the end of this document for location. It will provide directions from the car park to the conference venue. It is approximately a 10 minute walk from the car park to the venue.

Upon entering the Car park you will be given a parking ticket. Please bring this to the conference reception and we will exchange it for another that will enable you to leave the car park at no cost.

FIRST AID

A first aid kit will be located at the conference reception. Please feel free to ask should you need anything.

NAME TAGS

Delegates, speakers and exhibitors are asked to wear their name badges at all sessions. Entrance to sessions is restricted to registered delegates only.

CONFERENCE BAGS & CONFERENCE PROCEEDINGS

Please note that in line with the conference theme there will be no conference bags or conference proceedings. Sponsor material will be available at the conference and the proceedings will be downloadable from both the conference app and the conference website.

INTERNET ACCESS

Internet is available throughout the conference venue. The Wifi code will be available on arrival.

PROGRAMME

The Conference Organising Committee reserves the right to change the programme at any time without notice. Please note that this programme was accurate at the time of printing.

BUS TRANSFERS

Bus transfers will be available between the Copthorne Hotel and Massey University by the front steps both at the beginning and the end of the day. Please note the location on the map at the end of this section. Numbers are required for this.

Mon 9 th April	8.00am leave Copthorne	5.40pm leave Massey
Tues 10 th April	8.00am leave Copthorne	5.10pm leave Massey
Wed 11 April	9.10am leave Copthorne	4.15pm leave Massey

CONFERENCE INFORMATION

REGISTRATION DESK

The registration desk is located in the foyer area of the ground floor. The desk will be open from 8.00am—5pm daily.

SECURITY

Please ensure that you take all items of value with you at all times when leaving a room. Do not leave bags or laptop computers unattended. If you do, it will be at your own risk.

PRESENTER INSTRUCTIONS

Please ensure that your presentations are loaded at least 2 hours before you are due to present. The presentation room is SSLB 3. This room will be managed during all breaks to assist with the loading of presentations. Please ensure that you have a screen ratio of 16:9

POSTERS

Posters will be displayed in the upstairs foyer of the Lecture block through the duration of the conference.

TWITTER

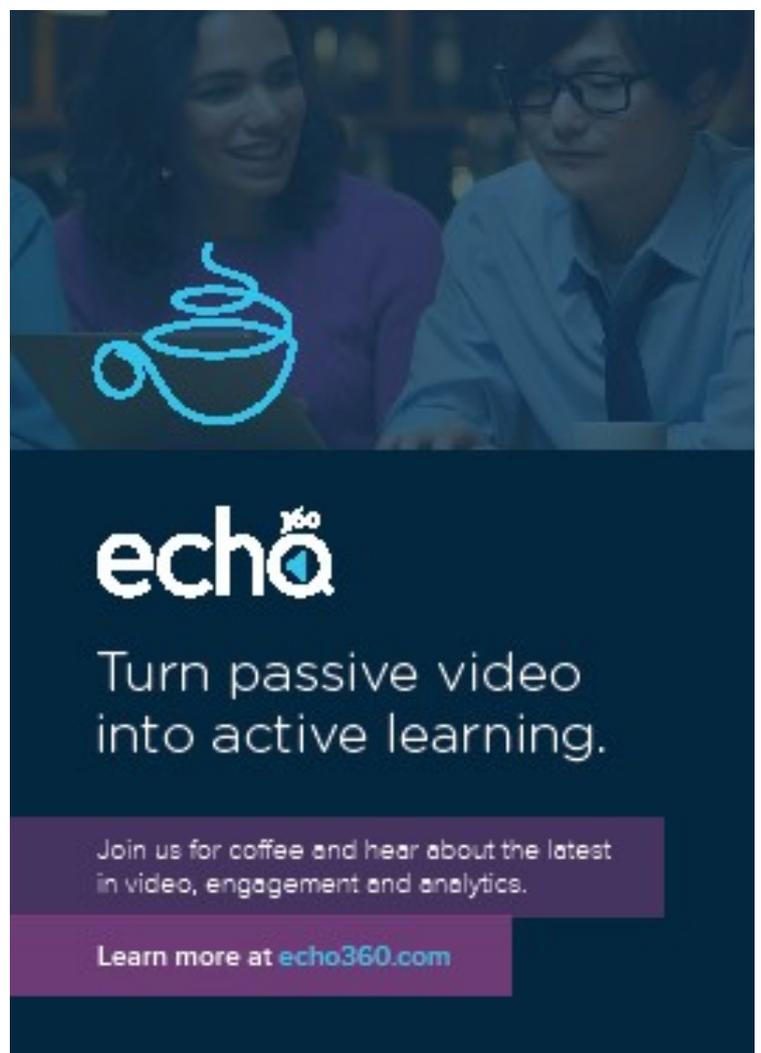
The conference hash tag is #flanz18

CONFERENCE APP

Invitations have been sent out for the conference app. This will give you access to delegate, sponsor and submission information.

FULL SCHEDULE OF SUBMISSIONS

Submissions can be accessed in a number of ways. The easiest is via the conference app. The conference proceeding will also be available via the conference website.



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CONFERENCE INFORMATION

REFRESHMENTS

Morning tea, lunch and afternoon tea are provided as part of your registration costs. The conference dinner is also included with the exception of a student registration and sponsor registration.

BAGGAGE STORAGE

SSLB 3 is allocated for storage of personal belongings. Please ask at reception for direction. Although this room is located opposite the reception area, please be aware that they are left at your own risk.

CONFERENCE APP

If you have not already had an invite to the conference app or you would like some of your staff added, please contact Nicky with the full names and email address of those that you would like added.

COFFEE

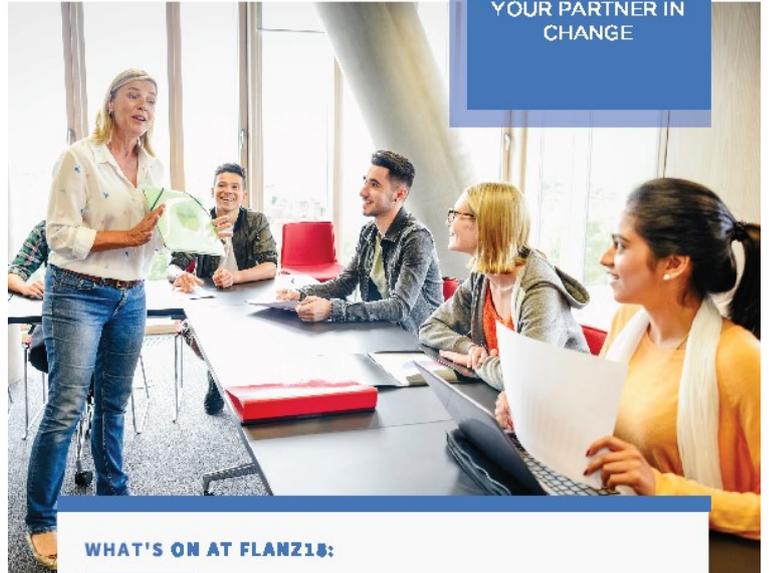
Complimentary barista coffee will be available throughout the conference. Please see the back of your Lanyard pocket for your coffee card.

WELCOME FUNCTION

The Welcome function is at Te Manawa. This is located on Main Street, near the city centre. Also located at Te Manawatu is the New Zealand Rugby Museum. This will be open for you to look through throughout the welcome function. There is no charge for this.

It is advised that you register at the welcome function. Here you will be provided with your lanyard and name tag. Drinks and nibbles will also be provided.

Blackboard
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CHANGE



WHAT'S ON AT FLANZ18:



Lightning Talks at lunchtime

Visit the Blackboard booth to hear from our experts on what Blackboard is currently working on and develop ideas on what your institution can do differently in 2018. Join any session for your chance to win a Google Home!



Tuesday at 11.10am

Workshop with Mark Bailey - Exploring Technology Enhanced Learning (TEL).



CONFERENCE DINNER

Our conference dinner is a short bus journey to the iconic Tui Brewery. Here you will have the opportunity to take a brewery tour, enjoy a delicious meal and have a few drinks. After dinner we turn up the music and dance the night away. Buses will return you back to Palmerston North.



CONFERENCE ORGANISING COMMITTEE

Duncan O'Hara

Heather Lamond

Dr Terry Macpherson

Dr Lucila Carvalho

Dr Maggie Hartnett

Fiona Murray

Fiona Diesch

Nicky Vallender - Event Organiser

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FLANZ 2018
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GENERAL INFORMATION

ELECTRICITY

New Zealand's electricity supply runs at 230/240 volts, and we use angled two or three pin plugs (the same as Australia and parts of Asia).

EMERGENCY DETAILS

The emergency (Police, Fire Service, Ambulance or Search and Rescue) telephone number in New Zealand is 111. It is a free phone call.

MOBILE PHONES

New Zealand operates on a 3G and 4G/LTE digital network. There are three main cell phone companies in New Zealand. All three of them own and operate their own network of towers: Spark, Vodafone, 2Degrees Delegates are asked to switch off their mobile phones, set them to silent when in sessions.

SHOPPING

Shops open from 0900 to 1730 during the week with late night shopping on Thursdays, Saturdays and Sunday. most shops are open with ' The Plaza shopping complex is open until 1700 on the weekend.

ROUNDING MONEY

Due to the discontinuation of 1c, 2c and 5c pieces, purchases made in New Zealand are subject to "rounding" of amounts either up or down. TAXES A Goods and Services Tax (GST) of 15% applies to all consumer goods and is included in retail prices. TIPPING Tipping is not the general custom in New Zealand and service charges are not added to accounts by hotels and restaurants. However, you may tip hotel porters and food and drink waiters in restaurants (up to 10% of the bill) for special service. At any time, tipping is at your discretion. TAXI & BUSES Taxi Numbers : (06) 3 555 333 (06) 3 512 345 Buses are cheap and are usually on time but are in-frequent especially in the weekends. Local timetable can be found here www.horizons.govt.nz

CLIMATE & WEATHER AVERAGES IN PALMERSTON NORTH

High Temp: 22 °C Low Temp: 11 °C Mean Temp: 16 °C Precipitation: 87.9 mm Humidity: 74% Sunrise 6:06 a.m. (110°) Sunset 7:56 p.m. (250°) New Zealand sunlight can have high levels of ultraviolet (UV) radiation. Sun hats and sun screen are recommended when outside. It is recommended to apply Insect repellent in the early evenings at this time of year

MEDICAL CENTRES

The Palms : 06 354 7737 Open 8am-8pm everyday 445 Ferguson Street . City Doctors : 06 355 3300 Open 8am – 10pm everyday 22 Victoria Avenue P.N. Hospital : 06 356 9169 Open 24 hours 50 Ruahine Street. Visitors to New Zealand are covered under the local Accident Compensation Scheme for personal injury by accident. Benefits include some medical and hospital expenses, but do not include loss of earnings outside New Zealand. We therefore recommend your travel insurance policy also covers accidents.

TOURIST INFORMATION

New Zealand is represented at the i-SITE at the opposite end of the square. You can get useful information and book any organised tour or individual travel including accommodation there.

SMOKING

All indoor workplaces must be smoke free. No smoking in buildings, this includes the Convention Centre, Massey University, offices, restaurants, bars, warehouses, factories, break rooms, taxis, internal areas of trains and ships, travel terminals and passenger lounges etc Palmerston North Council supports the government's Smoke free 2025 goal. This means: smoke free streets in the City, smoke free cafes and retailers, smoke free events, smoke free parks and playgrounds

DRIVING

You can legally drive in New Zealand for up to 12 months if you have either a current driver's licence from your home country or an International Driving Permit (IDP). In New Zealand all motorists drive on the right-hand side of the road.



PALMERSTON NORTH

Palmerston North City offers the sophistication and diversity of a major city, surrounded by an outdoor enthusiasts dream. Heritage collections, art galleries and urban street art are prominent in Palmerston North, and go hand in hand with the colourful array of cafes and dining options that will take your taste buds on a tour of the world. Located 2 hours drive from Wellington and 70mins flight from Auckland, Palmerston North is well located to all major transport links. In Palmerston North in March it is early autumn. Temperatures vary from 11-22°C . Palmerston North is home to Massey University. Massey University continues to be the leader in land-based sciences, the development, production and packaging of food, education, sports exercise and management, business, social work and social policy, Maori development, IT and engineering. It is also home to the newly launched WH Oliver Humanities Research Academy, and New Zealand's only veterinary science programme, which is one of a few vet schools outside of North America that have received American veterinary medical association accreditation. More detailed information on Palmerston North can be found at www.manawatunz.co.nz/visit



The following are some of the things that you can see and do in Palmerston North

NEW ZEALAND RUGBY MUSEUM The New Zealand Rugby Museum contains New Zealand's biggest and most comprehensive collection of rugby memorabilia and records, including some of the world's rarest rugby artefacts.

TE MANAWA The cultural heart of the city, Te Manawa is a museum of art, science and history. Learn about the Manawatu regions nationally significant Taonga, as well as contemporary art, science and heritage collections.

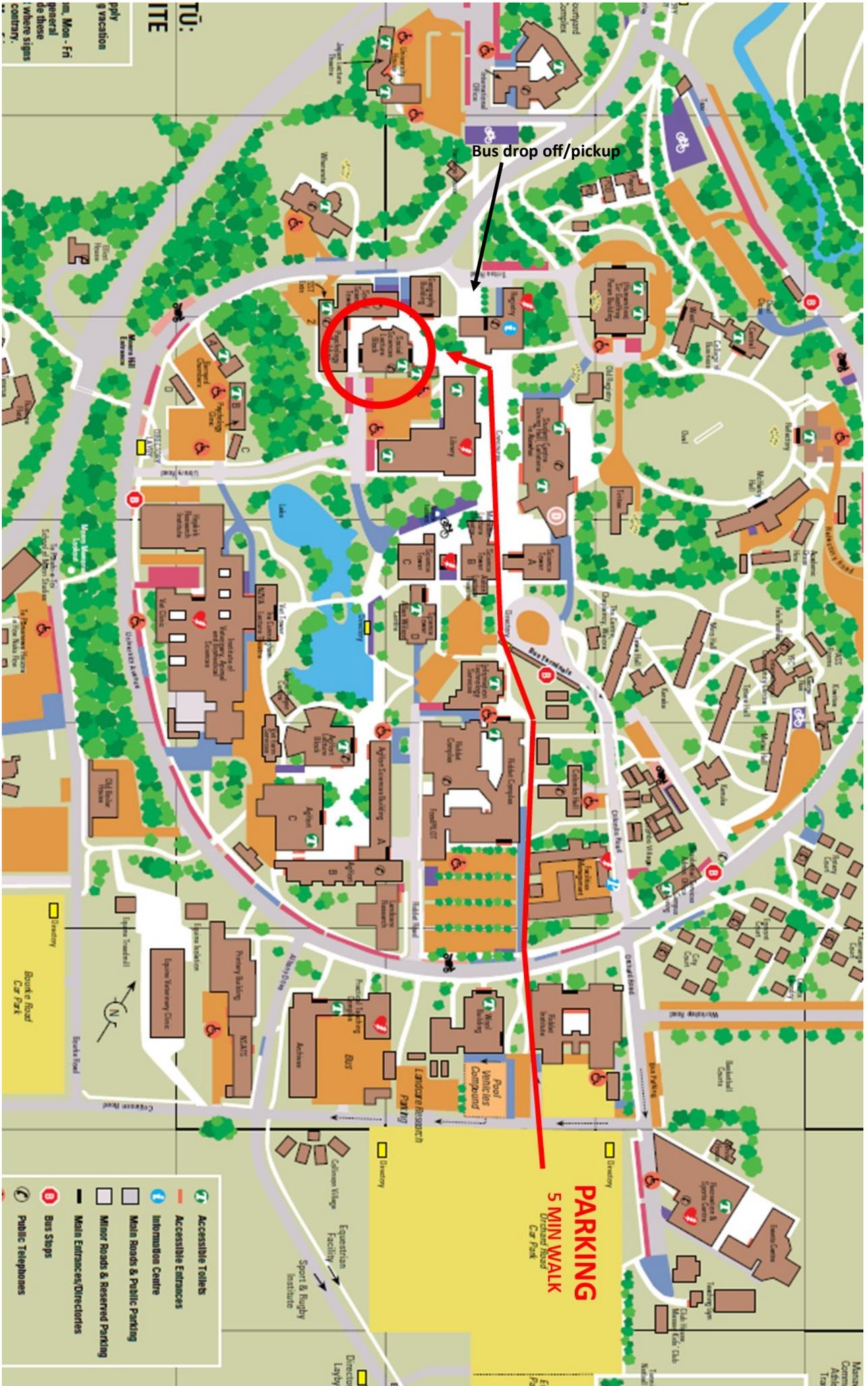
COACHHOUSE MUSEUM Feilding's coach House Museum is home to an outstanding collections of New Zealand's rural heritage, showcasing over 140 years of history. Visit the Coachhouse to see a fascinating historical journey through the lives of early settlers and the development of the region.

VICTORIA ESPLANADE Victoria Esplanade comprises of 19 hectares of stunning gardens and features including bird aviaries, nature trails and a number of walks and a large duck pond. The onsite cafe offers tasty treats, ice cream and drinks, while a miniature railway offers rides on weekends. Within the esplanade is the Dougal McKenzie rose garden which 5,500 varieties and incorporates the International Rose Trial Grounds.

LOCAL WALKS Palmerston North is surrounded by beautiful countryside. A great way to experience this is by trying one of our local walking trails. Manawatu Gorge, Manawatu River, Sledge Track, Limestone Creek Reserve Glow Worm Caves, Iron Gates.

RESTAURANTS AND SHOPPING Palmerston North has a fantastic selection of shopping ranging from boutiques to malls and restaurants. We enjoy a culturally diverse city. This is reflected in our fantastic selection of local restaurants.

LOCATION AND PARKING MAP





Māi ahēteanga ā-mātauranga,
ko arotū ā-ākonga
Building educational capability
for learner success

Don't miss out on the Ako Aotearoa sponsored
keynote from Professor George Siemens
(University of Athabasca, Canada)



*Machine and Human
Intelligence: Implications
for the future of higher
education*

Keynote 1
SSL 1
Monday 9 April
10:15-11:15am

www.ako.ac.nz

KEY NOTE SPEAKERS



PROFESSOR GEORGE SIEMENS

Professor George Siemens is an educator and researcher on learning, networks, analytics and visualization, openness, and organizational effectiveness in digital environments. He is the author of *Knowing Knowledge*, an exploration of how the context and characteristics of knowledge have changed and what it means to organizations today, and the *Handbook of Emerging Technologies for Learning*.



Knowing Knowledge has been translated into Mandarin, Spanish, Persian, and Hungarian. Siemens is the Associate Director of the Technology Enhanced Knowledge Research Institute at Athabasca University, leading the learning analytics research team. Previously, he was the Associate Director, Research and Development, with the Learning Technologies Centre at University of Manitoba. His PhD, through University of Aberdeen, was on sensemaking and wayfinding in complex information settings. He is a frequent keynote speaker at conferences detailing the influence of technology and media on education, organizations, and society, having presented at conferences in more than 30 countries. His work has been profiled in provincial, national, and international newspapers (including NY Times), radio, and television. His research has received numerous national and international awards

PROFESSOR TIM BELL

Professor Tim Bell is a professor in the Department of Computer Science and Software Engineering at the University of Canterbury. His "Computer Science Unplugged" project is being widely used internationally with the supporting materials (books and videos) having been translated into 25 languages.



Tim has received many awards for his work in education including the ETH (Zurich) ABZ International Honorary Medal for Fundamental Contributions in Computer Science Education (in 2013) and the IITP (NZ) Excellence in IT Education Award. Since 2008 he has been actively involved in the design and deployment of the approach to the teaching of Digital Technologies in New Zealand schools.

PROFESSOR SIAN BAYNE

Professor Siân Bayne is Professor of Digital Education at the University of Edinburgh, based in the Moray House School of Education. She directs the Centre for Research in Digital Education and teaches on the MSc in Digital Education. Her research is currently focused on critical approaches to teaching automation, open and distance education, and the application of theory from the humanities and social sciences to digital education. More information about her work is on her web site at: <http://sianbayne.net>



PROFESSOR MARK BROWN

Professor Mark Brown is Ireland's first Professor of Digital Learning and Director of the National Institute for Digital Learning (NIDL) at Dublin City University (DCU). He originally began his educational career as a primary teacher and now has over 25 years experience of working in Higher Education.

Over the last decade he has served in a number of leadership roles and is currently an Executive Committee member of the European Distance and E-learning Network (EDEN) and member of the Supervisory Board of the European Association of Distance Teaching Universities (EADTU). Mark also serves on the Board of the Irish National Forum for the Enhancement of Teaching and Learning in Higher Education and chairs the Teaching and Learning Committee of the European Consortium of Innovative Universities. Before moving to Ireland he was Director of the National Centre for Teaching and Learning at Massey University, and President of the New Zealand Association for Open, Flexible and Distance Learning (DEANZ).

Mark is a recipient of a National Award for Sustained Excellence in Tertiary Teaching and albeit from a distance remains a member of the New Zealand Academy of Tertiary Teaching Excellence.



DR BRONWYN STUCKEY

Dr Bronwyn Stuckey has been engaged in educational community and gameful practices in learning development for the past 15 years. She has worked to explore virtual worlds, games in learning and how we can cultivate identity, agency, citizenship, leadership, and community. Bronwyn earned her PhD in researching the core factors supporting successful online communities of practice.

In that research she examined in depth the development of communities across many sectors; e-government, enterprise, military and not-for-profit. She has applied those research findings when consulting in the design of adult learning communities and workplace communities of practice. Since leaving lecturing and learning design in the higher education sector (UOW, QUT, UWS) her research, consultation and design have been in gamification and game-inspired designs for professional learning and communities of practice



Monday 9th April

Page	Time	Submission details
20	11.20am	Refereed Paper - Tamara Powell, Griselda Thomas - Digital is the New Black An Online African and African Diaspora Studies Minor
28		Refereed Paper - Pinelopi Zaka, Wendy Fox-Turnbull, Paul Docherty - Student engagement and empowerment in a flipped engineering dynamics classroom
34		Workshop - Pippa Yeoman, Lucila Carvalho - Framing Design for Learning Aligning Theory and Practice in Innovative Learning Environments
36	11.55am	Practice Paper - Hannah Gerrard, Ella Kahu - Engaging online students in citizenship through weekly critical reflections
40		Practice Paper - Te Rina Leonard - Te Kura's Student and Whānau Service Hub improving access to online learning
43	2.45pm	Practice Paper - Jim Law, Richard Self - Successful passion projects and NCEA
48		Practice Paper - Vanessa van der Ham, Elizabeth Sturrock - Embedding information literacy in the Bachelor of Nursing programme
51		Practice Paper - Sarah Stein, Belinda Lawrence - Experiences of distance PhD supervision
55	3.45pm	Practice Paper - Maggie Hartnett, Peter Rawlins - Rethinking postgraduate researcher training and development using an innovative blended learning approach
58		Workshop - Kwong Nui Sim - The Use of Go Soapbox for Teaching and Learning
60		Practice Paper - Diana Kirk, Ganeshan Kathiravelu, Stephen McIntyre - Framework for innovation in the classroom
64	4.20pm	Refereed Paper - David Parsons, Herbert Thomas, Jonathon Lynch, Kathryn MacCallum - Digital Fluency and the Entitlement Curriculum Who are the computational thinkers?
70		Refereed Paper - Elaine Khoo, Craig Hight, Bronwen Cowie, Rob Torrens - Software Literacy as a framework for tertiary educators
77	4.55pm	Refereed Paper - Eroni Racule, Valentine Hazelman - What's your blend? Taking stock of blended practices to learning and teaching at the University of the South Pacific.
82		Practice Paper - Jen McCutcheon, Trudy Taukamo, Kaye Kinney - Te Kura's Big Picture Authentic Learning Pilots
85		Refereed Paper - Dan Wadsworth, John Milne - Simple Interventions using Learning Analytics

Tuesday 10 April

92	9.35am	Practice Paper - Alanieta Lesuma-Fatiaki - Keeping it real! Workplace training for online learning support personnel at the USP
97		Refereed Paper - Niki Davis, Nicki Dabner, Julie Mackey - The co-evolution of schooling and digital technologies; changing roles and responsibilities
104		Practice Paper - Mohammed J. Hussein, Valentine A. R. Hazelman - Tracking course design and delivery: using a home grown project management tool in flexible learning
107	10.35am	Refereed Paper - Elizabeth Asbury, Georgina Orsborn - Teaching sensitive topics in an online environment A pilot of cultural safety eLearning
113		Postgrad Paper - Danielle Dubien, Niki Davis, Annelies Kamp - Course development by the OERu A case study using Davis' Arena of change with technology in education

Tuesday 10th April continued

Page	Time	Submission details
117	10.35am	Workshop - Adele Scott, Sonia Glogowski, Helen McConnell - From way too late to just in time Enhancing feedback through online teaching and learning.
119	11.10am	Workshop - Mark Bailye - Exploring Technology Enhanced Learning (TEL)
121		Refereed Paper - Sara Farshad Nia, Niki Davis, Una Cunningham, Jocelyn Howard - Digital equity for ESOL students in a New Zealand secondary school analysed with Davis' Arena framework
127	11.45am	Postgrad Paper - Carlyne Obonyo, Niki Davis, Letitia Fickel - New Forms of Teaching and Learning: Examples from one teacher Educators' Mobile Pedagogical Practices
133		Refereed Paper - Alison Fields - New uses for an existing model adapting SAMR for new contexts
137	2.05pm	Refereed Paper - Kathryn MacCallum, Mayank Kumar - Exploring ARMobile in Early Childhood Literacy Learning
143		Practice Paper - Eva Heinrich, Jenny McDonald - Re-focusing first year teaching personal interaction, mastery and flexibility
147		Workshop - Christine Te Kiri, Whaimutu Marino - Opening the doorway for success as Māori in an online community
148	2.40pm	Practice Paper - Roxanne Hawi, Eva Heinrich, Sunil Lal - Smartphones as sole devices for study Not as silly as it sounds?
157		Refereed Paper - Noeline Wright, Rachel McNae - An architecture of ownership First findings from learning and belonging in a new secondary school
162	3.40pm	Workshop - Kristina Hoeppner - Show me your skillz
164		Postgrad Paper - Tahani Alahmadi, Steve Drew - Influencing Factors for Subjective Accessibility Evaluation by Students with Sensory Disabilities
171		Postgrad Paper - Danielle Dubien, Niki Davis, Annelies Kemp - Development and use of a quality assurance framework for OER while practicing open philanthropy
175	4.15pm	Practice Paper - Sophie Goldingay, Corrina Eccles, Jodie Satour - yaneekean-werreeyt a journey to culturally safe practice through simulated immersion for social work students
178		Postgrad Paper - Belinda Lawrence - Influences and evolution of online tertiary teaching in New Zealand: Faculty and Educational Designer views

Wednesday 11th April

182	11.05am	Refereed Paper - Cheryl Brown, Genevieve Haupt - Using Personal Mobile Devices to increase flexibility and equity in learning in resource constrained contexts
188		Refereed Paper - Karen Haines - Designed for learning: A literature perspective on supporting academics towards effective teaching in new spaces
194	12.05pm	Workshop - Kerry Leaf - EVA in Education - Enhanced Video Annotation Don't just watch, Learn.
196		Practice Paper - Dianne Forbes - Social media for professional learning Five years on
200		Practice Paper - Mandia Mentis, Alison Kearney - Changing the pace, place and face of Professional Learning through Networked Learning Hubs
203	12.40pm	Practice Paper - Lachlan McLaren, Joanne Robson, Martin Bassett - To infinity and beyond evolution of an online course
206		Practice Paper - Kate Hill, Linda Laven, Fiona Murray, Kim Baxter - Integrating EndNote from download to research report for distance masters students

Paper Title: Digital is the New Black: An Online African and African Diaspora Studies Minor

First author:

Title: Dr.

Name of first author: Tamara Powell

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Corresponding author is Author 1? Yes

Other authors:

Second author

Title: Dr.

Name: Griselda Thomas

Affiliation: Kennesaw State University

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Third author

Title: Dr.

Name: Seneca Vaught

Affiliation: Kennesaw State University

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While Black/Africana/African American studies might not be the first thing that one thinks of in relation to elearning, the goals and promises of both fields are similarly compatible. For this reason, it is no surprise that select African and African Diaspora studies faculty at Kennesaw State University have turned to research-based pedagogical strategies implemented via elearning to help foster a supportive and successful environment in an effort to increase student success and retention in the program. The online minor, launched in Fall 2014, contains elements to increase critical thinking skills and support the employability of graduates. This minor is grounded both in current pedagogical theory and in the spirit of Black studies, seeing itself as Black studies both in content and in practice. Each of the six courses in the minor contains at least 20 pages of writing assignments, goal setting exercises, frequent faculty-student contact, a clear path through the course and minor, clear connections to the job market, and gaming elements. The introductory courses also use Open Educational Resources (OERs) to support student success. This presentation shares the theory, practice, and results so far of this project.

Introduction

During the late 1960s, many of the first Black studies programs identified and personified the spirit of the "Do It Yourself" tradition, currently now associated with the EduPunk movement. Course materials, particularly textbooks, have been the staple of college courses since the 19th century. However, in the 1960s, when a multicultural

coalition of students, faculty, activists, and staff took it upon themselves to re-envision the possibilities of education for communities that had historically been marginalized in higher education, there was no collected, agreed upon body of knowledge, no Black studies textbook, to speed the way. In US institutions like San Francisco State, Cornell, and City College of New York, the Black studies movement challenged the conventional academic discourse and advanced new models and new criticisms of the college experience. Activists in the Black studies movement argued that institutions of higher learning should have a more diverse professoriate and student body but also provide an assortment of course offerings and formats that meet the needs and challenges of the student body. Those course offerings and the necessary course materials were not relaxing in college catalogs and on bookstore shelves awaiting their calls to service. The Black studies movement engaged a spirit of students' concerns that universities should strive to address the immediate needs of students above the traditional and often narrow interests of academic niches (Biondi 2012, 78). Curricular innovations emanating from faculty, staff, students, activists and concerned communities, demanded critical analysis and social responsibility.

In advancing these criticisms, the Black studies movement foreshadowed many of the current realizations and frustrations of the online and DIY education revolution. The broad contours of the educational transformation online in the last 10 years emphasizes the need to balance accessibility with applicability, old forms and canons of knowledge with new questions and criteria of effective learning. As James B. Stewart (2003) has argued, "The learning styles of traditional-age college students today are generally more tactile and visually oriented than earlier generations. At the same time, Africana studies courses disproportionately attract students from digitally-underserved populations." According to Stewart, "[U]sing digitized resources in Africana studies classes can enhance these students' comfort level with information technologies and contribute to bridging the so-called 'digital divide'"(194). Out of necessity, Black studies has embraced the DIY attitude.

From W.E.B. DuBois' famous line, "Thus all Art is propaganda and ever must be" (296) to Barbara Christian's edict "theory . . . ought to have some relationship to practice" (69), Black/Africana/African American studies has always been a practical field of study. While university faculty may have a reputation for being oblivious to "real world" concerns, faculty immersed in Black/Africana/African American studies are perhaps very much as Antonio Gramsci envisioned his organic intellectuals to be. The faculty in the African and African Diaspora Studies program at Kennesaw State University were aware of wave after wave of studies identifying African American male students as at risk. They believed in the important and transformative power of education. And they understood that 1) education is a key mechanism whereby American citizens better their lives and 2) any mechanisms that increase the likelihood of educational success for African American males will likely also increase the likelihood of success for other at risk students, no matter their demographic. They sought a way to increase retention, completion, success, critical thinking, and employability for all students.

Study design/Approach

The faculty in the African and African Diaspora Studies program were keenly aware of the challenges facing American youth. In 2013, 33.6% of Americans had earned a Bachelor's degree. Men of color, in particular, had much lower averages, with 17.4% of African American men 25-29 years old holding Bachelor's degrees, compared to 37.1% of European American males and 23.2% of African American females (National Center for Education Statistics). To address a real world problem in the spirit of DIY, faculty in the African and African Diaspora Studies (AADS) program at Kennesaw State University elected to engage "disruptive technologies," a term that has been widely and loosely applied to many forms of cyberlearning, from massive open online courses (MOOCs) to the occasional use of social media for assignments (e.g. students posting daily online reflections about a topic). The curricular innovation focused on selected strategies to address three of the chief concerns swirling through current conversations: (1) how to increase program retention among underrepresented students, (2) how to increase degree completion rates, and (3) how to increase competitive advantage of black and underrepresented graduates in the job market and entrepreneurship. These concerns, have been addressed in vary degrees through recent studies on successful educational practices such as Arum and Roksa, *Academically Adrift: Limited Learning on College Campuses* (2010); Christensen and Eyring, *The Innovative University* (2011); Kamenetz, *DIY U: Edupunks, Edupreneurs, and the Coming Transformation* (2010); and Rosen, *Change.edu: Rebooting for the New Talent Economy* (2013); and Bowen, *Teaching Naked* (2013), to name a few.

The new EduPunk/DIY online learning revolution shares a similar philosophy and pedagogical approach that complements traditional themes of Black studies. Both movements have come to emphasize interactivity and innovation, exemplary examples as a pedagogical strategy, and a dedication to pragmatism and the transfer of applied knowledge across disciplines. It is important to note an important distinction, The EduPunk/DIY movement is a rejection of publishers, course packs, and learning management systems in an effort to take back educator power from

administrators, publishers and corporations. The DIY spirit of Black studies is borne of necessity, as until very recently publishers, and corporations did not see Black studies courses as lucrative enough to woo with textbooks and coursepacks. Therefore, the DIY spirit of Black studies is not by definition a rejection of anything created by a publisher or corporation and should not be seen as such. While Arum and Roska (2011) incorporated various studies into their conclusions and recommendations regarding how to best serve at-risk populations, primarily African American males, there is little addressing the possibilities to engage this population using the digital platforms that they are familiar with and have readily adopted. The literature is heavy on prescriptive advice to improve these statistics but light on empirical evidence for its injunctions.

On face value alone, it is sensible that successful courses and programs should incorporate not only information on the importance of goal setting, but also exercises on setting goals, delineating what is needed to achieve those goals, and reflecting on those tasks. How one acquires that skill is another subject of debate in the literature. Harvard Project Zero (a research group that seeks to understand how people learn) advocates “clearly stating course objectives, clearly presenting material, linking course content to course objectives, providing students with examples of what is expected, creating ample opportunities for students to apply what they have learned and perform their knowledge publicly, and assessing learning frequently and adjusting teaching accordingly,” because education should, ideally, hone “students’ ‘ ever-increasing grasp of the world” (Arum and Roksa 2011). More succinctly, Edu-Punk Anya Kamenetz states, “Both learners and providers need to get comfortable with identifying meaningful objectives—and meeting them.” The faculty involved in this project test the over-arching proposition throughout the prescriptive literature that “what faculty do matters,” whether online or in the physical classroom.

As one example of what faculty could do, research shows that “When students are asked to read and write in their courses, when academic coursework is challenging, and when higher-order thinking is included in the coursework, students perform better on tests measuring skills such as critical thinking and writing”(Arum and Roksa). This finding is echoed in Means’ the 2010 metastudy on distance education headed by Barbara Means. Many believe that online elements that instructors can add, such as quizzes and videos, improve the online experience for students. But Means’ study concluded that “The [online] practice with the strongest evidence of effectiveness is inclusion of mechanisms to prompt students to reflect on their level of understanding as they are learning online,” such as one-minute reflection writing assignments or shorter writing assignments that ask students to address what they have learned in a particular context (Means 52). Another example of faculty practice noted in the literature relates to customization. According to Means, “there is some evidence that online learning environments with the capacity to individualize instruction to a learner’s specific needs improves effectiveness” (52). Students who are at risk for persevering and graduating need responsive, focused faculty to guide them through courses and assist them with learning objectives that can tailor content to a student’s specific needs.

Studies show that programs that “help students connect their studies with the future they learn to imagine for themselves,” like Urban Assembly, a family of New York City schools that ties education to career goals, for example, result in higher college completion rates (Kamenetz). College courses that can connect skills learned in the classroom—especially abstract skills—with skills required in the job market provide another focus area of the proposed research. Moreover, the researchers postulate that strategies that target at-risk populations will also serve and benefit all students.

Finally, in *Principles of Good Practice for Undergraduate Education*, Chickering and Gamson identified effective educational practices: “student-faculty contact, co-operation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning” (Arum and Roksa). This advice, as well as the strategies recommended by Harvard Project Zero (cited above), is already a part of all online courses created for delivery at KSU. KSU policies requires all courses offered online meet a set of standards for best practice commonly known as Quality Matters. All courses created for this minor meet QM guidelines per KSU requirements.

The AADS program at Kennesaw State University offers an online minor (15 credit hours) that includes required courses in the social sciences, humanities, and interdisciplinary research (senior seminar). Today in the online AADS minor, every course is deliberately designed with key elements that recent research indicates will achieve the desired goals of retaining at-risk students, increasing at-risk students’ graduation rates, increasing the employability of program graduates, and honing critical thinking skills.

The six faculty members who are part of an interdisciplinary degree program in African and African Diaspora Studies collaboratively designed and created the courses that make up the online minor. Such a plan might be seen as infringing upon faculty members’ academic freedoms and “lowering” faculty from their positions of academics to that of job training specialists. But as Professor David Wiley of Brigham Young University has famously said, “If universities can’t find the will to innovate and adapt to changes in the world around them universities will be irrelevant by 2020.”

Sociological research presented in *Academically Adrift* identified classroom strategies that would improve at-risk students' critical thinking skills, university retention rates, and graduation rates. Analysis of the changing educational landscape in *DIY U: Edupunks, Edupreneurs, and the Coming Transformation* identified characteristics of disruptive technology that lead to higher retention, graduation, and subsequent employment rates. Each course in the AADS online minor contains a specific set of components, as recommended by the latest research, designed to increase critical thinking skills, retain at-risk student populations, increase graduation rates, and increase post-graduation employment.

Specifically, each course

1. Requires at least 20 pages of writing per course and at least 40 pages of reading per week. These requirements increase "higher order cognitive skills" in students (Arum and Roksa). Courses use wikis, VoiceThread, blogging, and traditional short and long writing assignments to accomplish this goal.
2. Requires students to set goals for themselves for their course performance, their careers, and their lives, and communicate with faculty regarding those goals. Ask students at the end of the course to reflect upon those goals and evaluate progress, make plans for achievement, and revise goals if necessary (Arum and Roksa). Courses use online creative media such as makebeliefscomix.com, Voki, and GoAnimate to encourage students to express themselves in fun and colorful ways using graphics and video.
3. Fosters frequent faculty-student contact (Arum and Roksa). Courses use traditional methods of faculty-student contact such as telephone, office conferences, and email as well as methods such as Blackboard Collaborate and Skype to keep faculty and students connected in multiple ways.
4. Creates a clear path through for students to follow to successfully complete each course and the minor as a whole (Kamenetz). Students at KSU who are in online programs are called weblearners. All weblearners are served by a peer advisor who assists them as they journey through their academic program(s). While these peer advisors are remarkable at their jobs, faculty in this program will assist by reminding students in each program what courses must be taken to complete the program and when they will be offered. Faculty are very "hands on" in reminding students about important registration dates and drop/add dates. In addition, every course has clear, measurable goals, and every module within the course has clear, measurable goals. Faculty provide "activity worksheets" for each module for students to use to complete each module, and they communicate important due dates each week. Faculty are in contact with students weekly and invite questions and interaction in order to promote critical thinking skills, student-faculty relationships, program completion, and college graduation. To enhance successful completion, all courses are designed to be accessed on any computer, smart phone, or tablet.
5. Makes clear how elements of the course relate to the job market, future careers, and job search activities (Kamenetz). Faculty include in each module a) an example of a skill requested in the current job market, b) an example of how that skill is being addressed in the current module, and c) how students can use the information to strengthen both their resumes and their interview skills (Rosen). A variety of advisement texts based on academic research such as *You Majored in What?* by Katharine Brooks, *10 Things Employers Want You to Learn In College* by Bill Coplin, and *Connect College to Career* by Paul Hettich are incorporated to varying degrees in the revision of the AADS major. Through the implementation of principles of these texts on a granular level in courses in the online minor, faculty hope to buttress the overall strength of the program to deliver on its goals.
6. Incorporate gaming elements that connect the entire program and link each course to the next one. The game design will motivate students to apply principles learned in individual courses and level them up by skill and by progress in the program. Students may also earn badges throughout the online minor. Badges "mark the completion of goals and the steady progress of play within the system" (Zichermann and Cunningham 55), reinforcing the practice of goal setting and working to achieve those goals.
7. Incorporate Open Educational Resources as much as possible. The faculty received a grant from the state of Georgia to create OERs for the first two courses in the minor.

Findings

Disruptive technologies and pedagogies can be effectively adopted to address historical concerns of social justice in Black studies and the educational crises of the modern university. More specifically through our curricular design of the online African & African Diaspora Studies minor at Kennesaw State University, we illustrate how Black

studies is well-equipped to incorporate a host of new pedagogical concerns and tools readily available to both cyber-learning and traditional face-to-face classes. In addition to the creation of a minor designed at every level to support student success, we are continuing to add new courses and increase the number of courses that rely solely on OERs. Unfortunately, a departmental reorganization required that the minor be put on hold for a year while it was redesigned, which has stymied data collection efforts. However, data has been collected for individual courses. For example, the African American literature course offered in spring 2017 boasted an 83% pass rate and 3.77/4.0 student satisfaction level.

Discussion and conclusion

This project moves us to consider what Black studies has contributed historically and presently to the current crisis of higher education. The faculty members involved in this exploratory effort saw the challenges of developing an effective online structure for African and African Diaspora studies as a natural extension of their interdisciplinary work in African and African American studies and variety of “traditional” disciplines.

The challenges confronting Black studies are central to the new mission of the university and declining academic authority in the digital era. Fears that students have failed to master critical thinking and other requisite skills are also not unique to Black studies. However, adopting an appropriate critical pedagogy that empowers students to effectively critique and challenge unjust institutions remains more common within Black studies than its traditional counterparts. Faculty moving Black studies to the digital frontier face a dual challenge in teaching critical thinking and critical pedagogy in an era when both skills are devalued in market-oriented discourse.

These challenges present new opportunities to invoke disruptive technologies and creative pedagogies, some old and some new, to address a unique moment in the recent history of higher education. Like Ralph Waldo Emerson and Abdul Alkalimat, the faculty desired to be forward-looking in applying and proliferating new technologies as a means of developing critical thinking skills. Like Lawrence Hanley and Patricia Young, the faculty envisioned new goals in developing a curriculum and a transformative instructional pedagogy to challenge the narrow-mindedness of disciplinary and institutional culture.

In the most recent revolution of online teaching, instructional content and technology, which Hanley describes as “new and ‘mutant’ objects and practices” (Hanley 14), faculty are always evaluated with a critical lens toward how they improve teaching. This project provides one example in which emerging online pedagogical methods merge with social concerns to improve the utilization of technology in learning.

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Paper Title: Student engagement and empowerment in a flipped engineering dynamics classroom

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Submission

The flipped classroom model is increasingly used in tertiary education. Opportunities for active learning, collaboration and interaction with the lecturer are some of the reported benefits associated with the use of flipped approaches. These opportunities improve engagement and empowerment of students.

This paper presents the results of a study on student experiences in a first year engineering dynamics Summer semester course that used a flipped approach. This research used focus group interviews to determine the students' sense of empowerment and engagement in the flipped classroom.

The students' ability to control the pace of their learning and the collaborative nature of in-class active learning led to empowerment and an increase in confidence about their learning. Some students' felt that they lacked sufficient discipline to succeed in self-directed learning. However, reassuring students that their out-of-class learning was beneficial was found to be a potential enabler to their confidence. Student engagement was also positively affected by the ability to control the pace of their learning, their increased flexibility in study timing and location, and active learning during the scheduled classes. Some students noted that their self-directed learning skills combined with workload issues presented unique challenges due to the flipped approach and negatively impacted their engagement.

The paper concludes with recommendations for practice to further facilitate students' sense of empowerment and engagement and may be of particular interest to engineering or other threshold technical subject pedagogy.

Introduction

The purpose of this study was to ascertain first year engineering students' views of the flipped classroom learning experience in a tertiary setting. Flipped teaching and learning is an approach where direct instruction is enabled by digital technologies and experienced individually from each student in their own time, space and pace (Bergman & Sams, 2014). Classrooms are transformed into dynamic and interactive learning environments where discussions are guided toward specific learning outcomes and ensure consistent engagement from the students. In such environments, students are mentored, rather than directly instructed by the teacher.

Increased engagement and motivation, interaction with the teacher, content and other students, and academic achievement have been associated with the use of flipped approaches (Zainuddin & Hajar Halili, 2017). Studies also indicate that students generally prefer the flipped approach to the traditional method of teaching and learning (Wilson, 2013; Jenkins, 2015; Khanova et al., 2015).

McLaughlin et al. (2013) found that student engagement was affected by the flipped classroom format and the increased opportunities for active learning which was achieved via application of knowledge to real-life examples. Similar results were reported by Yelamanthi and Drake (2015) who found that student collaboration on real-life examples positively impacted students' engagement with the course content.

McLaughlin et al. (2013) found that most students were empowered with the use of a flipped approach, as their confidence was boosted in their self directed learning environment and pace. Mason, Schuman and Cook (2013) used assessed quizzes and student comments regarding their knowledge acquisition and found that flipped classroom students were more confident about their learning. Similarly, in Wilson's (2013) study on student performance in a flipped classroom, students commented that they preferred the flipped learning model to the traditional one and felt more confident about passing the course.

The Problem Being Addressed

Recently in tertiary education, there has been an increased interest in alternative teaching methods that make use of educational technologies (Blair et al., 2016). This study was carried out in an effort to assess the effectiveness of a flipped classroom approach in engineering tertiary education. The focus of this paper is on student experiences, particularly in terms of their empowerment and engagement, in a flipped foundational engineering dynamics course. The aim of the study is to assist tertiary education staff who are interested in flipped approaches to identify aspects of the approach that may be empowering and engaging to students, as well as aspects that may inhibit student empowerment and engagement.

Findings of this study may be grounded to the specific context where it took place. Therefore, the context of the study is described in the following paragraph.

The course was offered during the Summer semester (8 weeks) and had two parts, each taught by a different lecturer (Statics and Dynamics). Only the second part (Dynamics) was taught using the flipped approach and was completed in 4 weeks. The flipped approach included pre-class learning using two 30 minute video recorded lectures before each scheduled session and skeleton notes that students could use for note-taking during their independent study. In-class learning included three scheduled sessions per week with questions and answers, example problems, independent and collaborative work between the students. It was the first time for the lecturer applying this approach and most of student participants had not experienced flipped learning prior to this course.

Study Design/Approach

This study used a qualitative research approach to investigate student experiences in the dynamics section of the course. The research was underpinned by the interpretive paradigm. Interpretivist approaches enable researchers to make sense of how individuals construct meanings from their environment (Taylor & Bogdan, 1998).

Semi-structured group interviews were carried out with 18 students in total (9 from the 2014 cohort and 9 from the 2015 cohort). The semi structured interview format enabled the researchers to ask questions about why, what and how participants engaged with the approach (Taylor & Bogdan, 1998). The group format enabled participants to prompt and be prompted by other participants' contributions (Cohen et al., 2001). Due to scheduling constraints two of the participants were interviewed individually.

The interviews were carried out by the first and second author, who were not involved with the instruction of the course. The third author was the lecturer of the course and was ethically constrained from carrying out the interviews. The study was approved by the University of Canterbury Educational Research Human Ethics Committee.

Findings

Student empowerment

Findings of this study illustrate that students felt empowered by the use of the flipped approach and took ownership of their own learning. The use of video to share the lecture content, was a key factor in enabling students to take ownership and gradually build their understanding, since they were able to pause, replay, slow down or speed up the content.

“You don’t get as frustrated [...] You listen to it, you stop it, you write down what it was, and then sometimes if you didn’t understand it quite, you’d click back and listen to it again”. [Student L]

Other students shared that they were able to augment their learning by researching for additional resources, while pausing the content videos.

“I remember one part I just couldn’t get it, and it was a relatively big part. I watched this minute-long video, and they just explained it so easily” [Student C]

Students explained that by becoming more confident of their understanding of the course content they were further motivated to attend the scheduled face-to-face sessions.

“I kind of felt prepared and kind of did everything before I went to class, I felt prepared for those tutorials and revisiting in my own time.” [Student H]

Students acknowledged that their in-class experience was equally important to independent learning. During their scheduled sessions, they were able to get reassurance, ask questions, collaborate and work on examples in order to further enhance their understanding and apply their newly acquired knowledge.

“That [Questions and answers] was like 10 minutes at the beginning of the class. Now I can go over the problems and do them by myself because I’ve got those questions, I’ve got that clarity.” [Student I]

Reassurance and feedback was also acquired by the students’ peers. Before the scheduled classes, some students chose to work in groups. Within these groups students studied course content together, assisting one another in building understanding and getting more confident. Others received reassurance from their peers during the scheduled classes where they worked together on examples and collaborated on solutions.

“I was [studying] with a very good friend of mine; [...] we’d watch [the videos] together and we’d hit a problem and we’d both sort of work through what the lecturer was trying to get towards, and the next day we’d be very confident in what we’d got and then we’d go and talk to him.” [Student D]

Students who were not properly prepared before the scheduled sessions explained that they were not able to maximise their learning and benefit the most from the in-class activities. These students were not always able to follow the discussions and example activities that were taking place in these sessions. Therefore, their lack of preparation was negatively affecting their sense of empowerment.

“There was a couple of times where I went to the tutorials, having only watched one of the lectures, and the felt like I was wasting everyone’s time going there.” [Student B]

Some students suggested that increased feedback when engaging with the course content independently would further reassure and empower them. For example, not knowing whether they were on the right track during their independent study, combined with a few mistakes that were spotted in the videos sometimes affected student confidence.

“[During my independent study] I wasn’t able to ask questions. I’d write it (the question) out on a piece of paper for the next day, but then I’d say, oh I’ve got this question. Oh, what does that relate to, again? What was my thought pattern at that time?” [Student R]

Overall, many students commented that the combination of pre class independent learning and in class active learning positively impacted on their achievement in this course.

“The flipped learning took a really complex subject, [...] just made it a little bit more learnable - little bit more achievable.” [Student P]

Student engagement

In terms of student engagement, the format of the lectures (video format) was a positive factor. This was due to students’ ability to control the speed of the video, the reviewability of the lecture and generally the pace of their learning.

“I could pause it, write what I wanted, re-wind it, listen to what that sentence was again, engage what he’s actually said, process it, and then move on.” [Student D]

Students mentioned that they were engaged with the material due to their ability to watch the lectures anytime from anywhere.

“I prefer doing things on my own time and on my own terms as well. I can pause the lectures and go and eat something, or whatever and then come back and watch it.” [Student K]

The scheduled face-to-face sessions also engaged students, who were able to ask questions, receive personalised support from the lecturer, collaborate with one another and work on example problems.

“I would get my answer [in the tutorials] the next day after I saw the videos like really quickly so that was really good.” [Student E]

For some, the face-to-face sessions were more engaging than their independent learning time, as they enjoyed the interactions with the lecturer and the active learning that was taking place in their class.

“I got on really well with the lecturer, so coming into the tutorials was actually kind of fun. I’d look forward to winding him up a little bit. So that for me was interesting, whereas sitting in front of a computer screen just sliding the bar back to try and copy out something, was not particularly engaging.” [Student R]

Interestingly, the presence of a few mistakes in the content videos further engaged students to participate in the scheduled sessions. Although as mentioned previously the mistakes were negatively affecting student confidence in their learning, students shared that they were further motivated to ask questions during the scheduled classes to clarify the aspects that were confusing.

“That was probably the biggest cause of my annoyance with the course [mistakes in some slides]; if he did that in my class I would have put my hand up [...] I’d ask him the next day in class and he’d be like, oh yeah that was wrong, sorry.” [Student D]

For some students, their lack of familiarity with self-paced independent learning combined with the short timeframe that they had to watch the videos had a negative effect on their engagement.

“Then you go the day after into the class and you don’t how to tackle the problems because the thing didn’t sink yet [...] [During the Summer semester] I was bombarded with new materials everyday like heaps of it, probably my mind couldn’t retain it so well” [Student A]

Some suggested that not having other courses to attend during the Summer semester was actually helping them engage with the requirements of this flipped course, regardless of the short timeframe. Students are limited to two courses only during Summer school at the participant university. Others argued that the course over a longer period of time, such as in a non-Summer semester would perhaps assist them in managing their learning, as they would have more time to watch the required content videos and gradually develop their understanding. However the students also predicted that too many simultaneous courses using the flipped approach would be a challenge.

“If I was doing four flipped classrooms at the same time, I think I wouldn’t handle that very well.” [Student J]

Discussion and Conclusion

This paper discusses empowerment and engagement as perceived by students of a flipped classroom in a first year engineering dynamics course, taught over the Summer semester. Student empowerment was influenced by the medium of delivery that allowed them to control the pace of the lecture and augment their learning with additional resources. Empowerment was also affected by the in-class activities, and by the support students received from their peers before and during the scheduled sessions. Students that were more confident in their understanding during independent study were more likely to engage in the scheduled sessions. Further reassurance during students’ independent study was noted as a potential way to increase their sense of empowerment.

Student engagement was affected by the medium of delivery that enabled them to control the pace of the lecture during their out-of-class learning. The flexibility to learn anytime from anywhere was perceived as an engaging factor, as well as the active learning during the scheduled sessions. Factors that negatively affected student engagement included students’ level of self-management skills combined with workload issues and short time frame during the Summer semester.

During their self-paced learning, the medium of delivery enabled students to pause, replay, speed up, or slow down the video and find additional resources to augment their learning. This increased both their sense of empowerment, but for some, it also enhanced their engagement with the course. Mason et al. (2013) found that the ability to control the pacing of the lectures and their reviewability was identified by students as fundamental to their learn-

ing. Delivery of content in a way that allows students to govern their own pace of learning may further facilitate students' experience and therefore may be considered during the tool selection process from teaching staff.

The flexibility to access and learn the course content anytime from anywhere was perceived as an engaging factor from the students, which agrees with findings from other studies (Kerr, 2015; O'Flaherty & Phillips, 2015). Some students mentioned that this flexibility may be challenged when students have a shorter timeframe to complete their independent learning tasks, as well as their ability to manage their learning. Such challenges encountered by students, including those that are workload related, concur with the findings of Green and Schlairet (2017) and Khanova et al. (2015). These findings also highlight the need to provide students with a combination of clear expectations of time commitment and suggested strategies to assist with self-management.

Regarding the scheduled sessions, students almost unanimously agreed that the face-to-face sessions were not only interesting and engaging, but also were enabling them to deepen their understanding. This was due to a combination of increased time to ask questions, work on example problems and clarify concepts that required further explanation. Mason et al., (2013) and Yelamanthi and Drake, (2015) identify one of the main benefits of the flipped approach is that it frees up more time for active learning. Students who were not adequately prepared before scheduled classes found that they were not able to fully benefit from them. Therefore, in addition to clear expectations communicated to the students, careful design of in-class activities should include opportunities to gauge student understanding of core concepts, in order to direct the session according to student needs.

Students also mentioned the value of peer support during their independent learning and scheduled classes. Although collaboration was not compulsory in this course, students were strongly encouraged to form study groups and learn from one another throughout both stages of the flipped classroom. Flipped approaches can provide increased opportunities for student collaboration (Lavelle et al., 2013), but the use of a flipped approach is not enough to guarantee collaboration. The teacher's approach in fostering a collaborative culture is very important and therefore such opportunities need to be purposefully designed (Foldnes, 2016).

In conclusion, the flipped classroom approach was well received by the students of the first year dynamics class. Students who were disciplined and were able to self-manage appreciated the class the most. However, there were some key findings in the research that must be considered when a flipped classroom is to be used in similar threshold subjects at a university level. In particular, students must be warned that their success will be linked to their discipline in engaging with the course material. Furthermore, the video format and focus on collaborative learning were generally well received across the cohort.

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Framing Design for Learning: Aligning Theory and Practice in Innovative Learning Environments

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Overview

We are living in an increasingly networked world. Becoming a productive participant in this hyper-connected landscape requires a broad set of skills including critical and creative thinking, the capacity to identify and solve problems, and the ability to work as a productive member of a team. There is broad agreement that the facility to continually refine this skill set will be foundational for those who aspire to make a contribution to the most pressing problems of our times. But there is less clarity about how and where these skills will be acquired. Moreover, a dissonance has been identified between (i) the digital and physical spaces of education, and (ii) the teaching practices that support the creative and digital experiences necessary for developing what are often referred to as 21st century skills (Freeman et al., 2017).

In response to the demand for teaching that involves enquiry, practice, problem, and studio-based learning a range of innovative learning environments is beginning to emerge. These spaces are an explicit attempt to (re)design physical, digital and hybrid environments to accommodate the types of teaching and learning practices that encourage collaboration, discussion, participation and connection. As more of these spaces become available a second dissonance comes clearly into focus, a dissonance between (i) their educationally informed design, and the (ii) skills and capacities of those who live and learn within them. Working with educators in primary, secondary and tertiary settings we have developed a series of workshops that responds to this second disjuncture (Carvalho & Yeoman, 2018). Our goal is to provide practical methods and tools that are theoretically informed to assist in creating coherence between the designable elements of these increasingly complex learning environments.

This workshop is designed with educators in mind, particularly those interested in or tasked with designing for learning in innovative spaces. It will be a hands-on session using a process that is easy to replicate in schools, universities, museums, and workplaces. Participants will be encouraged to experiment with different ways of framing their design choices, while considering the value of maintaining coherence across scale levels, and accounting for both socio-cultural and socio-material approaches to learning. Those looking for practical ways to support autonomy and collaboration will be given time to consider how to purposefully equip their learning spaces to support diversity and choice, without overwhelming their capacity to guide or their students capacity to navigate these new and exciting spaces.

Our approach draws on design anthropology (Gunn, Otto & Smith, 2013), which capitalizes on the strengths of a design-oriented perspective, focuses on contextual knowledge, and is oriented towards developing specific solutions. It also offers creative ways of thinking about things, the settings in which they are used, and their role in contributing to meaning making.

Workshop participants will be introduced to the Activity-Centred Analysis and Design Framework (Carvalho & Goodyear, 2014) and The ACAD Wireframe (Yeoman, 2015; 2018). Both are used as analytical tools to ground discussion about the designable elements of complex learning environments—the set, social and epistemic designs. All participants will work on the same orientation challenge, before being given the option of working on either a current personal challenge or one of three design challenges: space (re)design, curriculum renewal, or the (re)alignment of assessment.

This workshop is designed to illustrate different ways of connecting theory and practice. We offer it as a means of initiating conversations and actions that will help participants to realise their own vision for the innovative learning spaces in which they teach and learn. Our aim is to highlight how digital and material resources, the social organisation of learners, and learning tasks can be integrated into a coherent whole.

Description

- Purpose – Introduce recent developments in the learning sciences that help educators in connecting learning theories, technology and design
- Intended audience – teachers, education managers, instructional designers
- Proposed format – 95 minutes
- Workshop goals – offer participants a practical opportunity to connect theory and practice, while considering structural elements in design for learning

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Engaging online students in citizenship through weekly critical reflections

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Practice paper outline

This paper discusses the explicit teaching of citizenship in distance contexts. We analyse how a particular assignment, weekly “critical reflections”, successfully manifests engagement strategies, but also how its success raises questions about how best to articulate “civic” learning outcomes, particularly when those outcomes represent a mix of content, skill, and disposition.

Introduction

In 2016, Massey University restructured its Bachelor of Arts degree to include core courses on citizenship; while citizenship has long operated as an ambient goal of undergraduate education, it is now increasingly becoming an explicit curricular theme. Embeddedness in curriculum offers potential for innovation and systematic approaches, but also presents challenges for articulating and assessing civic learning outcomes, particularly in relation to skills and dispositions rather than content knowledge.

Massey delivers the BA degree both on campus and online. Common concerns with online teaching such as enabling engagement and belonging, and teacher presence, take on new resonance when the subject of the course is identity and belonging. In addition, citizenship courses ask students to confront and work through potentially divisive and provocative topics such as colonisation, immigration, and privilege. How best to articulate and facilitate “civic” learning outcomes in this fraught context is at the heart of our discussion here.

We consider a first-year course a key site for these questions, as there students’ negotiation of the university’s versions of the civic with their own is most striking. In addition, given citizenship is developed before and after university, the question of what is the university’s *specific* contribution is salient, and the transition space calls

for its articulation. Given that employability outcomes and connected metrics are articulated in depth, it is important to work on articulating civic outcomes with equivalent nuance.

The practice under scrutiny

Here we focus on one assignment in the first-year citizenship course in Massey's BA, a weekly "critical reflection", and its outcomes, which encapsulates the opportunity and complexity of teaching citizenship by distance. The assignment asks students to "write a short (100-300 words) critical reflection or reaction to an idea or issue from that week's content that particularly resonates for them". The distance offering of the course has around 300 students, mostly in their first or second semester of study, and including both school leavers and older students.

The critical reflections were designed to support both belonging and skill development in multiple ways. First, one course goal is to encourage the application of course content to past experiences, existing views and the student's wider world. Individual reflection is a useful strategy for developing insight, promoting critical thinking and personal transformation (Andrusyszyn & Davie, 2007). A low-stakes, iterative reflective assignment compensates for online courses' lacking face-to-face conversations that can facilitate such reflection while gently managing the confrontational aspects of teaching challenging course content. (While the course has discussion forums, research suggests not all students participate in these and forum conversations tend to be shallow with little evidence of critical thought (Angeli, Valanides, & Bonk, 2003), and the challenging course content can constrain students from sharing views in public.) Secondly, the iterative nature of the task allows for many opportunities for feedback to aid students' development. We would suggest this feedback loop is particularly important in a course where students are asked to question or adjust deeply-held dispositions or understandings of identity. Finally, mentoring in a one-on-one teacher-student interaction that provides "modeling and error correction based on critical analysis" (p. 291) has a positive impact on critical thinking skills (Abrami et al., 2015).

There is evidence to suggest the critical reflections are achieving these goals. While end-of-semester surveys do not ask about particular assessments, comments often mention the critical reflections, with three related benefits regularly discussed. First, the reflections help students manage the weekly work: "they were small but helped me stay on track with the learning". Second, the reflections encouraged deeper engagement with course content: "The critical reflections were a great way to make the student engage with the weekly topic and consider the wider implications of it". Finally, students found the regular feedback valuable for improving writing and thinking: "The critical reflections were extremely helpful in this course. It really helped me expand on my critical thinking while giving advice on content and flow."

These comments indicate that the task successfully engages students – not just behaviourally via participation, but also cognitively, by facilitating a deep learning approach to the content that is intertwined with skill development and personal development. The course is designed to be reflective – to encourage students to think deeply about identity and citizenship and to be critical of their own views. Feedback suggests that, for at least some students, the course is not only cause for reflection but transformative of their experience of identity and place in the world, and the critical reflections are key in that process:

"It helped me really investigate myself and my biases and beliefs and helped me realise things I didn't know. It helped me be more critical of ideologies and search for the balance of the argument on both sides and helped me connect with my identity and who I am."

Discussion/conclusion

While there is evidence this assessment is successful in engaging students behaviourally and cognitively, additional dimensions warrant further investigation – in particular, how the task and tutor feedback work to facilitate students'

critical thinking and civic development. Both tutors and students have registered some ambivalence about the nature of feedback: the degree to which “writing skills” are being assessed and the degree to which these are interconnected with the kind of reflection and criticality being asked for, as well as the challenge and importance of tutor/student dialogue through marking. We suggest that some of the difficulty here is in articulating civic learning outcomes (in particular, how the university’s version of the civic asks for different dispositions and practices than popular versions might) and the extent to which these outcomes are embedded in complex practices like writing. That is, while we have evidence the task is effective and valued by students, we do not yet fully understand how their critical writing and thinking develops through the semester and how feedback we provide can best support that process.

Scholars have noted the complexity of defining “critical thinking” in general and in particular in curricular contexts concerned with citizenship (see, for example, Johnson and Morris (2010) on the relation between critical thinking and critical pedagogy in civic-oriented curricula); we would suggest that locating citizenship education in a tertiary context adds additional complexity to these debates about the values and practices being espoused in such teaching. We are currently planning research to address these questions, and to enable improved practice in analysing and responding to critical reflections. Students do vary dramatically in their ability to complete the task, with some remaining at the level of personal anecdote; there is, however, early evidence of skill development, in that the average mark increases throughout the semester and tutors see evidence of feedback being applied. Our sense is that tutors respond to student gestures in writing that evoke community, engage multiple perspectives, situate and question the writer’s own identity and assumptions, and bring historical perspective to bear on contemporary concerns. However, these “moves” are underarticulated as yet and might be analysed and codified to good effect, in conjunction with identifying other significant moves in writing in students’ interpretative framework or stance when engaging with “civic” content.

This research sees “skills” as inseparable from the civic – for example, understanding writing to enact kinds of belonging, identification, and criticality that are crucial to civic practice. Thus we recognise literacy as not just foundational but “enabling” (Barrie, 2006), and see our work as contributing to a richer understanding of writing in the New Zealand tertiary curriculum (given similar limitations as those described in Australia by Harper and Vered, 2017).

Take home messages

Discussions of online teaching tend to focus on technology as the route to engagement, and tend to assume that technology can replace teaching presence. However, to achieve deeper emotional and cognitive engagement without the ability to draw students into face-to-face conversations, regular compulsory tasks such as the critical reflections are invaluable, and highlight the importance of adequately resourcing distance teaching. Weekly assessments are time-consuming to mark but the benefits are substantial. The success of this relatively simple assessment task reminds us that the core pedagogical principles of good practice in higher education as outlined by Chickering and Gamson (1987) apply equally to distance teaching: in particular, the centrality of contact between students and staff, active learning, prompt feedback, encouraging time on task, and communicating high expectations.

Students use the weekly opportunity to stay on track, connect course content to their experiences or other learning, and develop their ability to think and write critically about the world and themselves. However, we can better anatomise how and why this is effective in relation to teaching citizenship. Detailed analysis of learning in relation to “civic” outcomes also has the potential to feed back into more robust accounts of effective online teaching.

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Paper Title: Te Kura's Student and Whānau Service Hub; improving access to online learning

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Practice paper outline

Te Aho o Te Kura Pounamu (Te Kura) is a distance education provider offering personalised learning programmes to students from early childhood to Year 13. Since 2013 it has been undergoing transformational change to move from paper-based learning resources to real time access to an online teaching and learning environment (My Te Kura).

The implementation of online learning was reviewed in the second half of 2016. The review highlighted that some students, particularly priority students, required additional support to engage with My Te Kura. The review recommended the establishment of a Student and Whānau Service Hub (The Hub) to support students, supervisors, whānau and others with My Te Kura. The Hub was established and began operating on 16 January 2017.

This paper provides findings from an early evaluation of The Hub's impact for Te Kura's students, students, supervisors, whānau and others. The evaluation provided evidence that the provision of this support reached a large number and a wide range of students, helped students to re-engage with their learning, assisted whānau to support their children's learning and also helped Te Kura to identify areas for improvement within My Te Kura and in our practice.

Introduction

The implementation of the online learning programme, through My Te Kura, has been underway since 2013. Prior to the Hub being established there was no dedicated support for students and whānau. The internal IT group in Te Kura provided some phone and email assistance where possible to support students and whānau.

The implementation of online learning was reviewed in the second half of 2016. The review highlighted that some students, particularly priority students, required additional support to engage with My Te Kura and proposed Te Kura take a deliberate approach to identify students at risk of not engaging and support them to become capable and confident online learners.

The Student and Whānau Service Hub was established this year to provide this additional support to students. Initially three Hub Advisors, recruited from Enrolment Services, focused on responding to incoming telephone

calls and emails from students, supervisors, whānau and school co-ordinators mostly about how to access and use the online learning environment (My Te Kura).

Within one month the Hub needed additional staff to meet the demand created by students and whānau. The Hub is now staffed by nine advisors and operates from Monday to Friday, 8am to 5pm. The service has also expanded to proactively calling priority groups of students to help them get set-up and using My Te Kura, thereby engaging students in their online learning.

The Hub operates in accordance with the following operating principles:

- Every student matters
- We are respectful and professional in all engagements (including with our colleagues)
- We get the job done
- We learn fast

These operating principles translated into the following behaviours:

- Every student has their query resolved – most queries are resolved within 24 hours
- We have zero tolerance for abandoned calls
- We treat every query seriously – nothing is too small or silly
- We work hard to find a solution to all queries while also remaining professional and calm
- We do not hand on queries – if we need to refer on then we follow them through to completion

The practice under scrutiny

The planning and preparation for the Hub took place at the end of 2016 and in the first two weeks of 2017. During this time, we identified and trained Hub Advisors, communicated to staff, students and whānau about the Hub and identified a query management system that would be suitable for Te Kura.

When we started in mid-January, we did not know what the demand would be for the Hub. We reviewed the student queries every day with the Hub team to help predict future demand through our query system. Through this we will be able to act quickly to bring on and train more Hub Advisors. We also noticed that there was little to no demand for Hub support out of hours and the in the weekend. Our busiest days were Monday and Tuesday, with demand depleting as the week progressed to Friday.

We also reviewed who was contacting us as wanted to check that our most vulnerable students were making contact. Freshdesk (our query management system) supports advisors to record properties for each query, including the type of caller and student ID number. This enables us to review who was using the Hub. From this data we were able to note that there was a slight under representation of Māori and Young Adult students. This prompted us to initiate proactive calling to priority groups of students to increase the level of contact with these students and support their earlier engagement in online learning.

We also quickly identified areas of Te Kura practices and systems that required changing/ fixing from clusters of specific queries. For example, we identified that Year 7 – 10 students who had a gap in their name (like Te Rina) were not automatically receiving a google email address and could not start their learning.

We received significant support and appreciation from Te Kura staff who reported to us that they were able to invest more time teaching students as a result of the Hub supporting students. Some students only needed the Hub for a one-off query while others needed a lot of follow-up support. Hub staff worked with Learning Advisors (Teachers) to support those students that needed additional support to learn online skills.

During the first term of the Hub we sent out a weekly panui to everyone in Te Kura called “Headlines from the Hub.” This communication contained the key contact and resolution figures for the week along with the key issues and one learning for the week. The purpose of this email was to share the learning being gathered from the Hub with the rest of the school.

At the end of Term Two, the Hub and Enrolment Services were integrated to create a new business unit called Student and Whānau Support.

Discussion/conclusion

The key conclusions from the early evaluation for Te Kura’s Student and Whānau Service Hub were:

- the provision of this support is reaching a wide range, and large number, of students
- the service is removing barriers for our continued development of online learning
- the Hub is assisting students to re-engage with their learning, and whānau to support their children’s learning
- the service has been well-received by students, whānau and teachers alike
- the Hub is proactively and successfully supporting priority students, specifically Māori and Pasfika students
- the Hub Advisors reflect the diversity of our student population and has an over-representation of Māori Advisors
- the service provides a great opportunity for continuous improvement and is an early identifier of potential issues that could impact student engagement.

Take home message

- When innovating and developing new learning experiences for students, make no assumptions about existing knowledge and capabilities of 21st century, digital skills. When considering online development think about what support services are in place for the end user(s). It may be necessary to proactively support students and whanau to develop as your organisational model changes.
- Managing small issues can have a big impact on student engagement. Think about adopting a preventative approach to student engagement; don’t wait until a small issue has resulted in a student becoming disengaged, before you deal with it.

Paper Title: Sam and his magic beans – growing into complexity: Successful Passion Projects and NCEA

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Introduction

Te Aho o Te Kura Pounamu/The Correspondence School in Aotearoa/New Zealand delivers educational services, by distance, to approximately 20 000 learners per year.

Our main online delivery system is called My Te Kura and uses the platform provided by D2L (Desire2Learn).

A truly personalised programme, where learners have agency, can be based on a passion project or topic. This supports one of the strategic goals of Te Aho o Te Kura Pounamu (Te Kura): To raise student engagement and achievement using authentic learning, modelled on the Big Picture School philosophy and project-based learning.

The first part of the paper is an overview of the steps Te Kura has taken to facilitate the use of these learning technologies. An essential part of this process has been a cultural shift within the organisation.

The second part of the paper describes a case study where a NZ citizen living in Australia completed most of his NCEA Level 1 working on a passion project. Towards the end of 2017 he moved back to New Zealand and developed his own authentic learning programme in Palmerston North. This case study shows that NCEA can be used successfully with a passion project.

This project required an enhanced level of collaboration by teachers with a holistic focus on the student's learning programme.

The approach relies on subject teachers providing specialist expertise. To enable this, teachers must be challenged and supported to see beyond their subject specialties and adopt a practice based on a holistic view of learner needs.

This collaboration is exciting and engaging for teachers. It provides teachers and students with new and reciprocal learning experiences in the spirit of ako. There is greater scope for both student and teacher agency, and voice. This type of flexible learning enables the learner to develop deep learning dispositions and competencies that will enable them to thrive in a complex, rapidly changing world, where life-long learning and adaptability will be paramount.

The last part of the paper describes some of the recent steps Te Kura has taken to enable this approach in its online environment.

Te Kura - A Brief History

How do we as educators in a distance education organisation continue to adapt to provide engaging learning programmes that are personalised and maximise student agency? Over the last 10 years, Te Kura has been moving from a model of print-based delivery to interactive online learning environments.

Year 9-13 education at Te Kura was re-organised in 2008 around multidisciplinary teaching teams within specific geographic areas. The aim of this structure was to facilitate learning which is learner-centred and personalised.

While this change has enabled effective communication and collaboration between teachers about a student's learning, secondary teaching and learning still occurs predominantly within subject areas with limited cross-curricula planning.

Teacher and student agency are compromised by the subject and course-specific way NCEA has been implemented. Assessment tasks are often prescriptive. This creates a tendency to teach to specific credits/standards rather than challenge teachers to be creative and innovative with less prescriptive assessment tasks which align with student interests and passions.

Case Study - Let's Meet Sam

Sam enrolled with Te Kura about 5 years ago. With his dyslexia, he found classroom learning extremely challenging. He is a young man with a passion for gardening and enrolled in our year 9 and 10 Horticulture course in 2014. After successfully completing a number of topics, in the middle of 2015 he was first enrolled in the NCEA Level 1 Horticulture course. At this time he was living in the Highlands in Victoria, Australia. Early 2016 discussions were started about building his whole NCEA learning around his passion for gardening.

Sam, and his family, were very keen. After some brainstorming and discussions around possible projects, a focus was decided: Sam wanted to start a market garden.

His programme was structured around this project. In Horticulture (now part of Primary Production) we focussed on the Plant Propagation and Practical skills standards. In Digital Technology Sam worked on publicity material and his English reading responses were based around questions he needed to research for his garden. He built a roadside stall to sell his produce which also contributed several standards from Technology. A personal goal setting standard from Health and PE had him digging over his new garden beds.

Early on Sam needed to decide what to grow. He went and talked to a number of local organic growers to ask them about what he should grow. One of the growers was impressed with his attitude and offered him part time work. This helped Sam learn valuable work skills as well as providing a mentor who was happy to answer his questions about growing plants for sale.

The main crops grown were potatoes and lettuce. In due course these were sold in a local farmers market. Further oral English assessment were completed by recording some of Sam's interactions with customers.

Late in 2017 the family moved back to New Zealand. Sam and his family started to organise his own learning programme, linking up with a local caf

e (Wholefoods Cafe in Palmerston North). This has enabled him to make a start on NCEA Level 2 with work on hospitality, technology hard materials and science research. He has enjoyed learning more about the links between growing food, cooking it and eating it the context of a small business.

Below is a table showing credits gained by subject area in early 2018.

Primary Production (Horticulture)	15
Home Economics (includes 4 @ L 2)	10
English – LY and AS	13
Digital Technology	4
Technology (includes 4 @ L 2)	22
Physical Education	3
Maths - NY	10
Pathways	5
Total Credits	81

This case study illustrates clearly that NCEA standards can be used in passion project learning.

Vital to this programme is the involvement of Sam's family. His mother provided lots of encouragement and helped with Sam's organisational and problem solving skills. His Father was also very supportive and helped with practical tasks such as building the raised beds and shelter. As Sam progresses, his parents are starting to step back as he develops autonomy and agency in his learning.

The specialist skills of the different subject teaches is also vital to the programme's success. A high level of collaboration between teachers is necessary so we can all understand how different assessment requirements can contribute to the one project. This will become easier as we all develop a community of practise around passion project learning. It is also exciting to work together on a project such as this.

As illustrated by Sam's move back to New Zealand, his learning is ongoing and is responsive to changes in his situation.

In addition to completing NCEA Level 1 successfully, Sam made excellent progress in developing his Key Competencies and attitudes to learning. At the beginning of the project his goal was to get NCEA Level 1 over two years and hopefully be qualified enough for an apprenticeship. Level 2 NCEA was not considered possible.

Sam has developed soft skills through his experience with relating to customers, employers and teachers. His technology projects show successful critical thinking and problem solving skills in addition to discipline knowledge in the areas that related to his project. He is now working at NCEA Level 2 on a science project with a soil scientist as a mentor.

Above all, sam has become an adaptable enthusiastic learner!

It is these dispositions that will enable him to work with complexity, and grow into the future.

Conclusion - Where to next?

Te Kura is making the cultural shift into providing authentic student centered learning through a number of projects, of which this is one example.

Some other examples include:

- Big Picture influenced advisories and pilot projects
- KIWA projects.
- Advisory based projects.
- STAR courses
- Gateway
- Growing student dispositions for learning through Learning Power and the CLARA tool

All of these are working well with those students who are able to get to advisories for face-to-face interaction. Our challenge is to make passion projects an option for all of our full-time students. Many of them are unable to get to advisories for face-to-face interaction with a teacher, but are working in an online environment with a group of teachers in a multidisciplinary team. This fits in with the conference sub-themes of:

- Equity, access, openness and flexibility, and
- Emerging teaching and learning strategies and assessment models.

To help facilitate this, Te Kura has developed the 'My Korowai' online learning platform. This provides a personalised online space, for each student, where collaboration, planning and recording of ideas can happen as authentic learning programmes are developed.

Take home message

The goals of this presentation are for participants to:

- Gain insight into the structures and systems at Te Kura and learn how they are changing to cater for future focussed learning in an online environment.
- Gain an understanding of the shifts in practice and culture as Te Kura secondary teachers move from course-based delivery to inter-disciplinary authentic learning opportunities that better prepare students for the constantly changing, complex future of tomorrow's world.

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Paper Title: Embedding Information Literacy in the Bachelor of nursing Programme

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Practice paper outline

This presentation reports on a first attempt at a seamless partnership between academic and professional staff to embed information literacy skills through the Bachelor of Nursing (BN) curriculum at Massey University. The curriculum was redesigned to incorporate blended learning activities aligned to shared goals and located in a writing and inquiry framework threaded through the three year programme in a staged approach. The presentation will report on: 1) the transition pedagogy informing the inclusive curriculum strategy; 2) the process of collaboration between BN teaching staff, Educational and Learning Consultants and Subject Librarians; 3) the design and implementation of the Writing and Inquiry framework in a paper in the first year programme; 4) the development of blended learning resources aligned to assessment and learning outcomes in the programme; 5) lessons learned in the process; and 6) strategies for further development and evaluation of the initiative.

Introduction

The development of independent, critically reflective, lifelong learners is central to the mission of universities. In the last few decades there has been a growing recognition among Higher Education providers that a key competency in this graduate profile is information literacy (IL), students' ability to "search for, evaluate and use information in their studies, and subsequently in their working lives" (Ellis, Johnson & Rowley, 2016, p. 53). The literature commonly identifies four key stages to IL: identification of the need for information; finding information that is appropriate; evaluating this information; and using and synthesising information from sources to solve problems or complete tasks (Kilpin, Emerson & Feekery, 2012). While students experience these stages as interrelated, training in the required skills has tended to be characterised by what Hoffman, Feng and Lee (2016) describe as the "artificial segregation" (p. 214) of learning activities in research and writing instruction. The two skills areas are viewed as discrete do-

mains where professional staff - Subject Librarians (SLs) and Learning Consultants (LCs) respectively - work in isolation from one another and target specific skills areas traditionally assigned to their respective professions. Collaboration with academic staff is often limited to the sharing of assignment questions and marking rubrics for the course involved, and contact with students in the course is seldom maintained beyond 'one-hit' workshops in which students are taught a range of skills which they are then expected to transfer to other tasks in the course without further support. Student attendance and engagement at these workshops is often problematic because many perceive their own skills in information seeking, evaluation and use to be far better than they really are (Ellis et al., 2017; Kilpin, et al., 2014) and many see the sessions as a waste of their limited time. Students are more likely to see the benefits of these 'add-on' training programs when they are endorsed by course lecturers and when they are credit-bearing (Saunders, 2012). However, research suggests that the most effective IL training can be provided not by programs added on to the curriculum, but by those which are seamlessly embedded in the curriculum (Ellis et al., 2017) through a partnership between academic and professional staff to bridge the "institutional siloes" and "present a "one-world view from the student facing perspective" (Kift, Nelson & Clarke, 2010. p. 11). This shift in thinking to the need for an inclusive curriculum aligns with Tinto's observation that "student success does not arise by chance. It is the result of an intentional, structured and proactive set of strategies that are coherent and systematic in nature and aligned to the same goal" (Tinto, 2009). The need to provide coherent, systematic IL support aligned to assessment and learning outcomes in the BN program was a strong driver in the decision to partner academic and professional staff in the redesign of the curriculum.

The practice under scrutiny

Embedding writing and inquiry in the BN

- The Educational Developer from the NCTL and a Librarian for the College of Health worked with nursing staff to integrate Writing and Inquiry input into the new curriculum at key points in the students' learning journey – it is a systematic integration of the learning support to scaffold the learning process (Kift et al., 2010). A staged approach was used to build up the level of skills across the three year programme (Biggs & Tang, 2011). Information literacy was embedded in content as well as tasks and targeted to specific skills at different stages of the learning journey.
- Constructive Alignment (Biggs & Tang, 2011) - The assessments were aligned to the objectives of the course and the learning activities engage the students. The Educational Developer and BN staff co-constructed learning outcomes and assessments; LCs and SLs developed aligned learning activities and resources.
- Academic and professional partnership - A close collaboration between academic staff, and professional staff in terms of assessment design, content and delivery ensured that we present a one-world view. In conversations with students, we have noticed students do not differentiate between us. For example, the students have readily asked the librarian for help with writing.

The Think-Find-Read-Reflect-Communicate Cycle

- The student face of the writing and inquiry framework is the Think-Find-Read-Reflect-Communicate (TFRRC) Cycle. The cycle is designed from the perspective of the student experience and does not separate the skills taught by the SLs and the LCs. The Cycle is introduced to students at the beginning of semester and is referred to consistently in our work with the students.
- Scaffolded support is provided throughout the process of acquiring competencies in each of the five areas or the TFRRC Cycle. The cycle encourages self-awareness throughout the learning process as the student moves towards independent learning.
- The TFRRC Cycle is not linear and can be entered at any point. We emphasise that the cycle is not just for university study and assignments, but also for practice – cross-reference to the students' clinical experience is featured throughout. The practice of students is therefore constantly reflective and evaluative.

Discussion/Conclusion

The seamless embedding of IL skills through the Bachelor of Nursing curriculum has been challenging for staff involved; however our first experience of the implementation of the programme with Year 1 students has been very encouraging in terms of the partnerships developed between professional and academic staff, the students' participation in the resulting learning activities threaded through the programme, and the quality of work produced. One key to the success of the initiative has been the development of the Writing and Inquiry framework which underpins the integrated curriculum and guides Library and Learning Consultants in the development of learning activities and materials. Another is the willingness of the BN staff to allocate substantial teaching time in the first year programme in order to build a foundation for further IL development in the BN curriculum.

One area requiring further development in the initiative is the inclusion of the student voice in terms of reflection on the student experience of the programme.

Take home message

The challenges involved in embedding IL sessions within a curriculum should not be underestimated as considerable time is required for all staff involved to plan, develop and implement the required resources. Buy-in from all involved and a shared understanding of a guiding framework are essential to the provision of systematic IL support aligned to shared goals.

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Paper Title: Experiences of distance PhD supervision

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Practice paper outline

Based on the experiences of one PhD supervisor and PhD students, this paper aims to make explicit some practices that aim to ensure that supervision happens and is experienced satisfactorily and positively all involved. Distance supervision, like all research supervision, aims to enable and facilitate the achievement of the goals of the supervisory interactions with the student and to enhance the likelihood that the research degree work is successful and effective. This paper outlines some of the challenges and potential solutions to effective research supervision where distance is involved.

Introduction

Most Distance Education (DE) literature is about a range of theoretical and practical challenges, issues, principles and qualities related to the teaching and administration of formal courses of study (e.g., Quality Matters Rubrics and Standards <https://www.qualitymatters.org>; Ragan, 1999). These show generally agreed upon core standards, practices and expectations that underlie well-functioning, effective DE. However, where supervision is concerned, beyond broad principles, suggestions that can be gleaned from coursework research supervision projects (e.g., Broome, Halstead, Pesut, Rawl, & Boland, 2011; Könings, et al., 2016) and investigations into satisfaction levels (e.g., Erichsen, Bolliger & Halupa, 2014), there is scant literature that tackles practicalities of applying principles and the realities of 'the everyday' and 'the contextual'.

The practice under scrutiny

In this paper, we look at the effect of distance on both students and supervisors, either of which may live and work away from campus, be based on different campuses from the each other and co-supervisors, or work for an external body. We contend therefore that the concept of 'distance' applies equally to supervisors as well as students. Furthermore, whether separated geographically or not, in many instances supervisory team members do not necessarily know each other well, resulting in another kind of distance that needs to be reduced for a manageable and effective supervision relationship to occur. This paper enhances the DE and supervision literature by articulating some of the specific dynamics and challenges that arise when distance is a component of the supervisory relationship.

The characteristics of PhD students and supervisors provide some starting points for establishing and applying good practice. Distance PhD students are often studying part-time; are older and working full-time in established

jobs. They may be academics themselves. The part-time nature of their study means managing study along with work requirements and family obligations. Part-time study takes longer and therefore the likelihood of system and support structure changes within job, home and study contexts is higher. Plans made at the start of the degree will not remain static. Effective use of communication technologies is critical, as without constant and regular 'checking in' between supervisor and student it can be very easy for different priorities to take over. Many of the same challenges are faced by supervisors. PhD supervision is one task among many that they perform; work and life obligations and interests can become barriers or inhibitors to their supervision ability and capacity.

To begin a process of articulating some clear guidelines and advice for distance students and supervisors, the authors drew on personal experiences of supervision, supplemented by perspectives of colleagues who have also experienced supervising or studying PhDs at a distance.

Establishment of the student-supervisor relationship requires responding to and adjusting to the viewpoints and expectations of each other, while actively nurturing the development of a relationship without access to the implicit communication and non-verbal communication that a non-distance supervisory relationship has access to.

When developing an effective relationship, students and supervisors may find themselves asking, who is this supervisor/student? What makes them tick? And How do they want me to approach them or communicate with them? While formal MoUs might address some issues, we find answers to many communication questions by observation – a luxury not available to distance students and supervisors.

Students and supervisors might experience moments of awkwardness when meeting, due to the lack of incidental communication that occurs in supervision when both parties are in the same location, and the lack of familiarity with the other's 'normal' mode of operation. Never seeing a student or supervisor in an informal setting, only in the supervisor/student role makes it harder to develop a sense of the relationship existing between everyday people, instead limiting the student/supervisor to their roles in this one relationship.

Out of sight, out of mind is common, as departments typically do not consider the differing needs of distance students/supervisors, and the supervisor may have to actively push for activities that are inclusive of distance students. Supervisors may need to foster in students a more independent approach to their academic and professional development.

Discussion/conclusion

Bringing together features of high quality supervision (University of Otago, 2006) with principles underpinning effective DE (Quality Matters; Raglan, 1999) is an approach that we are taking in refining our supervision practices. This work is part of an evolving process to make explicit how to address the practical challenges and issues of distance supervision. Table 1 shows our synthesis thus far. In the right-hand column is a list of "solutions" to supervision challenges, as identified by supervisors and students, drawn directly from experiences. The other columns show (tentative) links between those experiences, principles of effective DE courses (Raglan, 1999):

- I. Learning Goals & Content
- II. Interactions
- III. Assessment & Evaluation
- IV. Instructional Media, Tools & Technologies
- V. Learner and Course Services & Support

and qualities of effective supervisors (University of Otago, 2006):

1. Experience & Interest in Supervision
2. Support
3. Availability
4. Interest & Enthusiasm
5. Knowledge & Expertise in the Field Surrounding the PhD
6. Interest in the Student's Career
7. Good Communication

8. Constructive Feedback
9. Provides Direction & Structure
10. Approachability & Rapport

Table 1:

Solution experiences matched with DE principles and supervisor qualities

Solutions (examples) in DE contexts	Principles of effective DE courses	Qualities of effective supervisors
Be conscious of what distance student is missing out on and be consciously fill that gap.	II, V	2, 3, 7, 10
Be conscious that the distance, part time PhD student context is rich and capitalise upon it.	II, V	2, 3, 7, 10
Provide regular departmental updates	II, V	5, 7
Technology advice (e.g., John is using tool X and finding it handy, you should try it too)	II, IV, V	2, 7
Services available – academic and administrative	IV, V	2, 5, 9
Changes in administration requirements	I, III, V	1, 2, 9
Plan multiple ways to communicate	II, IV, V	7, 8, 9, 10
Encourage student to set up own PhD writing/ support group in their location	I, II, III	2, 9
Create opportunities for student writing and support groups - distance	I, II, III, IV, V	2, 9
Make effort to physically meet as often as is practicable –conferences work well	II, V	1, 2, 3, 4, 7, 10
Older PhD students juggling multiple demands are more likely to need good organisational tools than	V	2, 5, 6, 9
Get students to follow e.g, ‘Thesis Whisperer’, ‘Doctoral Writing SIG’, ‘Write that PhD’ etc for on-going motivational messages and useful advice that they aren’t getting from being physically in the	II, V	2, 9
Plan for publishing during study if possible – will stop data from being too old/stale because part time study is longer, and might meet publishing pressure from workplace too	I, II, III, V	5, 6, 8, 9

As a work in progress, much needs to be done to tease out the links among these experiences, principles and qualities. Our aim is to produce a series of principles and examples of practice which may help distance students

and supervisors: to reflect on current distance supervision practices and contributions; and to form the basis of development of advice and guidelines that can be 'moulded' to specific context.

Through this ongoing exploration we strive to help improve and enhance practice and understanding of distance supervision for institutions, supervisors and for students and to contribute to the literature.

Take home message

As a work in progress, much needs to be done to tease out the links among these experiences, principles and qualities. Our aim is to produce a series of principles and examples of practice which may help distance students and supervisors: to reflect on current distance supervision practices and contributions; and to form the basis of development of advice and guidelines that can be 'moulded' to specific context.

Through this ongoing exploration we strive to help improve and enhance practice and understanding of distance supervision for institutions, supervisors and for students and to contribute to the literature.

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Paper Title: Rethinking postgraduate researcher training and development using an innovative blended learning approach

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Practice paper outline

The professional inquiry (a researcher training and development course) was introduced into the Master of Education programme at Massey University, New Zealand in 2014 as a practitioner-based alternative to the research thesis pathway. In contrast with traditional, independent, time intensive, models of postgraduate research supervision, the authors developed and implemented an innovative blended learning model of postgraduate research training and development to ensure the growing demand of future, predominantly distance, students would be met. In its fourth year of delivery, the online community has grown from 9 students and 7 specialist academic advisors in the first cohort, to 45 students and 27 academics in the current offering ensuring an accessible and equitable research learning experience for all students.

Introduction

This paper describes an innovative blended learning model of postgraduate research training and development. The Professional Inquiry (a researcher training and development course) was introduced into the Master of Education programme at Massey University, New Zealand in 2014 as a practitioner-based alternative to the traditional research thesis pathway. Information available at the time of course development suggested that approximately 60% of all postgraduate students would opt for the professional inquiry highlighting an increasing demand for postgraduate research supervision. However, limited availability of academic staff to supervise postgraduate research via time-intensive, traditional mechanisms necessitated a new and innovative approach to research training and development to meet the growing demand of future, predominantly distance, students.

In response to this challenge, an innovative team-based, blended model of digitally-facilitated postgraduate research training was developed. Blended learning is generally considered to be a coherent design approach that integrates the strengths of synchronous face-to-face teaching with asynchronous online learning to provide more engaging learning experiences for students (Garrison & Vaughan, 2008). However, in the post-graduate professional

inquiry course described here, blended learning is conceptualised more broadly than the integration of traditional modes of teaching (and research supervision) with new types of technology (Caner, 2012). Blended learning in this model includes: blending lecturer-led teaching with academic research guidance; blending research specific content with more generic content; blending lecturer-directed learning with more self-directed learning; blending structure and guidance with more flexible pathways; and blending independent and co-operative learning opportunities. Using this model allows for core research content to be taught across all student-specific research projects thereby sharing teaching time, academic expertise, and resources while promoting teaching presence (Vaughan, Cleveland-Innes, & Garrison, 2013).

The practice under scrutiny

In designing the course, the authors were cognisant that the majority of students undertaking the qualification were seeking to develop applied, 'real-world' research skills that could be used in their own educational contexts. The pedagogical design and approach adopted is facilitated within a rich, digitally enabled environment which supports the formation of a diverse, supportive and inclusive community (Anderson, 2008b) of postgraduate students and experienced academics that promotes scholarly and ethical practice within an applied professional learning context.

The introduction of a blended taught/guided approach has contributed to an active and thriving postgraduate culture with students engaging online with the lecturers facilitating taught components of the course, their specialist content advisor and other students throughout the academic year. While students are engaged in individual research projects, conversations with their advisor are shared among the wider community encouraging understanding of the broad nature of educational research. As such, students are immersed in rich learning experiences that expose them to a broad range of pedagogical approaches and research concepts that promote active student engagement, interactivity and collaborative learning. This is in stark contrast with feelings of isolation described by students undertaking independent research online while at a distance from their university (Ross & Sheail, 2017).

Alongside this development process, innovative uses of new technologies were adopted through the use of digital badges. Badges have been implemented to scaffold the research process (supporting the blending lecturer-directed learning with more self-directed approaches) and to ensure students meet specific competencies (e.g., ethics approval, development of data collection methods) at key points along their research trajectory. Since the introduction of this blended learning model of researcher training and development, the online community has grown from 9 students and 7 specialist academic advisors in the first cohort, to 45 students and 27 academics in the current offering ensuring an accessible and equitable research learning experience for all students (Keppell & Riddle, 2012).

Discussion/conclusion

A number of key outcomes have emerged from the introduction of the professional inquiry course. Firstly, the course was designed primarily to help practicing educators develop the skills necessary to critically examine existing research, and undertake new research relevant to their own educational contexts. The small scale nature of each of the individual research projects means that the findings of the projects themselves are secondary to the development of practitioner researcher capacity. Not only do students develop the practical skills to effectively conduct research, they also develop a greater awareness of the importance of ethics in the research process, and a more nuanced understanding of how existing research might apply to their own setting. Higher levels of researcher capacity, particularly amongst practitioners, will be increasingly important within a growing inquiry oriented and evidence based work culture (Cochran-Smith & Lytle, 2009).

Secondly, integral to the success of the professional inquiry course is the development of a blended community of learning focused on research. This development has helped to strengthen the postgraduate research community bringing together larger numbers of students and academics in research discussions. In this way, the role of the 'teacher', or teaching presence (Garrison, Anderson, & Archer, 2000), in the online environment is shared as students and academics take turns to lead and contribute to discussions. Teaching presence is not always the sole responsibility of the teacher and is often assumed by students who contribute their own knowledge and skills to build understanding among the learning community (Anderson, 2008a). The nature of the interactions in this community has also modelled effective online collaboration; important in contemporary workplaces where people are often separated geographically, and where a wider range of digital modes of communication have become ubiquitous. The development of effective blended communities of learning has also helped to reduce the sense of isolation many students experience when undertaking research at a distance (Ross & Sheail, 2017).

Lastly, the use of digital badges scaffolds the research process, modelling alternative forms of assessment, and recognising key research competencies such as the development of research questions, data gathering methods, and ethics. In this way, students' progress through their research journey can be mapped and key competencies rewarded, giving students a sense of direction and achievement (Gibson, Ostashewski, Flintoff, Grant, & Knight, 2013). Breaking down larger tasks into smaller more manageable ones, while still keeping a sense of the gestalt, helps students learn how practitioner research can be more effectively conducted within increasingly busy and complex workplaces. It also models how digital badges might be used in their own educational context.

Take home message

In contemporary workplaces which are more inquiry oriented and evidence based, educators need to be both consumers and producers of research. Traditional models of students conducting research via thesis has tended to have them work primarily in isolation, with only their supervisors to consult with. The model underpinning the professional inquiry course sheds new light on how research might be conducted within discourse rich blended communities of learning that draw on a wider group of academics and students to support the research process.

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Workshop Title: The Use of GoSoapBox for Teaching and Learning

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Overview

This workshop fits into the theme as it explores opportunities for active learning that are emerging from the use of a user friendly web based platform (GoSoapBox) that can be operated on any internet connectable device. It certainly recognises the fond memories as well as the similar use of the traditional clickers in the classrooms. Simultaneously, the workshop aims to challenge the participants to best utilise different technological tools in this similar vein.

The workshop targets the second and the third subthemes of FLANZ 2018. Through the active interactive space, openness is achieved through the transparency gained from GoSoapBox in different activities (e.g., participating in a discussion forum, a poll or a quiz as presented in the “Description” below). Along with the flexibility and focus on the learner that open practices offer, this workshop also incorporates the ideas:

- Learners’ experiences - personalised pathways
- Learning quality and student engagement
- Open and public participation

As for the third subtheme, students and teachers are expected to have good social and communications skills, and be proficient in digital and information literacies. This sub-theme involves teaching and learning practices for the digital age, including:

- Digitally-enhanced teaching and learning practices
- Pedagogy for a digital age
- Competency

Description

The *purpose* of this hands-on workshop is to propose an interactive practice during the process of teaching and learning through a student response technological tool, namely GoSoapBox (a real time web-based clicker tool). One of the key learning outcomes for our students is to develop their abilities to communicate and apply what they have learnt in the course. A common way of such communication is through active interaction in the classroom and recent studies (e.g., Cheng, Wang, & Mercer, 2014) show its importance in today’s higher education. This is because students learn by communicating their ideas to others and by learning from their peers (e.g., Boud, Cohen, & Sampson, 2014). In addition, cooperative learning (e.g., Tsay & Brady, 2010) has also increasingly become a popular form of active learning pedagogy in postgraduate courses. Such learning will lead to a more open approach to research, especially for postgraduates. By using a digital tool to enhance interactivity in the classroom, the transparency of the communication could be achieved through the increased interaction between students and students as well as between students and teachers. This in a way demystifies the possible passive learning process and/or the teacher centric classroom setting.

This proposed workshop is designed for the *audience* who are interested in using an interactive tool in the process of teaching and learning in order to engage with the students more effectively and efficiently. We will also discuss rec-

ommended interactive practices in the teaching and learning process. Therefore, this workshop suits anyone who is involved in teaching, particularly those who would like to adopt the concept of active learning. In this workshop, the participants will be introduced to GoSoapBox platform and will be exposed to three of its different tools. The *format* of the workshop will be as described below:

Part 1

Participants will learn how to sign up on GoSoapBox, sign in and set up a space for a course using their handheld devices (e.g., laptop or any smart device).

Part 2

The facilitator will lead the participants to experience using the “Discussion” function on GoSoapBox as students before conversing about the pedagogical benefits of using this function in the process of teaching and learning.

Part 3

The facilitator will lead the participants to take part in the “Quiz” on GoSoapBox as students followed by a discussion on the notion of pedagogical advantages of using this function in the process of teaching and learning.

Part 4

The facilitator will lead the participants to join in the “Poll” on GoSoapBox as students before having a pedagogical pondering session on this function as an informal teaching evaluation tool and/or a general idea gathering tool.

In summary, the *goal* of the workshop is to share a simple yet a suitable technological interactive space which could allow a teacher to have better communication with students as well as among students. The space also provides the students opportunities to collaborate with peers while receiving guidance from the teacher.

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(774 words)

Paper Title: Framework for innovation in the classroom

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Practice paper outline

In a climate of fast-changing markets, stakeholders are rethinking the purposes of tertiary education and questioning the relevance and responsiveness of existing approaches. One result is that tertiary educators are strongly encouraged to replace traditional teaching methods with newer, context-relevant approaches. A need for innovation in the classroom is exposed. However, ad-hoc innovation is risky, as new teaching practices introduced may in fact be detrimental to some students in some respect or may fail to support the main goals of the organisation.

Our starting point is that the set of practices implemented in the classroom must be relevant to the organisation's objectives and all objectives must be addressed. We suggest that this can be achieved by adopting a 'top down' pyramid, with objectives at the top and implemented practices at the bottom. An item at each level in the pyramid must directly address an item in the level above. Practices to be introduced can thus quickly be assessed for relevance. An objective with no associated practice represents a gap in the delivery strategy.

A framework based on this scheme has been implemented in the Technology Academy at EDENZ, Auckland. Our student demographic varies in background and experience and we trial new practice ideas as a matter of course. Applying the framework assists us with relevance and coverage.

Our contribution is the proposal of a framework to support innovation in the classroom. At present, we are formalising the framework and seeking feedback from within the wider teaching community.

Introduction

The New Zealand Productivity Commission (NZPC) recently conducted an inquiry into tertiary education in New Zealand (NZ) (New Zealand Productivity Commission, 2016). A key aim was to identify how new approaches might support the education system in a time of fast-changing markets, internationalisation and the constant introduction of new technologies. The report questioned the “relevance and responsiveness of tertiary education to changing labour markets” (New Zealand Productivity Commission, 2016).

Several NZ tertiary education providers are actively seeking to extend or transform their teaching approaches to address the above concerns. For example, Unitec Institute of Technology (Auckland, NZ) is currently implementing a “programme of institution-wide change”, including “significant, deep change” to teaching approaches (New Zealand Productivity Commission, 2016) (New Zealand Qualifications Authority (NZQA), 2016). However, despite isolated examples of innovative approaches, the inquiry exposed a general inertia towards innovation in the NZ system.

The plea for a more innovative approach is not new. In 1967, Trow discussed the “sweeping innovations” being introduced in the US and identified a “rapid growth of knowledge” as a contributing factor in the need for change (Trow, 1967). More recently, the European Union published the outcomes of a project that examined how “innovation can support higher education in times of change” (Brennan, et al., 2014).

Innovation requires experimentation and an inherent risk of failure is introduced (Walport, 2014). Ad-hoc innovation in the tertiary education sector is fraught with danger. New teaching practices introduced may in fact be detrimental to some students or may fail to support the goals of the organisation. Often, the primary motivation for innovating is to challenge routine as opposed to improving outcomes (Trow, 1967), with the result that innovations are often enacted but not evaluated. This lack of evaluation means that issues may remain hidden for some time, resulting in a less-than-desirable outcome for both students and organisation.

The practice under scrutiny

We have created a framework that will support classroom innovation by exposing practices that are not relevant and identifying possible gaps in delivery strategy. The notion is based on the viewpoint that practice suitability requires an understanding of both objectives and context (Kirk & MacDonell, 2015). Objectives state the high-level, strategic teaching-related goals for the organisation and may include, for example, ‘Prepare students for industry’. Context may include, for example, ‘many nationalities in class’.

The framework takes the form of a ‘Policies, Principles and Practices’ pyramid. Objectives lie at the top of the pyramid and practices at the bottom.

Policies are high level statements about what is in place to meet objectives i.e. defines the strategies the organisation plans to adopt. The set of Policies must span the set of Objectives and must be orthogonal i.e. each Policy must address a different aspect of the Objectives. This scheme for EDENZ Technology is illustrated in Figure 1.

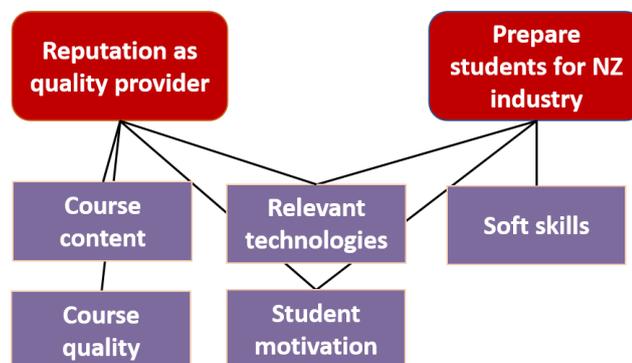


Figure 1. EDENZ Technology Academy policies.

Four policies address Objective 1 (quality provider). The first relates to course subject-area content, the second to evaluation quality, the third to introduced technologies and the fourth to student motivation. Policies for Objective 2 (industry relevance) include exposure to relevant technologies, motivation and soft skills (a survey carried out by Victoria University of Wellington found that employers were most interested in the soft skills of graduates (Medford & Kusmierczyk, 2015), pg. 1)).

We believe these policies represent an orthogonal, spanning set on the space of objectives.

Policies are then mapped to principles. Each principle states an aspect of a policy at a lower, more directed level. The set of principles must span the space of policies. However, at this level, we do not impose orthogonality i.e. there may be overlap in the meaning of principles. The scheme for EDENZ Technology is depicted in Figure 2.

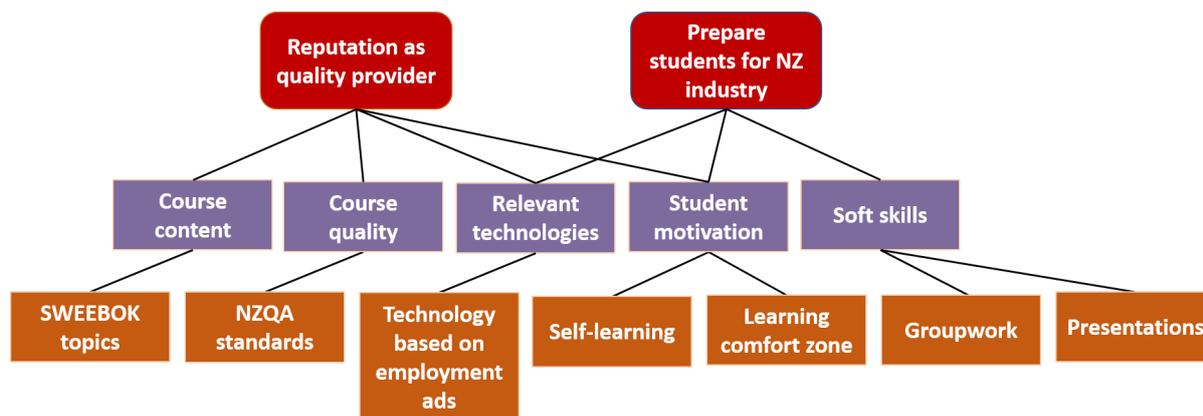


Figure 2. EDENZ Technology Academy hierarchy

Selection of Principles is based on a mix of theory, experience of the teaching staff in the IT Academy context and inputs from industry partners who are closely associated with the Academy.

1. Students will be introduced to aspects included in the Software Engineering Body of Knowledge (SWEBOK) (Bourke & Fairley, 2014). [Pol 1].
2. Assessment will comply with the expectations of the New Zealand Qualifications Framework for Diploma level 7 (New Zealand Qualifications Authority (NZQA), n.d.). [Pol 2].
3. Recommended technologies for each paper will be based on the needs stated in employment advertisements in NZ. [Pol 3].
4. There will be a focus on growing students' commitment to self-learn [Pol 4].
5. Students will be taken out of their learning comfort zone in a controlled way [Pol 4].
6. Students will be encouraged to participate in working with other students [Pol 5].
7. Students will be expected to give both formal and informal presentations [Pol 5].

Principle 4 is based on the intuition that an active approach to learning results in a higher level of interest. Principle 5 is based on our experience – students who are challenged tend to become more deeply involved. For Policy 5 (soft skills), we include working in groups and presenting, as we believe these are standard, proven approaches.

Discussion/conclusion

The student demographic at EDENZ Technology is extremely diverse in both culture, experience and academic background. One result is that often students have deep experience in some areas but lack knowledge in other key areas. Often students are 'experts' in various fields and can share much knowledge with others in the class.

The above diversity means that classes vary from term to term and this renders it necessary for us to fine-tune practices suitable for each intake. Stating what we do in terms of the framework helped us to more clearly understand what we are aiming to achieve and provides us with on-going confidence that we are not implementing unhelpful practices. Clearly, the framework will be populated in a different way by organisations with objectives and context different from ours.

We note that our contribution does not involve support in selecting practices.

Take home message

In the tertiary education sector, innovation in the classroom is expected. It is not possible to innovate without experimentation. Experimenting on students is fraught with risk. We present our framework as a tool for mitigating this risk.

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Paper Title: Digital Fluency and the Entitlement Curriculum: Who are the computational thinkers?

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Submission

The concept of a digital curriculum has been discussed widely both nationally and internationally in recent years. In New Zealand, the 2017 Digital Curriculum (Hangarau Matihiko) outlined a vision for two technology areas that provide both an entitlement curriculum (to which every student should be entitled) and a specialist curriculum (for elective study) in computational thinking and digital outcomes. In this paper, we explore the broad set of definitions of digital fluency and ask to what extent this concept is embedded in the digital curriculum. We also raise some questions around the nature of an entitlement curriculum in this area, and to what extent the concept of digital fluency is or is not embodied in that part of the published curriculum that is intended for all students, in contrast to the specialist curriculum that only some senior students will choose to follow. We suggest some important characteristics that should be present in an entitlement curriculum for digital fluency, and discuss some aspects of these that we are

currently integrating into our own courses that address the new curriculum, providing some suggestions for how others might implement the digital curriculum in their own contexts.

Introduction: Curriculum and Change

Curricula do not arise in a vacuum and are not socially neutral, but come laden with sets of values and assumptions, such as whether learning in school is in some way significantly different to learning in the world outside (Unwin & Yandell, 2016). The first schools had a curriculum based on training a suitable number of citizens to be able to create and use clay accounting tablets in the service of the city state (Mlodinow, 2016). In many ways, educational curricula remain grounded in a similar set of functional literacies. This is particularly the case when dealing with STEM subjects such as digital technology where a technical skill set is required in order to deliver assessable outcomes. However, a 21st century education is likely to require something more than a basic technical skill set.

Changes to curricula are driven by a range of forces. These include changes in generational characteristics, society, physical teaching spaces, infrastructure and pedagogy. The New Zealand education system has been slowly adapting to these trends. While the most obvious manifestation of these changes has been the visibility of digital devices in the classroom, the whole process of introducing digital teaching and learning relies heavily on communications infrastructure. One of the most significant changes to this infrastructure in New Zealand education in recent years has been the provision of Ultra Fast Broadband to schools (MoE, 2017a). Building on these contextual changes there is now a move to start embedding digital technologies, skills and competencies at all levels of schooling through changes to the technology curriculum.

The Digital Curriculum - Entitlement and Specialisation

At the end of 2017, the Digital Curriculum (Hangarau Matikiho) was incorporated into the Technology strand of the New Zealand Curriculum, and is due for implementation by 2020 (MoE, 2017b). The rationale provided by the MoE (n.d.a) is to “ensure that all learners have the opportunity to become digitally capable individuals”.

The original draft of the curriculum began with the statement from the then Minister of Education that “The new curriculum has the potential to be the ultrafast broadband of learning” (MoE, 2017b). Given the potential for transformation in teaching and learning that broadband access in schools has provided, this was a bold claim. Perhaps the most important aspect of the new digital curriculum is that it is explicit about the components of the entitlement curriculum, i.e. the knowledge and skills to which all students are to have access (Unwin & Yandell, 2016). This contrasts with the specialisation components of the curriculum that are only for some students; those who specialise in technology subjects in years 11-13. The split between the entitlement and the specialist curriculum is at year 10. The curriculum states that by the end of Year 10, all learners should be digitally capable, making them able to apply their understanding of digital technologies to all aspects of their lives and careers. In contrast, only learners who study digital technologies through to Year 13 will be on the pathway to specialising. The assumption is that it is these students who will be able to lead the next generation of innovators and trailblazers in the digital world. (MoE, 2017b).

Technology areas in the digital curriculum

Both phases of the new curriculum are incorporated into two new technology areas; Computational Thinking for Digital Technologies, and Designing and Developing Digital Outcomes. The computational thinking area focuses mostly on computer science principles and aspects of coding, whereas the digital outcomes pathway focuses more on the human aspects of digital systems, creating digital content and learning about the components and design of digital devices. The entitlement curriculum straddles both of these technology themes. Table 1 provides a brief summary of the key aspects of these two technology areas in both the entitlement and the specialisation curriculum.

Table 1: New curriculum technology areas

Entitlement to year 10	Specialisation to year 13
Computational Thinking for Digital Technologies	
<ul style="list-style-type: none"> • Independently decompose problems into an algorithm that a computing device can understand • Implement the algorithm by creating a program • Determine when to use different types of control structures • Explain and document programs and use an organised approach for testing and debugging • Understand how computers store more complex types of data using binary digits • Develop programs considering human-computer interaction heuristics 	<ul style="list-style-type: none"> • Analyse a selection of areas of computer science e.g. formal languages, network protocols, complexity and tractability, AI, graphics and visual computing, big data, and social algorithms • Evaluate how the synthesis of key ideas of algorithms, data representation and programming are applied effectively when developing real world applications • Use an accepted software engineering methodology to design, develop, document and test a complex computer program.
Designing and Developing Digital Outcomes	
<ul style="list-style-type: none"> • Make decisions about the best tools/ techniques to solve a problem. • Work through an iterative process to design, develop, store, test and evaluate digital content to address given contexts or issues • Select software and file types for particular purposes • Use selected software to create an outcome • Understand the role of operating systems • Explain the conventions of storage • Understand the need for security and 	<ul style="list-style-type: none"> • Integrate knowledge of digital applications and systems to create digital outcomes that meet design specifications • Discuss, design, construct and debug complex electronic environments and embedded systems • Effectively apply an iterative process to develop digital outcomes that synthesize end users' needs

Digital Fluency in the Curriculum

Explicit in the curriculum are the concepts of computational thinking and digital outcomes, but implicit are underlying concepts such as digital literacy and fluency. Interpretations of these latter (and associated) terms vary widely. Definitions of digital literacy range from the simple ability to understand and use information in multiple formats from a wide variety of sources (Bawden, 2008), though learners being able to express themselves and develop their ideas through ICT both for work readiness and as digital citizens (UK Department for Education, 2013), to competency in computational thinking (Park, 2016). Digital fluency has often been expressed more broadly. For example, the New Zealand Ministry of Education describes it as learning anywhere, anytime, with digital learning for every learner regardless of location (MoE, n.d.b). Spencer (2015) focuses more on tools and skills, such that digitally fluent learners can self-select from a range of tools to achieve outcomes, and navigate collaborative spaces effectively and confidently, while Park (2016) defines digital fluency as the set of social, emotional and cognitive abilities that enable individuals to face the challenges and adapt to the demands of digital life. Similarly, Resnick (2002) sees digital fluency akin to the fluency we develop with language; that we can not only use technological (and digital) tools but use them to construct significant things. He sees this type of fluency as powerful for lifelong learning. Digital fluency as a term lacks a single definition but it would seem that it can seek to develop important learner behaviours such as independence and flexibility.

The journey towards digital fluency

One way of approaching these multiple definitions is to consider whether there is some kind of progression of digital skills and activities that might outline the journey towards digital fluency. For example, Spencer (2015) suggests a progression from proficiency, through literacy, to fluency. In this view, fluency is dominated by aspects of digital citizenship. Similar themes appear in White's (2013) analysis, but he also emphasises topics such as collaboration, critical thinking and design skills. Miller and Bartlett (2012) also focus on criticality, which they break down into three components; net-savviness, critical evaluative techniques and diversity (of sources). A rather different three stage view is taken by Martin and Grudziecki (2006), who identify the stages of competence (skills, concepts, approaches, attitudes), usage (professional / disciplined application) and transformation (innovation / creativity). A further perspective is provided by Briggs (2011), whose distinction between the transactional (literacy) and the transformational (fluency) may provide something of a bridge between some of these other viewpoints. Here, fluency is knowing when to use the tools to achieve the desired outcome, and why those tools are likely to have that outcome. On the one hand, the concept of transformation, common to both Briggs and Martin and Grudziecki, suggests that there is a creative imperative to digital fluency. On the other hand, implicit in the approaches to digital fluency of White, Miller, and Bartlett and Briggs is the critical imperative. The NZ Ministry of Education's own definitions of digital fluency (MoE, n.d.c) are drawn from Resnick (2002), Miller and Bartlett (2012) and White (2013), so unsurprisingly gather together themes mentioned above. Here, digital fluency relies on a progression of skills from digital literacy (operational and functional skills related to digital technologies) to digital fluency (effective use of digital technologies in solving diverse, naturally-occurring problems in the real world). Further, that digital fluency incorporates both critical inquiry and creative practice. Table 2 summaries these various concepts of digital fluency, within which we define our own synthesis of the progression from operational competence to transformational fluency, and our definition of digital fluency as critical, creative transformation

Table 2: Concepts of digital fluency

Progressions	Digital Fluency is:
Proficiency -> literacy -> fluency.	Digital citizenship
Literacy/numeracy -> 21st century skills -> digital fluency (White, 2013)	Collaboration, critical thinking and design skills.
Competence -> usage -> transformation (Martin	Innovation and creativity
Net-savviness <-> critical evaluative techniques <-> diversity (Miller & Bartlett, 2012)	Criticality
Transactional -> transformational (Briggs, 2011)	Knowing when and why to use tools
digital literacy -> digital fluency	Solving diverse, real world problems, critical inquiry and creative practice.
SUMMARY	SUMMARY
From operational competence to transformational	Critical, creative transformation

A critique of the curriculum from the perspective of digital fluency

From the perspective of digital fluency, the structure and content of the digital curriculum raises some questions. For example, we might examine why technology is being split into the two chosen areas, and what this means for coverage of digital fluency. Is it covered by both sides of the curriculum up until year 10, or is it embodied in one or other of these two curriculum areas? Is this division, which seems somewhat arbitrary (storage versus data types, for example) purely designed to fit into assessment structures? Since the curriculum only refers to 'digital capability', one might question whether digital fluency is truly covered at all. We argue that digital fluency should be part and parcel of the entitlement curriculum.

Integrating digital fluency into curriculum design

From the discussion above, we note that a simplistic implementation of the digital curriculum up to year 10 might fail to deliver some key aspects of digital fluency. We are currently developing new course provision for in-service teachers that, while addressing the core components of the digital curriculum, will also integrate what we have earlier defined as the broader aims of digital fluency, namely critical, creative transformation. Through our examination of both the digital curriculum and literature in the area of digital fluency, we are integrating areas of technology practice that we believe can assist learners to develop these critical, creative and transformational skills that may otherwise be insufficiently emphasized in the curriculum up to year 10. Specific aspects of this approach include creative apps such as 3D Modelling, stop motion movie making, web design and mixed reality, while critical approaches are brought to bear in areas such as design thinking, agile and lean thinking, and the use of survey tools for student research, along with relevant analytical tools. Specific activities within these topics are designed to allow for reinterpretation by teachers and students to meet the needs of specific classes. We believe that transformation is only possible where students have sufficient agency over the activities they undertake within the curriculum.

Conclusion

Our experience with attempting to integrate the new digital curriculum into our own programmes, while paying due diligence to digital fluency in student outcomes, leads us to suggest a few recommendations for others working in similar areas. We suggest that digital tools that are used to address the curriculum are as broad as possible and make it easy for students to create digital artefacts. It is important to note that the creative potential of coding in programming languages by younger students is limited by time and complexity and therefore other approaches can often be more productive from a creativity standpoint. To assist students to develop critical skills, we believe that working in iterative, collaborative processes such as design thinking and agile teamwork can be highly valuable learning experiences, even if the outcome is not always a digital artefact. In terms of transformation, we suggest ensuring that activities based on digital outcomes are multi layered and use different digital tools in an integrated manner, such as designing an online survey, then gathering the data, then analysing it in various ways, and sharing and comparing conclusions. Implementing the new digital curriculum is a work in progress for all teachers across New Zealand, and we expect to continue to investigate ways in which it can be best employed to meet the needs of our students.

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Paper Title: Software Literacy as a framework for tertiary educators

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Submission

Software permeates and impact almost every aspect of our lives today. However not much is understood in terms of how software shapes the teaching and learning of disciplinary knowledge in formal learning contexts. This paper reports on the findings from a two-year funded longitudinal study examining how the notion of *software literacy* is understood, developed and applied in tertiary teaching-learning contexts. We explore the relationship between student success in acquiring software literacy and their broader engagement and understanding of knowledge across different disciplines. A qualitative interpretive methodology framed the study involving two case studies of media studies and engineering students' learning to use discipline-specific software. Student data were collected through class ob-

servations, online surveys and focus group interviews. Findings indicate that a majority of students consider themselves as early adopters of technology, knowledgeable in the affordances and constraints of their disciplinary software, and preferred informal learning strategies to supplement their formal learning of disciplinary software. There was however a lack of student critical awareness of the role of software in shaping their learning of disciplinary knowledge. The findings provide insights into practices relating to tertiary teaching and learning involving software and highlight the significance which programming code may have in the shaping and application of disciplinary knowledge in educational contexts. Implications are offered in terms of tertiary educators' practice and the provision of student learning support.

Introduction

Software is an integral and embedded part of 21st century everyday professional and personal life. Code provides the infrastructure through which everyday life is increasingly 'performed'. Most people develop proficiency with ubiquitous software packages informally through everyday engagement. However, the role and influence of software is largely taken for granted. Software is not neutral; its design and functioning is embedded within particular sociocultural codes of practice and assumptions made by software designers/programmers. For example, the actions of 'copy, cut and paste' are taken for granted as naturalised functions and embedded across different software but poorly understood as tools that shape our engagement with knowledge, culture and society in the 21st century. In tertiary education contexts, educators often assume that students already possess the necessary skills and conceptual frameworks to learn with and through generic software packages to successfully accomplish learning tasks and process, and tend to neglect how the affordances of different software shape the ways students 'perform' the software (Adams, 2006). Emerging evidence internationally and locally indicate a dearth in this digital generation's basic academic literacy skills for successful learning despite their technological competency (Thompson, 2013).

Our research draws from current developments in the emerging field of software studies (Fuller, 2008; Manovich, 2008) to propose the notion of *software literacy* as an inherent and vital but poorly understood part of digital literacy (see example of digital literacy frameworks by Beetham & Sharpe, 2010; JISC, 2014; UNESCO, 2013). We define software literacy as the repertoires of skills and understandings needed for students to be critical and creative users of software packages and systems in a culture now embedded within and increasingly generated through code. Software literacy involves expertise in understanding, applying, problem solving and critiquing software in the pursuit of particular learning and professional goals. It relies on a combination of general competency with software and technologies, together with the ability to undertake more independent (even informal) learning of discipline-specific programmes as and when required.

We hypothesise there exist three progressive tiers of development towards software literacy: 1) a foundational skill level where a learner can use a particular software, 2) an ability to independently troubleshoot and problem solve issues faced when using the software, and finally, 3) the ability to critique the software, including being able to apply such critique to a range of software designed for a similar purpose and to use these understandings for new software learning. The third tier involves the ability to identify affordances and their implications (including the constraints) of particular software and identify ways to both apply and extend its use such that it is relevant and meaningful to a wider range of learning purposes, tasks and contexts. As suggested above, this conceptual model is a response to current limitations in digital literacy frameworks (e.g. Alexander, et al. 2017) which do not go far enough to identify the implications of software (see Khoo, Hight, Torrens, & Cowie, 2017).

The problem being addressed

The research intention was to unpack if and how students develop and use discipline-specific software literacy, understand the influence of specific software applications on the way they make sense of disciplinary knowledge and whether their learning trajectories fit with our hypothesised tiers in the software literacy framework. This aim is translated into the following question:

To what extent and how does student software literacy develop and impact on the teaching and learning of discipline specific software in formal tertiary teaching settings?

The findings can importantly enhance our understanding of how students acquire knowledge and skills to use software and the extent they are able to apply and extend these to successfully learn and act in formal tertiary learning contexts.

Study design/Approach

The research draws from data collected in a two-year longitudinal funded research (Khoo, Hight, Torrens, & Cowie, 2016), to report on the views of participating tertiary media studies and engineering students from a New Zealand university. A qualitative interpretive methodology framed the data collection and analysis in the study. Two case studies of students learning discipline-specific software within two very diverse disciplines of study - media studies and engineering - were developed. An overlapping longitudinal study design (Arzi, 1988) tracked shifts in equivalent student cohorts' software literacy development. For the media studies case (a three year programme), our team tracked one group of students from Year 1 to Year 2; and another group from Year 2 to Year 3 focusing on their learning in papers/coursework involving discipline-specific software (Adobe Creative Suite, Final Cut Pro). Similarly, in engineering (a four year programme), one group of Year 2 students was tracked into Year 3, and another group from Year 3 into Year 4 of their study involving their learning of SolidWorks (a computer-aided design/CAD software). In this paper, we focus only on student perspectives of teaching and learning. Data on an initial baseline study and lecturer perspectives have been reported elsewhere (see Khoo, Hight, Torrens, & Cowie, 2016).

Student data were collected from observations of lectures and laboratory (lab) sessions to understand student learning to use discipline-specific software, online surveys and focus group interviews. The project received human ethical approval and participation was on a voluntary basis. Analysis of the data was underpinned by sociocultural theory which directed attention to the interaction between people, the tools they use to achieve particular purposes and the settings in which the interactions occur (Cole & Engestrom, 1993). Emergent themes from the analysis were identified through a process of inductive reasoning (Braun & Clarke, 2006).

Findings

Four key themes emerged highlighting students': i) general comfort level in engaging with technology; ii) overall preference for and/or reliance on informal learning strategies in acquiring software skills; iii) understanding of core affordances and constraints of disciplinary software applications; and, iv) a relative absence of critical software literacy among students.

i) Student comfort level with technologies

When asked about their general views regarding technology, 38% of students (n=169) reported they usually use technologies when most of their friends do (average across five papers), 35% reported liking new technologies and using them before most people they knew did, and another 18% reported loving new technologies and being among the first to use them. A majority of students (91%) therefore consider themselves early or quite early adopters of new technologies and are comfortable in engaging with new technologies.

ii) Student preference for informal learning strategies in acquiring software skills

Students reported drawing mostly from informal learning resources when learning/acquiring skills to use discipline-specific software (see Figure 1). The three highly valued strategies (combined 'useful', 'very useful' and 'extremely useful') by media studies students were 'Going online to refer to instructions' (91%), 'Asking a peer' (86%) and 'Going online to refer to YouTube videos' (86%) as useful to their learning of discipline based software. Engineering students reported 'Asking the teacher' (80%), 'Asking a peer' (49%) and 'Referring to the course or lab notes' (41%) as their preferred strategies. Possible reasons for Engineering students' valuing asking their lecturer for help before relying on more informal strategies as compared to Media Studies students could be due to the perceived complexity of SolidWorks or less experience at school with CAD software in general.

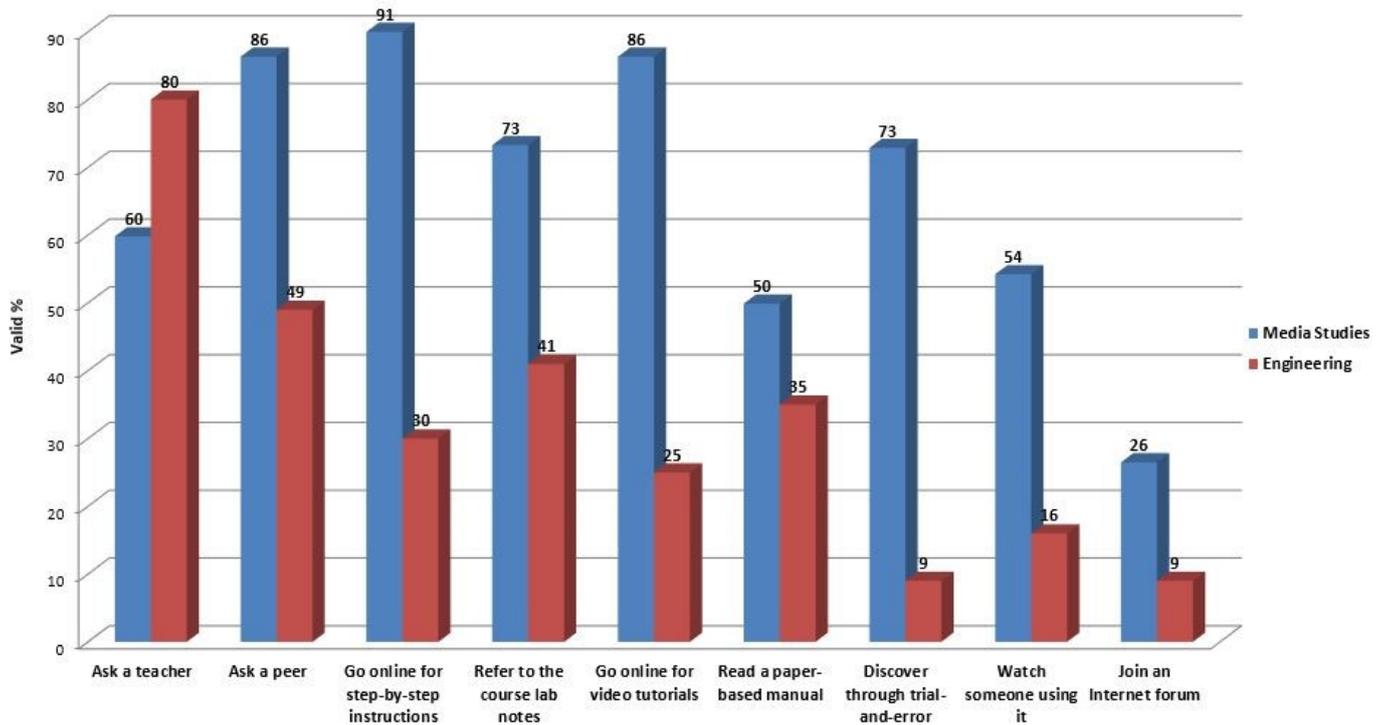


Figure 1. Strategies students used to learn discipline-specific software (collated 'useful', 'very useful' and 'extremely useful')

In focus groups, students highlighted a preference for learning at their own pace; sometimes drawing upon 'more expert' peers or approaching learning collectively when learning professional software. Referring to online resources such as YouTube instructional videos was particularly valuable (as in this representative quote):

Trying to follow a software tutor in class is] like watching a YouTube video without pause and rewind.... (Second year Media Studies student)

Although regular attendance at formal labs is part of coursework for both disciplines informal learning strategies were regularly used to supplement formal lecturer-led sessions.

Many students across disciplines reported the need to invest time and attention when learning discipline-based software to achieve basic competence (and some students explicitly commented that they developed more intensive learning strategies in response). A Media Studies student considered that discipline-specific software (in his case, Final Cut Pro) was sufficiently complex that work done outside the classroom became an important part of learning:

... the [lecturers] can give you all the tools but if you're not motivated to do your own experimenting, you're not going to learn the software at all ... That's definitely a big part of that is having the time to actually sit down and play around with it yourself. I mean, you can't expect to just be taught the software—it's something that needs time, you've got to learn it, it doesn't happen overnight. (Second year Media studies student)

This was also the case for engineering students learning to use SolidWorks as one student explained:

Cause there's so many tiny little individual parts about understanding SolidWorks that you get past a certain point and suddenly you don't know how to mirror a three-dimensional part (for example). (Second year Engineering student)

iii) Student understanding of software affordances

When asked regarding their understanding of the affordance and constraints, students across Media Studies and Engineering were able to discern the general affordances of their discipline-based software (tiers 1 to 2 of our hypothesised software literacy model) and to identify the value of these affordances for addressing tasks in their disciplines. For example, the Engineering students noted how SolidWorks affords their addressing of engineering de-

sign issues; it allows them to rotate and manipulate different views of their drawings (81%), easily modify their drawings (79%) and visualise their design drawing to share with others (78%). Similarly, the media studies students reported on the ways their discipline creative software afforded their editing images and sound separately (60%), importing visual and aural elements to combine with their own film footage (59%) and easily manipulating all the elements in a moving image sequence (56%).

Students from both disciplines were also aware of the constraints/limitations of software they were learning and commented on areas such as accessibility (e.g., affordability or incompatibility or crashing issues), time and resourcing demands when learning to use the software, and lack of functionality (e.g., wanting to 3D model in video production software, applying/bringing real images into SolidWorks). While students of both discipline were less likely to identify themselves as 'highly proficient' or 'expert' in using discipline-specific software at the completion of their course, most nevertheless reported confidence in being able to troubleshoot applications (tier 2 software literacy).

iv) Relative absence of critical literacy among students

When asked about their discipline-specific software learning and competency before and after taking coursework, a majority of students reported shifting in their ability to use the software after learning and using it in their course. Based on the categories, 'I would need help', 'I have the basic skills' (tier 1 of our framework), 'I can troubleshoot problems' (tier 2) and 'I can apply this software' (tier 3), students at the start of coursework felt they would need help to use course software, or that they only have the basic skills to use the software. In media studies, at the beginning of coursework, 29% of students reported needing help, 28% felt they had the basic skills, 12% felt they could troubleshoot while 12% could apply the software more extensively. After coursework this shifted to 6% of students needing help, 35% consider they now have the basic skills, 28% could troubleshoot problems and another 29% could apply the software more widely. Similarly in engineering prior to coursework, 52% felt they needed help initially with SolidWorks, 39% thought they had the basic skills, 6% could troubleshoot problems encountered while only 3% could apply SolidWorks to a wide range of tasks. After coursework, 1% reported needing help, 45% felt they had the basic skills, 37% could troubleshoot issues, and another 16% thought they could apply SolidWorks more extensively.

Most students however had difficulty identifying core disciplinary ideas embedded within software, or felt they were unable to critique the software they were using. Very few students in Engineering discussed how SolidWorks shaped their disciplinary knowledge (a key part of software literacy) as with students in Media Studies. Triangulation of data sources suggested that the few students who reported being at tier 3 were in most cases already competent on entry to the course.

Students interestingly highlighted that their learning of discipline-specific software is facilitated by having prior engagement with software or artefacts that had a similar conceptual basis and provided a pathway for them to engage with new and more advanced software learning. Media studies students for example reported that prior experience with Photoshop made easier to pick up the skills to use other media software; while engineering students similarly alluded to the role of introductory design software such as Google SketchUp.

Students also proposed ways lecturers could approach the teaching of discipline-based software in order to enhance their appreciation of the socioculturally and historically relevant disciplinary ideas embodied within the software including their authentic applications in real-life. In media studies, students raised the need to understand the broader contextual/conceptual framework behind the design of a software application:

Like in Final Cut Pro, words like "bins" and other words they go back in history to actual bins that you put film footage into and the cutter will bring them out and cut them. I think that the history of editing and why those terms are used and giving them a bigger picture might just help them realise the terms. [...] it's just that deeper knowledge that's very shallow when you're coming into software if you don't know the history of the industry that goes behind it (First-year media studies student).

While engineering students highlighted raising awareness of the software's possibilities:

I think what would be cool is if we had case studies or something; just some problems in class we could work through, the teacher could go through, like, "this is something that you may encounter while you're doing CAD, this is how we've gone about it, you could do it your way but this is the procedure we've used" (Second-year engineering student).

Discussion and conclusion

The study findings evidenced the existence of our proposed three-tier software literacy framework. Most students were comfortable to achieve tiers 1 and 2 in perceiving themselves to be early adopters of technologies, able and willing to engage in informal learning strategies to supplement formal lab based teaching of discipline-based software and could troubleshoot issues encountered with software. Our framework offers a conceptual tool for practitioners in understanding the role of troubleshooting as an important development stage in learning with and through software. However our findings affirmed a lack of students achieving tier 3; that is developing a critical awareness of the influence of software in shaping disciplinary knowledge and extending this critique to other software applications. As such, some implications for tertiary educators teaching software include:

- Lecturers can tap into students' informal learning strategies and resources as a supplementary to and at times above formal strategies to learn discipline-based software. This ensures diverse students' learning needs can be met through multiple pathways for exploring a software's affordances.
- Lecturers need to explicitly teach and model software critique if they wish to foster this capacity and/or make this possibility known to students. Students' superficial critique of software challenges current assumptions of today's digitally literate generation; critical awareness is not necessarily due to familiarity with and regular use of software.
- Lecturers can direct attention to formatively assessing students' initial software literacy and adapting teaching activities accordingly as there is an advantage of more advanced software learning for students with prior engagement with other similar software. Lecturers adopting a range of teaching approaches (formal and informal) and being flexible to address diverse learning needs will be valuable in supporting student learning.

As digital technologies and the software embedded within them become increasingly pivotal in everyday life, it is crucial that we be aware of their influences on the ways we come to know and understand disciplinary knowledge in tertiary teaching-learning contexts. This research goes some way towards addressing these issues.

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Paper Title: What's your blend? Taking stock of blended practices to learning and teaching at the University of the South Pacific

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Submission

'Blended' as a mode of course delivery at the University of the South Pacific (USP) was officially introduced in 2012. Integration of the blended mode into USP's existing range of modes was not without its share of challenges in terms of a clear institutional definition and a methodical approach to 'blending' for learning and teaching. While the Centre for Flexible Learning (CFL) at USP used a specific approach to developing blended mode courses, it was not universally applied in circumstances where faculty teaching staff developed their own blended courses. This paper discusses the range of blended approaches teaching staff at USP use in circumstances where they developed the courses on their own. Teaching staff from the three faculties and diverse disciplines at USP were interviewed about their approaches to developing and delivering their blended courses. Inquiry centred around four factors: incorporation of flexibility, stimulating interaction, facilitating students' learning processes and fostering an affective learning climate. What was evident was the diverse interpretations of what a blended course was in terms of how best they saw fit to deliver their content. There was some consideration of the four factors though not entirely a conscious effort or awareness to apply them. Additionally, the blends reflected their awareness of institutional technologies available to deliver content, coupled with the extent of their experience in course development for flexible learning. Teaching experience as well as situational factors also played a part in their strategies to blending. Ultimately, whether enabled, enhanced or transformative, there was a focus on student centeredness at the heart of the blend.

Introduction

The general assumption that a student's learning experience could be enhanced if conventional methods of teaching were integrated with new technological opportunities gave rise to numerous forms of non-traditional teaching and learning methods. The blended approach to learning and teaching emerged as an opportunity afforded by the internet. One of the most common positions of blended learning is that, "blended learning environments combine face-to-face instruction with technology-mediated instruction" (Graham, 2006, p. 3). Over the years, the interest in this blended approach has steadily grown, prompting numerous researches contributing to the scholarship and conversation around the subject of blended learning.

Contributors approached the subject from various perspectives; some focused on the design of these learning experiences – prescribing certain strategies and best practices, while others chose to focus on the perceptions,

attitudes and preference around blended learning. A thematic analysis of commonly cited articles on blended learning over the past decade by Halverson, Graham, Spring, Drysdale & Henrie (2014) noted seven major themes emerging from these publications. The most common of these themes was instructional design, where authors examined models of blended learning, the design process, its implementation, the various strategies utilised in these models and the best practices. The second most common theme was the perception around this subject; where student's preference, expectation and learning styles were examined. The third most common theme was exploration, where the nature, role, benefits and the transformative power of blended learning was explored. The fourth theme focused on learner outcomes, where researchers studied student satisfaction, performance outcomes and retention rates for blended courses. There was also some minor work on comparing this mode of study to other modes and the use/role/types of technology used in the implementation of blended learning.

Blended learning encountered its fair share of critics and challenges, from the earlier days of its development. Oliver & Trigwell (2005) suggested that blended learning needed to be redeemed. "The term blended learning is ill defined and inconsistently used, whilst its popularity is increasing, its clarity is not" (ibid, pg. 24). They suggested that a refocusing was needed where the focus shifted from the content to the experience, from technology to pedagogy and from the teacher to the learner. They further stated at that time blended learning was not student centric and what was actually being proposed was blended teaching. Torrisi-Steele & Drew (2013) suggest a need to better understand an academics' current blended practice and that more research and insights are needed on this front. They sighted the lack of literature directed at understanding academics' current blended practice as a case for concern given the importance of understanding this process in the formulation of strategies, professional development packages and the likes to facilitate the design and adoption of transformative/ effective blended learning packages. In terms of types of blends, Bonk & Graham (2005) classified blended learning systems into three major categories:

1. enabling blends – which focuses primarily on addressing issues of access and convenience;
2. enhancing blends – allows for small changes to the pedagogy but do not radically change the way teaching and learning occurs; and
3. transforming blends which radically transforms the pedagogy and conventional models of teaching and learning.

The University of the South Pacific (USP) is a regional institution governed by 12 member countries with its main campus located in Fiji. It has campuses and centres located in its member countries. At the USP, a type of 'blending' could be traced as far back as the year 2000, at the height of political unrest in Fiji. The crisis gave momentum to new developments as learning materials were repackaged and delivered in the form of printed materials and video and audio tapes to the regional campuses to cater for students who had to return home prematurely amid the deteriorating security situation in Fiji (Chandra, Koroivulaono & Hazelman, 2011). A number of courses also utilised technologies such as televised broadcast, video conferencing and audio distance learning (Sharma, 2008) along with a commercial learning management system, WebCT with a few face to face tutorials. According to Bakalevu & Narayan (2010), "Blended learning was an inevitable transition for learning at the USP and fitted perfectly with the organisation's overall operational strategy" (p.1). This mode of delivery later became acknowledged as the blended mode which was formally introduced to the existing suite of modes (Face to face, Print and Online) at USP in 2012. Even after the political situation stabilised, both academics and practitioners of flexible learning realised the need to effectively utilise emergent learning technologies at the USP at the time. Additionally, the realization that such an approach would offer learners an alternative experience to the conventional 'chalk and talk' method, made it appealing. As well, the multiple instructional delivery modalities not only accommodated the learning needs of USP students at that time but also gave lecturers the freedom and ability to meet other tasks and responsibilities (Bakalevu & Narayan 2010).

The problem being addressed

The Centre for Flexible Learning (CFL) at the USP was already at the coal face of flexible learning – developing and delivering distance and flexible learning (DFL) since the 70's. The blended mode was a recent addition to CFL's existing development and delivery portfolio. USP defined blended mode as, "a course that blends online and face-face delivery. Furthermore, a blended course is one where a substantial proportion of the content, that is, 30-70% is delivered online, typically uses online discussions, and typically has some face-to-face interaction between student and lecturer or tutor. Blended courses may also have a (print) Course guide or Study guide and can be offered to both face-to-face and distance and flexible learning students." (USP Handbook & Calendar 2012, pg. 211)

While CFL had a framework around the development of new courses in the print and online modes, the inclusion of the blended mode was challenging in terms of a lack of an organised design practice. For instance, the institutional definition of blended allowed for various interpretations of what a blend may constitute, and teaching staff began devising their own versions of blended with little or no assistance from CFL. In addition, there were institution-

al initiatives by USP to leverage technology which included the introduction of the lecture capture system, which added a dimension of quick fix to proper blending. This paper sets out to explore lecturers' practices to blending courses on their own. As well it seeks to understand the reasons behind their design decisions in the context of USP's regional context. The possible benefits that this paper may provide is in an understanding of how the various blended designs may be accommodated from the point of view of learning design support sections of tertiary institutions. It may identify gaps that professional development opportunities for lecturers need to address, as well as contribute to a cohesive approach to blending, bearing in mind learning that needs to be flexible.

Study design/Approach

The methodological choice to address the research questions for this primarily qualitative paper was emailed questionnaires. Six lecturers from the three faculties (1. Arts, Law & Education, 2. Business & Economics and 3. Science, Technology & Environment) of USP were approached for their contributions. These lecturers were identified from the 2017 USP Handbook & Calendar. Prior to 2017, fewer courses were offered in the blended mode when compared to Face to face, Online and Print modes. However, this is changing as USP started shifting its strategic priorities towards the blended mode. From the listing, two lecturers each from the three faculties were selected. Some had a proven track record working with CFL in the past in terms of course development and have recently blended their courses without CFL's assistance. Others did not have CFL work experience. Participation was purely voluntary with the objectives of the paper explained to them. Five of the six lecturers returned responses.

The interview questions were based around the work of Boelens, De Wever & Voet (2017) who collated several influential studies spanning 2000-2016 on blended learning to identify four key challenges faced. The challenges were:

1. Incorporating flexibility – learners have some level of control over time, place, path, or pace of learning (Horn & Staker, 2014).
2. Stimulating interaction – how to facilitate interaction when transactional distance (Moore, 1993) – psychological and communication space is enlarged.
3. Facilitating students' learning process – enhancing self-regulation skills as a critical factor for success (Van Laer & Elen, 2016) due to increased flexibility and autonomy of learners.
4. Fostering an affective learning climate – Making learners feel safe, accepted and valued and promoting positive attitudes towards the course and the instructor (Tomlinson & Imbeau, 2013).

The interview questions per se were reflective in nature and asked the lecturer to reflect on their blended course as follows:

1. How do you incorporate flexibility for your learners in your blended course?
2. How do you stimulate interaction in your blended course?
3. How do you facilitate students' learning process in your blended course?
4. How do you foster an affective learning climate in your blended course?

As a prelude to the leading questions, lecturers were asked about the concept of blended learning in terms of their understanding and how their approach to blending was driven by the institutional definition and processes, if any they were aware of. The responses were then summarized and thematically analysed according to the four main questions.

Findings

The small number of participants was not sufficient to make any significant generalisations although some interesting findings could be gauged. Understanding of the blended concept varied among lecturers though not significantly different as far as a 'mix and match' approach was perceived. At one end of the spectrum was a rudimentary understanding of blended via word of mouth or observation, to the other end where this knowledge was acquired through formal means/qualification. The approach to blending tended to be based on the specific discipline and what lecturers relied on as content specialists to adequately deliver their content. There was a general understanding among lecturers about the institutional definition of blended either by actual awareness of the institutions' definition or self-referenced sources from peers and the web. Where the grey area existed was in how they interpreted the definition in terms of the liberties they took within the parameters of the blended definition by the institution, e.g. the 30-70% online and possibilities below the 30% or above the 70% which was more relative than absolute.

Incorporation of flexibility among lecturers was based on providing a variety of sources of content, either text based or multimedia from the web. There was some leeway offered in terms of accepting late assessments and fo-

rum postings for remote students. Lecturers also took liberties with flexible pacing of content though admittedly in one case, content provided was quite passive and did not allow for much interactivity. In some cases, students were given a choice of assessment types and topics to choose from. In terms of stimulating interaction, lecturers tried to engage students in discussion forums using topics and tasks that were interesting and relatable. As one lecturer explained, "if students find the question or task interesting and can relate their own lived experience to them, they tend to engage." Additionally, lecturers would build online communities at course level via 'Help & Assistance' forums that allowed students to assist one another. In tutorials, lecturers also assigned points for participation, not attendance. Content provision varied in terms of texts, video and current events to stimulate discussions both on and offline. There was one case of a lecturer that had not got around to stimulating interaction in her blended courses and asked to learn more about this. Facilitating students' learning processes was generally accomplished via the learning management system in terms of how they set up activities and directed students to different types of content and delivery methods. Peripheral support from student learning services in the faculties were also relied on to enhance students' learning. In terms of fostering an affective learning climate, lecturers responded along the lines of student satisfaction and boosting morale. This was by means of responding to and addressing students' queries in a timely manner. They were also given some guidelines and expectations or "boundaries" as one lecturer stated, in order to make them feel they were capable of achieving the required work. Problem solving exercises broached in measured humour was also a strategy used particularly in the case of a lecturer who taught hospitality. Pacific consciousness was also considered in terms of the design of course content and assessments (where applicable) to ensure a positive impact on students' cultural, social and emotional needs and generally to create comfort in the course. One lecturer relied on students' work experiences and their ability to provide real world examples as a catalyst for raising the quality of discussions in tutorials and forums.

Discussion and conclusion

The findings by no means represent the wider view of blended practices at USP due to the small number of participants, but does provide insight into lecturers' thought processes towards blending. Thus, conclusions could only be tentatively stated on the basis of the limited participant responses.

A common theme throughout these findings was the spectrum of work put into blended design and delivery that ranged from a 'barebones' approach, to an all-out plethora of delivery options. This may have been the result of the varied understandings of blended in the first place, which dovetailed into their present teaching practices and varied course design and delivery experiences and practices. In any case, satisfying the four challenges to blended learning may not have been primary considerations to begin with. This unintended lack of consideration may have been due to the lecturers' (limited?) awareness of what was available to blend in terms of available technologies at the USP and more so knowing how to pedagogically apply the technologies despite being aware of them. The flip side of the coin was lecturers knowing exactly what the limitations of the technology options may have been due to the dispersed nature of USP and the challenges that the 12 country institution faced with equitable learning delivery. One thing was certain that despite their varied approaches and understanding of blended, there was a constant student centered focus. This may have played a part in their blended design decisions (awareness of target audience), at least in addition to knowledge of their subject areas and how best to deliver content. The variations in their interpretations of blended present opportunities for further professional development as Torrisi-Steele & Drew (2013) explained to better facilitate the design and adoption of transformative/ effective blended learning packages.

Blended approaches to learning and teaching appear to be fluid at USP, for the most part attributed to systems and processes that were not or are not universally understood or diffused adequately in terms of a methodology. Should there even be a methodical approach in the first place? The dilemma for USP lies in the fact that there needs to be better grounding in terms of a pedagogical launch pad from where lecturers can take omnidirectional approaches from, perhaps on the spectrum of Bonk & Graham's (2005) blended learning systems categories. Therein lay the sense of what the literature alludes to in terms of the various perspectives one could take when examining blended learning as Halverson et al (2014) purported. A reconsideration of the institutional definition may be considered in light of educational technology progress and shifts in the institutional priorities for learning and teaching. The definition of blended came about during a time when strategic institutional priorities shifted focus in terms of mode delivery, though faster than processes could properly be implemented to enable the blended mode. Situational factors, e.g. political crisis as Chandra et al 2011 pointed out in this complex institutional setting may have given rise to the rather flexible approach with which lecturers approached the mode. For that time, the blend reflected what was available or at least what the institution enabled as far as mediating unexpected events on the fly. The learner centered approach may have been an afterthought amidst the priority to deliver some form of learning anyway, but there was a student centered approach nonetheless. As the findings stated, the spectrum of blends was relative to the work lecturers put in to delivering what appeared to their understanding to be a blended course and not necessarily governed by what was pedagogically sound in terms of flexibility, interaction, students' learning processes and an

affective learning climate. This may have been evident to the lecturer in hindsight when the 'mix and match' started to yield variable returns in terms of students' responsiveness to the mode, on reflection of their teaching and perhaps ultimately student results.

The blended mode will be a mainstay at USP as more and more technology enabled learning takes place, and with its regional setting, it makes sense to pursue blended endeavours, whether enabled, enhanced or transformative.

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Paper Title: Te Kura's Big Picture Authentic Learning Pilots

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Practice paper outline

Te Kura has been working through a change management process for the past seven years progressively implementing Big Picture Authentic Learning pedagogy through Te Kura.

Big Picture Authentic Learning at Te Kura is a pedagogical approach to teaching and learning which focuses on each student in their own context and places them and their interests/passions firmly at the centre of their personalised programme of learning.

Authentic learning advisories are part of this process. Te Kura has developed a continuum for Authentic Learning (Big Picture learning) known as Building Blocks:

- Advisory
- Goal setting
- Journalling
- ILP (Individual learning Plan)
- Interest Exploration
- Careers exploration
- Passion projects (research)
- Informational Interviews
- Job Shadowing
- Internships
- Exhibitions of Learning.

Authentic Learning advisories provide the context for students to participate in their Big Picture programme and set and review goals, journal their learning experiences, develop their learning plans, explore interests, passions and careers and share their learning with their peers, teachers and family. The delivery of Authentic Learning involves the development of a personalised learning plan. The personalised plan anchors the learning programme within the context of the student's life, interests and ambitions.

In 2014, after discussions with the Ministry of Education a four-year Pilot was embarked on, supported by the Ministry of Education. The purpose of this trial was to test the value of this approach for high risk students. This presentation outlines the processes we went through for establishment, development, and evaluation of this approach. In addition, the overall student outcomes are presented and contrasted with an appropriate control group.

Stages through the development process will be outlined, including identifying students, establishment of Pilot sites, professional learning for selected staff, development of reporting documentation, development of Individual Learning Plans (ILPs), planning for teaching and learning and scaffolding students through the Building Blocks we have identified for our Big Picture approach.

Introduction

The context for the establishment of a pilot was to trial this approach to support Te Kura's Big Picture Authentic Learning pedagogy with a selected group of students from at risk (exclusion or psychosocial) gateways into Te Kura. These are students who have removed themselves or been removed from face to face schooling as the result of significant health, behavioural or psychosocial issues. The stated aim of the Pilot was re-engagement in learning (towards NCEA level 2), but wider aims include the realising of students' potential, catering for their abilities and needs through a personalised and responsive context-based programme.

The Big Picture Authentic Learning approach was developed initially in the USA. There are now Big Picture Authentic Learning inspired schools around the world and within New Zealand. Te Kura has adapted aspects of this to our New Zealand context while retaining the underpinning philosophy of "one student at a time in a community of learners".

The Ministry commissioned New Zealand's Education Review Office (ERO) to formally review the development, implementation and results of the Pilot through the four years, with a final summative report. This phased evaluation has recently concluded.

The underlying pedagogy for the pilot is our Big Picture Authentic Learning approach at Te Kura which comprises a set of Building Blocks. The development of an Authentic Learning Big Picture approach is supported through Te Kura's internal research, as well as current work around the world on student centred experiential learning.

The students for the pilot were selected because of their identified risk and age. They were drawn from sites identified across New Zealand which could provide up to twenty students in an advisory space. The students learn through Te Kura's blended approach to delivery; some face to face time where students' passions and interests are explored and learning in the community explored alongside on-line learning, and secondary-tertiary opportunities.

Each of the four Te Kura Regional Managers was responsible for supporting the advisories on a day to day basis, making decisions about staffing and how best to support their pilot site(s) and utilise their allocated funding. Overall management was with the Development Manager and a Pilot Advisor, as was document development, reporting, evaluation, budget and professional learning for staff. A governance structure supported the pilot's on-going and evolving development and oversaw progress and reporting tools including quantitative and qualitative reporting.

The four-year journey has provided challenges and significant opportunities for students, whanau and learning advisors as they have increasingly worked collaboratively to support each student at the centre of their own learning. Learning programmes based on student passions and interests, grounded in student context, enabled additional learning in the community through secondary-tertiary opportunities and steps towards internships has supported student and whanau agency.

The practice under scrutiny

We are three and a half years into this journey, and the Education Review Office (ERO) has just completed their final summative report. The journey has, like all journeys, provided huge opportunities and some challenges for all involved.

The final ERO report highlights a programme which has evolved and is making significant progress over time. The student results have been nothing short of transformative. Students have thrived in this programme. The benefits to students include significant academic improvement and achievement, wellbeing improvements, enhanced whanau relationships, enhanced relationships with their Te Kura teachers, employment and tertiary study.

A clear framework for the pedagogy and reporting requirements provided all Learning Advisors with a common plan for each of their advisory programmes (including the Building Blocks). A key learning here was that some Learning Advisors love a plan and can work to it. Others resist a plan until they see the evidence from others that it, in fact, works for the students and whanau. Part of this evolution has meant bringing staff involved with each pilot site together to share practice and stories, to hear from students and to hear from each other, and to analyse data and consider next steps in practice for improvement, and sending coaching staff into each pilot to observe practice and strategize with the staff next steps. As a result, the learning for teachers involved in the pilot has been huge.

It is noticeable that our reporting evolved over time, with initial focus on quantitative data, and then into the development of qualitative measures (including Wellness indicators) and progressions through Building Blocks. This occurred as it became clear that capturing personal growth and development was as important as achievement data. As we progressed we captured more student and whanau voice.

A significant learning was the real importance of developing positive relationships within all pilots: staff, students, whanau, external agencies, Iwi groups, wider Te Kura staff.

We will share many of these examples.

Discussion/conclusion

- Students achieving at twice the rate of the non-pilot control group.
- Students remaining on the roll and returning significantly more work than the control group
- Exit data from Pilot students showing that all students who left the Pilot went into further education, training, apprenticeships or work.
- Students self-assessed positive increases on Wellness indicators
- Positive student and whanau voice
- Reported increased job satisfaction of pilot staff

Take home message

- Teaching and learning practice that places the student at the centre of their learning, with a caring and supportive advisor who actively listens to and responds to each student makes a significant difference to that student and whanau in terms of their wellbeing and achievement.
- From the ERO report: "EROs findings indicate that Te Kura can show substantial achievement and progress by students who have enrolled in the Pilot."

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Te Kura Building Blocks (poster)

Education Review Office: Te Kura Pilot Evaluation Phase Four, September

Paper Title: Simple Interventions using Learning Analytics

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Submission

This paper reports how simple interventions using learning analytics data can enhance the student experience. The interventions came from a case study that used learning analytic tools in a first-year/undergraduate health science course at a New Zealand university. The course was an introduction to scientific concepts relevant to human health, and consequently has a diverse student cohort including nursing, health science and sports and exercise degrees. The course is a campus based experience with lectures and laboratory-based practical sessions complemented by a Moodle online learning environment.

Interventions suggested as a result of the study fall into two broad categories:

- i. Reactionary interventions with immediate effects/goals (student engagement), and
- ii. Reflective interventions with a reflective-practice/long-term view (course design).

The authors suggest that learning analytics data can provide quantifiable measures of student engagement in an easily-accessible and timely manner. Furthermore, simple actions taken as a result of information garnered by learning analytics can have pronounced effects on the student experience. Such interventions can be successful on two levels. At the student experience level by having the potential to help students who may need either extra support or extra stimulation, and at the design level by helping educators identify and implement best-practice techniques, and ultimately create more effective student experiences.

Introduction

This case study used a campus based course that had learning analytics to help teachers reach out to students who need extra support. Other papers suggest that learning analytics can improve student success. Sclater and Mullan (2017) found that learning analytics can identify at-risk students and those that were provided with an intervention did better than those who were not. Liu, Froissard, Richards and Atif (2015) investigated the Moodle engagement analytics plugin and found that it can predict academic performance. They found that the system could predict success although there was a margin of error especially early in the course.

The case study explored how to create more effective course designs by being informed by learning analytics data. Lockyer, Heathcote and Dawson 2013 outline how learning analytics can help refine course design. They used a snapshot approach that identifies students' use of resources and activities. This insight allows the teacher to plan further teaching or refine the course for the next cohort.

The problem being addressed

Tertiary organisations want to improve the number of students who complete courses. This will have financial benefits for the student and the educational organisation. There are also emotional benefits such as improvements in self-esteem for the students (Chemers, Hu, & Garcia, 2001). A key part of improving completion rates is to improve student engagement (Zepke & Leach, 2010). Teachers can use learning analytics data to do this by improving communication with students and through refining course design.

Study design/Approach

Case Study

The case study was based on a first-year health science course that is an introduction to scientific concepts relevant to human health. It is a foundation course for nursing, health science and sports and exercise degrees. The course was campus-based with a face-to-face component of lectures and laboratories with a Moodle Learning Management System (LMS) component, to support learning and provide some of the assessments. The LMS components include quizzes, forums, useful resources, short videos of lecturers outlining key points, links to relevant websites, assignment submission and feedback, and course administration such as grades. The assessments were two online tests, a group presentation and a final exam. The course had 159 students and of these 123 passed, 12 withdrew and 24 failed. This pass rate of 77% is similar to other offerings of the course in previous semesters.

Data used was mainly from the student log data that is automatically collected in the LMS. Each click is recorded to show what students are viewing or doing and timestamped to show when they do it. It is important to highlight what the lecturers consider most valuable within the LMS that will indicate good learning. There were a number of data points within the LMS used in this course that lecturers were interested in analysing. These included the pattern of student use, especially lack of use, access to recommended resources such as the course guide, and use of activities such as quizzes and forums.

At-risk students were of particular interest to lecturers, so a number of criteria were determined in order to identify such students using learning analytics tools at various time-points during the semester. First the lecturers identified activities and resources that they wanted the students to access on the LMS by each time-point (Table 1). These data points were crosschecked using the previous cohort's use of the LMS. This indicated associations between the regular use of the LMS and the use of quizzes and the final marks.

Table 1 outlines the items that made up the data points in the case study. These items were formed into a risk rating for each student. The students who got high risk ratings generally did not use the LMS or had low assessment scores.

Table 1. Components of the risk rating during the semester

Semester time-point	Measure of Engagement
Week Two	<ul style="list-style-type: none"> • Overall use of LMS • Days since last login • Use of course guide • Use of Quiz • Absent from laboratories
Week Five	<ul style="list-style-type: none"> • Overall use of LMS • Days since last login • Score for first assessment • Absent from laboratories
Week Eight	<ul style="list-style-type: none"> • Overall use of LMS • Days since last login • Score for formative tests • Absent from laboratories

Findings

Actionable Insights

Actionable insights resulting from the case study are presented as interventions/actions taken as a result of information garnered using learning analytics. Interventions suggested fall into two broad categories: Reactionary interventions with immediate effects/goals (grounded in student engagement), and reflective Interventions with a reflective-practice/long-term view (course design).

Reactionary Interventions

The reactionary interventions suggested are those with immediate effect, and are grounded in improving the engagement of individual students. They allow for tailored individual responses to students by using learning analytics to identify i) **Who** is not engaging, ii) **Why** are they not engaging, and iii) **What** are they doing/missing out on/what can we do to help? These interventions, and the learning analytics data that led to them, are discussed below:

i) Who is not engaging?

In the case study, students identified as being at-risk had lower pass rates (51% vs. 82% for at risk vs. not at risk students, respectively). The students who were identified as at-risk early in the course (week 2) had higher pass rates than those who were identified later (68% vs. 38% for at-risk students at weeks 2 vs 8, respectively). These data add to evidence from the literature of the importance of early intervention (Jayaprakash, Moody, Lauría, Regan & Baron, 2014; Wolff, Zdrahal, Nikolov & Pantucek, 2013).

ii) Why are they not engaging?

Learning analytics can identify who is not engaging and then it is up to the lecturer to find out why. Personal contact is a powerful tool in a teacher's armoury; highly valued by students, it can lead to a marked increase in engagement (Fitzgibbon & Prior, 2003; Krause & Coates, 2008). A simple personal intervention employed in the case study was to send an individual email from the Paper Coordinator to each at-risk student. Although simple, this inter-

vention led to large increases in markers of engagement; for example, in week 5 the at-risk group had an average use of the LMS of about 20 downloads and this increased to almost 100 downloads after the email intervention.

iii) What are they doing/missing out on/what can we do to help?

Learning analytics can not only show how much a student is engaging, but also what they are engaging with. Staff can then act on this information to help guide at-risk students' immediate study, enhancing their chance of success. For example, in the case study students who received an A grade used the quiz tool more than those who failed, at an average of 222 vs. 77 times used, respectively. This is a loose association as the difference between the C grade and fail is small (129 vs. 77 times used), but one that has also been reported elsewhere (Thomas et al., 2016). Prompting the use of such effective learning tools can theoretically provide at-risk students with an improved chance of success.

In summary: Learning analytics data demonstrated the potential benefit of early intervention of students who needed extra support, so that contact could be made to encourage them to get back on track with their study, and individual plans devised. The case study indicated that the process did encourage students to make greater use of the LMS.

Reflective Interventions

The case study highlighted ways that learning analytics can help with reflective practice and subsequent course design. We suggest a four-step plan below to integrate learning analytics to refine course design.

i) Identify Course Objectives

In order to utilise learning analytics to refine course design, teachers should first consider the objectives of the course and what they want from the LMS. Only once these have been clearly identified can the next steps follow. In the case study, the aims of the LMS were to i) supplement face-to-face teaching, ii) provide opportunities for concept clarification and further individualised learning, iii) provide students with tools to gauge their own learning progress, and iv) facilitate communication between students, peers and staff.

ii) Assess: are these currently being met?

After identifying specific objectives, teachers can then use learning analytics data to see if these are being met. For example, in the case study one aim of the LMS is to encourage student/peer communication outside of contact time, yet the specific tool in place for this (student café forum) showed low use, suggesting that this particular objective was not currently being met. This then leads into the next steps, reflective practice and subsequent effective change.

iii) Reflect on current contents

Learning analytics data can be used to identify and remove unused/unpopular elements of a course (for example those with low usage). This can help prevent overload of information for students, and streamline their focus, or provide scope to replace the element with a more useful tool.

Conversely, such data can also be used to reflect on the success of a particular learning tool, and identifying the need to encourage future student participation in that tool. For example, in the current case study this would be to reflect on how to encourage future cohorts of students to use self-test quizzes, as they were associated with higher pass rates.

Furthermore, learning analytics data can also help teachers identify time-points during the semester where engagement is low, and subsequently i) review content for that time, and ii) explore ways to improve engagement at

these points? For example, is there a clash with the demands of other papers at this time? Are there other course assessments that are taking priority at this time? Do I need to reconsider what content will be covered at this point?

iv) Action effective change

Course redesign takes time, but with the insight of learning analytics data teachers can ensure that their time is best spent on efficient changes that will ultimately improve the student learning experience. In the current case study, lecturers reflected on the success of self-test quizzes and redesigned the layout of their online learning environment to make them more prominent. They also made a point of directing future students to these quizzes more frequently, often including direct links as part of a weekly message detailing suggested study tasks. Furthermore, such quizzes have been developed and implemented into other health science papers within the university, providing important continuity of learning tools for students.

In summary: Learning analytics data identified what students were using in the LMS. This evidence can guide the design of the course by identifying LMS tools that are not used and rethinking how they are presented. The learning analytics data should be checked with other evidence such as student surveys asking the how they used certain tools, and whether or not they found them useful.

Discussion

The focus of this case study was to understand how to use learning analytics data and identify simple learning analytics-based interventions that teachers can apply. In particular, this case study looked at ways to encourage students who need extra support and using learning analytics data to refine the course design.

Teachers aim to provide high-value learning activities that help learning. Learning analytics offers teachers the opportunity to identify how the students are progressing and to offer extra support to those who may need it. Students need to do meaningful activities to learn. The approach used in this case study of learning analytics is that data may indicate what the students are doing (or not) and thus give the teacher an insight into their learning. Checking that students are making use of the learning opportunities that are offered will give one measure of effectiveness. If the activity has low use but is deemed to be important to student success, the teacher could discuss with students how to make the activity more relevant.

There are limitations to the approach of using learning analytics data. The data tells what the student viewed but not what they did with it. Counting the number of times a quiz question was attempted does not tell you how engaged the students were in their attempt at an answer. Analytics are one measure but not a definitive indicator of student engagement; perhaps the best solution comes from integrating learning analytics data with other data such as feedback from students and assessment information.

It was speculated that more students would pass the course as a result of the interventions described in this study, yet the pass rate was similar to previous years. There was encouraging evidence of increased student engagement after the intervention, with increases in use of the LMS, but this did not seem to follow through to the pass marks. Perhaps the benefits of the simple LA framework and interventions described in this paper are in what it can bring to future cohorts. The inclusion of LA data allows for thorough, informed reflections of course delivery to take place each year. Implementation of such reflections in future delivery can improve the learning experience for all students, and should see an increase in pass marks of future cohorts, in accordance with critical thinking/reasoning cycles (evaluation of outcomes/reflection on process and future delivery). In this case, this might suggest that the *Reflective* interventions discussed could have greater tangible impact than the *Reactionary* ones? A not unsurprising outcome given the longer time-frame upon which to implement them.

What of the *Reactionary* interventions then, should they be ignored? No! One cannot lose sight of the fact that these are individual students we are working with, and improving the engagement and learning experience of just **one** "at-risk" student would make the intervention a success! The data reported in this paper supports that of

evidence in the literature, suggesting that identifying and engaging at-risk students earlier in the semester is important for their future success, perhaps again suggesting that the longer time-frame an individual has in which to address their engagement, the more successful they can be.

The data processing tools within Moodle were limited. The risk ratings were processed using pivot tables within a spreadsheet outside of Moodle. Once a list of students who were identified as at-risk was obtained a mail merge process was used to send out the emails to students. This was a time-consuming process, which many lecturers simply would not have the time to do. Tools such as the Student Relationship Engagement System tool (McDonald et al., 2016) would make this a far more efficient process.

It is important to consider the ethical use of data. An important issue is transparency, in this instance telling students what you are doing. Students may not be aware that their engagement can be monitored. The aim is to help students be successful. Teachers do not want students to withdraw from a learning environment because they feel monitored.

Conclusion

In implementing the simple interventions outlined in this report, teachers can use learning analytics to help students succeed. The data offers opportunities to improve contact between teachers and students as well as reflections into the impact of the course design.

Staff members need support to integrate learning analytics into their teaching. Organisations can help with effective policies to help staff be clear about the purposes and benefits of learning analytics and the processes involved. Organisations can setup the infrastructure so that teachers can access and use the data, and then provide training and support on how to use the technology (such as the simple interventions outlined in this paper). When this is in place the benefits of learning analytics will flow into the learning.

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Paper Title: Keeping it real! Workplace training for online learning support personnel at the USP

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Practice paper outline

This paper focuses on a training programme designed to upskill online learning and teaching support personnel of the University of the South Pacific (USP), Laucala Campus, Fiji. The support personnel in this regard consisted of eight staff that come under the Centre for Flexible Learning (CFL).

They were called upon to provide Moodle support to faculty staff at the USP one month prior to the start of a new semester in 2015 and swift measures had to be taken to ensure that they were well prepared for the task. The group have had prior exposure to Moodle through training sessions however these prove to be ineffective in ensuring that knowledge and skills attained were sustained given that it was more awareness in nature without the necessary application that is vital for anyone intending to learn new technological knowledge and skills.

The training programme designed refocussed its approach with the ultimate goal of situating the learning; embedding knowledge and skills that were sustainable to ensure optimal work performance by the group in focus.

Feedback mechanisms were put in place to monitor the effectiveness of the training programme indirectly; taking into account the feedback from the recipients of the technical Moodle support provided and directly through informal discussions with the group during the provision of support and also towards the end of the semester. The feedback received was positive on both indirect and direct points and further request was provided by the team to continue with this training approach to further enhance their support delivery.

Introduction

The University of the South Pacific (USP) is a regional university that is owned by twelve Pacific island countries. It has campuses located in all its member countries with the three main campuses located in Fiji, Vanuatu and Samoa. The USP has offered courses in the distance mode since 1971 and in the last ten years begun offering online courses through the use of Moodle as its learning management system. The Centre for Flexible Learning (CFL) is the unit within the university that facilitates the design and development of courses that are offered through the online and distance mode working very closely with content specialists located in the faculties. In addition, it is responsible for providing technical Moodle support and training to faculty and other sections of the university that utilise Moodle in their work.

Education Technologists (ETs) are responsible for the provision of technical Moodle support and training for faculty however a decision was made in 2015 to involve Electronic Publishers (EPs) within the unit in this task one month prior to the start of semester. It became quite crucial that EPs were well prepared in providing such support and it was upon this premise that the author was tasked to design a training programme that could meet this need.

The nature of technical support provided would largely involve troubleshooting technical issues that faculty faced and also conducting one to one consultations on aspects of Moodle that was not familiar to faculty. This may occur either through face to face interactions, email or through the phone.

Given the practical nature of the task it was critical that the learning derived from the training programme was situated and authentic ensuring that knowledge and skills attained was sustainable to ensure optimal work performance. It is upon this premise that it was decided that an approach based upon the theory of situated learning

was applied. Situated learning according to (“Situated Learning (J.Lave)”, 2015) is a theory that is premised on the acquisition of knowledge in an authentic setting and where social interaction and collaboration are required.

This approach has been found to be effective in practice-based fields with a particular focus on honing problem solving skills (McLellan, 1996) that is ideal for technology support training.

The practice under scrutiny

The training programme had three outcomes to achieve for the group as follows:

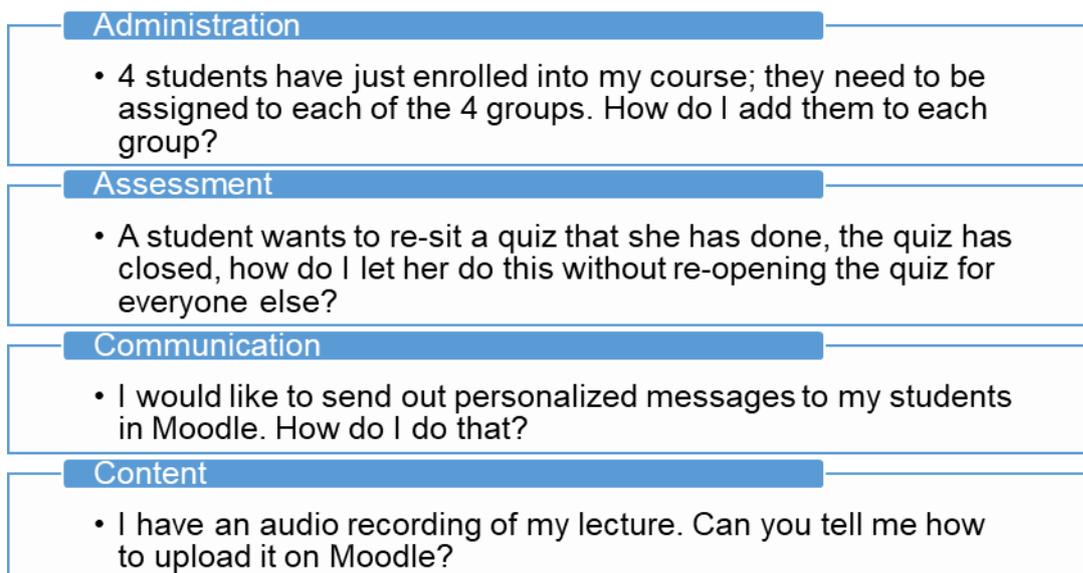
- (1) demonstrate awareness of the types of Moodle support that was required;
- (2) demonstrate knowledge and skills necessary for responding to Moodle queries that are prevalent in courses; and
- (3) model appropriate communication courtesy and etiquette when responding to Moodle queries through f2f, phone and email interactions.

The practice will be further explained based upon the two elements of situated learning theory mentioned in the previous section namely (a) acquisition of knowledge in an authentic setting and (b) social interaction and collaboration.

(a) Acquisition of knowledge in an authentic setting

The acquisition of knowledge in an authentic setting involved the group going through an e-book located within a dedicated training site on Moodle. This had a dual intent that is to acquire the knowledge required and allowed the group to practice using the Moodle system.

To further authenticate this process, scenarios were created derived from real-life examples collected from Education Technologists (ETs) who were the initial providers of Moodle technical support for faculty. These were categorised into four depending upon the nature of Moodle query namely; Administration, Assessment, Communication and Content. The diagram below provides a snapshot of the type of scenarios that was created.



Once these scenarios were finalised and made available to the group through the Moodle platform, an additional blend of the use of Google mail and face to face sessions were incorporated which was necessary to enable the group to be able to achieve the outcomes of the programme in particular Outcome (3): model appropriate communication courtesy and etiquette when responding to Moodle queries through f2f, phone and email interactions.

A fictitious character resembling that of a faculty staff was created and given the name Professor Morrison. The face to face sessions allowed the group to not only demonstrate their knowledge of Moodle but to also be able to model appropriate courtesy and etiquette when responding to Moodle queries face to face and through the phone in interaction with the fictitious character of Professor Morrison. The author took upon this role.

The scenarios highlighted earlier were used as basis of modelling this behaviour. ETs volunteered to act as assessors for these sessions and gave instant feedback on how each group member performed.

The face to face sessions were followed through on email with use of Gmail. In this case, each group member received an email from Professor Morrison based upon the list of scenarios mentioned earlier. A response to the scenario was made by each group member. An example of such an exchange is provided below.

Email from Professor Morrison

[REDACTED]
To: CfI Workshops <cfworkshops@gmail.com>

22 June 2015 at 11:

Dear Professor Morrison,

My sincere apology for not responding to you on time, as I was away on sick leave on Thursday and Friday last week.

Further to your email below please find attached the Instructions that you have to follow to attend to your queries below.

If you have any further clarification please do not hesitate to call me or email me.

Thank you once again for your patience and understanding.

Many thanks

[REDACTED]
[REDACTED]
Centre for Flexible Learning
2nd Floor, Communications Building
Email: **[REDACTED]**
[REDACTED]

[REDACTED]
To: CfI Workshops <cfworkshops@gmail.com>

22 June 2015 at 11:

Dear Professor Morrison,

My sincere apology for not responding to you on time, as I was away on sick leave on Thursday and Friday last week.

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If you have any further clarification please do not hesitate to call me or email me.

Thank you once again for your patience and understanding.

Many thanks

[REDACTED]
[REDACTED]
Centre for Flexible Learning
2nd Floor, Communications Building
Email: **[REDACTED]**
[REDACTED]

CfI Workshops <cfworkshops@gmail.com>

18 June 2015 at 17:22

To: **[REDACTED]**

Hi Mili,

I called today but I was told that you are not feeling well. I hope that you are feeling much better now.

I have two questions with regard to Moodle.

1. One of my colleagues told me that he was able to send out text messages to students from Moodle. How do I go about doing this?
2. How can I present my course notes in a book format? One of my colleagues mentioned that this is possible in Moodle.

Thanking you kindly for your help, Prof. Morrison

To: [REDACTED]

Hi Mili,

I called today but I was told that you are not feeling well. I hope that you are feeling much better now.

I have two questions with regard to Moodle.

1. One of my colleagues told me that he was able to send out text messages to students from Moodle. How do I go about doing this?
2. How can I present my course notes in a book format? One of my colleagues mentioned that this is possible in Moodle.

Thanking you kindly for your help, Prof. Morrison

Email response to Professor Morrison

The email activity was then followed by one to one sessions with assessors who provided feedback on how each scenario was responded to. The assessors were provided an email scenario rubric to guide their assessment and this is provided below.

Moodle Scenarios - E-Mail (Formal) Rubric

CRITERIA	COMMENTS	
Format & Structure	Clear and appropriate subject in subject line	
	Appropriate greetings	
	Professional email address	
	Sans serif font between 10-12	
	Professional signature line	
Content	Clear brief descriptive message. Thoroughly explains purpose.	
Mechanics (grammar, spelling conventions, capitalisation, punctuation)	no errors	
Tone	Tone and diction perfectly suit the purpose	
Overall Comments:		

(b) Social interaction and collaboration

The training approach used compelled the group to actively interact and collaborate with each other where they deliberated on the scenarios given and provided each other feedback on the best approaches to utilise. This continued after the workshop during the period when the support was given by the group to faculty staff.

Discussion/conclusion

The training approach used was found to be effective to enable the group to acquire and sustain knowledge and skills in the provision of Moodle support. This was substantiated through indirect means through feedback received from recipients of Moodle support and also through informal discussions held with the group during and after the support period. The feedback was positive through both means which suggests that the training design approach used was effective. Furthermore, an additional request was put forth by the group to continue this approach for future training programmes.

Take home message

The title of this paper begins with the phrase, "Keeping it Real" and this sums up the core take home message that the practice under scrutiny wishes to share. In any efforts made to bridge knowledge and skills gap in the workplace with use of training solutions, much effort must be devoted to making these real and authentic to employees that will ensure that these are sustained and ultimately result in optimal work performance. This shared practice is one such way that this can be realised.

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Paper Title: The co-evolution of schooling and digital technologies; changing roles and responsibilities

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Abstract

Effective strategies that enable innovation require management of change that is coherent across boundaries; unexpected adverse outcomes must be expected when the interaction of overlapping ecosystems is incoherent. An analysis contrasting three types of learning spaces, including learning online and ILE, clarifies why maintaining safe spaces for learning and teaching is becoming increasingly challenging for all those involved. Davis' Arena Framework was deployed to uncover the complexity of the co-evolution of classroom teaching with digital technologies. The complexity spans the globe, and interaction between local and global ecosystems continue to increase with resulting changes in roles and responsibilities. ILE now add to this complexity bringing increased expectations of co-teaching. Challenges are increasing and this paper aims to increase the understanding so that teachers' roles and responsibilities become more reasonable and sustainable and so that cultural and internet safety can be increased in this and other countries worldwide.

Introduction

Since 2000 spaces for schooling have rapidly co-evolved with learning technologies to accommodate complex configurations of activities, tools and people in various roles. Pedagogical decisions require teachers to negotiate roles, and to balance their individual preferences with their collective responsibility to support student learning (Timperley, Wilson, Barrar, & Fung, 2007). This can lead to misconceptions of the roles and responsibilities of students, teachers, administrators and support staff including policy makers. Davis' (2008) Arena framework has been designed to enable better understanding of the complexity of this co-evolution in a way that enables leaders in all levels of the educational system to appreciate these changing roles and responsibilities and the challenges that are increasing.

The problem being addressed

Rapidly changing societal and learner expectations along with the emergence of new technologies are changing how people learn. In Aotearoa New Zealand the Ministry of Education following OECD (2015) findings has stimulated organisational changes in hundreds of schools with the requirement for innovative learning environments in schools that are being built or refurbished. In contrast, in the USA a major change has been the rapid spread of online courses offered into schools; although that innovation that has also increased in New Zealand and uptake may increase with the potential spread of communities of online learning across New Zealand schools. Both of these innovations cause a rapid evolution of the roles and responsibilities in schools and the problem is that the resulting complexity is often misunderstood.

This paper argues that, although the most influential keystone species in education is the teacher, it is important to guide them and other leaders to become more intentional in their behaviour in order to achieve the expected gains in educational outcomes. Effective strategies that enable innovation require management of change that is coherent across boundaries; unexpected adverse outcomes must be expected when the interaction of overlapping ecosystems is incoherent. Establishing and maintaining safe spaces for learning and teaching is becoming increasingly challenging for all those involved.

The Approach

The ecological approach taken in this paper maps ecosystems and their interactions. This application of human ecology to education is described in detail in Davis (2018), which presents the Arena Framework with a range of illustrations. The most relevant illustrations for this paper are the chapters on the ways in which digital tools enhance quality learning and the chapter about change in primary and secondary schooling with online teaching. Farshad Nia and Davis (2017) deploy the Arena in this way to clarify the challenges for an ESOL teacher in a New Zealand secondary school.

Findings

The findings are presented in two parts. First we limit ourselves to the perspective of one course or classroom to contrast the very different roles and responsibilities that tend to be exhibited in three learning environments. The second part puts the class within the evolving global ecosphere of education that includes the digital world.

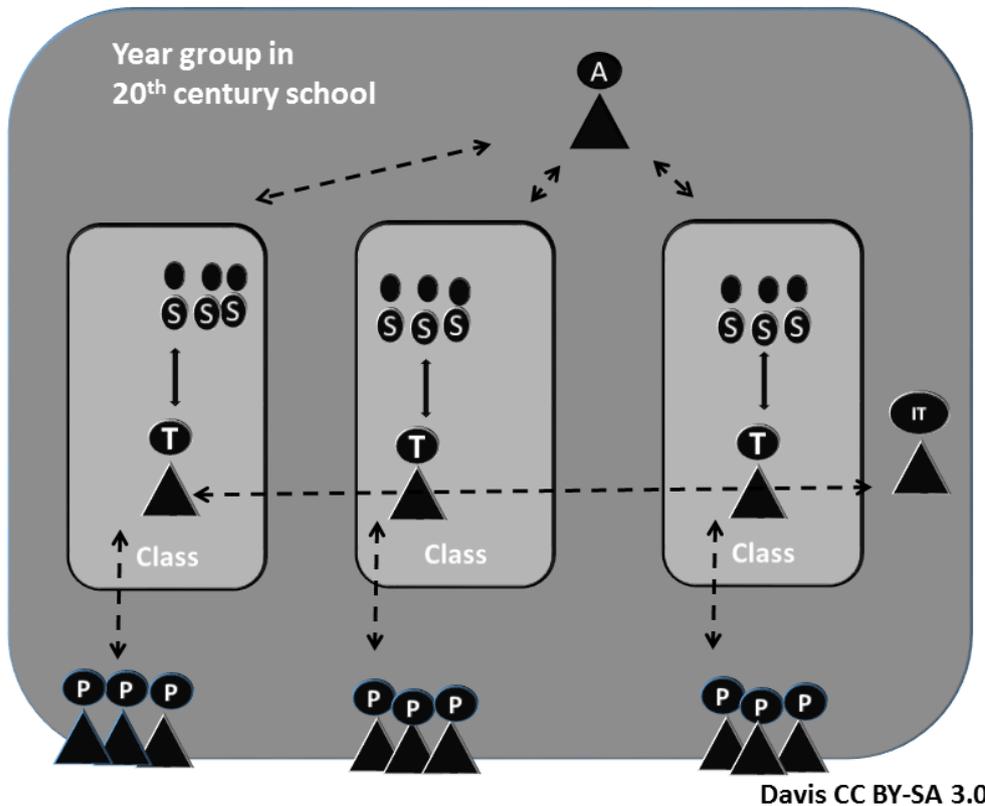
The three learning environment that are contrasted are:

1. A 'single cell' classroom that common in the USA and New Zealand
2. An online course classroom in which school students learn with a teacher and students who are not on their school premises
3. An innovative learning space (ILS)

A course in the traditional 'single cell' classroom is delivered by a teacher who manages the curriculum, resources, and activities including assessment. Towards the end of the 20th century, many more students with special educational needs were included in mainstream classes. Teaching assistants, commonly referred to as 'teacher aides' in New Zealand schools, often joined the teacher to provide support to one or more of those students. The classroom

teacher, however, continued to establish the culture of his or her classroom. Figure 1 depicts a layer of single cell classrooms within a traditional

Figure 1 Roles and responsibilities in a 'single cell' classroom that was most commonly found in schools in 20th century Aotearoa New Zealand

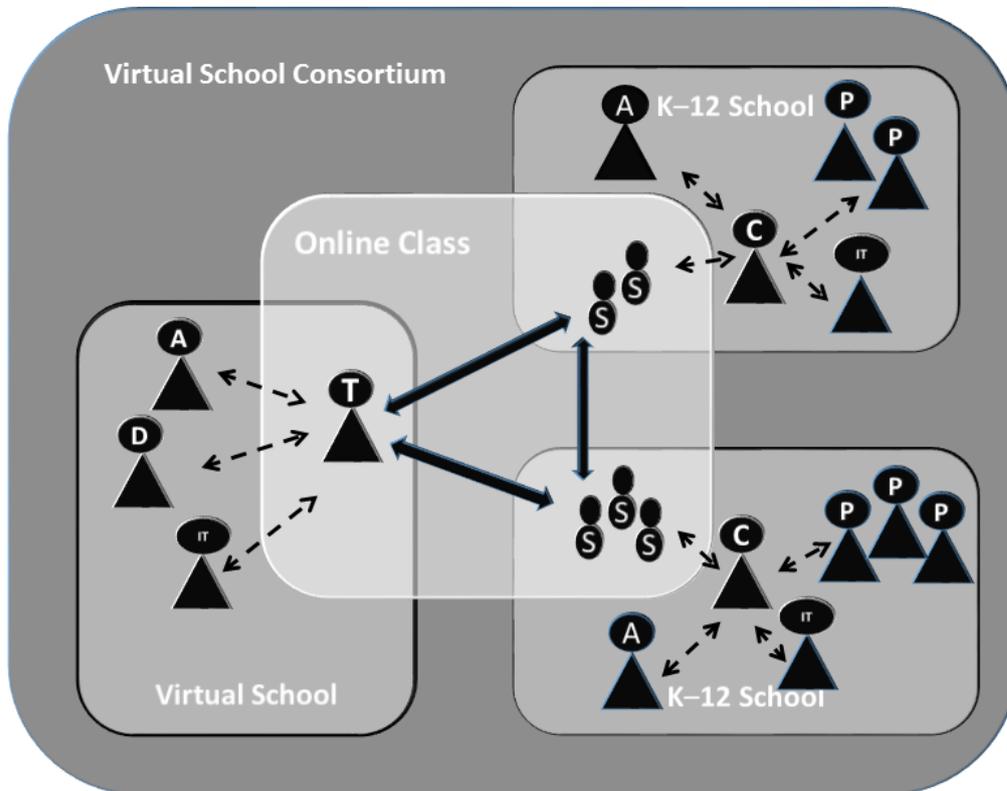


Key: **A** administrator; **IT** technician; **P** parent or guardian; **S** student; **T** teacher. The dotted line indicates sporadic communication, whereas the unbroken lines between the teacher and students indicate that communication is ongoing.

When a course is delivered online in virtual schooling there are changes in the roles and responsibilities because students are not in the same physical space as their teacher, and students are also distributed across multiple schools. While there are many different arrangements, one of the most common is for the virtual school to set the pedagogy and culture, which is to say the culture in the online class. This is likely to involve the construction of an online course shell loaded with curriculum content and assessments by a team including an instructional designer, as well one or more content experts. The whole process is subject to the school's quality assurance processes. The delivery of the course is likely to involve different and/or additional teachers who rely on learning facilitators on the staff of the schools in which students are physically located, to provide front line support and liaison with parents. Thus, the role that a teacher in a single cell classroom had in the past has become decoupled across three people: teacher(s) with content expertise, instructional designer, and a learning facilitator who may also be a teacher in the same location as one or more students in the class. Given the need for administrative leadership and technical support, those roles are also present in all of the organizations. The roles and responsibilities in a virtual class, offered by a Virtual School as a supplementary course for students in other schools, is depicted in Figure 2. The solid line depicts ongoing communication, while the dotted line depicts sporadic communication.

Davis and Niederhauser (2005) contrasted two case studies of online teaching of high school physics, one similar to Figure 2 where a service offered the course to multiple schools, and the other where schools shared one science teacher. The major difference was the imposition of an additional culture by the virtual schooling service, rather than the teacher adjusting to the culture of the school in which the students were situated. While the course involving the

teacher in an Australian virtual schooling service was similar to that of a 'single cell' classroom as in the ILO case, the online teacher in his USA classroom made great efforts to fit the culture of the distant school that he taught at a distance through video conferencing, while also retaining the culture of his own school for his face to face class. Descriptions of the practices in other virtual schools, such as the well documented Virtual High School (Zucker & Kozma, 2003), indicates that that they can vary a great deal; others may be glimpsed in the "keeping pace" reports (Gemin et al, 2015) and Bacsich et al's global review (2013).

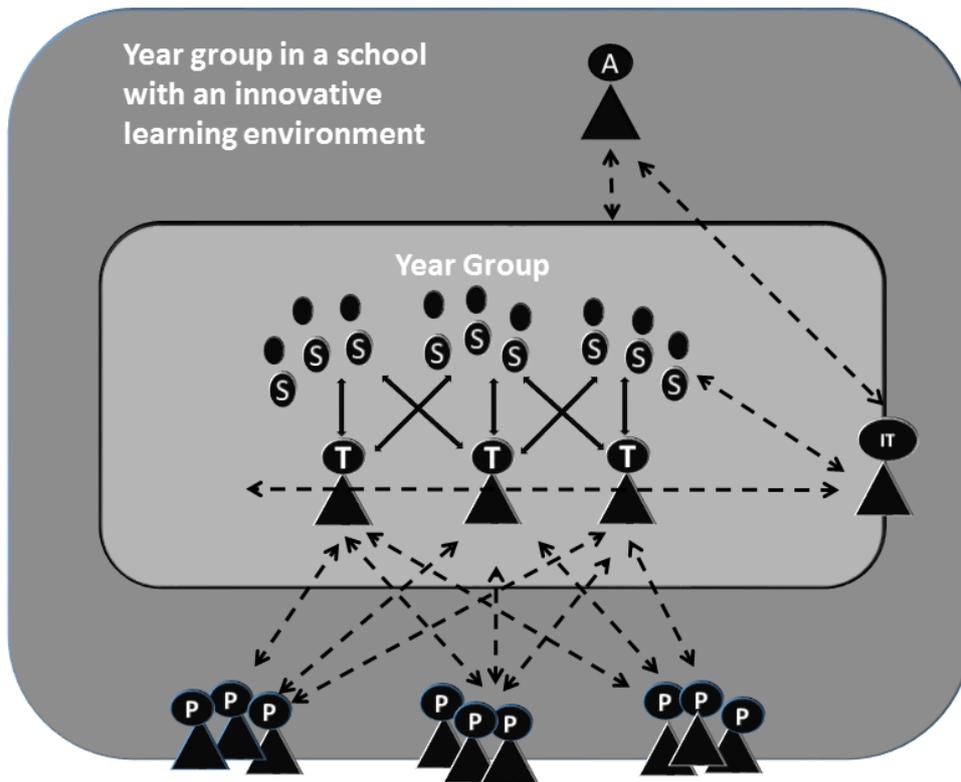


Davis CC BY-SA 3.0

Figure 2. The roles and responsibilities for an online class offered by a Virtual School as a supplementary course for students in other K-12 schools.

Key: **A** administrator; **C** coach; **D** instructional designer; **IT** technician; **P** parent or guardian; **S** student; **T** teacher. The dotted line indicates sporadic communication, whereas the unbroken lines between the teacher and students indicate that communication is ongoing.

In 21st century schools with innovative learning environments, a layer of single cell classes are merged into one flexible space where the teachers and teacher aides collaborate to promote self-managed learning as shown in Figure 3. In contrast to the autonomy of the teacher leader in the single cell classroom, the teacher leader in the co-teaching space promotes a culture with student autonomy, shared leadership, and collective responsibility for learners. Teachers working in these innovative learning environments commonly adopt strategies such as alternate teaching, station teaching, parallel teaching, one teach and one observe, one teach and one assist, team teaching, complementary, and supportive co-teaching (Friend & Cook, 2010; Villa, Thousand, & Nevin, 2008). Collaborating teachers typically share responsibility for all students' learning and well-being in the space, referring to 'our learners' rather than taking personal responsibility for smaller sub-groups (Mackey, O'Reilly, Fletcher, & Jansen, 2017; O'Reilly, 2016).



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Figure 3 Roles and responsibilities in an innovative learning environment

Key: **A** administrator/school principal; **IT** technician; **P** parent or guardian; **S** student; **T** teacher. The dotted line indicates sporadic communication, whereas the unbroken lines between the teacher and students indicate that communication is ongoing.

The contrast between these three learning environments is clear to see with the depiction of these three ecosystems. There is no doubt that the co-evolution has increased the complexity of schooling. One final illustration is now presented to put this complexity within Davis' global Arena. Figure 4 depicts an ESOL teacher in her 'single cell' classroom at the centre of a Davis Arena Framework to exhibit the complexity of interacting ecosystems with even the simplest of the three ecosystems contrasted earlier. The challenging complexity of this ESOL teacher's classroom practice is described in Farshad Nia and Davis (2017). In this example digital technologies play an integral part in supporting students' language learning, and the complexity is evident in the way digital resources span ecozones from classroom to global levels. The ESOL teacher requires the understanding and capability to engage with a variety of technologies within and beyond the classroom while simultaneously working with the multiple actors, tools, policies and practices that impact their work.

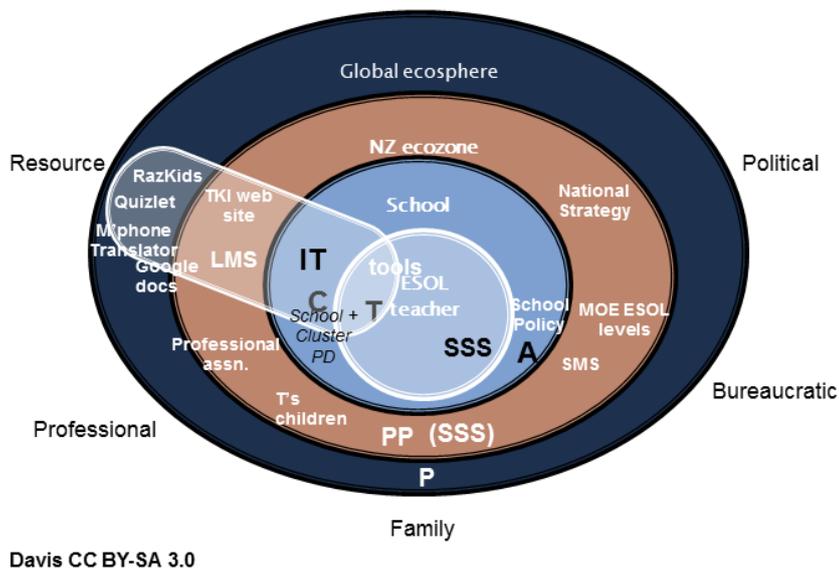


Figure 4. An ESOL teacher at the centre of the Arena of change with digital technologies within the global ecosphere of education and digital technologies.

Key: A, school principal; C, colleague; IT, technician; MOE ESOL levels, Ministry of Education’s levels of English linked to ESOL funding; Moodle LMS, Moodle Learning Management System; M’phone, mobile phone; PPP, students’ parents; Quizlet, Cloud based quiz software; RazKids, a Cloud based reading software used to provide appropriate reading exercises for students at home and in class; SMS, student management system used by the school; SSS, students (students at home); T, the ESOL teacher.

The possible configurations of physical and virtual learning spaces, digital technologies and people are endless, and the complexity increases as external partners, for example virtual schooling networks and providers contribute to the learning experience. Similarly the shift from single cell classrooms to configurations with multiple teachers greatly increases both the possibilities and the complexity of learning environments. School leaders are therefore challenged to lead and manage change that focuses strongly on student learning and improved outcomes, and that equips teachers and other contributors to work together across flexible, blended and constantly evolving learning spaces (see for example Mackey et al, 2017).

Discussion and Conclusion

Societal and learner expectations are rapidly changing; they are co-evolving with the digital world. This paper has provided maps of the evolution of classroom culture and set that within a global framework. Our research contrasting these designs for learning can be applied to inform strategies to inform innovation and the management of change in emerging learning spaces. It demonstrates that Davis’ Arena Framework can be used as an analytical tool.

Davis’ Arena Framework was deployed to uncover the complexity of the co-evolution of classroom teaching with digital technologies. The complexity spans the globe and the interaction between local and global ecosystems continue to increase with resulting changes in roles and responsibilities. ILE now add to this complexity bringing increased

expectations of co-teaching. Challenges are increasing and this paper aims to increase the understanding so that teachers' roles and responsibilities become more reasonable and sustainable.

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Paper Title: Tracking course design and delivery: using a home grown project management tool in flexible learning

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Practice paper outline

Course design and delivery in the context of flexible learning at the University of the South Pacific (USP) is over 40 years young. Over that time, course development and delivery methodologies progressed almost parallel to the educational technologies of the day, diverse learner characteristics and changing landscape of higher education among other things. Course design and delivery has arguably been a constant challenge in terms of monitoring progress and ensuring that more than 500 courses are delivered annually, on time and with fewer issues as possible to a regional student base encompassing 12 Pacific Island Countries. The Centre for Flexible Learning Course Manager (CFLCM), a home grown project management tool was developed to better manage the course design and delivery process. The primary users of this tool are a team of 25 specialists comprising Instructional Designers, Education Technologists and Electronic Publishers coordinated by the Senior Instructional Designer. It has been a year since the tool was developed and introduced to the team. This paper presents the experiences of the team in terms of the implementation and use of the CFLCM and implications for future use.

Introduction

The Centre for Flexible Learning (CFL) at the University of the South Pacific (USP) has been attempting to capture the process of development and delivery of courses and programmes offered via flexible learning at USP. A fragmented process and documentation system has characterised course development since the early inception of distance education at USP since the 70's. Such 'manually' organised processes documented the production cycle in terms of progress reporting (on course and programme development via word documents and email) and overall record keeping (via course profile sheets in word documents, assessments and course components details via excel sheets). While such processes were relevant for a time when technology was still developing, it had come to a point where an automated, central approach to reporting and record keeping needed to occur in light of an exponential growth in courses and programmes at USP and new strategic directions in terms of more blended and online course development and delivery. To add to this, course development staff members grew in numbers at CFL.

Mathur, Jugdev & Shing Fung (2014) suggest that although to a great extent the success of a project lies in the synergy of the project members, the project management tool equally plays an important part in gauging the completion and success of projects. Abdous & He (2008) suggest that one of the factors affecting course design is inefficient project management. It is very important to have project tracking right from the brainstorming phase. The chances of increasing the success of a project ultimately relies on the project manager, who should be able to establish methods of accountability and keeping track of the project (Shannon & Hartshorne, 2013). Keeping a close eye

on the project status reports help projects progress, and team members should provide regular reports to ensure issues and tasks completed are all documented and shared with the faculty (Chapman & Nicolet, 2002).

The CFLCM Course Manager (CFLCM) was developed and introduced in 2016 with the objective of making project management of course development and delivery more organised and efficient. The primary users of this tool are the Learning Design & Development (LDD) Team of 25 specialists comprising Instructional Designers, Education Technologists and Electronic Publishers coordinated by the Senior Instructional Designer. It has been a year since the tool was developed and introduced to the LDD team. This paper presents the experiences of the team in terms of the implementation and use of the CFLCM and implications for future use.

The practice under scrutiny

The CFLCM took close to 6 months to develop with a team of four staff members at and an outsourced computing programmer. The development of the CFLCM was partially inspired by an earlier project management tool (2008-14) that was used at CFL to manage course development. That tool however became obsolete in light of processes that evolved rapidly at CFL and a somewhat dated programming language that fell out of sync with what the USP supported in terms of IT architecture. Nevertheless, it provided a context from which to build the CFLCM. It was also inspired by a new learning design and development framework for CFL. Once the programmer was identified and contracted, work commenced in three phases. Firstly, scoping the work needed in terms of the CFLCM functionality. This took some time as the programmer needed to understand how course development and delivery worked at the coalface and from there, organically shape an intuitive and simple design. The Senior Instructional Designer (SID) primarily aided the programmer with conceptualising the functionality. The second phase was essentially the programmer developing the concept into the actual tool which was a highly consultative exchange of constructive feedback and tweaks. Phase three was testing with users from the course development team who eventually became administrators for the course manager. Bug testing in phase three threw up minor issues not picked up between SID and programmer and the intuitiveness of the user interface was better gauged this time around. Once the CFLCM was in as good a shape for a first workable version, it was released to the team following an orientation session. Courses and team allocations were pre-loaded to the CFLCM based on the annual course development portfolio set up by the SID and the admin team. The CFLCM has been used by the team for just over a year and thus far the LDD team have taken to using it as an extension of their work.

Discussion/conclusion

First impressions from the release of the CFLCM was the relative ease with which the team took to using it. Preliminary evidence of this was based on the minor incidence reports or queries logged with the Admin team. To aid the diffusion process, team members were required to start submitting their monthly progress reports via the CFLCM and cease reporting via email, as was the practice while the CFLCM was being developed. In addition to the reporting features, the team was able to view personalised summaries of their monthly work trends in graphical representations. The following observations are worth sharing from its first year of use:

- Progress reporting has become more systematic and consistent;
- Inventories of course assessments and components are centrally accessible and located;
- Team members are able to view each other's reports in the interest of transparency as well as view and keep records of their own work progress and patterns;
- There is more formal 'closure' to the reporting process;
- Courses lagging behind their development timelines are easily flagged for urgent action with content specialists and Heads of schools and departments;
- Course delivery issues are easily flagged for attention or escalation if required;
- Up to date course development information is available on demand for stakeholders such as the Faculties, regional campuses, the University Library, and the Book Centre and Student Administrative Services.

Whether the overall course design and delivery process has been enhanced because of the implementation of the CFLCM remains to be seen and perhaps best gauged over a longer period of time. To date the CFLCM contains 12 months (2 development & delivery periods) worth of course information and is insufficient for any type of comparative analysis or trend projections. However, the team sees it as a general process improvement that harmonises with the learning design and development framework and annual development and delivery portfolio. Within the first year of implementation, other intended stakeholders have not had much interaction with the CFLCM as more focus has been on the Learning Design & Development teams' use of it. Eventually, it is envisioned that Student Administrative Services, the Book Centre and the regional campuses will have more awareness and use of it with roadshows and other forms of dissemination activities.

To provide an array view of perceptions of the CFLCM, soundbite reviews were solicited from the LDD team and presented below.

- “Very fast and efficient program to record work progress.”
- “User friendly.”
- “An evidenced based reporting system.”
- “Information is archived; can refer back when needed.”
- “Able to highlight tasks accomplished with hours we input every month.”
- “Overall CFLCM is very good database for our course development and production work as it shows which semester the course is offered, course mode, course status, even can show location (i.e. either Laucala – Fiji, Alafua – Samoa and Emalus – Vanuatu), course phases, courseware (components) and history of the course in the current course production period.”
- “It may be good to access it outside of the USP intranet.”
- “Good medium to report on Moodle issues that we encounter ...”
- “We should be able to close our reports once we have finished with it so recorded tasks don’t roll over to the next month.”
- “Takes longer to log in at times.”
- “As admins we have to add project phases individually. I like to add all phases at once.”
- “Logs you out at times without warning hence losing all unsaved data.”

Take home message

Such project management systems as the CFLCM gradually require revisions. This occurs in parallel to changes in processes and systems at the higher university level. It is never perfect but it does the job and with ease of use by the team which is an essential component of buy-in to new systems. The CFLCM like any other well planned and executed project management tool creates cohesion for the team because of the ‘one stop shop’ reporting and documentation approach. The possibilities for application of such a home-grown system may not be limited to learning design and development and could be explored in terms of other similar process and framework oriented systems to enhance team and project efficiencies. Future directions for its use could extend to integration with the university’s learning management system and opening it up beyond its current intranet only access.

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Paper Title: Teaching sensitive topics in an online environment: A pilot of cultural safety eLearning

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Abstract

Introduction: Cultural Safety (CS) teaching and learning addresses sensitive topics and controversial issues, but is essential knowledge for healthcare students and professionals. In traditional classroom delivery, students may be required to challenge their own perceptions, which can be overwhelming. By creating a CS eLearning module, students are able to acquire skills and knowledge in a less confrontational environment.

Methods: An online CS eLearning module was developed by experienced Whitireia CS educators to augment traditional teaching approaches. The module aligned with three learning outcomes, and was tested internally and externally to address technical issues, content and suitability. A cohort of nursing students were invited to complete a pilot programme.

Findings: Nineteen nursing students completed the evaluation. A significant improvement in the CS learning outcomes 'Understanding of what forms my own personal culture' (5.15 ± 1.34 vs. 6.31 ± 1.05 , $p < 0.001$), 'Understanding what cultural safety means' (4.89 ± 1.24 vs. 6.42 ± 0.60 , $p < 0.001$) and 'Understanding what it means to provide culturally safe care' (5.15 ± 1.38 vs. 6.36 ± 0.76 , $p < 0.001$) was noted on completion of the module. Participants responded positively to the module, 100% indicating that they were comfortable learning about CS online, while 76% preferred CS online learning to the traditional classroom approach.

Conclusion: CS online learning provides a safe and effective platform to explore the sensitive issues related to developing culturally safe healthcare practice. Flexible eLearning modules can support and augment CS teaching and learning for students familiar with CS and those meeting the concepts for the first time.

Introduction

The concept of cultural safety is centered on recognizing, respecting and acknowledging the rights of an individual and their culture, and forms the essence of sound New Zealand nursing care (Cooney, 1994). Cultural

safety education is focused on the knowledge and understanding of the individual nurse, rather than on attempts to learn the intricacies of different groups, as it has been argued that nurses who understand their own culture and power relations can be culturally safe in any context (Nursing Council of New Zealand, 2011). The definition of cultural safety recognizes that 'culture' includes socioeconomic status, age, gender, sexual orientation, religious belief or disability, along with culture in relation to ethnicity (Ramsden, 1997).

Cultural safety education is an expectation for all New Zealand nurses and is an integral part of all nursing undergraduate programmes. Registered nurses as are required to demonstrate their competence in cultural safety to maintain registration (Nursing Council of New Zealand, 2012). The Nursing Council of New Zealand describes cultural safety as the "effective nursing practice of a person or family from another culture, and is determined by that person or family" (p.7), whereby process of becoming 'culturally safe' requires the nurse to initially explore their own cultural identity (Nursing Council of New Zealand, 2011). It is intended that by understanding their own culture, the nurse will then recognize the impact of their own culture on those for whom they care.

Cultural safety is traditionally taught in the classroom setting to groups of nurses based on their year of study. However, when cultural safety is explored, students bring with them a wide range backgrounds, experiences, values and beliefs, all which influence their understanding of cultural safety (Richardson, 2011). These differences not only affect how responsive the student is to learning about cultural safety in relation to their own personal practice (Richardson, 2011), but may also generate resistance. Such resistance can create significant challenges in both teaching and learning cultural safety in the classroom.

The positioning of cultural safety in nursing education is challenging for many nurse educators and practitioners in New Zealand (Richardson & Carryer, 2005). Historically, there has been "misunderstandings about the nature and purpose of cultural safety education and made teaching increasingly problematic and contentious"(Richardson & Carryer, 2005). It has been reported that many nurse educators feel uncomfortable teaching the concepts involved in cultural safety (Starr, 2009), creating increasing challenges for nurse education (De & Richardson, 2015). Similarly, while there is limited literature specifically related to cultural safety learners, students can hold preconceptions and misapprehensions regarding the nature and content of cultural safety education (McEldowney et al., 2006).

Previous studies have explored sensitive topics in an online environment through the creation of 'safe spaces'. This enables students to explore prejudice and discrimination through anonymous discussion, resulting in learning without the anxiety and inhibition often experienced in the traditional face-to-face classroom environment (Merryfield, 2003). It has been suggested that by removing the need for an immediate response, the online environment may give students the space and time required to address sensitive issues (Sobel, Sands, & Dunlap, 2009). Transcultural nursing courses have been successfully delivered online (Adam, 2008), while online cultural awareness programmes have been successfully developed for geographically disparate communities (The Royal Australian College of General Practitioners, 2016).

The problem being addressed

Educators at Whitireia New Zealand wanted to augment traditional approaches to cultural safety education for both educators and learners, and identified that the online approach could provide an environment conducive to enhancing cultural safety understanding among nursing students. By creating online cultural safety education, students could become familiar with the concepts of cultural safety before undertaking traditional classroom-based education. The aim was to provide an accessible, engaging, and non-threatening eLearning module that allowed the participant's to explore cultural safety privately and independently, while providing opportunities for participants to reflect on their own practice. This paper presents the experiences of participants following the pilot of the cultural safety module and explores the reality of creating an online environment where students can explore their preconceptions of cultural safety in a positive learning environment.

Study design

Module development and content

The development team, consisting of two experienced cultural safety educators and a nurse education eLearning developer created an evidence based module entitled "Introduction to Cultural Safety for Nurses and Health Professionals". The objective was to create an evidence based interactive module that explained cultural

safety concepts, explored culturally responsive care and provided opportunities for participants to reflect on their own practice. The learning outcomes were designed to mirror those of the traditional, classroom based pedagogy:

1. Understanding what forms my own personal culture
2. Understanding what cultural safety means
3. Understanding what it means to provide culturally safe care

The eLearning developer researched the content, developed a storyboard and prototype. These were reviewed by the cultural safety educators and then evaluated to check functionality and educational design. The module was initially created using Articulate Storyline two, and later upgraded to Articulate 360 (Articulate, 2017) and was accessed via the CPD@Whitireia Moodle Learning Management System (LMS). Module development tools such as Articulate 360 allow non-programmers such as tertiary educators to create dynamic flexible learning material (O'Donnell, Lawless, Sharp, & Wade, 2015), that can be viewed anytime, at any place and on any device. The ability to access the cultural safety course in a safe, non-threatening and comfortable environment selected by the participant was deemed critical in the creation of the module. Once developed, the cultural safety module was reviewed and tested internally and then externally to address technical issues, content and suitability.

Participants and Procedures

Participants were nursing students studying at Whitireia New Zealand, and who would normally only receive cultural safety teaching and learning in the traditional classroom environment. Students were invited to evaluate the module by a member of staff, who outlined the background of the module development, course content and evaluation questionnaire. The online questionnaire was an adapted version of the Whitireia School of Health programme evaluation tool, designed to explore the participant's perceptions of the training and increase in knowledge. Changes in understanding based on the learning outcomes were charted on a seven-point numeric Likert scale. Participants were also asked to rate their experiences of undertaking the flexible learning module using a four point Likert scale, from 'Strongly disagree' to 'Strongly agree', and to rate their engagement with the modules using a five point Likert scale, from 'Not at all engaging' to 'Very engaging'. Additional questions were designed to explore mobile device type, internet connectivity, browser platform and performance issues.

Statistics

The data were analyzed using SPSS. Statistical significance level was set at $p < 0.05$. The study was performed as a within-subjects design, using descriptive statistics and Paired T-Tests with means to find direction. Data are expressed as mean \pm standard deviation.

Findings

Participants

Nineteen nursing students agreed to participate in the pilot evaluation. The study population was comprised of 11 (58%) Competency Assessment Programme students, six (32%) undergraduate nurses, and two (10%) post-graduate nursing students. Seven (37%) participants reported that they had learnt about cultural safety in the classroom on a previous occasion. Participants reported that the module took less than 60 minutes to complete. Sixty three percent of the cohort completed the modules by laptop, 16% by PC, 16% by smartphone and 5% by tablet.

Module Learning Outcomes

Participants reported a significant improvement in their understanding aligned with the cultural safety learning outcomes on completion of the eLearning package. 'Understanding of what forms my own personal culture' (5.15 ± 1.34 vs. 6.31 ± 1.05 , $p < 0.001$), 'understanding what cultural safety means' (4.89 ± 1.24 vs. 6.42 ± 0.60 ,

p<0.001) and 'understanding what it means to provide culturally safe care' (5.15±1.38 vs. 6.36±0.76, p<0.001) improved significantly on completion of the module.

Experience

Participants were asked to rate their experiences of undertaking the modules using a four point response scale, from 'Strongly disagree' to 'Strongly agree'. The table below (Table One) indicates the percentage of respondents who responded positively towards the modules.

	Agreed/Strongly agreed
I found the module was engaging	90%
I found the content of the module useful	100%
The module content is relevant for nurses	100%
I was comfortable with the content of the module	100%
I was comfortable learning about cultural safety in an online environment	100%
I am more confident in my understanding of cultural safety	100%
I am confident that I can/will apply this understanding to my job	100%
I would prefer to learn about cultural safety online rather than in the classroom	74%

Table One: Percentage of respondents indicating they either 'agreed' or 'strongly agreed' with statements relating to their experience of the cultural safety eLearning module.

Engagement

Participants were asked to rate their engagement with each interactive technique using a five point Likert response scale, from one 'Not at all engaging' to five 'Very engaging'. The figure below (Figure One) indicates the mean engagement score for each interactive tool incorporated in the cultural safety module.

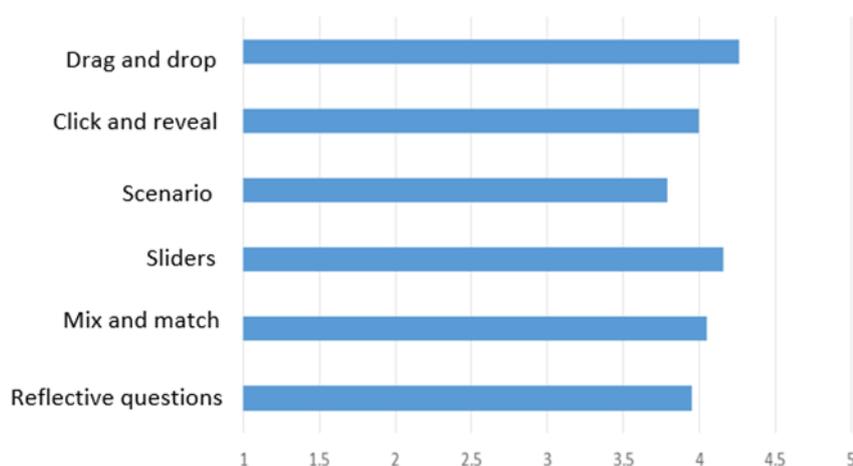


Figure One: The mean engagement score for each interactive tool incorporated in the cultural safety module.

Discussion

Exploring cultural safety in the traditional classroom environment can be challenging for both teachers and students alike. Approaching concepts such as sexual orientation, gender and cultural tradition among peers can challenge a student's own beliefs and opinions, which can create confrontation, leading to disconnect and a resistance to learning (Richardson, 2011). By creating a cultural safety eLearning package that can be accessed privately and independently, challenging concepts can be encountered safely.

This pilot study has identified that cultural safety education can be successfully delivered in an online environment. Results indicate that all participants significantly improved their knowledge and understanding of cultural safety, while being comfortable with the course content and delivery method. Interestingly, 75% of respondents reported that they would prefer to learning about cultural safety online, suggesting that such courses could act as an alternative for some students or as a component of blended learning. Participants were engaged by the module, noting similar preferences for all response types and tools throughout the package. In light of the current findings, further research is needed to explore the impact of incorporating the cultural safety package within both campus based and distance learning healthcare education. By removing the confines of the classroom environment, online learning will make cultural safety education accessible to practicing nurses and healthcare professionals, creating the opportunity for cultural safety continuing professional development.

The values inherent in cultural safety should not be limited to nursing and healthcare environment, but are also relevant to wider pedagogy. By employing a healthcare perspective, it could be argued that the extent to which learning feels safe can only be judged by the learner themselves, and it is educator's responsibility to create a safe learning environment (De & Richardson, 2015). While the online environment will not suit all learners, for many others, a platform where content can be explored privately and independently may provide the optimum environment to encounter potentially challenging content. Although classroom based discussions around challenging content are valuable, online content could provide the ideal 'safe' introductory learning, using a 'flipped classroom' approach. The flipped classroom model is a method of blended learning where in-class learning is integrated with online learning experiences (Galway, Corbett, Takaro, Tairyan, & Frank, 2014). Basic concepts can be explored online, and a level of understanding established before content is revisited and explored in more depth in the classroom (Tucker, 2012). Data from the current study would support the use of a flipped classroom approach in the teaching of cultural safety.

Conclusion

The development of a tailored cultural safety online module has enabled nursing students to explore complex cultural safety concepts in a safe learning environment. Further research is required to explore the impact of the cultural safety flexible eLearning modules in other healthcare settings, but this pilot study has demonstrated that online learning may help enhance the experience of cultural safety education for both teachers and learners alike.

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Paper Title: Course development by the OERu: A case study using Davis' Arena of change with technology in education

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Submission

Demand for higher education is increasing globally and is necessary because of the growing need for knowledge-based workers. One solution is open educational resources (OERs) which are openly licensed instructional materials. OERs are abundant but not widely used. Uptake could increase with open educational practices (OEPs) which are tools, policies, instructional and technological training, quality assurance frameworks and other actions, resources, and infrastructure which facilitate the use of OERs (Conole, 2012).

The problem is that OEPs are not common in higher education. Where they do occur, there are issues with their implementation (Conole, 2012). One organization promoting OEPs and OERs is the OERu and its international network of tertiary institutions. This research examines how the OERu develops a course as an OER while implementing OEPs.

Qualitative research for this study includes participant-observation of an OERu working group, interviews with OERu partner staff, and document analysis (i.e. drafts of online course content). Davis' (2018) *Arena of change with technology in education* is a theoretical framework that is used to map the OERu's practices within a global organizing framework to better inform partners about the complex changing educational systems within which they are embedded. The findings include the types of relationships involved in course development at the OERu and the kinds of OEPs it implements. The findings aim to support the OERu and its partners to fulfill their vision of providing affordable access to education.

Introduction

Demand for higher education is increasing globally, and higher education qualifications are necessary in highly knowledge-based societies, seeing as “by 2020, 40% of the global workforce will be knowledge workers” (Kanwar & Daniel, 2010, p. 404). Similarly, demand for high quality education is needed for skilled workers (Earle, 2010). An increase in literacy improved through tertiary education translates to increased wages for skilled workers (Earle, 2010). In addition, the global number of higher education enrolments is expected to increase by approximately 100 million from the current 165 million by 2025 (UNESCO & COL, 2015).

One option to help fill this demand is to use open educational resources (OERs) which are instructional materials that are openly licensed or in the public domain and thus available for retention, reuse, revision, remixing, and redistribution (Butcher, 2011; Wiley, n.d.). There are currently plenty of OERs available to address the problem of increasing demand for higher education. There are also Open Educational Practices (OEPs) to facilitate the use of OERs. Examples of OEPs are instructional and technological tools and training, policies, quality assurance frameworks and other actions, resources and infrastructure (Conole, 2012). One organization promoting OEPs and OERs in higher education is the OERu, which is a network of international tertiary institutions collaborating to provide accredited education to students everywhere.

The problem being addressed

The problem is that OEPs are not common in higher education, and where they do occur, they are not well implemented (Conole, 2012). To improve OEP implementation requires organisational change in higher education. The purpose of this research is to determine how to improve instructional design processes for designing and developing high-quality courses using OER while being supported by OEP in a context of organisational change.

Main research question: How can the design and development of courses using OERs be improved for use in higher education institutions by implementing OEPs?

Guiding sub-questions addressed in this paper

- How are higher education institutions and networks currently using instructional design processes for open education?
- Which resources and processes may facilitate the implementation of OEPs, particularly for instructional design for open education?

This paper addresses the guiding sub-questions listed above by using Davis’ (2018) *Arena of change with technology in education* to describe processes for OEP implementation and OER development at the OERu.

Study design/Approach

Data collection for the portion of the study covered in this paper includes participant-observation of online meetings of the OERu’s Quality Review team; interviews with administrators, instructional designers, and subject-matter experts at tertiary institutions; and document analysis (examination of institutional web sites, documents related to OEP implementation and OER development, online discussions about OER and OEP).

The theoretical framework used to describe how the OERu develops courses is Davis’ (2018) *Arena of change with technology in education*. The framework informs the construction of a diagram for mapping the elements within an educational system related to implementing educational technology. The diagram of a given arena represents all layers of the system, from the site of innovation (e.g. classroom, online course, or other site) to the institutional, regional, national, and global layers (see Fig. 1). The layers are represented as concentric circles which can each be included or excluded as is relevant to the innovation. Around the set of circles are words representing dimensions relevant to education: resources, professional, community, bureaucratic, political. Diagrams based on the arena framework highlight the complex relationships among stakeholders and material resources. The diagram also assists in finding strengths and gaps in a system, comparing two systems or more, problem solving, and other purposes (Davis, 2018).



Figure 1. A blank diagram drawn using Davis' (2018) *Arena of change with technology in education*. The innovation in this case is an online course.

The framework is based on human ecology, so its various components are labelled using terms borrowed from the science of ecology. The system is referred to as an *ecosphere* and the layers inside are referred to as *ecosystems*. The stakeholders are called *living matter* or *species*. Among the species are “*keystone species*” who can strongly influence others and assist in minimising disruptions to an ecosystem during the implementation of an educational technology. The resources used by the species are called “*non-living matter*” and include materials such as educational resources, software, hardware, policies, and other documents. In short, they are any materials relevant to the innovation (Davis, 2018).

Findings

The innovation in this situation is the development of an online OERu course placed at the centre of the arena. This course is being developed by the OERu director who is the keystone species because he is the person with the greatest influence on course development and on the OERu. The OERu director is a bridge between course development and the ecosystem of the organization. This position grants him access to information, resources, and authority that can inform course development. For example, he was able to lead a crowdsourcing activity through social media where anyone could contribute ideas for course topics at the stage of course design. The idea for this activity came from a consultant hired to work on course design and development. The result was to obtain ideas from several contributors. These findings are a direct response to the first guiding sub-question regarding the instructional design processes used for open education.

Other species in the course ecosystem are credited and non-credited learners. To explain, this course is intended to be delivered as an open boundary course which means that it will be offered at one or more universities to students who will complete formal assessments and, if successful, will receive credit for the course. At the same time, other students from around the world will be participating, but they will not receive credit for their work. They are participating to learn informally and they can communicate with the for-credit students. The result is an increase in student-student interactions – a potential source of technical and subject-matter support, plus an enriching experience considering the variety of student perspectives.

Within the ecosystem of the organisation, the living species (besides the keystone species) include the information technologist employed by the OERu, the Quality Review team, and Academic Volunteers International (AVI). The open source technologist selects and implements technology in OERu courses and offers guidance to OERu members about coding and technology use. The Quality Review team is composed of volunteers from around the world who meet online to develop a framework for quality assurance standards. This framework will guide course development and will be accompanied by a user's guide. AVI is only at the conceptual phase at the moment. The intention is for this group to be composed of volunteers who provide general instructional support and discipline-related support. These findings relate to the second guiding sub-question regarding the implementation of OEPs.

Discussion/conclusion

The arena depicting the OERu's approach to designing and developing an online course highlights the roles of those involved, helping to identify where relationships and activities are strong or can be strengthened. For example, the activity related to developing the technological side of the courses is strong because of the presence of an employee dedicated to that task and because of the general interest of the OERu in using open source technology to increase access to educational materials. Another strength is the Quality Review team whose work is intended to

support high quality learning experiences. The AVI is highlighted as an initiative that needs to be developed from the conceptual stage to a functional group. Additionally, the arena shows the students' role, which is active only during course delivery. This point opens the question as to whether and how they should be consulted during the phases of needs assessment, course development, and course evaluation.

Analysing the arena also helps to identify the OEPs implemented in this innovation: crowdsourcing ideas, hiring someone to develop open source technologies, using a platform that allows anyone to contribute to course development, calling on academic volunteers located internationally to support students. These are some examples of points brought to light by the arena so that they can be addressed in a way that minimises disruption by planning for change that accounts for all the elements of the ecosphere (Davis, 2018).

A fundamental characteristic of the Arena is that it emphasizes the relationships among species, which are more influential on innovation than technology is. With this in mind, the findings in this developing study lead to further questions: How can the OERu strengthen its relationships with its partners to increase collaboration across the network in course development projects? What kinds of ethics, program design, and quality standards are suitable for open courses intended for a broad audience? A later stage in this analysis will show how Davis' (2018) arena of change with technology in education is used to answer these questions and others while planning organisational change.

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Workshop Title: From way too late to just in time: Enhancing feedback through online teaching and learning

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Overview

Te Aho o Te Kura Pounamu (Te Kura) is undergoing an exciting and challenging journey to develop innovative teaching and learning strategies in an asynchronous, distance, online environment. Digitally-enhanced teaching and learning practices allow us to continuously improve our formal and informal feedback to learners with a view to promote engagement and support them in their lifelong learning journey.

Feedback: written, infrequent, and delayed - sound familiar? Prior to teaching and learning online, this characterised many of the responses given to learners at Te Kura. Embarking on the online journey has afforded us the opportunity to explore ways for multi-modal, varied, frequent and timely feedback in order to enhance engagement of learners. When using the term feedback, we are incorporating the concept of feedforward as an integral part of the feedback process.

This workshop is relevant to educators from all sectors.

Description

The focus of this presentation will be on our emerging online teaching and learning strategies, with specific attention to meaningful and effective feedback in our asynchronous, distance teaching and learning environment.

We will showcase and exemplify the various types of feedback we use that encompass a range of digitally-enhanced teaching and learning practices. These include: automated forms such as inline interactives with right/wrong answers, feedback in quizzes and use of intelligent agents; as well as personalised feedback through written, audio and video forms.

Underpinned by theoretical and research-based pedagogies (including Hattie, 2009; Rameka, 2011) and exemplary practice in this area, the workshop will be a combination of presentation, interspersed with small group discussions. These discussions will intentionally cater for a wide audience as we journey through exemplars representing multiple curriculum areas and age/levels from early childhood education through to senior secondary. Evidence of practice will include teacher, learner and resource-developer voice. In the continued spirit of *ako*, we also aim to make connections between participants' ideas and own experiences through multiple opportunities for sharing and discussion.

The goals of this workshop will therefore be for participants to:

describe features of effective feedback;
identify a diverse range of online feedback strategies and associated tools/technologies; and to
evaluate the strengths and weaknesses of a range of feedback tools and strategies.

It is hoped participants will leave this workshop with a desire to continue the discourse about effective feedback in an online teaching and learning environment.

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Workshop Title: Exploring Technology Enhanced Learning (TEL)

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Overview

There is a growing realisation that technology enhanced learning (TEL) has the potential to transform and improve the quality of learning, teaching and the student experience (Walker et al. 2016; Marshall, 2010). Additionally, when done well, TEL can help institutions access new student markets especially via online learning. Together, these factors have weighted the priority of TEL more heavily than in the past. While many education institutions continue to invest in TEL, many still struggle to identify and to address the essential elements that enable institutional success.

This workshop uses a TEL Framework as a way of exploring TEL practices and generating a snapshot of the current challenges and successes. Being experienced by an institution.

Description

The purpose of this workshop is to explore and discuss institutional successes and challenges in relation to technology enhanced learning practices. This is a discussion-based, technology agnostic workshop that does not include any technology training. The major features to be investigated include

- * Identifying the successes and challenges institutions are experiencing when it comes to TEL practices; and
- * Investigating what TEL best practice looks like, areas to be explored include pedagogy, people, technology and strategy.

As this workshop uses a guided, theme-based process to discover the successes and challenges an institution may be experiencing around critical elements of technology enhanced learning (TEL), it is suitable for anyone with an interest in this.

Participants will be organised into small groups. Each participant will be given a set of cards, based on seven themes. Each participant will be given time to respond to the guiding statements and make an assessment as to whether that theme is a challenge or success. These responses will then be used to stimulate group discussions around the perceptions of how well institutions using technologies to enhance learning. Participants will be encouraged to share their TEL best practices and experiences.

Participants who attend this session, will

- * become familiar with the seven themes used to identify TEL best practices;
- * become aware of the TEL challenges and successes being experienced by institutions and how these influence the quality of TEL; and
- gather ideas on how you and your institution can address TEL challenges.

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Paper title: Digital equity for ESOL students in a New Zealand secondary school analysed with Davis' Arena framework

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Abstract

Research set in New Zealand, where English for Speakers of Other Languages (ESOL) is recognised as a priority for equitable inclusion, suggests that ESOL teachers find digital inclusion for migrant and refugee students in secondary schools challenging, requiring teacher initiative and energy. The chal-

allenges and complexities of these contexts are presented with an analysis of a case of one ESOL teacher, classified as an innovator using Rogers (2003) adoption of innovations categories. This analysis is set within Davis' (2018) Arena framework of the co-evolution of education and digital technologies to identify the digital tools used to support migrant and refugee students' learning and teaching and related challenges. This case study illustrates the challenges faced by one ESOL teacher who chose to use technology in his context. The most important finding of this study is that in ESOL contexts digital tools can support teachers to individualise their teaching to increase inclusion, equity, and access in secondary schools. However, this is only possible with great effort from the teachers and support from their schools and communities.

Keywords. ESOL teaching, digital equity, digital inclusion, innovator, ICT challenges, co-evolution

Introduction

This paper addresses the FLANZ subtheme of equity, access, openness, and flexibility.

Digital technology has become an increasingly integral part of teaching and learning across all educational sectors. However, literature indicates that the use of technology can differ widely from school to school, and also within schools (Johnson, Wood, & Pip, 2014). However, few studies have been done in New Zealand on the use of technology specifically within English as a Second Language (ESOL) departments in secondary schools. Because ESOL frequently operates outside of the core learning areas at secondary level, and ESOL departments themselves are often physically located less centrally in a school than other departments, access to technology for classroom use can sometimes be more challenging for ESOL teachers.

ESOL programmes are important not only for students' English language skills, but also for developing other competencies that can facilitate their learning in other curriculum areas. A Ministry of Education (2006) report highlights the value of technology in providing minority ethnicity students with "high quality learning" and facilitating a "sense of identity, self-confidence, and key competencies that are prerequisites for independent, collaborative, and lifelong learning" (p. 8). Hence the importance of having a greater understanding of the current use of technology in this context and the challenges that may impact digital inclusion in the ESOL classroom. This study aims to address this gap in the literature.

The problem being addressed

This study investigated how technology, including software and e-learning tools, have been utilised within the secondary ESOL classroom, and the challenges experienced by ESOL teachers in secondary schools.

Study design

Creswell (2013) approach to Interpretive Phenomenology was adopted for this case study research as part of a larger study. Phenomenology seeks the lived experience of individuals on a specific phenomenon through in-depth interviews (Smith, 2015). One of the older ESOL teachers with the pseudonym of Fred was purposefully selected from a nationwide sample of 25 ESOL teachers interviewed for the wider study, because the rich data provided by Fred revealed his role as a leader and an agent of change with respect to digital inclusion. When using Rogers' (2003) terminology for the adoption of innovations, Fred appeared to fall into the "innovator" category. He was recruited to the study via a nationwide email discussion list, ESOL Online, which provides a forum for teachers of ESOL to share ideas (Ministry of Education, n.d.).

Documentary sources relevant to ESOL teaching in secondary schools in New Zealand, such as the National Curriculum and relevant web pages provided by the Ministry of Education for ESOL teachers (see <https://www.tki.org.nz/>), were secondary sources of data that were triangulated with teacher interview data. The data were deductively analysed and key aspects were mapped onto Davis' (2018) Arena framework of the co-evolution of education and digital technologies.

The case of Fred

The case study findings are now presented as a vignette of one ESOL teacher called Fred. Fred was 67, and had previously been a teacher of English, science and mathematics. He had left teaching for 25 years, during which he spent 15 years as a computer consultant. Fred had been “interested in technology especially digital technologies since it first arrived”. As a person who was categorised as a “digital immigrant” (Prenkysy, 2001), he believed that he was using more technology compared to his “digital native” counterparts.

Fred’s initial experience with ICT was when he found it an efficient tool in his personal life. Later on, he used technology for a range of purposes such as socialisation, networking, and learning, including but not limited to listening to music and YouTube video clips, attending various online courses and learning languages. His professional life was also influenced by his strong belief in the “efficiency” of technology for administrative and pedagogical purposes. In his teaching, Fred actively used technology for administration work, and he also used computer assisted language learning software such as Smart Board, Razkids, Quizlet, digital dictionaries, audio and video files to enhance his students’ engagement and language development.

However, such uses of technology did not always come easily to Fred. In his interview, he explained that his knowledge and skills with technology had been gained through a lot of “step by step” and “self-learning”, accompanied by a lot of “mental patience” and “perseverance”. Fred had a problem-based approach to technology integration, and for this he had to move beyond the “surface level” and delve into deeper levels of affordances and constraints of various technologies to help him resolve problems. When he was not provided with sufficient equipment in his classroom, Fred invested in some digital facilities such as a work laptop and a data projector from his own salary to prove them necessary and useful for students’ learning. The school executive refunded this because they saw the benefits of “using them [technologies] wisely”. Since then, Fred has been equipped with 12 computers in his classroom, plus a Smart Board and necessary software for it.

Fred’s situation is different to that of ESOL teachers in many other schools in terms of his position as an ESOL teacher and the positioning of ESOL as a subject area within his institution. Unlike many other secondary schools, where ESOL is placed under English or in a languages department, ESOL functioned as an independent department in Fred’s school, collaborating closely with both other departments. His department was in the process of writing and updating their ESOL policy which was “very old”. Fred had a “very keen on technology” head of department and other colleagues from the language department to exchange knowledge with, although he pointed out that he “know[s] more than most people” and claimed he was “usually helping other people”. Being from the same so called generation of digital immigrants, Fred was very aware of the difficulties that other colleagues may experience when learning technology, hence his help and support was very much appreciated.

Fred’s classroom consisted of students with mixed English language ability, learning objectives, and socio-economic backgrounds. Not only did he need to deal with students with widely varying language skills all in one classroom, he also needed to deal with diversity in his students digital skills. While some students had extensive access to digital technologies, others had never used a digital device before. Students also had different targets: while exchange students needed extensive work to improve their general language skills, others such as international fee paying students, migrant and refugee students needed intensive support to get ready for their national examinations. There was also great diversity in students’ socio-economic backgrounds; many of his students who were short term or long term migrants were likely to be from families with good economic resources, whereas the opposite was more likely for the refugees.

To cater for such diversity, Fred used technology to provide greater equity, access, and flexibility for his students. He split his classroom time “between a fairly old fashioned method of doing things, mainly digital ways of doing things collaboratively, and students working on their own”. This not only added variety to his teaching, it also enabled the digitally disadvantaged students to practice autonomous learning. Meanwhile, Fred “would be monitoring” his students’ progress and language problems through software in the student management facilities. To be attentive to the students with limited digital skills, and to avoid any disruption in the classroom, Fred selected software that was “actually very quick and easy to learn”.

Fred’s use of technology was not limited to his classroom. He saw technology as “an excellent way of extending learning” beyond classroom walls and to the students’ homes. Hence, he introduced other ways in which students could practice their English at home using technology. However, this homework was optional. Fred explained: “I don’t make it compulsory. One of the reasons is that some of our students are from poorer families, they don’t have computers at home”. This situation had also triggered Fred to initiate “discussing ways in which we [school] could provide them [ESOL students] with computers” to provide more equitable access for his students.

Fred’s quest for change was not limited to his classroom and his students. He was also actively engaged in moving his school towards digitalisation, hence setting up the schools’ digital library, Facebook presence and

YouTube channel. He digitalised audio and videos files and set up the school intranet in order to provide easy and quick access for the students and to compensate for weak internet access at the school.

In summary, this vignette presents a glimpse into the interacting ecosystems in which Fred worked as an ESOL teacher, leader and agent of change with technology in a New Zealand secondary ESOL context to support his students in enhancing their learning, and providing equity, access, openness and flexibility for them. These interacting ecosystems are now mapped into a global perspective using the Arena framework (Davis, 2018).

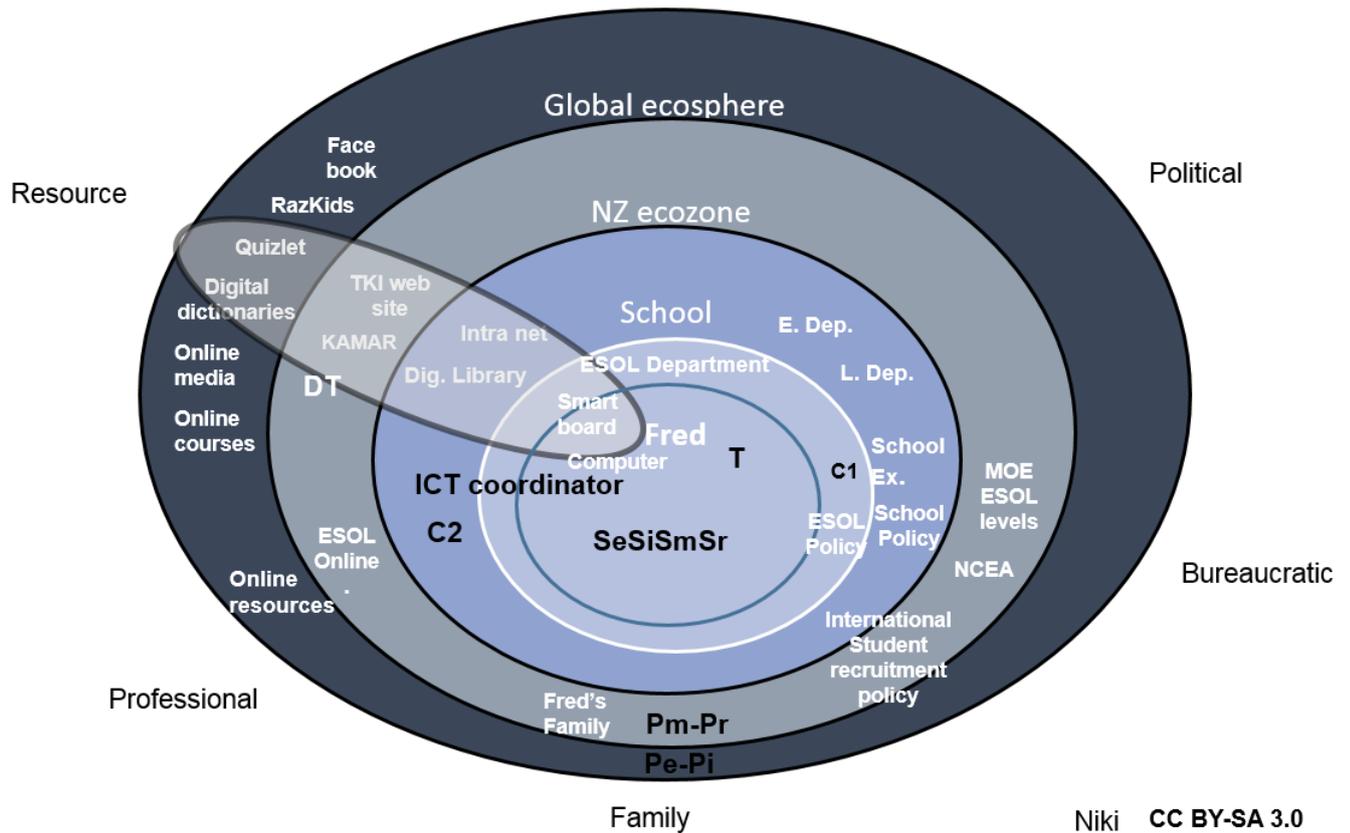
Fred at the centre of the Arena of change with digital technologies

The Arena framework was developed by the second author to clarify the complexity and co-evolution of ICT in education (Davis, 2018).. This Arena is centred on Fred's ESOL classroom ecosystem in 2016. In Figure 1, the world ecosphere embeds within it all the countries, their schools, and their course ecosystem communities, including Fred's classroom. The ecosphere is overlaid with the ecosystem of Cloud-based digital tools (DT) that are co-evolving with education. The key players and resources plotted on this Arena include Fred as the teacher (a 'keystone species' with the most influence on the evolution of the classroom ecosystem). Fred also led developments with technology in his school. He was therefore a member of two keystone species as a teacher and as an ICT coordinator.

Other species included colleagues (C), students (Se, exchange students; Si, International students; Sm, migrant students; Sr, refugee students) (SeSiSmSr), and their parents (PePiPmPr), some of whom were overseas. The resources plotted are a range of digital tools (DT) including Razkids, Quizlet, digital dictionaries, online resources, and a student management system called KAMAR. The five sectors containing interacting ecosystems that influence this classroom are labelled around the outside of the global ecosphere.

Fred's behaviour as a member of the keystone species of teacher in the educational ecosystems of the Arena evolved over time, and varied with the behaviour of his students and others in the interconnected and overlapping ecosystems mapped within the Arena. At the same time, hardware and software continued to be developed and marketed by for profit and non-profit organisations independent of education. Thus, changes to practices within and outside education are ongoing and, because the changes in one ecosystem influence changes in the other, the process has become one of co-evolution, in which educators and technology service personnel work together (or against one another) as well as independently.

The Arena framework with a two-dimensional helicopter view of a Fred in his ESOL classroom ecosystem at the centre.



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Fig. 1. Fred, an ESOL teacher (T) with his exchange, international, migrant, and refugee students (SeSiSmSr) at the centre of the Arena within the global ecosphere of education and digital technologies.

Key: C1, Fred’s ESOL colleague; C2, Fred’s other colleagues in the school; DT, Cloud-based digital tools; KAMAR, the SMS used by the school; ESOL Online, Ministry of Education’s online forum for teachers; E. Dep., English department; L. Dep., Languages department; MOE ESOL levels, Ministry of Education’s levels of English linked to ESOL funding; NCEA, National Certificate of Educational Achievement; Pe, exchange students’ parents; Pi, international students’ parents; Pm, migrant students’ parents; Pr, refugee students’ parents; School Ex., School executive committee; Quizlet, Cloud-based quiz software; RazKids, a Cloud-based reading software used to provide reading exercises for students at home and in class; Se, exchange students; Si, International students; Sm, migrant students; Sr, refugee students; T, Fred the ESOL teacher; TKI, Ministry of Education’s website.

Discussion and conclusion

Fred is an example of a teacher who has worked hard to enable digital inclusion for ESOL students in his school. He found ICT tools provided efficient tools to alleviate the problems associated with the complex and diverse nature of ESOL classrooms. He used digital tools to enhance students’ learning outcomes and to extend learning beyond the school. He also enhanced equity, access, and digital inclusion in his classroom and school as directed by the Ministry of Education in “Towards Digital Fluency” (Ministry of Education, 2015). This occurred because Fred was a leader and an agent of change in his environment who took risks and pushed hard for change, coming up with a variety of strategies to overcome the challenges and obstacles in his way.

According to Rogers (2003), innovators and early adopters make up only 16% of the population, yet these are the people who are interested in adopting innovations and new ideas and have the “highest degree of opinion leadership” (p.283). The remaining 84% of the population are unlikely to have the opportunity and the enthusiasm to promote the same adoption level. Hence, similar outcomes to those achieved by Fred are unlikely with other ESOL teachers unless the ecosystems around the teacher change to ease the conditions for ESOL teachers’ technology integration and to promote digital inclusion. Although the Ministry of Education and schools have been evolving poli-

cies and strategies to better equip secondary schools with digital tools for ESOL in New Zealand (see, for example, (Franken & McComish, 2003; Fry, 2014), the extent of the challenge in ESOL classrooms that was uncovered in this study is likely to be more extreme than has been appreciated until now. More needs to be done to address digital inclusion/equity for migrants and refugees.

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New Forms of Teaching and Learning: Examples from One Teacher Educators' Mobile Pedagogical Practices

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Abstract:

Initial teacher education is expected to prepare future teachers who can effectively integrate mobile technologies into their teaching and meet the needs of 21st century learners. This implies that teacher educators have to model innovative pedagogies by incorporating mobile technologies into their classroom practices. However, little research has been conducted to explore mobile pedagogical practices teacher educators use in preparing student teachers. This brief paper presents a single case study drawn from a larger research study that was carried out across multiple preservice programmes. Data was obtained by interviewing a teacher educator and classroom observations. Our findings indicate how this teacher engaged with a number of mobile technologies to enhance her pedagogical practices. This may have a significant impact on the preparation of student teachers.

Keywords: Mobile pedagogies, teacher educators, initial teacher education, student teachers

Introduction

Ubiquitous mobile technologies support new and innovative ways of teaching and learning. According to Kraut (2013), mobile technologies allow anytime, anywhere learning beyond the classroom by accessing educational resources, connecting with others or by creating content. Initial teacher education (ITE) programmes are called upon to review simultaneously with changes in the practice and culture of schools. Indeed one of the key strategies for teacher education to promote student teachers (STs) transfer of their learning to their professional context of schools is to model pedagogies that are relevant to schools (Davis, 2010). This includes mobile learning (ML), not least because many schools are encouraging their learners to bring their own devices (BYOD) to schools and make effective use of innovative learning environments (Fletcher, Mackey & Fickel, 2017). This research study provides evidence of this renewal process in one New Zealand institution.

Research on mobile pedagogical practices

Positive outcomes about effective integration of mobile technologies in ITE include: facilitating authentic learning for STs (Burden & Kearney, 2017), providing STs with supportive prompt feedback, and accessing Web 2.0 tools to collaborate (Gustafson, 2015). However, Park (2011) and others recognise that successful incorporation of ML depends on teacher educators who lead the ML in ITE. This entails teacher educators using mobile technologies to empower the teaching and learning of STs. For example, Kearney, Schuck, Burden and Aubusson (2012) identified activities which add value to learning when they are undertaken on mobile technologies to include collaboration, authenticity, and personalisation.

Collaborative learning is an instructional strategy utilised by social constructivists to develop critical thinking skills, communication, and interpersonal skills (Gilbert, 2013). In Viberg and Gronlund's (2013) study, majority of STs agreed that mobile devices enabled them to practice their new language learning in social communities. Gikas (2013) revealed that STs used mobile device features to share information and learning resources with their peers and the instructor across time and space. This is consistent with the findings of Gustafson (2015) where STs used Facebook and Google Drive to actively participate, and communicate during asynchronous course projects. Distance education technology (Polycam video conferencing, Desktop Adobe Connect, Skype, and Zoom) were also used for communication and information dissemination. Findings indicate that STs did not participate as much as they would have during their face-to-face class. Gustafson concluded that technology enhanced learning requires scaffolding and support.

Mobile technologies can be used to make learning more realistic and meaningful. Authentic tasks can be performed either within a simulated learning environment, or through direct participation (Burden & Kearney, 2017). An online survey of STs enrolled in language course revealed that they valued highly authenticity. Majority (75%) were positive to the statement that they enjoyed using their mobile devices to access realistic tasks and generate their learning environments (Viberg & Gronlund, 2013). These authors noted that integrating mobile technologies in new language teaching requires designing appropriate pedagogies.

ML supports personalised learning since it occurs across different time and space (Kearney et al., 2012). Learners can work individually or socially by accessing content online at their own convenient pace and time (Ally, Grimus & Ebner, 2014). Kurt, (2017) identifies such form of teaching and learning as flipped classroom model where instructors provide STs with online content to be accessed at anytime anywhere before classroom time. Similarly, Kraut (2013) mentioned that with flipped classroom, class time can be spent productively by engaging STs in discussions and collaborative activities. Kurt, (2017) compared a flipped classroom with traditional lecture, finding that STs in the flipped model improved their self-efficacy, felt well prepared, and had higher academic achievements than their counterparts. Flipped classroom is an emerging pedagogical model that has changed the traditional model, is student-centred, based on constructivist theory of learning, and allows learners to personalise their learning (Kurt, 2017).

The problem being addressed

Integrating mobile technologies into teaching and learning is a complex process (Tolosa, 2017) merging as a result of rapid changes in technological landscape. This has prompted teacher educators to respond differently towards preparing STs to effectively integrate mobile technologies in their teaching (e.g. Cochrane 2014). Tolosa (2017) asserted that schools in New Zealand are well equipped with a range of technology for learning than teacher education programmes. As such, it is challenging for teacher educators to model using mobile technologies which are readily available in schools and are being used by students in the classrooms. More so, Gilbert (2013) noted that exploring how STs are being prepared for 21st century classrooms has raised some questions. According to

Cochrane (2014), majority of research studies on ML have explored the use of mobile technologies for “information retrieval or receiving teacher-generated content ...with little focus upon sustainable integration of mlearning into formal education contexts” (p.67). Few studies in New Zealand have explored mobile pedagogy in ITE.

Therefore, this paper provides a case study of one teacher educator who modelled the use of mobile technologies. This research study aims to inform teacher educators about such strategies used to support the teaching and learning of STs given the rapid changes in schools.

Study design/Approach

As described in our paper (Obonyo, Davis & Fickel, 2018), “The study that is presented here is part of a larger study that was conducted in one institution. Three case studies of ITE programmes where graduate entrants have enrolled to earn qualified teacher status for K-12 schools in New Zealand have been chosen. Nine teacher educators who teach in one or more of these ITE programmes volunteered to participate in a semi-structured interview and related observations. Data was obtained from multiple sources such as, semi-structured interviews, classroom observations, an online survey for preservice teachers, and review of documents.”

This paper presents an emerging case study of one teacher educator who facilitated ML in Early Childhood ITE programme. An interview with Hellen (pseudonym) elicited responses about her new forms of teaching and learning. The interview session lasted around 30-45 minutes, was audio recorded, and transcribed verbatim. Observations of her online activities and face-to-face classroom practices were also carried out to triangulate the data. Data was organised into codes, grouped into themes and conceptualised using the three constructs (authenticity, collaboration, and personalization) of Kearney et al.’s (2012) framework (see Figure 1). Four categories emerged from the analysis: collaborative learning, electronic brainstorming, video conferencing, and flipped classroom approach.

The study is based on Vygotsky’s (1978) Social Constructivist theory and mobile pedagogical framework (Kearney et al., 2012). Social constructivist argue that effective learning occurs when learners are actively involved in knowledge construction while interacting with their peers. Features of ML support a social constructivist, learner-centred approach. For example, as noted by Cochrane (2014) mobile technologies like communication and collaboration tools enable social constructivist pedagogies, shifting pedagogies from teacher-centred to learner-centred.

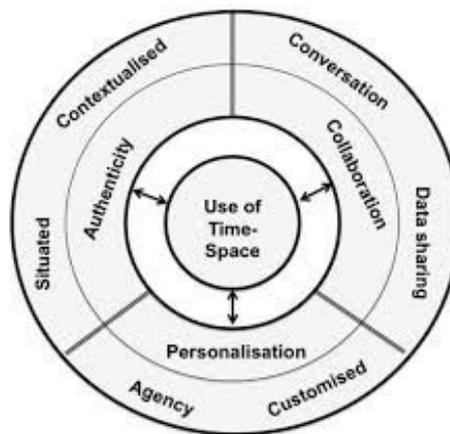


Figure 1: Mobile pedagogical framework comprising of three distinctive characteristics of mobile learning experiences, with ‘sub-scales’. (From Kearney et al., 2012, p.8, with permission).

Findings

This case study illustrated online practices in Learning Management System (LMS) using mobile technologies in Early Childhood ITE programme. Hellen was purposively selected because programme leaders recognised that she innovated with ML. However, she rated herself as competent user of mobile technologies for instructional purposes. Hellen created, coordinated and taught in several courses. It should also be noted that while the programme had several modes of study (on-campus, at a distance and a blend of the two on a regional campus) the same LMS course site was designed to be deployed for all offerings. Due to the brevity of this paper, three illustrations have been selected of Hellen’s pedagogy: (1) A flipped classroom strategy, (2) her deployment of video conferencing and (3) electronic brainstorming.

Flipped classroom approach was evident in Hellen's pedagogies. She uploaded the required readings and short video clips on LMS early enough for on-campus STs to access, then attempt some questions individually before coming to classroom. In her interview she mentioned: *"So they've got quite a long time...about six days really, to do all the tasks and the readings, before the session."* During class session it was expected that STs would contribute their thoughts about those readings and or the videos. For example in one activity, STs were expected to illustrate how they would provide opportunities for children to tell their stories after watching a video clip. This task involved STs in critical reflection which enhances creativity, innovativeness and critical thinking (Kurt, 2017). New Zealand being a multicultural nation, STs should be prepared to use this strategy to facilitate a cultural diverse classroom as identified by Obonyo and Leh (2015).

Live video conferencing (VC) approach was used to support distance learning. STs experienced a change from fixed VC to mobile VC using a range of mobile technologies. Hellen reported that she uploaded Adobe Connect and Zoom links to LMS to facilitate instruction. STs could post questions/comments in real time, and receive feedback from the instructor which enhanced their interactions. Hellen said: *"We give students rights to talk on Adobe Connect so they can present any time, we had a resource students had to make, so they actually had to present it via Adobe Connect to the rest of their group."* Zoom was also used as a collaborative and communication tool in real time. For example, during a language course, native speakers of Māori were recorded using Zoom and Hellen had sessions where STs could hear how they spoke Te Reo Māori. STs also recorded themselves and they could listen to each other and provide feedback. Hellen explained how she facilitated this session:

They [STs] say they don't have enough time for Te Reo Māori to hear other people using it or to get support so at least each week they must meet in a Zoom, they hear each other talk Te Reo Māori and then at the lecture we will watch it and are given formative feedback about what we were hearing, what some of the sounds were, ... is more about the hearing of the language, because we give them a lot of feedback about pronunciation, about what they're saying as well as the other grammar stuff, we actually used Zoom mainly for students to work together to hear the language.

During lesson observation Hellen organised STs into collaborative teams to discuss their class assignments. They used their smart phones and laptops to access the Internet and downloaded images, then uploaded the images to the Padlet wall which was embedded on LMS. Electronic brainstorming was modelled where STs posted their findings on Padlet wall and later on presented in class. Hellen used Padlets as a strategy for STs to engage in active learning, reflect on their learning, and develop skills such as critical thinking, problem solving and collaboration. Hellen stated that: *"Interesting for the Padlets I think, some of the students have really got some learning out from other people's thinking... I was really surprised how much they enjoyed finding things and posting and being really meaningful."* It is important for teacher educators to model such practices since STs are required to build positive relationships. Ntuli and Nyarambi (2018) noted that collaboration tools have been used in schools mainly for personal communication. They identified that high school students can brainstorm using Padlets hence an effective collaboration tool for STs to learn with and use it in their future classrooms.

Conclusion

Our findings identified mobile pedagogical approaches one teacher educator used to empower STs' learning and engagement in many locations including on-campus. It provides insight of how effective use of mobile technologies offer opportunities for new forms of teaching and learning. Since the findings confirm that STs were trained 'with' ML (Baran, 2014), we believe they were better prepared to integrate mobile technologies in their future classrooms. It is likely that other teacher educators may struggle to leverage the benefits of integrating mobile technologies into their teaching (Burden & Kearney, 2017). However, these findings reveal how one teacher educator transformed her pedagogies for meaningful and authentic learning by STs.

Collaborative activities, electronic brainstorming, and flipped classroom approach enabled STs to demonstrate their skills in creative ways, and share their ideas hence learn from each other while providing peer critique. We have identified specific mobile technologies and applications that may enhance teacher educators' pedagogies if effectively integrated into teaching and learning. Therefore, we recommend modelling using mobile technologies since schools are implementing BYOD initiatives (Fletcher et al, 2017). The study can inform further simultaneous renewal of ITE for teacher educators, policy makers, university stakeholders and partner schools.

This research is continuing to reveal more illustrations of ML that support collaborative learning, authentic learning, personalised learning, and STs can receive prompt feedback from their peers and the instructor (Fickel et al, 2017; Obonyo, Davis & Fickel, 2018). Teacher educators in Aotearoa New Zealand are transforming their pedagogies as part of a process of simultaneous renewal of practice in schools and ITE in this country. This paper provides examples of the mobile pedagogical practices that one teacher educator employed in her teaching.

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Paper Title: New uses for an existing model: adapting SAMR for new contexts

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Abstract

This is an exploration of the value of existing models in new settings. The example used is the SAMR model which was developed in 2006 by Dr. Ruben Puentedura. SAMR stands for Substitution, Augmentation, Modification and Redefinition. It was specifically designed to provide a model to help educators integrate technology into their teaching and learning practices, and has been used widely in this context. Underlying the SAMR model is a sound theory which can have far wider application in a great variety of contexts and situations. Exploration is made of the underlying SAMR concepts and their applications in two new settings: the provision of learner support in online classrooms and the connections between community archives and public libraries. The method follows the process of identifying the practice in each of these new settings to determine the best match of theory or model to apply in each case. The resulting adaptations are shown as models with the underlying SAMR theory presented alongside. The graduated stages of SAMR are able to be applied in new settings with good effect, providing a tried and tested framework for new and emerging practices. The process of adapting an existing model in a new setting can be used more widely for a range of new and emerging practices.

Introduction

When looking at a new or emerging practice in education or a related field, it is sometimes difficult to determine exactly what is happening and why, and difficult to understand how to best replicate it in your own practice. The need to identify and quantify new and emerging practices has led to theories being adapted or developed to provide explanations and frameworks for the implementation and operation of new practices. Practices often develop ahead of the theory, and theories may ultimately set out to explain what is, not what should be, in these cases.

Two recent emerging practices have been considered: the provision of learner support in online classrooms and the connections between community archives and public libraries. These two practices are hugely different – from different disciplines, on different subjects, with different purposes and for different audiences – yet both share the underlying similarity of having multiple possible levels of integration or involvement between two separate operations.

Searching for relevant theory and adapting theory for a new practice is an accepted practice in itself (Lynham, 2002; Tregaskis, 2002; Matavire & Brown, 2008), although caution needs to be exercised to ensure that the underlying basis of the theory fits well within the new context (Truex, Holmström & Keil, 2006; Matavire & Brown, 2008).

The SAMR model, introduced by Dr. Ruben Puentedura (2006), is one model which was designed for one purpose and is being used now for many others (mLearning – Romrell, Kidder & Wood, 2014; Music learning - Bauer, 2014). It has been identified as a close match to the two emerging practices identified above. The process of identification and adaptation of this model is the issue being investigated in this paper, as an example of how theories and models can be located to explain and manage new and emerging practices.

The problem being addressed

Finding relevant theories and models to support the introduction of new practices is sometimes difficult and sometimes next to impossible. New and emerging practices sometimes fit with existing theories and models, and sometimes break new boundaries which are beyond the scope of existing frameworks for things such as implementation, modification, use and assessment. One way of finding relevant theories is to ascertain the general pattern of what you are dealing with and identify existing theories and models exhibiting the same general pattern. Then a process begins of matching the underlying premises of the theories and models to ensure there is a workable match.

This was the process followed when confronted with explaining the new practice of integrating library support into the online classroom. The practice of integrating this support was developing but there was no theory or model behind it to provide guidance or shape to the new practice. In another situation, the process was followed when confronted with finding ways to explain how to build synergy between community archives and libraries, again with no existing theory or model to explain or manage this new practice. The process of finding a workable match became the key in explaining, guiding and directing these new practices.

Following a process of adapting theories and models for new contexts can provide guidance and support for the successful introduction and management of new practices. There is not always a direct match or a suitable theory that can be used as is, but by adapting it to the new context, workable models can be developed to help provide a clear roadmap for implementation or change where no other roadmap exists.

Study design/Approach

The key driver in conducting this process of finding and adapting theories and models was to make sense of an emerging practice and be able to describe it to others in a way that they could also make sense of it. Becoming involved in an emerging practice is sometimes dependent of finding a suitable entry point or way to engage with the practice, and so finding and adapting models is an important step in this process. The research question is: Can a suitable theory or model be found for this new or emerging practice and how can it be adapted to fit the practice as it is now being conducted?

The process followed was to start by drawing an initial model of the new practice from observation. Rough diagrams of the new practice were drawn in several iterations until key elements of the new practice emerged. This was repeated using observations of other instances of the same practice. Common elements of the initial models were then compared to find common points between them, and these formed the basis of the working model. Searches were then conducted on Google and Google Scholar using the Images setting to identify visually similar models in the same subject area. If nothing similar was found, the search was widened to related subjects areas.

If a similar match was found, the theory behind the model was then considered to see if it would equally apply to the new practice being observed. If it did apply equally, then the found model could be applied to the new practice. If the theory was reasonably aligned but did not fully match the new practice, then modification of the found model could be made to fit the new practice. If no similar match was found, then the initial models drawn by the researcher would form the basis of a new model which could be developed specifically for the new practice.

Findings

In the two examples of emerging practice being considered, the provision of learner support in online classrooms and the connections between community archives and public libraries, nothing was found in the areas of learner support or in library or archival studies respectively. When the net was cast wider, the SAMR model (Fig. 1) appeared in both IT and education and showed some similarities to the observed practice.

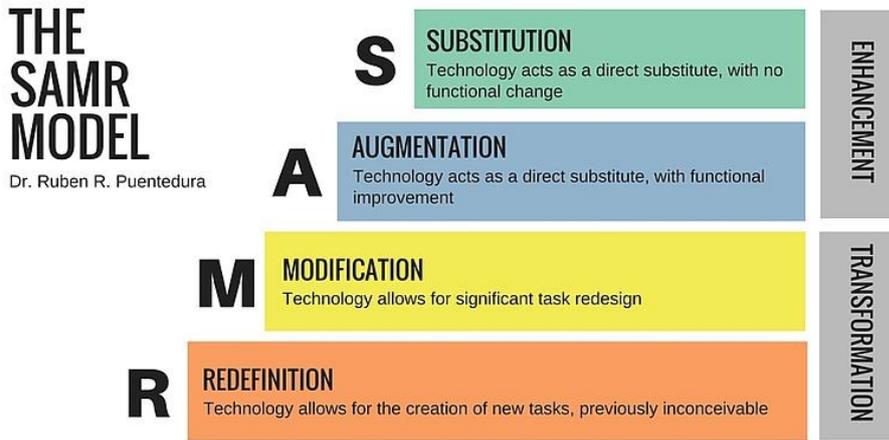


Figure 1. By Lefflerd (Own work) [CC BY-SA 4.0 (<https://creativecommons.org/licenses/by-sa/4.0>)], via Wikimedia Commons

In the provision of learner support in online classrooms, the classrooms being observed fell into two SAMR categories only: Augmentation and Modification. SAMR did provide theory around the two extremes of practice which could occur but were not exhibited in the particular classrooms being observed. It meant that a larger framework was able to be identified than was evident in just the classrooms being observed. This in turn had benefits to the larger study as it identified the wider context in which the observed classrooms sat.

Likewise, in considering the connections between community archives and public libraries, several different levels of engagement and synergy between these two groups were evident, but exhibited themselves in varying degrees of connection in each case. Here, SAMR provided a model not of four distinct stages of synergy, but of four fixed reference points on what is a continuum of synergy that is possible.

Discussion and conclusion

The key outcomes from this research were the development of two new applications of the SAMR model for emerging practices. Figure 2 identifies the key stages in the provision of learner support in online classrooms divided into the same four broad categories used in SAMR. These show the key stages in the progressive integration of library support in the online classroom and how it is manifested in this new practice.

Library support in the online classroom	SAMR
Support is responsive and conducted in or by the library	Substitution
Support is initiated in the classroom and conducted mainly in or by the library	Augmentation
Support is initiated and conducted mainly in or by the classroom	Modification
Support is anticipated and built into the online classroom	Redefinition

Figure 2. Comparison of the model for library support in the online classroom with the SAMR model.

Similarly, Figure 3 identifies key stages in the multiple contacts public libraries have with community archives, also divided into the four broad categories used in SAMR.

Community archives and public libraries	SAMR
Connect: the library directs users to relevant community archives	Substitution
Cement: the library creates links directly with community archives	Augmentation
Contribute: the library arranges contributions to community archives	Modification
Create: the library creates its own community archives	Redefinition

Figure 3. Comparison of the model for community archives and public libraries with the SAMR model.

One of the biggest benefits from adapting established models and theory is the weight of evidence which already exists in support of these. It means that uncharted waters can be mapped with some accuracy and confidence when using established theories and models already proven and accepted in the professions and academia. This helps in saving time and providing legitimacy to new models derived from existing sources.

In the first example above, the existing roadmap for integrating technology into the classroom can be applied to introducing library support in the online classroom with little alteration. SAMR gives a closely-aligned model and an existing literature outlining some of the key concepts used and tensions encountered in practice. This is a useful information resource for managing the new library support practice.

The second example above requires adaptation, not just application, of the SAMR model. Although this involves more effort and is one step further removed from the original model, it still affords a good degree of legitimacy and an established base of literature on which to build. It is important to ensure that there is still significant compatibility with the original model for the new model to be able to draw on the existing evidence base for understanding and legitimacy.

Other adaptations of the SAMR model have already been made (mLearning – Romrell, Kidder & Wood, 2014; Music learning - Bauer, 2014), and many other theories and models may come to light when searching for close matches to other new and emerging practices. The development of new theory may not be needed in a new situation if the development of an existing theory will provide a quality basis on which to model the new practice. There is sometimes merit and value in identifying and adapting existing models in new settings, and it is worth exploring as an avenue before new models are designed.

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Paper Title: Exploring ARMobile in Early Childhood Literacy Learning

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Submission

With the advancement of mobile technology and the recent advances within the field of Augmented Reality (AR), the application of these within early childhood education to support literacy learning is now becoming a real possibility. However, due to the emerging nature of these ideas, the area of ARMobile with children still needs further conceptualization and clarity is needed to address the value and impact these technologies may have on learning. This article looks at how AR could be adopted and used to support early literacy learning. The article introduces and examines the development of an early prototype used to explore these concepts. The prototype is the first phase of an ongoing study to explore and identify the potential of AR in pre-literacy learning.

Introduction

The adoption of technology to support and improve education is not a new phenomenon. However, as technology continually evolves, the role of technology to impact effective teaching and learning will continue to increase and this has the potential to influence each other. New and emerging technology continue to exacerbate this process.

In addition, the prevalence of mobile technology has made the use of technology ubiquitous and pervasive in everyday life. We are now surrounded by technology that is portable in nature and has crept into our classrooms and playgrounds and is now used by children of all ages and levels. The value of these technologies on effective learning is still a subject of much debate, however, the exploration and consideration of the potential of technology in how it could be used to support learner is still much a valid issue now as it has always been.

With the considerable advancement of mobile technology, new tools and technologies have been leveraged to new usages. One of these emerging technologies which have become more prevalent due to these advancements is Augmented Reality (AR). AR is the blend of virtual and reality, whereby digital information can be overlaid the real world environment by the use of a digital tool, such as a mobile device. AR technologies provide the capacity to empower real and virtual things to exist together in a comparable space and can be collaborated with continuously (Aurelia, Raj, & Saleh, 2014). AR technology is not a new phenomenon, however, with the increased performance of mobile devices it has made this technology more accessible. Therefore, the role of mobile technology has played a significant role in the current interest and prevalence of AR. Its adoption within education, however, has still some way to go with much of this research within this area is still emerging (Bacca, Baldiris, Fabregat, Graf & Kinshuk, 2014, MacCallum & Jamieson, 2017).

Within this research, one of the major focuses of AR technology is how it can be used with young children. When comparing Mobile AR to other similar technologies, such as Virtual Reality (VR), the size, use, and portability when used with a mobile device has been seen as a major enabler to its adoption (MacCallum & Jamieson, 2017). With the rapid uptake of smart devices and similar tools in schools, the leveraging of AR has meant that AR is more manageable and accessible for younger children.

This article examines the influence of technology on the area of literacy learning and how AR could be used to support learning at a young age. In addition, this articles describes a prototype developed to start the exploration of AR technology with the focus on supporting the teaching of early literacy to young children.

The problem being addressed

Teaching children to read, speak and write falls under the broad concept of literacy (Buckingham, Beaman & Wheldall, 2013). Teaching early literacy is a strong focus within the early childhood education programme and starts to be a focus from preschool (McLachlan, 2006). Much of these early approaches to teaching literacy happen in a social context rather than within formal instruction. Play-based learning is a fundamental approach where young learners are encouraged to explore and interact with their worlds and to gain and develop their learning. The early childhood curriculum (*Te Whāriki*) encourages educators to actively identify ways to incorporate and embed literacy learning when children are interacting with the physical environment (Hamer & Adams, 2002).

Early literacy learning is an important phase in the development of early learners and it's an important role of the child's educators (be it the parents or a teacher) to help support the development these skills (Ministry of Education, 2009). Educators need to have a range of strategies for promoting literacy. In a recent research project undertaken by the Education Review Office (2011), to identify the importance of early literacy and how this could be better supported, they identified how literacy knowledge and abilities can be enhanced through appropriate and meaningful literacy teaching and learning (Table 1).

Table 1: Literacy knowledge, abilities, and activities

Literacy knowledge and abilities	Literacy activities
<ul style="list-style-type: none"> • Alphabet knowledge • Letter-sound knowledge • Concepts about print • Concepts about books • Phonological awareness • Vocabulary knowledge <ul style="list-style-type: none"> ○ Unusual words ○ Narrative competence ○ Using decontextualized language • Discourse skills • Phonemic awareness 	<ul style="list-style-type: none"> • Rich oral language experiences such as: <ul style="list-style-type: none"> ○ Rhyming ○ Language play ○ Informal phonemic awareness activities ○ Storybook reading ○ Sings songs/waiata and nursery rhymes • Extended conversations including taking turns talking • Scribble making, letters, numbers, letter-like forms to represent things

Source: Education Review Office (2011)

Technology offers educators and parents a way to supplement and support learning with a focus on developing knowledge and abilities within literacy, with many tools developed to support the various literacy actives outlined

in this table. However, it is the role of mobile technology with the addition of AR technology that is the prime concern of this article.

Learning Literacy through Technology

The literature looking at literacy and technology is an evolving area of interest and one that is largely indistinct and unclear. This is mainly due to the rapid evolution of these technologies and the nature of educational research which makes longitudinal and empirical research difficult. According to Marsh and Singleton (2009), traditionally research into the adoption of technology in literacy learning has generally focused on two avenues; the first addressing how literacy needs to be defined in a digital age and the second “investigating the ways in which technology can enhance learners’ skills, knowledge, and understanding in relation to the reading and writing of print.” (as cited by Levy & Marsh, 2003 p168). Within the context of this paper and the wider context of this research project, the second avenue is largely our focus, however, it is important to acknowledge that these two avenues are strongly intertwined. It is important to acknowledge that many experts in the area of early childhood believe that these new technologies, such as the iPad, offer the promise to positively impact emergent stage learners (Hutchison, Beschoner & Schmidt-Crawford, 2012). In particular, there is increased research, though largely limited and small-scale, to show that these technologies, when applied appropriately, can support early literacy but also provide the opportunity for young children to learn the new literacies of the 21st Century by being exposed to texts in a new way, due to the interactive and gesture-based interaction of these new technologies (Sullivan & Baker, 2014).

The Potential of Mobile AR

In an earlier article by MacCallum and Jamieson (2017), they explored the specific affordance of AR over VR within general education. They identify four specific aspects that AR offers to education to make its use in education unique, they are 1) the ability to visualize of the 3D content and the support the exploration of the invisible, 2) support the provision of contextualized information, 3) enabling the portability of learning to interact with their environment, and 4) to better engage learners in a social and shared environment. These four characteristics can also be used within the context of using Mobile AR to support literacy. The adoption of digital information in the form of 3D and multimedia to draw in learners and enable them to engage with learning materials within a real environment in an individual or group context in the classroom or at home are potentially key aspects that Mobile AR can offer.

Current Research within AR and Literacy

Despite the relatively emerging nature of combining AR within early literacy, there are a small number of research projects that have started to address the specific benefits of this approach.

A common approach to combining literacy learning and AR is using AR content to engage learners with physical books. There are a number of researchers (Aurelia, Raj, & Saleh, 2014; Parhizkar, Shin, Lashkari, & Nian, 2011, Rodgers, 2014) exploring the use of storybooks enhanced with AR content. These studies typically involve the use of storybooks where AR content (such as interactive models of the characters in the book along with audio in the form of the read story or dialogue) is activated through a mobile device. These studies all indicate that the use of the AR not only engages the learner but with the use of audio and video helps to reinforce the story and support familiarity with and pronunciation of words. Overall, these studies indicate that AR helps support enhanced engagement and improves motivation of the children to engage with the app and the learning.

In an early example using a computer and camera, Hsieh and Lin (2006), developed an application that used AR technology along with an English vocabulary book and cards. The vocabulary book was used to familiarise the child with the letters of the alphabet and their associated objects using that letter of the alphabet. When the child directs the web camera onto the book the application picks up the marker of the letter and the child can listen to the pronunciation of the letter and phonetic sound and the pronunciation of the name of the object. Cards were also used in the study where children could match two cards, one the word and the other a picture of the corresponding object. Once matched a 3D image of the object would be shown if no match was made no object would appear on the monitor. Their study only introduced the prototype however the study did not address the benefits of this application for learning English.

A later but similar study by He, Ren, Zhu, Cai, and Chen (2014), used the same card matching approach with eight images and corresponding words, with correct matches showing a 3D image of the object and the pro-

nounce the word. With the use of pre and post-test, they found that the AR cards improved their learning when compared to a traditional method with the teacher lead instruction.

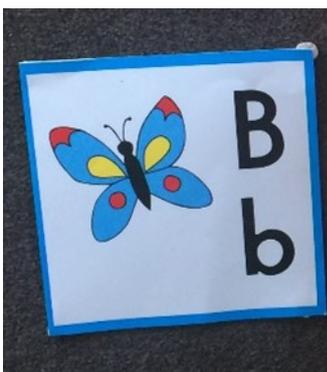
In addition to the studies outlined above, there are a number of similar studies that adopt a similar design to the prototype developed within this study. Rasalingam, Muniandy, and Rass (2014) developed a system that enabled children to interact with a set of flashcards depicting the alphabetical letters as markers. When the mobile device camera is directed at the flashcard a 3D image of the animal corresponding to the alphabet is shown on the device. It was, however, not clear if any sound was used in this application to reinforce the letter sounds. Majid, Yunus, Arshad, and Johari (2016) however use the same premise as the example above, however, they extended the prototype to include sounds of letters, songs related to the letters related to the alphabetical letter shown on the flashcard. Both these studies outlined a small exploratory study examines the use of this application with children. Both studies showed that the use of the AR application was effective in maintaining a high level of motivation and engagement among preschool children. In particular, they found that the use of the tool providing active and made students more interested in the learning.

All of the above studies have been drawn upon to refine and conceptualize our own prototype. However, these studies do highlight the need for a larger ongoing research approach since the vast majority of these studies were confined to small-scale studies and largely focus on the technical aspects of the app/system or on initial reactions rather than long-term engagement and learning.

The Prototype Design

The prototype developed in this study was created using Unity 3D and Vuforia to make the application and associated 3D images and animations. As with similar studies discussed in this paper, the prototype makes use of markers, in the form of cards showing a letter of the alphabet with an associated image representing that letter (see Figure 1a) to activate the content. The application works whereby when the application is launched on the mobile device, and the camera is focused on the marker, from this the following will be depicted on the mobile device; 1) a 3D animation of the object 2) The phonetic sound of the letter, and 3) the correct pronunciation of the word (see Figure 1a). The concept was used to familiarise children with the letters and pronunciation of the words. This approach provides the children a context when getting familiar with the sounds of the specific letter makes when pronouncing the letter phonetically.

The sounds and images have been selected specifically in consideration of the New Zealand context and culture and specific in terms of pronunciation and phonetic style.



a) Marker used to activate the associated content used in this prototype



b) A photo of how the device and marker card would work

Initial Evaluation and Future Iterations

The prototype is still in its initial early concept phase and there are still many additional enhancements that are planned. The study is planned as a long-term project to explore the various advanced of AR and how it can be employed in education. At this stage, the animation is not interactive and requires the use of markers to activate the content. However, future versions of this application will incorporate more engagement and richer experiences and also move away from predefined markers:

More engagement: Currently when the content is triggered (when the camera is pointed at the card) the animation and sound are activated, the interaction is not dynamic. Future versions will engage and interact with the learner by allowing the child to first pronounce the sound and either corrects the pronunciation or reinforce this pronunciation. The 3D models will also be interactive so children can engage with the models.

Richer experiences: The current system focuses on phonetic sounds of the alphabet. There is potential to expand to also include the other activities mentioned in table 1 and those mentioned in the other studies. In particular, there is future potential to include storybook reading and sounds, letter formation (by tracing letters on the device or in the real environment) and spelling or formation of words using the existing cards. It is also anticipated this tool could also be used for teaching Māori pronunciation

Enhanced AR technology: Since the current version of this prototype relies on marker-based technology there is the intention to adopt more advanced AR technology which could be used to enhance the capability of this application. With the use of machine learning and vision processing, this means that the application could potentially be used with any object or letter within the child's environment. Therefore, it provides the option for learning to be in context and learner can use their existing environment to learn and experience.

Future Work and Conclusion

The role of technology in early education is often a contentious issue, generally, since there is still little understanding of the potential impact of the rich digital lifestyles we currently lead and their influence in current teaching practice. As a result, there is an increasing number of new applications and systems all target at young children, all claiming to enhance and develop the abilities of young children in all areas of education. The area of literacy is certainly no different. Therefore, the adoption of any new tool that would be used with young children needs to carefully considered and evaluated to truly determine if this would actually be of benefit to the young learner. It is important that technology aimed at young children should carefully examine and the potential (and potential issues) before young children are exposed to these technologies. This article is the first stage in this process.

This article is an initial study addressing the current research into AR in literacy and starts to explore the potential of AR from a design approach to explore how this technology could potentially be incorporated into the educational experience. It is anticipated that once the prototype is further developed it will be trialed with children to examine the potential impact this technology may have on their learning.

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Paper Title: Re-focusing first year teaching: personal interaction, mastery and flexibility

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Practice paper outline

The wider context for our paper is a call to substantially change teaching and assessment in first year university courses. This is based on assessment literature and our own teaching observations. In this paper we focus on data from a first year information technology course that show student performance and marking effort. We use those data to assess the feasibility of a highly interactive mastery-based assessment approach and report on initial results of interviews with student support and teaching staff.

Introduction

Students enter higher education from diverse backgrounds, may face challenges outside of study and do not necessarily have a strong grounding in subject and learning skills. While some students are well prepared and achieve highly, many are not and progress to more advanced levels with only patchy understanding. To address this challenge, fundamental changes to how we teach and assess first year courses are required.

One option is to require students to demonstrate mastery of all material covered in a course, thus better preparing them for further study (McCane, Ott, Meek & Robins, 2017). To accommodate a diverse student cohort we propose combining mastery with flexible course duration (Heinrich, 2017). In this paper, we focus on the time taken currently to mark assignments in a first year university information technology course and compare this to the projected support time for a proposed flexible, mastery-based course. We draw on data from Semester 2, 2017, and interviews with nine university support and teaching staff undertaken in October 2017.

The practice under scrutiny

The information technology course is for both on-campus and distance students. It is a blended course and based on pre-recorded lecture material/demonstrations, complemented with online/classroom tutorials, lab support,

online office hours and discussion forums. Assessment is through four in-semester assignments and an end of semester exam. Internal assessment data are presented in Table 1.

Issues with conventional approaches to assessment have been highlighted (Price, Carroll, O'Donovan & Rust, 2011). Students who do not understand assignment topics to a high level in first year will struggle with more advanced material in subsequent courses. Table 1 indicates the gaps in student learning. Assuming that 60% indicates a reasonable grasp of material, 14% of students who pass the course will likely have gaps in their learning outcomes for Assignment 2 and similarly, 15% for Assignment 4 (based on a pass rate of 75%).

Providing students with repeat opportunities to complete tasks to a high level is at the heart of mastery assessment. What we want to emphasise is that marking and feedback provision becomes an interactive experience between students and staff. How many staff hours would be required to support this?

The four course assignments summarised in Table 1 are together worth 50 marks out of the course total of 100. The marker for assignments 2, 3 and 4 was an experienced postgraduate student paid on an hourly basis. Hours spent by the lecturer on supporting the marking process were not counted. A marking guide was used and the marker referenced a sample solution and gave individualised feedback.

Table 1: Assignment submission and marking data of course investigated

Assignment	Topic	Submissions	Average mark	Total marking hours	Marking minutes per submission
1	Getting Started	126	4.9/5	Peer assessed	-
2	Data modelling	114	10.3/15	44	23
3	Web technologies	110	12.3/15	31	17
4	PHP programming	88	12.0/15	28	19

In our proposed approach, each student creates a portfolio of work to address the assignment learning outcomes and then discusses their work with teaching staff. We assume that each support/assessment conversation takes 10 minutes. We further assume that the total support time students require to reach mastery will vary. Table 2 shows our estimates for numbers of support sessions based on existing achievement data. E.g., in Assignment 2, nine students achieved marks below 40%. If each of those students required 50 minutes of direct interaction with staff to achieve mastery level, we would have to invest a total of 7.5 hours.

Table 2: Actual numbers of students in each achievement band and estimated hours of marking and support time to lift those students to mastery level.

Achievement	S/A*(10mins each)	A2 Numbers	A2 Time Est. (hours)	A3 Numbers	A3 Time Est. (hours)	A4 Numbers	A4 Time Est. (hours)
90-100%	1	24	4.0	32	5.3	38	6.3
60-89%	2	53	17.7	77	25.7	37	12.3
40-59%	3	28	14.0	1	0.5	8	4.0
0-39%	5	9	7.5	0	0.0	5	4.2
Totals	-	114	43.2	110	31.5	88	26.8

* Support/assessment sessions ~10 minutes each.

Comparison of current assignment marking times with proposed support hours (Table 3) shows that the time spent in the two different schemes is similar.

Table 3: Comparison of current to proposed marking and support hours

Marking and support time	A2	A3	A4	Total
Hours currently spent on marking	44	31	28	103
Proposed hours to lift all students who have submitted to mastery level	43.2	31.5	26.8	101.5
Proposed additional hours to support all students*	10	13.3	32	55.3

* based on 5 additional support sessions for each student who failed to submit.

The last row in Table 3 provides our estimates to support all students to mastery level. With these hours included, 157 support hours would be required across all assignments compared to the existing 103. Based on what is observed in the literature (McCane et al., 2017; Price et al., 2011), we anticipate that strong students will achieve under either scheme, whereas weaker students should benefit from direct, one-on-one interactions with teaching staff.

There are assumptions embedded in our estimates. E.g., we assume that 10 minute sessions with staff will be sufficient. To explore the feasibility of our approach further we conducted interviews with nine student support and teaching staff. Our preliminary findings include:

- One-on-one support conversations with students are demanding. Typically half-hour appointments are scheduled although the actual time spent varies between a few minutes to more than an hour. In general, it would not be sustainable to conduct more than four longer meetings per day.
- Subject specific support should be complemented with relevant learning skills support and course design should interleave both.
- The importance of opportunities for group work in developing both subject and study skills was emphasised.
- Reaching students who need assistance is a common challenge and the importance of relationship building was stressed.
- Logistical issues around the provision of timely support need to be resolved.
- Careful course design and scaffolding is required to help to motivate and keep students on task, especially early in the course. Too much flexibility in terms of repeated opportunities to demonstrate mastery may result in students leaving everything to the last minute.

Discussion/conclusion

We were surprised at how close current and proposed marking and support times were (Table 3). Interviews with support staff suggest 10 minutes may be low compared to existing time allocations for one-to-one ad-hoc sessions with student learning consultants. However, since students and staff will already have the assignment context in common we are hopeful that the shorter time allocations will suffice, especially with group support and scene-setting sessions included as part of the course.

An important aspect of our approach is that every student must demonstrate their understanding to teaching staff and receive feedback. This opens up opportunities for reaching out to students who may not otherwise seek support. We aim to focus on the bigger picture of understanding rather than spending time justifying marks and formulating explanations that may or may not resonate with the student concerned. In addition, we will draw on insights derived from our interview data in designing and planning the course. Full results from interview data will be reported once analysis is complete.

Take home message

Too many students pass our courses with sizeable gaps in knowledge. Allowing those students to pass at first year sets them up for failure in their further studies and neither students, our disciplines or society gain in the long term. We therefore propose a mastery approach, adjusted to the flexible requirements of today's study realities and combined with opportunities for productive educational dialogue between students and between students and teachers.

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Workshop Title: Opening the doorway for success as Māori in an online community

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Overview

Opening the doorway for Māori to succeed in a digital community where cultural capacity and knowledge is valued and respected.

Description

- Purpose

We will share our experience with workshop participants of how we:

- a) engage Māori learners in an online environment
- b) engage whanau in an online environment in support of their learners
- c) create culturally relevant pathways for Māori learners to achieve success
- d) use review findings to further improve and adapt our practices

- Intended audience

Teachers, change agents and students who work in support of accelerating Māori student achievement.

- Proposed format

A shine and share approach; we put the spotlight on our practice and engage in reflective questions and discussions of our mahi.

The workshop will explore the application of authentic learning in a cultural context. This includes focusing on each student in their own context and placing them, and their interests and passions, firmly at the centre of their personalised learning programme.

There will be some interactive tinkering as people are creating and articulating their viewpoints encouraging multi-sensory learning.

- Workshop goals

- a) To share our approach to engaging Māori learners.
- b) To promote authentic learning pathways as an enabler for Māori success.

Paper Title: Smartphones as sole devices for study: Not as silly as it sounds?

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Paper Title

Smartphones as sole devices for study: Not as silly as it sounds?

Practice paper outline

In our research, we investigate if smartphones could be the only means to access higher education. 80% of developing countries' population own smartphones and only 19% own laptops/desktops. Could a student who owns a smartphone but does not have access to desktop/laptop computers successfully complete university courses? Using current mobile internet transfer rates from Kenya as an example, we provide data based on the evaluation of an existing video intensive course taught at a New Zealand university. This provides us with insights on where we lie in principle with participating in a course on a smartphone only. Our preliminary conclusions are that 'consuming' study material on smartphone is possible.

Introduction

Mobile learning provides ubiquitous access to educational content via mobile devices such as smartphones/tablets. Cheon and colleagues (2012) suggest that mobile devices can play a significant supplemental role within formal education by allowing flexible and instant access to rich digital resources. Although higher learning institutions are still slow in adopting mobile learning (Farley et al., 2015), some institutions are increasingly making use of the technologies. For instance, the Stanford Mobile Inquiry Learning Environment (SMILE) provides students with a mo-

mobile platform for creating, collaborating and evaluating queries regarding educational topics (Vázquez-Cano, 2014). Learning Management Systems (LMS), such as Moodle, provide increasingly sophisticated mobile apps.

Existing research sees mobile devices as supplementary tools. In our research, we investigate if mobile devices could be the only means to access higher education. In other words, could a student who owns a smartphone successfully complete university courses?

The motivation for our research lies in the proliferation of smartphones, especially in developing countries. 80% of the population in developing countries own smartphones compared to only 19% ownership of laptops/desktops (Deloitte, 2016). Broadband internet access in developing countries is low (Ericsson, 2017), and smartphone internet subscriptions serve as the only gateway to the internet (Deloitte, 2016; GSMA, 2017). In Kenya, mobile internet accounts for 99% of the total internet connections (CAK, 2017) and regarding access speeds, the country ranks highly in international comparison (Akamai, 2017; Ookla, 2017).

Many aspects need to be investigated to answer our question of smartphone-only study: is the screen size sufficient to view course material; is the storage capacity enough to store the material; is the download bandwidth high enough to access the materials; can the student create/upload their course work? A further consideration lies in who is responsible for making a course smartphone ready. Should the university provide supportive systems, is it up to the teacher to create material in a mobile friendly way, or should the student take responsibility? In this paper, we provide data based on an existing course taught at a New Zealand university to gain insights on where we lie in principle with participating in a course on a smartphone only.

The practice under scrutiny

Distance university courses are already making heavy use of learning technologies. The more advanced courses make extensive use of purpose-made video recordings for lecture and demonstration material. When creating this material, some thought is given to file sizes (e.g., by restricting the screen area captured), but major considerations are around pedagogy. To gain an understanding of data volumes involved we have analysed two weeks' worth of material from a first-year course that makes heavy use of video recordings.

The course material the students were expected to download consists of 121 minutes of video recordings plus PDF versions of the lecture slides. This amounted to 902MB of data. For the assignment related to this course section, the students had to prepare a document containing text and screenshots that was to be uploaded to the LMS in .pdf or .doc formats. To determine the file size per student, we took twelve student submissions with the highest scores, assuming that those had addressed all tasks. This resulted in an average of 760KB per file upload.

Using current mobile internet speeds from Kenya as representative of a developing country, we see that the course material of the two-week portion of the course can be downloaded in about 10 minutes and that the upload of the assignment would take less than thirty seconds even on a slow connection (see Tables 1 and 2). These figures indicate that the transfer rates should not pose a problem for students on mobile devices.

Estimated Transfer Time for 902 MB of Course Content Compared Against Typical Smartphone Data Transfer Speeds Across Various Networks in Kenya.

Key Terms:	MB - Megabyte, Mbps - Megabits per second, Kbps - Kilobits per second				
Formula:	Transfer Time = File Size (in bits)/Transfer Speed , 1MB= 8e+6 bits (b)				
Category	Theoretical Peak Speeds			Theoretical Expected Speeds	
	Download		2G	Download	Overall Speed
	3G (up to 42.2 Mbps)	4G (up to 150 Mbps)	Up to 236.8 Kbps	15.87 Mbps	13.7 Mbps
Approximate Transfer Time	3 minutes	1 minute	9 hours	8 minutes	9 minutes

Table 1: Download speed for 902MB data using mobile internet data speeds (JUmia, 2017; Naija Android Arena, 2017; Ookla, 2017; Akamai, 2017)

Estimated Transfer Time for 902 MB of Course Content Compared Against Typical Smartphone Data Transfer Speeds Across Various Networks in Kenya.

Key Terms:	MB - Megabyte, Mbps - Megabits per second, Kbps - Kilobits per second				
Formula:	Transfer Time = File Size (in bits)/Transfer Speed , 1MB= 8e+6 bits (b)				
Category	Theoretical Peak Speeds			Theoretical Expected Speeds	
	Download		2G	Download	Overall Speed
	3G (up to 42.2 Mbps)	4G (up to 150 Mbps)	Up to 236.8 Kbps	15.87 Mbps	13.7 Mbps
Approximate Transfer Time	3 minutes	1 minute	9 hours	8 minutes	9 minutes

Table 1: Download speed for 902MB data using mobile internet data speeds (JUmia, 2017; Naija Android Arena, 2017; Ookla, 2017; Akamai, 2017)

Next, we need to consider total data volumes. First, most mobile internet contracts in Kenya come with affordable data costs that are reducing with time (GSMA, 2017). This means accessing course material of this size is affordable. Second, we need to consider the total data requirements for a full course and the storage capacity of typical smartphones used in developing countries like Kenya. Our sample for two weeks of course material translates to about 5.5GB for a total course of twelve weeks, assuming the same high use of video material, also allowing for data related to student assignments and communication via discussion forums. Table 3 shows the common storage capacities for smartphones in Kenya today. From these data, we see that the total course material will fit within 16GB storage most Kenyan smartphones have.

Estimated Upload Time for 760 KB of Course Assignment Compared Against Typical Smartphone Data Transfer Speeds Across Various Networks in Kenya.			
Key Terms:	KB - Kilobyte, Mbps - Megabits per second, Kbps - Kilobits per second		
Formula:	Transfer Time = File Size (in bits)/Transfer Speed , 1 KB= 8000 bits (b)		
Category	Theoretical Peak Speeds		Theoretical Expected Speeds
	Upload		Upload
	3G (up to 11.5 Mbps)	4G (up to 50 Mbps)	Up to 236.8 Kbps
Approximate Transfer Time	Less than 1 second	25 Seconds	6.88 Mbps
Approximate Transfer Time	Less than 1 second	25 Seconds	Less than 1 second

Table 2: Upload speeds of 760KB data using mobile internet data (Jumia, 2017; Naija Android Arena, 2017)

Estimated Upload Time for 760 KB of Course Assignment Compared Against Typical Smartphone Data Transfer Speeds Across Various Networks in Kenya.			
Key Terms:	KB - Kilobyte, Mbps - Megabits per second, Kbps - Kilobits per second		
Formula:	Transfer Time = File Size (in bits)/Transfer Speed , 1 KB= 8000 bits (b)		
Category	Theoretical Peak Speeds		Theoretical Expected Speeds
	Upload		Upload
	3G (up to 11.5 Mbps)	4G (up to 50 Mbps)	Up to 236.8 Kbps
Approximate Transfer Time	Less than 1 second	25 Seconds	6.88 Mbps
Approximate Transfer Time	Less than 1 second	25 Seconds	Less than 1 second

Table 2: Upload speeds of 760KB data using mobile internet data (Jumia, 2017; Naija Android Arena, 2017)

The lecture recordings in our course example were assumed to be watched on a full monitor size. Watching the recordings on a smartphone we noted that some of the content was not easily readable. The main issue was not the small screen size, but the aspect ratio of the recordings. The two standard aspect ratios are 4:3 (33% wider than tall) and 16:9 (78% wider than tall). Aspect ratio does not affect quality of video but it changes what is viewed on screen. For instance, when put in landscape view, a 4:3 slide will appear smaller on a smartphone that supports 16:9 resolution. This is because 4:3 cannot fit into the

Typical Screen and Memory Specifications of Most Popular Smartphones in Kenya Price range: 100USD - 200USD	
Screen Resolution and Sizes	HD: 1280 * 720 pixels FHD: 1080 * 1920 pixels Screen Size: 5" to 5.7"
Storage and Memory	RAM: 1GB - 3GB Minimum internal storage: 16GB

Table 3: Typical Smartphone Specifications in Kenya (Jumia, 2017; Naija Android Arena, 2017)

Typical Screen and Memory Specifications of Most Popular Smartphones in Kenya Price range: 100USD - 200USD	
Screen Resolution and Sizes	HD: 1280 * 720 pixels FHD: 1080 * 1920 pixels Screen Size: 5" to 5.7"
Storage and Memory	RAM: 1GB - 3GB Minimum internal storage: 16GB

Table 3: Typical Smartphone Specifications in Kenya (Jumia, 2017; Naija Android Arena, 2017)

wide-screen of a 16:9 resolution, and if the screen was to be manually stretched the image would become blurred. Typical low (100USD) to mid-range (200USD) smartphones can comfortably support both resolutions. A slide in landscape view with 16:9 resolution will comfortably (without being cropped) occupy the entire screen of a smartphone with at least 5 inches screen display.

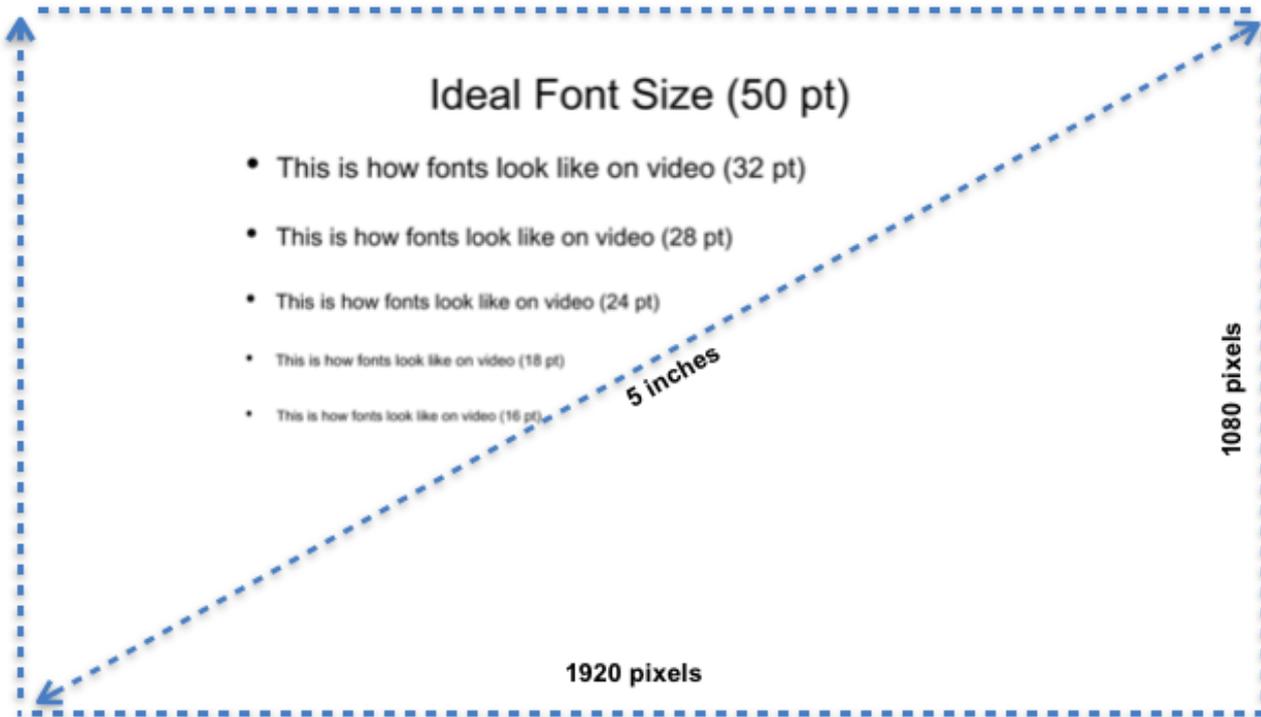


Figure 1: What fonts look like when lecture slide with 16:9 aspect ratio in landscape mode is viewed on a 5 inch smartphone screen display. Slide occupies entire screen.

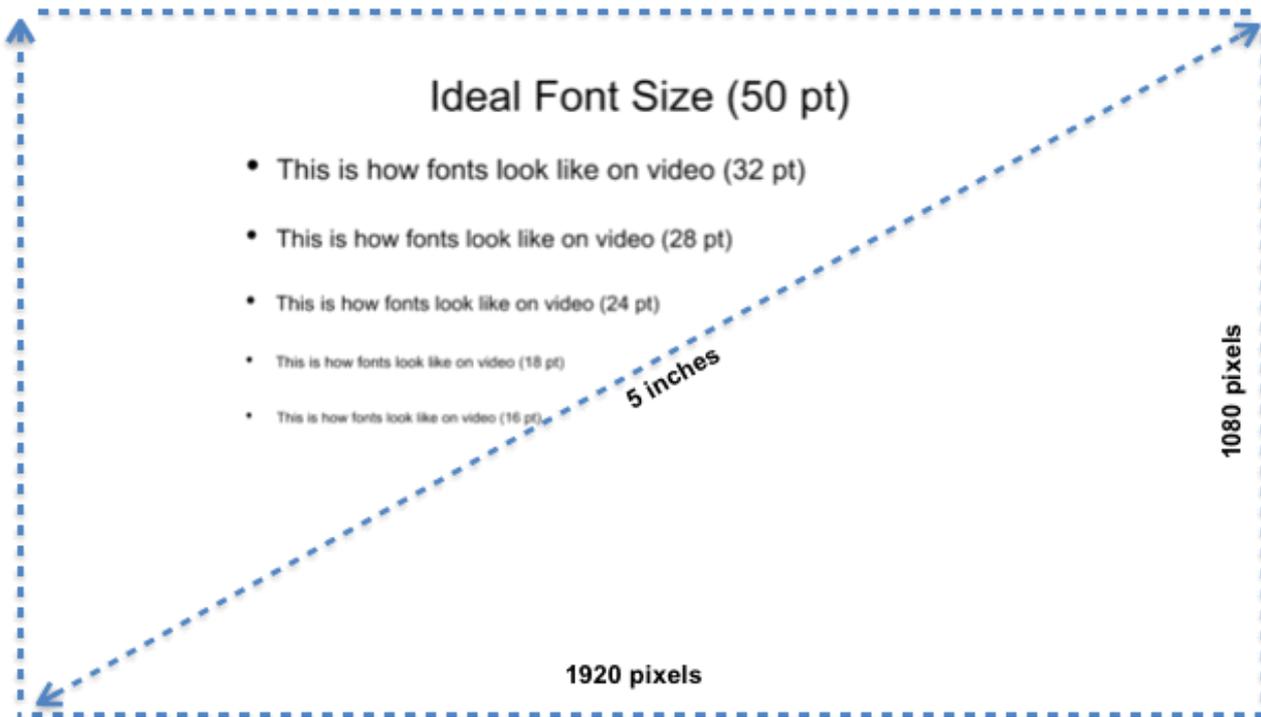


Figure 1: What fonts look like when lecture slide with 16:9 aspect ratio in landscape mode is viewed on a 5 inch smartphone screen display. Slide occupies entire screen.

Using a 4:3 and 16:9 aspect ratio we compared various font sizes to see how those appear on a smartphone with a 5 inch display size, see Figures 1 and 2. This indicates that text size larger than 28pt are preferable but text in font size 24pt can still be used.

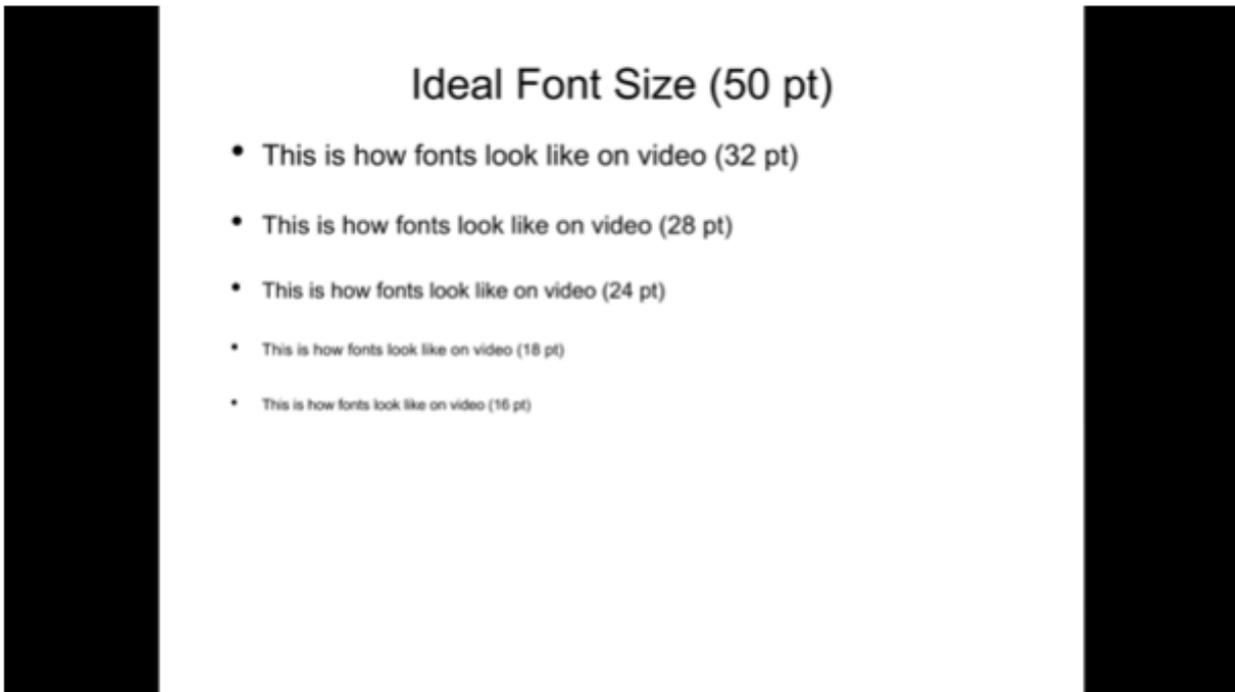


Figure 2: How the fonts look when viewed in landscape mode using a 4:3 aspect ratio (1920 * 1080 pixels) on a 5 inch smartphone screen display. Slide does not occupy whole screen, extra space replaced with black border

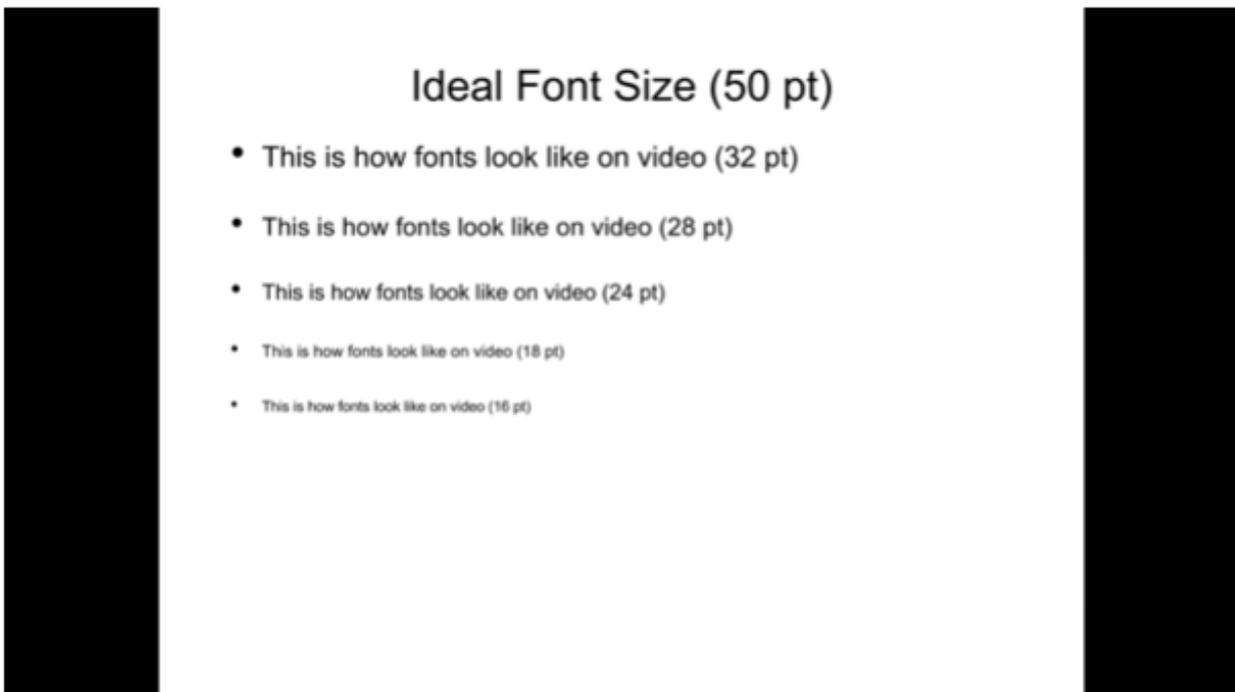


Figure 2: How the fonts look when viewed in landscape mode using a 4:3 aspect ratio (1920 * 1080 pixels) on a 5 inch smartphone screen display. Slide does not occupy whole screen, extra space replaced with black border

Discussion/conclusion

Looking at data transfer rates and storage capacities, our calculations show that it is feasible to study a video intensive course on a smartphone. The considerations around readability of content show that lots can be achieved, with the teacher creating the material considering some basic guidelines around aspect ratios and screen sizes. Our preliminary conclusions are that 'consuming' study material is possible.

What about contributing to a course? Can one type a whole essay on a smartphone? Does a smartphone have the software required to work on the course materials? We do not yet have full answers to those questions but are following up on promising leads. Today's smartphones are as powerful as laptops were only a few years ago and

many 'apps' have already been developed that will help our cause. Writing essays does not necessarily mean typing. Online solutions such as Google Keep and Google Voice Typing provide image-to-text and speech-to-text translation facilities. While not perfect, the accuracy of both approaches is already promising. The required software to support the studies depends on the subject area of a course. For many courses word processing facilities are sufficient while spreadsheets will be required for others.

So far we have discussed performing tasks normally done on desktop/laptop computers on a smartphone. Going further and actually building on strengths of mobile devices, one direction to follow up on is the potential of creating ad hoc peer to peer (P2P) file sharing networks. This is already an active research area and some examples have been implemented in university contexts (OpenIoT, 2015; McNamara & Yang, 2008). Using functionalities like this would not only help students in developing countries, but also have implications for on campus students in general.

Take home message

With an estimated 1 million mobile internet subscriptions added daily until 2022 (Ericsson, 2017), it is evident that mobile technology is here to stay. Widespread adoption of smartphones as the major gateway to the internet has prompted drastic advancements in mobile internet speeds by internet service providers. As a result, communication over the internet via mobile phones has tremendously improved. Building on fast mobile internet connections and ever more powerful devices, we are not far from the day when smartphone become real contenders as primary study devices. If participation in higher education is possible via a smartphone only, one more barrier to full participation in learning is removed for learners in developing countries.

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Paper Title: An architecture of ownership: First findings about learning to belong in a new secondary school

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Submission

Rototuna High School, a modern design new school, has now existed in two forms for two years- as a junior high school (first cohort intake in 2016 of Years 7-10; senior high school added first cohort Year 11 in 2017). Our Teacher Led Research Initiative project, (2017-2018), asks participant teachers and students to show us what it takes to belong to a completely new school and forge an agentic identity inside it. It is important to understand how those inside these new spaces take pedagogical, agentic and learning advantage of them. This research explored ways that foundation students and teachers made sense of new roles in new spaces, while developing the cultural mores of the school. We examined how a school comes into being from their perspectives, centring attention on identities of ownership within and across various architectures (physical, relational, learning, curriculum, assessment).

We invited the participant foundation staff and students to collect digital artefacts that could be labelled *meaning-making*, *belonging*, and *decision-making*. In focus group interviews, they could then explain to us what they signify. Through thematic analysis of the focus group data, we are learning what how staff and students identify what ownership means in this brand new school.

We present first findings from the initial group of interviews to shed some light on how participant staff and students make sense of their identity at Rototuna High School. These findings will contribute new understandings about how foundation staff and students find their way as a new school comes into being.

Introduction

The Ministry of Education is requiring new schools to be constructed as innovative learning environments (ILEs). This requirement also applies to upgrades in existing schools. ILEs extend beyond the physical attributes of school design and spaces to embrace the social, cultural and pedagogical actions that take place within them. It is important to understand how those inside these new spaces take pedagogical, agentic and identity advantage of them. How do they forge these identities within innovative physical, curriculum and relational spaces to reflect modern learning

needs? And how do they make sense of new roles in new spaces, while simultaneously developing the cultural mores of the school?

By using Fletcher's (2008) Architecture of Ownership concept as a unifying framework, we are learning how teachers and students at Rototuna High School make sense of, develop and exert agency in their new school. The two year project is funded as a Teaching Learning Research Initiative (TLRI).

Research literature examines what ILEs might mean. Mulcahy and Morrison (2017) discuss the apparent 'unproblematic' way new learning spaces are being promoted. They argue that such schooling spaces are becoming "*the strategic option for the building of new schools*" (p. 749) [authors' italics] in a range of countries, including New Zealand, as if they are a 'self-evident good' (p. 749). The OECD has published reports about the trends and requirements of teaching and learning in an always 'on' century, and one in which new classroom spaces are becoming more common (OECD, 2013).

Such an impetus for change has been precipitated by the wider and more immediate access to access to information afforded by the internet, offering schools the opportunity to always be 'on'. This access has revealed different patterns of learning, networking, connecting and developing approaches to information retrieval than in the past and has led educators to rethink what educational provision - both pedagogically and spatially - will need to address. A number of recent studies have focused on the role the new learning spaces themselves provide, such as Benade (2017), Charteris, Smardon and Nelson (2017), while Bisset (2014), Mackey, O'Reilly, Fletcher and Jansen (2017), McPhail (2016) and Wright (2017) focus more on the pedagogical and curriculum changes that appear to be happening in various New Zealand school contexts. In most cases, these studies examine the perspectives of school leaders or teachers about how they work in these spaces. However, our study takes a different position by focusing on what it means to belong as a teacher or student, in a brand new school. Our aim is to uncover how one school's inhabitants figure out their own sense of ownership and identity.

The problem being addressed

Because most current published research in the New Zealand context is centred on making sense of the spaces or teachers' perspectives, we have been missing a key part of the puzzle- that of students' perspectives. Given that position, we are focusing on what it means for teachers and students to **make their way in a brand new school**. What does it mean to be a teacher in such a school? In what ways do teachers carve an identity, make decisions, belong, and make meaning in a context of having to also develop a cultural ethos? And for students, how do they learn to grow and be successful in a new school with teachers who also new? Smyth (2006) has argued that "We still have a long way to go before we fully understand 'the everyday lived experience of how we "do" school' (p. xi)", and how we do school in a very new one is still unknown. And when a secondary school that combines with a middle school embarks on a curriculum integration project, what does this like for staff and students and how they shape their sense of belonging? What is being disrupted (Wright, 2017) within this architecture? This project is attempting to learn more about how teachers and students understand these questions.

Study design/Approach

Through Fletcher's framework of an Architecture of Ownership, we recruited staff and students willing to gather digital artefacts that represent their perceptions about belonging, meaning-making and decision-making. It focuses on how 'schools build a climate that takes students beyond mere engagement and into ownership of their learning' (Fletcher, 2008, para 1). Key tenets of this concept relate to "how students feel connected, engaged, and meaningfully involved when they are addressing relevant issues that reflect their interests, their passions, and their identities" (para 5). These tenets, according to the framework as developed from US schooling contexts, can be enacted through curriculum and leadership activities or extracurricular programmes that encompass roles and responsibilities that students see as meaningful.

Each of these areas of interest have been inspired by Phillips' (1990) in-depth understanding of adolescent/youth development, describing three key elements that not only precede Côté and Levine's (2002) work, but are also relevant to our project with secondary students. These elements are: *control* (level of individual agency), *bonding* (social and relational interactions among participants in the same places) and *meaning* (making sense of the spaces for learning and teaching purposes). Control is about an individual's competence, capability and the sense of power they might have about their ability to change their circumstances. Bonding is about forging connections and the relational aspects of being in shared social spaces: with family and peers, classmates and teachers. The third element, meaning, is about the extent to which people feel they are taken seriously and respected as a learner or teacher in

the same spaces. Holdsworth (2004) for example, used Phillips' venn diagram to discuss options for Australian youth attending a learning expo. Holdsworth's use of Phillips' three key elements illustrates how we will conceptualise student and teacher agentic identity formation within the framework of an Architecture of Ownership, by reframing the three elements as *decision-making (control)*, *belonging (bonding)*, and *meaning-making (meaning)*.

Another inspiration for the method of data generation came in the form of Nelson and Christensen's (2009) work. They used 'photovoice' as method of finding out more about how students in a secondary school experienced their learning. We adapted their idea for the school context and purpose of the study, by asking participants to choose their own artefacts to speak to, rather than providing ones we selected from observational visits. We provided participants with Google Drive folders into which they could deposit their artefacts within one of the three sub-folders, labelled as *decision-making*, *belonging*, and *meaning-making*. These are then available for the focus group meetings where owners of the artefacts tell us why they are significant, and why they put the artefact into the specific folder. In this way, the subject matter for discussion is of their choosing.

Data analysis has been an iterative process, generating emerging understandings that fed into future interviews (DiCicco-Bloom & Crabtree, 2006). All data were analysed in relation to Phillips' (1990) three intersecting points of *control*, *bonding* and *meaning*.

First Findings

The integration of curriculum areas provided students with opportunities to more readily embrace subjects they had previously disliked or had low confidence with. For example, one student said that having a specific mathematics topic linked with PE made the maths 'easy to understand because it was helping me make sense of how to track my PE skill improvement through the graphs'. Other subjects were used as vehicles for learning subject content knowledge, rather than being a cohesive link with the other content area through the learning objectives.

Students opening spoke about the centrality of relationships with their teachers and how this influenced their learning and overall enjoyment of the subject. Students enjoyed being trusted and treated in ways that allowed them to independently explore new ideas, ground or knowledge. They also liked being able to reconnect with teaching staff when needed, and could choose who to ask because teachers taught in teams.

Enforced relational structures such as advisory groups played an important role in introducing students to the 'culture' of the school and the ways in which 'we [want to] do things around here'. The advisories (the pastoral care focus), becomes a mechanism for instilling rituals, developing relationships across year levels, and helping students monitor their academic progress over time.

One idea, arising from the first set of student interviews, focused on the affordance of the newness of the school. It offered spaces for students to express their cultural and sexual identities. Currently, there are few routines or restrictions on what mattered or what could be created because of this newness. This factor created a space for a participant student to establish a LGBT group that meets regularly to support each other. By sharing photos of one of the meetings at the research focus group interview, the student was able to share ideas about belonging that she might otherwise have been unable to share in a well established school that already had embedded cultural mores about what was possible and valued.

Another student's view of belonging was reflected in a photograph of a kapa haka performance to welcome students from another school for a sports exchange. This student said that belonging to this kapa haka group was an important comfort level cultural link with his mother.

A regular theme from most other students centred on curriculum decision-making. This is connected to the significant personal responsibility placed on learners to track and manage their own learning plan and curriculum pathways. This responsibility is, however, tempered by being monitored by their Learning Advisor, whose role is geared to helping students focus on learning gaps and what to do about them over time. Students could talk knowledgeably about what this meant and how they were to address these gaps.

Discussion and conclusion

These very preliminary findings suggest that some aspects of the school are working effectively, but some appear to be patchy, especially from teachers' perspectives. For example, one of the key points we intend tracking over time is how well staff understand the concept of curriculum integration, how they are supported to change and develop their

thinking about this concept, and how to make learning more cohesive. A current hunch is that without clear understanding of this concept by leaders, it is difficult to develop the capabilities and capabilities of staff to alter their pedagogical and curriculum practices.

An associated emerging finding is the importance of getting the right teachers for the right roles. This fitness-for-context links to the kinds of student/teacher, student/student and teacher/teacher relationships that the school desires and how this goal links to curriculum content and pedagogical knowledge. This fitness also links to the strength and imagination of the learning area leaders to conceptually and practically understand what it means to integrate subjects across the curriculum into meaningful learning for students.

Students on the other hand, appear to be coping with learning across subjects, and understand when it works well. They are broadly positive about being able to track their own learning. For some students, being in a new school also offers opportunities for identity-making that might not exist in other schools. Their ability to make decisions that affect curriculum and school structures is not yet well defined, so this aspect appears to be rather superficial at present.

The Impact Projects were the most talked-about by both staff and students. An impact project involves students in working towards addressing some social need or a solution to an existing local problem. One of these was the lack of outdoor seating in the school. Students then undertook a technology-focused project to design options to populate the outdoor spaces with. Students remarked on this project and how positive they felt about seeing their peers' efforts come to fruition. Another was a kindness project. Both teachers and students remarked on how positive this Impact Project was, and the resulting good feelings it engendered. This suggests that learning that directly helps others in some way has a personal impact beyond the project itself.

As a work in progress, this TLRI, in its first year, is indicating something about the importance of leaders - at all levels of the school- needing space to make a difference to the conceptual thinking about how learning needs to happen. At the staff level, school leaders need spaces for interrogating the concept of 'integration' and decision-making so that these are able to be turned into effective and meaningful practice for learners (Wright, 2017).

Finally, a current struggle appears to be how to develop knowledge and practice about curriculum integration and how it works in specific contexts. An associated struggle is how to initiate and sustain student agency across all aspects of the school.

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Workshop Title: Show me your skillz

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Overview

This workshop fits the FLANZ2018 theme in a couple of areas:

- Innovations in designs for learning
- Assessment models
- New technologies and related pedagogies for learning

While portfolios are strictly speaking not completely new technologies, electronic portfolios are still very much emergent and still have a lot of capacity for growing understanding and establishment in learning and teaching. Progress is being made in tertiary institutions around the world as presentations at conferences such as the Eportfolio Forum in Australia and the AAEEBL conferences in the United States attest to, and portfolios start gaining traction around campus and are not anymore just used in individual courses or programs. They are also further explored for employability purposes supporting workplace learning.

Description

Electronic portfolios are quickly replacing paper-based portfolios at tertiary institutions as well as in professions as they are easier to access and maintain. One big change by making the leap to an electronic system is the possibility to aggregate information from a number of places and mix and match it as well as visualize it. Learners can take advantage

of the technology affordances and make better use of space and have additional information available that would otherwise be more difficult to access.

In this workshop we will explore SmartEvidence, a feature in the ePortfolio system Mahara that allows students as well as staff to align their portfolio to a competency framework. Besides the alignment, SmartEvidence offers an evidence map view that allows viewers of the portfolio to have a quick overview and entry point into exploring the portfolio in relation to specific competencies or skills. In contrast to paper-based evidence maps, the electronic version is enhanced and gives access to framework information on the spot without the need to consult a separate document.

You will create a short portfolio and learn how you can work with and benefit from SmartEvidence. You will view the competency assessment from both the student and assessor perspectives and gain insight on how to set up your own framework.

You are welcome to join if you are interested in portfolios and competency assessment. This is a hands-on workshop. Bring your own device! Laptops and tablets are best.

Workshop length

If possible, this should be a 95-minute workshop.

Venue requirements

I anticipate this to be a BYOD session. However, if there is the possibility to go to a computer lab (if it's near the regular conference rooms), I would like to take advantage of that in case participants don't all have their own devices.

Paper Title: Influencing Factors for Subjective Accessibility Evaluation by Students with Sensory Disabilities

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ABSTRACT

Subjective evaluation of university website accessibility raises several challenges when considering users with hearing and vision impairments. Extant literature does not adequately express the factors influencing accessibility for these users. Using a novel model and survey instrument, a user centred design based subjective evaluation method was trialled to determine influencing factors for website accessibility evaluation for that target group. It is essential to understand whether the identified factors significantly affect users' accessibility evaluation of educational websites as these factors figure importantly in the interaction between web-based systems and users. The model is applied to evaluate Australian university web-based systems. Analysis of survey outcomes indicate key differences for subjective website accessibility evaluation for each sensory disability group. The contributions of this paper are new findings from analysis of accessibility evaluation for users with visual and hearing impairments. These findings have implications for accessible educational website design for these user groups.

Introduction

Accessibility and usability are key components in providing excellent user experiences or interactions with web-based systems. An effective framework for ensuring the reliability and efficiency of accessibility evaluations can be founded on an analysis of a sample of users' subjective appraisals (Pipino et al., 2002). Extracting important fac-

tors that may affect end users' accessibility ratings through subjective evaluation models is expected to improve the design of accessibility guidelines and development solutions (Norman, 1998; Dias, 2012).

Accordingly, we developed a subjective evaluation method (Alahmadi & Drew, 2017a) to determine important influencing factors that may affect the evaluation of accessibility by individuals with visual disabilities (blind, visually impaired and low vision) and hearing disabilities (deaf, hearing impaired and hard of hearing) while they interact with web-based systems (university websites). Through a survey designed on the basis of the proposed model, we identified problem category (general, media or document), software skills, educational level, assistive software (usage and number) and independence as the main factors that may affect the subjective accessibility evaluation performed by disabled users.

We have distinguished the factors elsewhere relating to a model of accessibility evaluation and a related methodology for testing it. Here we are testing the relationship between items in that explanatory model for users with sensory disabilities. Our survey is testing the correlations (as hypotheses) between accessibility factors for that user group.

The literature was reviewed to identify the main issues related to the evaluation of website accessibility on the basis of user-centred design (UCD) theory. The goal of system evaluation is to determine whether a system satisfies the provisions of a contract or standard or whether it satisfies user needs. To understand system requirements, evaluators should involve end users, including people with disabilities, in assessments. User needs are identified through data collection via questionnaires, interviews, prototype testing, ethnographic studies, case studies and observational experiments (Dias, 2012). An approach that focuses on user needs is UCD, which is directed principally towards measuring user satisfaction. Understanding the characteristics and needs of people with disabilities (Figure 1) while they interact with web-based systems will lead to the design of improved evaluation criteria.

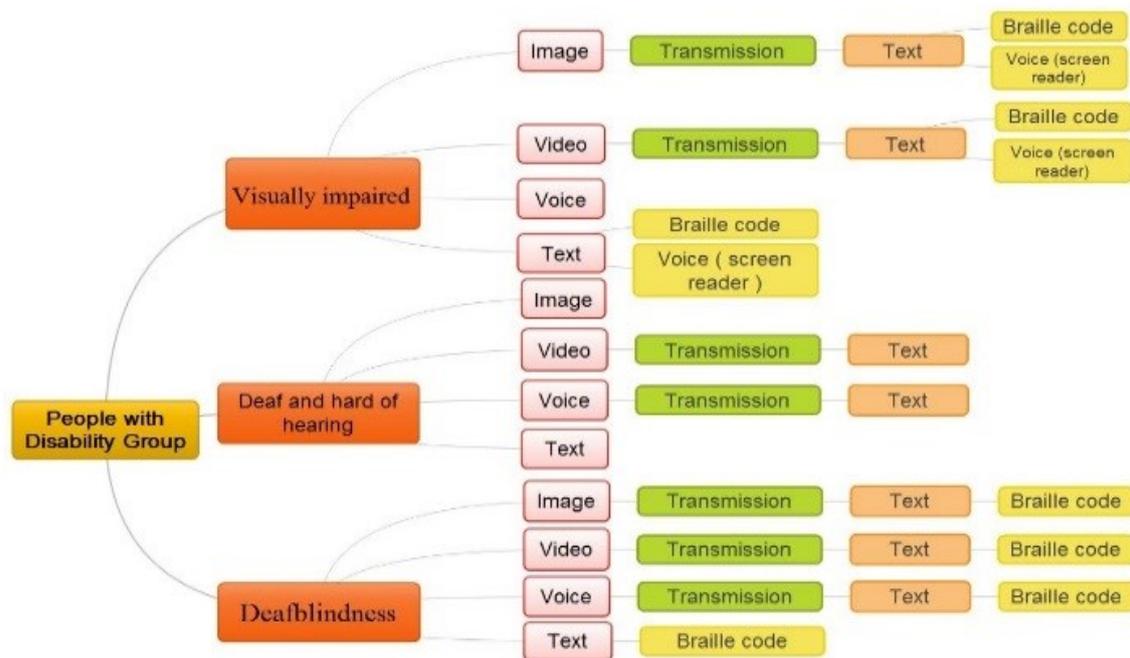


Figure 1: Heuristic priorities based on the characteristics of each disabled group (Alahmadi & Drew, 2017a).

Subjective evaluation of educational website accessibility is important equity step. In a recent empirical study (Alahmadi & Drew, 2017a), 40% of participants indicated that most captions or subtitles on websites are inaccurate, and 70% considered webpages poorly structured for navigation. Of all users with disabilities, visually impaired individuals are the most strongly affected by inaccessible educational systems (Paciello, 2000; Alahmadi & Drew, 2016, 2017b). Fichten, Jorgensen, Havel and Barile (2006) stated that many students use assistive technologies, such as screen readers, to effectively interact with a university web-based system. Coughlan, Ullmann and Lister (2017) analysed feedback from students with disabilities on the basis of their open-ended evaluative comments regarding online and distance learning platforms. The authors found that feedback can be effectively embedded into organisational processes for accessibility development.

The succeeding sections detail the extraction of influencing factors as study main problem, subjective evaluation method and its application as study approach, and the analysis of the effects of each factor with respect to users with visual and hearing disabilities while they interact with educational websites.

The problem being addressed

Extracting and analysing of influencing factors from designed subjective evaluation model is the main problem that has been addressed in this study. Following sub section provides in detail these factors, and how they have possible impacts on subjective evaluation.

EXTRACTION OF INFLUENCING FACTORS FOR SUBJECTIVE EVALUATION (SURVEY)

The important factors that may influence the opinions of users with sensory disabilities as they evaluate the accessibility of university websites were categorised. The factors that may primarily affect subjective accessibility evaluation are accessibility problem category (general, embedded media or embedded document), software skills, educational level, assistive software (usage and number) and independence (Figure 3).

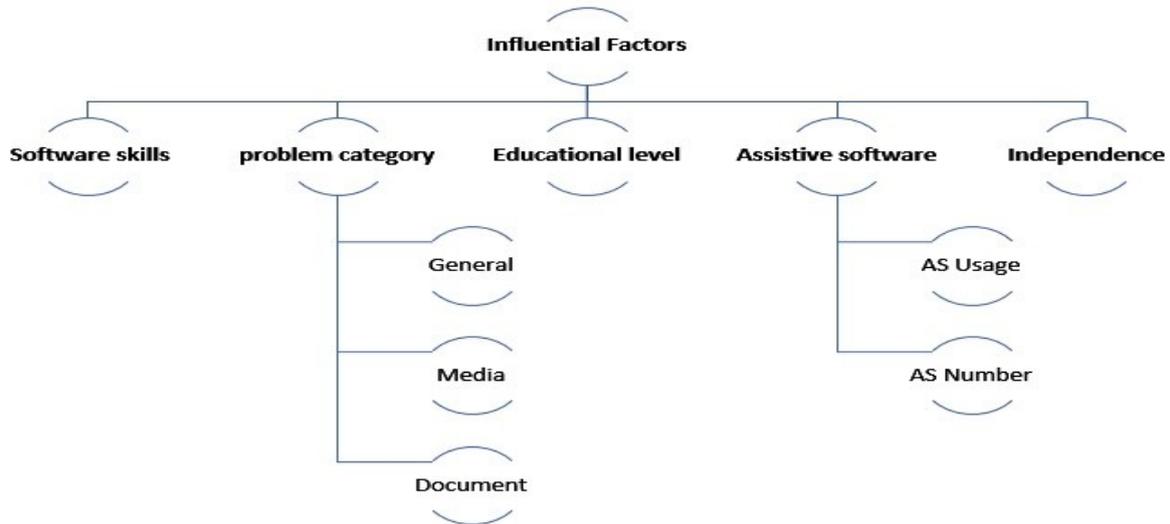


Figure 3: Influencing factors.

It is essential to understand whether the identified factors significantly affect users' accessibility evaluation of websites as these factors figure importantly in the interaction between web-based systems and users. Our proposed evaluation method identified problems related to general system effects and problems associated with media content, document files and assistive software. Levin and Gordon (1989) demonstrated that users with high levels of experience with software possess stronger software skills than those with less computer experience. The software skill levels considered by the authors were (1) 'very experienced and technical', (2) 'good but not very technical', (3) 'capable of coping with most software' and (4) 'find most software difficult to use' (Lewis, 1995). These levels may affect agreement among users who evaluate the accessibility of educational websites.

The independence of people with disabilities is a key element in the development of assistive technologies and accessibility solutions (Helal, Mokhtari & Abdulrazak, 2008). That is, developers of educational websites should increase the independence of disabled populations in interacting with the systems (Darcy, Green & Maxwell, 2017) because such independence may affect their rating of educational website accessibility. Assistive software programs have been adopted to guarantee optimal accessibility for users with disabilities. These programs, in conjunction with accessible websites, serve as the best practical solutions for disabled individuals, especially those suffering from visual impairments (Holzberg & O'Brien, 2016). The higher the number of accessibility problems encountered in assistive software, the less effective the interaction between users and websites (Zhang et al., 2017). Moreover, the use of assistive software involves additional tasks that are related to learning and training, which are costly and time consuming (Gómez-Martínez et al., 2015). This problem is exacerbated by the necessity of learning to deal with many types of assistive software. Correspondingly, the use and learning of assistive software may affect the accessibility ratings that visually and hearing-impaired people assign to educational websites.

Similarly, educational level considerably affects end users' interaction with systems. Users with high educational attainment exhibit more advanced software skills than do those with low levels of education (Davis & Davis, 1990). Users with different educational levels have varying requirements from educational websites. For example, the interaction of PhD students with websites is substantially affected by the inaccessibility of PDF files, whereas that of students completing a bachelor's program is affected by the inaccessibility of online exams (Roberts, Crittenden & Crittenden, 2011). Measuring the effects of educational level on accessibility ratings for educational websites is therefore an important task.

In second section, we illustrate the developed subjective evaluation model (study approach) which is used to extract influential factors data.

Study Approach

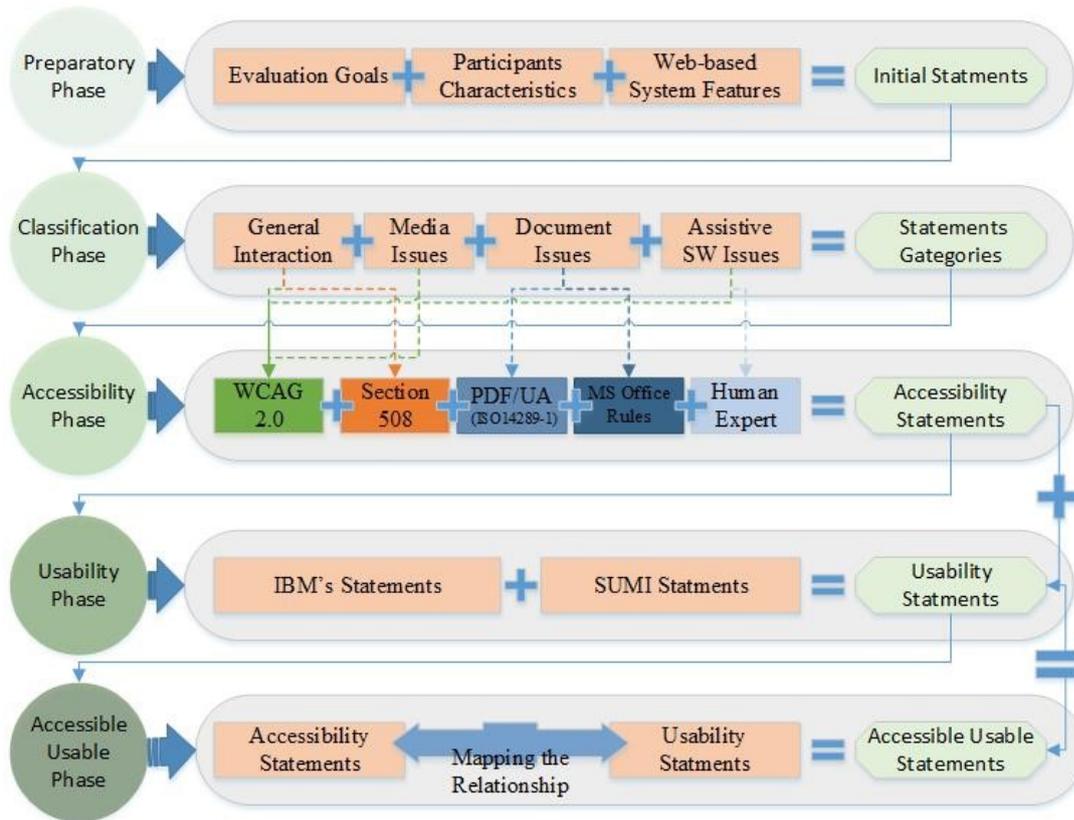


Figure 2: Proposed subjective evaluation method (Alahmadi & Drew, 2017a).

Proposed subjective evaluation model (Alahmadi & Drew, 2017) is underlain by two core goals. The first is to evaluate university websites from the perspective of end users to prioritise the checkpoints that are to be used objectively in assessment, rate satisfaction by using a Likert scale (agree, neutral, disagree and unable to evaluate) and identify the most effective checkpoints for study/work. The second goal is to extract the factors that may influence accessibility evaluation. The evaluation process involved in the model is divided into five phases (Figure 2). The preparatory phase entails three tasks, namely, the formulation of evaluation goals, the identification of user characteristics and the determination of web-based system features. If effectively implemented, these tasks will favourably impact final outcomes. They are intended for the evaluation of educational web-based systems, but they can also be used to assess other systems (e.g. travel sites). Extension to other sites requires only a modification of features such as web content types, main aims and user characteristics. The system (university websites) features designed to deliver learning and general materials, including videos, PDF files and images, are then determined. These files are uploaded to a variety of webpages, such as course, home, administration and news pages. These materials affect the engagement of disabled users with web-based systems. Blind, visually impaired and some low-vision users typically use screen readers and voice recognition software to interact with such systems. All these factors are considered in the second phase of the method, wherein evaluative statements (or accessibility problems) are classified into general, media, document and assistive software categories. The third phase involves the application of accessibility guidelines that align with each of the categories determined in phase two. Assistance from a human expert is enlisted in analysing any criteria that are not covered in the guidelines. The fourth phase is the analysis of the adoption of usability criteria from standards that are classified in the previous phases. The fifth stage entails the mapping of the relationship between usability and accessibility statements for the purpose of composing complete survey state-

ments, with reference to state-of-the-art accessibility and usability guidelines and standards (WCAG 2.0 (W3C, 2017), SUMI (Kirakowski, 1996), SECTION 508 (U.S. Department of Justice, 2016) and IBM (Lewis, 1995)).

Data Collection

Users with sensory disabilities were recruited for participation in our project, and the proposed subjective evaluation method was used as a basis in the evaluation of Australian university websites. Face-to-face and online surveys were administered to the participants. The online survey was completed by 61 participants assigned to the visual group (visually impaired, low vision and blind) and 38 participants assigned to the hearing group (hearing impaired, hard of hearing and deaf).

We formulated and verified hypotheses to demonstrate the differences between the visual and hearing groups in rating accessibility level as they interact with university websites. We focused on the following influencing factors: level of agreement in terms of general website accessibility, media content and document file accessibility, independence, software skills and usage and number of assistive software. The first hypothesis (H1): Accessibility ratings of educational websites has a positive correlation to the accessibility ratings of media content embedded in those pages. The second hypothesis (H2): Accessibility ratings of educational websites has a positive correlation to accessibility ratings of document files embedded in those pages. The third hypothesis (H3): Accessibility ratings of media content embedded in education websites has positive correlation to accessibility ratings of document files embedded in those educational websites. For example, the participants who regard most university websites as accessible regard embedded media content or document files accessible as well. The fourth hypothesis (H4): The hearing and visual groups' software skills has a positive correlation to the accessibility ratings of educational websites. The fifth hypothesis (H5): The hearing and visual groups' independence has a positive correlation to the accessibility ratings of educational websites. In that, independence means users who do not need support from other people as they interact with university websites. The sixth hypothesis (H6): The hearing and visual groups' assistive software usage has a positive correlation to the accessibility ratings of educational websites. Finally, the seventh hypothesis (H7): The hearing and visual groups' educational level has a positive correlation to the accessibility ratings of educational websites.

All the collected data were analysed by Chi-square testing, which was run using the Statistical Package for the Social Sciences (SPSS), the findings answer the study's proposed questions:

- How general accessibility issues, media and document files problems influence hearing and visual groups' evaluation?
- How software skills influence hearing and visual groups' evaluation?
- How Independence influence hearing and visual groups' evaluation?
- How assistive software influence hearing and visual groups' evaluation?
- How educational level influence hearing and visual groups' evaluation?

Findings

This section highlights the analysis of the influencing factors that were identified through the subjective evaluation of educational web-based information systems.

Effects of Accessibility Problems Related to General Issues, Media and Document Files on One Another

A Chi-square test was performed to verify H1, H2 and H3. In the hearing group, a relationship was found between the accessibility of university websites in general and media content on these sites in particular, $X^2(6, N = 38) = 22.82, p = .001$. Agreement among the participants was found with respect to the accessibility of university websites and the accessibility of document files on these sites, $X^2(4, N = 38) = 27.93, p = .001$. Finally, agreement among the participants was found in terms of the accessibility of media content and document files on university websites, $X^2(6, N = 38) = 32.97, p = .001$.

Similarly, in the visual group, a relationship was found between the accessibility of university websites in general and media content on these sites in particular, $X^2(4, N = 61) = 43.10, p = .001$. The participants agreed with regard to the accessibility of university websites and the accessibility of document files on these sites, $X^2(6, N = 61) = 34.54, p = .001$. Finally, agreement was found among the participants in terms of the accessibility of media content and document files on university websites, $X^2(6, N = 61) = 54.62, p = .001$.

These results demonstrate that visually and that hearing-impaired users who consider most university websites have low level of accessibility also regard the media content and document files embedded on these sites have

low level of accessibility, and vice versa, visually and hearing-impaired users who consider most university websites accessible also regard the media content and documents files embedded on these sites as accessible.

Effects of Software Skills

A Chi-square test was also performed to validate H4. In the hearing group, no relationship was found between the software skills of the participants and the accessibility of university websites, $X^2(4, N = 38) = 1.51, p = .825$. The same holds true for the visual group; that is, software skills do not affect the participants' rating of the accessibility of most university websites, $X^2(6, N = 61) = 3.15, p = .290$. To sum up, the visual and hearing groups in the current work consider most university websites have low level of accessibility, even among those with good software skills.

Effects of Independence

The validation of H5 reflected no relationship between the independence of the hearing group and agreement as to the negative impact of accessibility problems on their study or work, $X^2(6, N = 38) = 4.06, p = .668$. By contrast, the independence of the visual group in interacting with university websites affect their rating of the negative impact of accessibility problems on their study or work, $X^2(9, N = 61) = 41.57, p = .001$. In sum, the hearing group regards most university websites as accessible even if engagement with these sites requires support from other people, whereas the visual group considers most university websites have low level of accessibility when interaction necessitates support from other individuals.

Effects of Assistive Software

In the hearing group, the use of assistive software (e.g. caption creator) does not influence the participants' rating of university website accessibility, as indicated in the Chi-square test, $X^2(3, N = 38) = .984, p = .805$. However, the need to learn many assistive software programs to interact with university websites influences ratings of accessibility, $X^2(9, N = 38) = 17.056, p = .05$. In the visual group, the participants who use assistive software, such as screen readers, consider most university websites inaccessible. As indicated in the Chi-square test, assistive software usage affects accessibility ratings (H6), $X^2(2, N = 61) = 19.67, p = .001$. As with the hearing group, the need to learn many assistive software programs to interact with university websites influences the accessibility ratings of the visual group (H7), $X^2(6, N = 61) = 16.27, p = .012$.

Effects of Educational Level

Education level does not influence the accessibility ratings (H7) of the hearing group, $X^2(6, N = 38) = 6.836, p = .336$. The same holds true for the visual group, $X^2(6, N = 61) = 5.027, p = .540$.

Discussion/conclusion

The findings prove how each disability group has specific needs that align with their characteristics. There is significant impact of inaccessible contents on visual impaired student's opinions toward accessibility level of university websites. Although, the inaccessible web content has low impact on hearing impaired students.

This investigational analysis has highlighted a number of potentially fruitful directions for future work. The outcomes derived with respect to the influencing factors for subjective accessibility evaluation by users with sensory disabilities can be used as a basis in designing a set of accessibility guidelines for the evaluation of educational websites. Our findings can also serve as reference in creating a foundation for developing an adaptive and accessible quality content framework and in increase the awareness of organisations, educators and developers regarding accessibility issues. Finally, the proposed solutions can be used to enhance user satisfaction with their experiences in interacting with web-based systems, particularly those of universities.

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Paper Title: Development and use of a quality assurance framework for OER while practicing open philanthropy

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Submission

Global demand for higher education is increasing (Earle, 2010; Kanwar & Daniel, 2010; UNESCO & COL, 2015) and the Open Education Resource universitas (OERu) aims to help by increasing access to credited tertiary education. One of the OERu's working groups – the Quality Review team (QR team) is working towards this goal. This study examines the QR team's product and process. The focus is on the product: a quality assurance (QA) framework that the QR team is building for evaluating the OERu's courses. This framework builds on traditional ones by adding open education elements. The process is open philanthropy: a practice of granting access to anyone to meetings and working documents for consultation or for providing contributions (Surman, & Surman, 2008). Publications produced by the QR team are licensed openly so that others may use them as they see fit.

Data collection methods include participant-observation of the QR team's meetings; interviews with professionals in higher education; discourse analysis of online discussions; and document analysis (e.g. examination of quality assurance frameworks). Analysis of the process of developing the QA framework makes use of Davis' (2018) *Arena of change with technology in education*. This framework assists in comprehensively describing the complex relationships within a system involved in an innovation. The QA framework for open education is intended to support course developers in maximising the affordances of OER and OEP for the benefit of students.

Introduction

Global demand for tertiary education is increasing (Earle, 2010; Kanwar & Daniel, 2010; UNESCO & COL, 2015), and one organisation aiming to partially meet this demand is the Open Education Resource universitas (OERu). The OERu is a network of volunteers from international tertiary institutions aiming to offer accredited education to anyone. The OERu offers courses as open educational resources (OERs), which are openly licensed instructional materials that can be retained, reused, revised, remixed, and redistributed (Butcher, 2011; Wiley, n.d.). OERs are more effective when supported by open educational practices (OEPs) which consist of training for instruction in open environments, the implementation and support of open source technologies, and other resources and infrastructure (Conole, 2012).

One example of OERu's open educational practices is the development of a Quality Assurance (QA) framework to guide OER development. In this article, the focus is an examination of the framework while also describing how it is being developed by an OERu working group. This working group, called the Quality Review team (QR team) uses a process of open philanthropy whereby it consults the public and openly licenses its documents.

The problem being addressed

The problem addressed by this work is that OEPs are not common in higher education, and where they do occur, they are not well implemented (Conole, 2012). To improve OEP implementation requires organisational change in higher education. The purpose of this research is to determine how to improve instructional design processes for designing and developing high quality courses using OER while being supported by OEP in a context of organisational change. This paper addresses the guiding sub-questions listed below.

Main research question: How can the design and development of courses using OERs be improved for use in higher education institutions by implementing OEPs?

Guiding sub-questions addressed in this paper

- How are higher education institutions and networks currently using instructional design processes for open education?
- Which resources and processes may facilitate the implementation of OEPs, particularly for instructional design for open education?

Study design/Approach

Data collection for the portion of the study covered in this paper includes participant-observation of online meetings of the QR team composed of individuals from several international partner institutions. It also includes interviews with administrators, instructional designers, and subject-matter experts. As well, there is discourse analysis of live and archived online discussions about OER and OEP, and document analysis (examination of quality assurance frameworks, course content, and documents related to OEP implementation and OER development).

The QR team was selected for participant-observation because it is the OERu's working group whose tasks are most closely related to course design and development. The team is being observed in terms of how it develops a QA framework, how this framework is tested on an OERu course, and how the team practices open philanthropy.

The findings regarding the QR team's work will be analysed using Davis' (2018) *Arena of change with technology in education*. The Arena is based on the science of ecology in that a given system undergoing an innovation must be examined in a holistic way, including analysis at the site of the innovation and expanding out to higher levels up to the organisation, the nation, and the world. Holistic examination supports deeper analysis and in turn, more sustainable implementation of the innovation. Using the ecology-based terminology of the Arena, the system is called an *ecosphere* and is subdivided into layers extending from the local site of innovation (classroom, online platform, etc) to the global ecosystem. Within each layer are *species* (stakeholders) including the *keystone species* who can strongly influence how smoothly and successfully an innovation is implemented. There is also *non-living matter* (resources) such as documents, courses, hardware, software, etc. Once all the species and non-living matter are mapped to the framework, one can analyse the whole system to troubleshoot or improve innovation planning, among other options.

Findings

Using Davis' (2018) *Arena of change with technology in education*, the first step is to identify the innovation: the QA framework. The QA framework is intended to guide development of open courses using openly licensed materials and open instruction. The site of development is WikiEducator (non-living matter), which is hosted by the OERu.

Openly licensed quality frameworks (non-living matter), serve as starting materials. Two examples are from eCampusAlberta (2016) and CEMCA and COL (2014). These frameworks cover the following topics: web design standards, course information standards, writing standards, resources standards, organization standards, pedagogy standards, technology standards (eCampusAlberta, 2016); and teaching and learning processes, information and material content, presentation product and format, system technical and technology (CEMCA & COL, 2014). These topics, along with those from other frameworks, will need to be reconciled and adapted to the OERu's needs. In particular, the OERu's QA framework will need to account for the affordances of open education such as those supported by OER and open online platforms. Once the QA framework is completed it will be used to evaluate the OERu's courses. Subsequently, it will be adapted as necessary.

The QA framework is being developed by a team of people (species) each with experience in instructional design, open education, and working with the OERu. The team members are from international tertiary institutions, which are mapped in the Arena's highest level: the global ecosphere. The team includes the OERu director, who is the keystone species because he facilitates the QR team's work with his extensive knowledge and memory of how the OERu operates. Having described the arena, it is worth exploring the process used by the members of the OERu: open philanthropy.

The open philanthropy approach is an aspect of organisational culture whereby the team is inclusive and accepts contributions from anyone. Anyone can edit or comment on the QA framework in the WikiEducator online platform or participate in the OERu Community discussion forum with the "Quality Group" tag. In the Arena, the platform and the forum are non-living matter in both the international and organisational ecosystems. There are other implications of open philanthropy: the OERu uses open source software and publishes its planning documents and courses with an open license. It works as a community, forms partnerships, and shares its planning documents publicly so that others may refer to them or copy them. Open philanthropy is also about being open to suggestions from stakeholders and nurturing ideas so that they can be realised with adequate planning for sustainability (Surman, & Surman, 2008).

Discussion/conclusion

Davis' (2018) Arena for the development of a QA framework for the OERu highlights some areas for potential involvement with additional parties (species). The work currently does not involve students, but it could, though there are ethical issues to consider. If the OERu involved students in its work, it could strengthen its relationships with them and help them to better understand the benefits and risks of open education.

Davis' Arena also highlights that there are few people involved in developing a QA framework for open education. Upon completion, it will serve a wider audience (beyond the QR team) in evaluating OERu courses. This application of open philanthropy is an opportunity to raise awareness about open pedagogies and to stimulate further innovation.

The practices of building the QA framework, analysing it against frameworks such as that of Hegarty (2015), and using it to evaluate courses are examples of open educational practices, as is the practice of open philanthropy. These OEPs can be used as models by open education organisations. Thus, the innovation can support open educational practices throughout the OERu system.

Further discussion points will emerge as the research develops. Forthcoming semi-structured interviews will cover topics such as effective practices in quality assurance processes, obstacles and enablers of developing courses and QA documents openly, and particular QA points (learning theories and instructional design adapted to open instruction, designing for diverse learners, and designing for a variety of thinking and applied skills).

The work of the OERu's Quality Review team described in this research can serve as a model for other institutions interested in developing OERs and implementing OEPs. The findings in this developing study lead to further questions: What kinds of issues need to be addressed in a quality assurance framework for open education? What is the impact of this quality assurance framework on the learning experience for students? What can be learned from this exercise in open philanthropy for the benefit of other institutions?

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Paper Title: yaneekan-werreeyt: a journey to culturally safe practice through simulated immersion for social work students

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Practice paper outline

Universities in Australia are tasked to educate future professionals on the impact of colonialism on Aboriginal First Nation peoples and the implications of this for practice in respective disciplines. Respecting, honouring and incorporating cultural practices, knowledge and skills in the curriculum is a step towards reconciliation. Resilient and resourceful Wadawurrung people of the Kulin Nation of Victoria have taken the opportunity to draw on recent technological developments to assist social work academics and resource development staff at Deakin University to develop an online simulation tool which can create immersive experiences to support understanding of cultural practices, knowledge and skills. The result is 'yaneekan-werreeyt' which in Wadawurrung Language means 'journey'. The purpose of yaneekan-werreeyt is to ensure social work students learn to practice social work in a way that is culturally safe and effective and does no harm to Aboriginal people and communities. This practice paper will describe the resource itself, the pedagogy underpinning the teaching resource and the process of its development.

Introduction

Culturally safe practice is essential for social work in colonised countries such as Australia and New Zealand. This is not only for compliance with professional standards as stipulated by professional regulating bodies, but also to be in keeping with values and ethics of the profession itself (Zubrzycki, Green, Jones, Stratton, Young, & Bes-sarab, 2014). In New Zealand schools of social work, students can develop understanding of Maori worldviews and cultural practices through immersion in located Marae based experiences. This has necessarily required students to be present on the Marae for a number of days (Walker, 2012). Immersion in a cultural experience is a transformative learning pedagogy since it helps to begin the process of decolonisation of hearts and minds. Alongside this, however, additional work is needed to translate this deepened understanding into culturally competent attitudes and behaviours (Walker, 2012).

In Victoria, Australia, the way the area was colonised has meant it is more difficult for social work students to have an opportunity to be immersed in the cultural practices of Aboriginal peoples in the area. This makes the development of culturally safe practices by non-Aboriginal practitioners even more challenging. While the Australian Association of Social Workers *Code of Ethics* (AASW, 2010) state key values of respect for persons, social justice and professional integrity, social work has historically and continues to be implicated in social policies that devastate Aboriginal people and their communities, including those relating to the removal of children. In Victoria, Aboriginal children are 14.6 times more likely to be in out of home care compared to non-Aboriginal children, and 41% were not placed with kin or Aboriginal families (<https://aifs.gov.au/cfca/publications/child-protection-and-aboriginal-and-torres-strait-islander-children>). These numbers have been rising steadily since 2012. One of the reasons identified for not placing Aboriginal children with kin is inconsistent involvement of, and support for, Indigenous people and organisations in child protection decision-making (Arney, Iannos, Chong, McDougall, & Parkinson, 2015). Contributing to this is a lack of training of social workers about the importance of cultural identity and connection through the family (Australian Centre for Child Protection, 2013) and a need for a shift in attitudes and understanding of Aboriginal and Torres Strait Islander family structures and world views (Arney et al., 2015).

The practice under scrutiny

Yaneekan-werreeyt is an online simulation resource developed through collaboration between a resource development team (including a video producer, video designer and interactive designer), social work academics at Deakin University, and Traditional Custodians of the area. The resource is embedded into an online learning management platform to enable students to access it during their social work training. It is thus a virtual space, and a key feature of the tool is a series of videos that follow the journey of 'James', a young Aboriginal boy who was removed from his mother and placed in the care of his father who lives 'on Country'. These videos place students in the room with James during art therapy sessions and give an insight into the importance culture and connection to the land and family play in his young life.

Alongside the videos of James which simulate immersion into the cultural practices of the area, the resource provides a range of resources for students to explore and learn from. These resources include history, policy, legislation and services. During the teaching period, students are required to locate themselves in the role of social worker for James and carry out practice activities in culturally safe ways, including the use of The Aboriginal and Torres Strait Islander Child Placement Principle. They are then assessed on their ability to do this.

Simulation has been shown to be an effective learning tool for students to understand experiences of those they work with in a deep way. For example, a study by Vandsburger, Duncan-Daston, Akerson, & Dillon (2010) found their simulation resource enabled students to understand the experience of client poverty, which would otherwise be inaccessible to them. Min-Yu Lau and colleagues also used simulation to develop students' cultural competence (Min-Yu Lau, Woodward-Kron, Livesay, Elliott, & Nicholson, 2016). The pedagogy is underpinned by the notion of immersion as a way of transforming thinking and feeling (Cooper & Briggs, 2014), as opposed to merely understanding a concept in an intellectual way.

Yaneekan-werreeyt is part of a larger simulation project designed to educate students on the lived experience of service users and develop a client-centered approach to practice. The project drew on practice knowledge of the team to develop the client's story and all the characters in it, including James' story. A key feature of the journey of developing yaneekan-werreeyt was the engagement and prioritisation of local Aboriginal voices in planning, script development, and filming, to enable students to get an authentic view of what it is like for Aboriginal families in this area.

Non-Aboriginal team members also learnt a great deal from involvement in this process, including understanding of the significance of land and cultural practices, and underpinning spirituality of these. Most importantly, relationships between Deakin staff and Traditional Custodians were strengthened and enriched through the process.

Discussion/conclusion

The process of learning to practice in culturally safe ways necessarily requires a transformation in understanding of the self in relation to the history and culture of a colonised peoples. It requires an ability to grasp and embrace ways of knowing and being that are not dominant in Euro-Western mainstream media and culture. Immersion simulation learning and assessment pedagogy can contribute to this process for social work and other disciplines. Learning activities and assessment practices in virtual spaces that are connected with expected learning outcomes around cultural safety in actual practice scenarios means students can learn in authentic ways that do no harm to service users

Take home message

The development of this virtual space demonstrates the resilience and resourcefulness of the Wadawurrung people, and represents a new, exciting and accessible space for developing practitioners to develop knowledge, skills, and understandings of what it means to live and work in ethical and culturally safe ways in this region.

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Paper Title: Influences and evolution of online tertiary teaching in New Zealand: Faculty and Educational Designer views

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Abstract

Online teaching practice involves skilful negotiation between a teacher's goals and the inherent pedagogies and constraints of the institutional and environmental system they are working within. This longitudinal research project explored teachers and educational designers' experiences of online course design and teaching from 2014-2016 across three New Zealand tertiary institutions. A grounded theory approach to data collection involving interviews, observations of practice, and publicly available institutional documents was then analysed through the lens of Cultural Historical Activity Theory (CHAT) to identify key factors influencing online teaching practice. Peer relationships were found to be a significant source of professional development for teachers, while workload, research pressures, lack of time to experiment, and limited technological support were identified as constraining effective course design and teaching. Relationships between teachers and educational designers were affected by the institutional system and rules around working together. Governmental funding policies had significant impact on teaching practice and course design, as teachers sought to meet TEC KPIs for student completions. This research will be of interest to those working in a variety of educational settings who are interested in the influence of institutional and governmental policy on teaching practice.

Introduction

Online teaching requires careful negotiation between the goals, beliefs and philosophy of the teacher and the inherent pedagogy of the technologies and system they are working within (Anderson & Dron, 2011). While the relationship between individual teacher beliefs, experiences and technology use in online and distance teaching has been well explored (see for example, Benson, Lawler, & Whitworth, 2008; Mcloughlin & Lee, 2007; Nunes & Mcpherson, 2007; Payne & Reinhart, 2008), the impact of other influential factors such as institutional systems, government policies and opportunities for professional development remain comparatively under-researched (Lawrence & Lentle-Keenan, 2013; Stein, Shephard, & Harris, 2011; Zawacki-Richter, 2009). It is this gap that the current research seeks to address by providing some insight into the opportunities, challenges, tensions and issues faced by participants as they negotiate the various factors impacting their teaching and design in the online and distance environment.

The problem being addressed

The purpose of the research was to investigate the individual and environmental factors that influence online tertiary teaching, specifically their effect on course design and teaching practice, and how these effects may change over time.

Study design/Approach

Fifteen teachers and educational designers from two NZ universities and one NZ polytechnic shared their experience of designing and teaching online between 2014 and 2016. Data was collected through interviews, and examples of course design and teaching were observed. To supplement participant perspectives of their institution, publicly available information about policies and systems at each institution was also collected and analysed.

The research used a grounded theory approach (Charmaz, 2006) for initial data collection and coding, complemented by the use of Cultural Historical Activity Theory (CHAT) (Engeström, 2000) as a framework for systemic analysis. The longitudinal design allowed for capture of chronological change within the systems, and consideration of system dynamics and evolution. To further contextualise the individual and institutional changes observed, data from the wider tertiary teaching environment, including data on governmental strategies, policies and funding, and international education trends, was reviewed.

Findings

The findings are considered through the lens of CHAT, and discussed in relation to the key dimensions of the CHAT model – subject, goal, tools, rules, community and division of labour. Participant perspectives (as the subject) informed the development of a systemic picture of each institution and its operating environment. While there were clear differences between the three institutions, there were also common issues and challenges shared by participants across institutions. Some key findings are briefly outlined here:

Goals

Individuals across institutions shared a common high-level goal – put simply, most were focused on being the best teacher they could be, which they hoped would translate to the goal of students enjoying their learning and therefore succeeding in the course. Institutional goals tended to have a different focus, more closely related to TEC KPIs, and this alignment became stronger between 2014-2016, as did the subsequent pressure on staff to modify their teaching to meet these institutional goals.

Tools

Staff across all institutions took a pragmatic view of the use of technology. All participants saw benefits in judicious use of technological tools to achieving teaching and course design goals, and wanted the freedom to choose which tools to use with their specific students. Participants also noted the challenges with finding the time to explore new technologies, given completing pressures of teaching current courses, research, and administration. Challenges arose in institutions where certain technologies were mandated, and participants could not see pedagogical value for their student cohort. Limited institutional resourcing (including budget and technical support) for trying new technologies was also noted as a challenge, with some participants becoming early adopters just so they could ‘get in first before the money ran out’.

Rules

Staff at the Polytechnic were subject to a much greater range and number of rules and policies than staff at the Universities. This was partly related to the particular organisational model (an industrial model, with clear siloed roles and responsibilities), and partly related to the differing TEC funding and reporting for ITPs compared to Universities. As TEC policies changed to include Universities in similar funding and reporting requirements, there was a shift in the rules experienced by the University participants who then began to report similar challenges to those experienced by the Polytechnic participants. Across all three institutions, staff noted an overabundance of ‘lumbering and cumbersome’ rules and ‘unnecessary bureaucracy’ that they felt got in the way of their teaching practice.

Community

Participants’ experiences of their working community varied by individual. Some individuals were highly community focused, and most of their professional development and course design or teaching practice ideas were sourced from peers and colleagues. Other participants were reliant on just one or two co-workers to discuss ideas with. Teaching participants tended to be more community oriented than educational design participants, which may be an artefact of the greater variety in professional background of educational design staff, meaning that there is a less discrete or clear community of practice compared to teaching staff.

Division of Labour

Participants discussed several key supporters in the development of courses. The main relationship was between teaching staff and educational design staff, but teachers also spoke of the key roles played by library and copyright staff, technical support staff, and programme co-ordinators. University participants, whose relationship with other staff was on a ‘as needs’ basis, where the staff member could request help or support as they required it, described positive relationships with educational designers and other support staff. The polytechnic participants, whose organisation mandated educational design input into all course design changes, and in some cases gave educational designers final sign off on a course, experienced fraught and complex relationships with educational design and other support staff. The educational designer participants from the polytechnic also reported challenges with the system, and the impact it had on relationships between faculty and educational design. The prescribed approach to course

design followed by the Polytechnic was a source of frustration to participants, some of whom felt that a consistent, quality assured approach should not override the freedom to design a course to suit the subject or student cohort.

NZ Tertiary education system effects

Participants across all institutions were aware of the effect of government (TEC) policies and funding, however the effects were mostly keenly felt by participants of the Polytechnic, who reported established pressures to achieve course completions in 2014, that participants in the Universities (for the most part) did not discuss until 2016. Funding pressures were most keenly felt by participants involved in Arts degrees, resulting in changes to courses and teaching by 2016. Government pressure for tertiary education to be innovative, partially self-funded, and widely accessible was clearly felt by participants. Staff within the three institutions felt pressure to support institutional initiatives in internationalisation, MOOCs, and to provide ideas for diversified revenue opportunities. However, participants that had experienced MOOCs themselves (either as a participant, or a leader), were not convinced that they were a viable or useful option for their own teaching. Participants also expressed doubts that courses could be easily adapted for international audiences in the way that institutional strategies seemed to imply.

Pressure to produce outputs for PBRF was strongly felt by participants across the institutions, with the University staff feeling particularly pressured by mock PBRF rounds that occurred during the research period. Participants spoke frequently of the conflict between teaching and research, primarily because workload issues prevented them from devoting the time they felt they needed to be effective in both research and teaching concurrently. Participants also expressed frustration that focusing on improving courses or teaching practice was not rewarded in the performance review or promotional systems at their institutions. While most teachers expressed enjoyment of both teaching and research, they expressed frustration that the pressures both to publish and to achieve high student completion rates, meant that they couldn't do either task to a high level without working long hours or weekends.

Educational design staff in the Universities were very conscious that they were a very small group compared to the hundreds or thousands of Academic staff they were supporting, and were very aware that their impact, because of the 'as needed' approach, was limited to those staff who were already very teaching focused and possibly less in need of support and development than other staff. Workload pressures limited the amount of support they felt able to provide. Educational designers at the polytechnic also felt workload pressures, in particular to complete course design within allocated budgets and on time. Because all time on project was captured and reported, some staff would resort to non-recording of hours (i.e. unpaid overtime) to complete work within the required scope.

Discussion/conclusion

In summary, peers and colleagues were a large influence on teaching practice for teachers, with most teacher participants describing regular interactions with colleagues that changed or improved their course design or teaching practice. Relationships between educational designers and teaching staff were more positive in the institutions where staff were able to access education design support on an 'as needed' basis, compared to the institution where teachers were required to work with educational designers when designing courses. Government policy, and TEC funding and reporting requirements were clearly felt by all participants, and changes in TEC requirements had clear flow on effects to teaching practice and course design throughout the research period. Workload remains a big issue for teaching staff, due to PBRF, and for educational design staff due to systemic under-resourcing and overloading. Recommendations for institutional policies and procedures related to course design will be discussed.

The research has investigated the tensions and contradictions within three tertiary institutions in New Zealand, as they responded to environmental pressures. The effects on teaching were explored from the perspectives of teachers and educational designers, and some investigation of the evolution of the dynamic institutional systems was undertaken. Future research could expand on the investigation to include a wider range of institutions and participants (for example, including management and support staff as participants, or including other institutions who are now investing in online learning). Further work could also involve in depth investigation of one institution to elucidate the specific dynamics involved in system evolution, in accordance with the expansive learning aspect of the CHAT approach (Engeström, 2001).

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Paper Title: Using Personal Mobile Devices to increase flexibility and equity in learning in resource constrained contexts

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Abstract

This paper examines how in a resource constrained context, access to personal mobile devices for first year university students increases their flexibility of learning and creates a environment of greater inclusivity at University. In 2016, at the start of their first year 201 students in an extended degree program in the Humanities at the University of Cape Town were surveyed about their access to Personal Mobile Devices (PMDs). Based on need, 68 students were given an entry level proline tablet to use as their own for the duration of their studies. As a consequence of establishing a learning context where students all had access to a PMD the lecturers could engage students in multi-modal blended learning and teaching approach. This paper draws on data in the form of student surveys and focus groups and explores not only the challenges and opportunities for students in using PMDs for their learning both in and out of the classroom but the flexibility of learning enabled through PMDs. The study shows that creating a equitable context in terms of physical access to digital technology enables students' learning but also presents some new challenges.

Introduction

The South African White Paper on e-Education states that Information and Communication Technologies (ICTs) can "create access to learning opportunities [and] improve the quality of learning and teaching and deliver lifelong learning" (Department of Education 2003b, p. 8) In addition, "ICTs can accommodate differences in learning styles and remove barriers to learning by providing expanded opportunities and individualised learning experiences". Higher education policy argues that the appropriate use of new media can support curriculum transformation and improve educational quality (Department of Education, 2001, S1.1).

Over the past decade, universities in South Africa (SA) recognised the role of educational technologies as tools to facilitate teaching and learning (Czerniewicz & Brown, 2009; Bozalek et al, 2013). However, there remains an economic and moral dilemma for universities in South Africa, as students come from diverse backgrounds, geo-

graphical locations, material and technological capacities, consequently access to ICTs cannot be assumed (Broekman, Enslin & Pendlebury, 2002; Brown, 2014; Brown & Pallitt, 2015; Czerniewicz, 2015).

The problem being addressed

In 2014, the Department of Higher Education and Training commissioned the University of Cape Town (UCT) to “investigate whether the financial investment of a personal mobile device, whether on the part of the university or student themselves, adds value to the learning experience” (Brown, 2014). As the project lead, UCT sought to collaborate with four other institutions across SA who had been doing various types of research in similar areas, to try to understand how access to PMDs enables greater flexibility and effectiveness of teaching and learning in the higher education sector both in and outside of the classroom. While this scheme begins to address the issues of physical access there is also the issue of epistemological access to educational technologies (Bozalek & Ng’ambi, 2015; Chen & Denoyelles, 2013; Johnson et al, 2015; Kilfoil, 2015; Moje 2007).

Study design/Approach

The research adopted an exploratory design to enable the investigation of a largely under researched topic at universities. The primary research question was to explore how owning a PMD could enable greater flexibility in learning and teaching.

The project was located in the Humanities Extended Degree Programme at the University of Cape Town, South Africa and was conducted with 201 students who were registered for this degree in 2016 and 5 lecturers (Brown, Haupt, & Hunma, 2018). The funding enabled the project team to provide a personal mobile device to students who did not have one thus creating a relatively equitable context of digital access. In this pilot, the team particularly sought to explore a device that was good enough for students learning needs yet economical given limited funding opportunities. The Proline H0882M 10-inch tablet was identified as an entry level personal mobile device with the addition of a Bluetooth keyboard and protective cover.

During orientation week, a needs assessment survey was conducted (with the assistance of the lecturers) to determine whether students owned a personal mobile device (i.e. mobile phone, Laptop, or Tablet) and whether the device was good enough for student learning, i.e. internet connectivity. Seventy-five students indicated that they did not have any device, or had a mobile phone device without internet connectivity.

Needs Assessment	N (%)
Total class size at time of orientation	201
Did not have ANY devices	75 (37%)
Of those 75 students	
under 18	25%
between 18 & 22	70%
female	63%
1st generation university student	52%

Table 1: Needs assessment

In addition a variety of data gathering methods were drawn on and included, focus group discussions, classroom surveys and internet based surveys (Table 2)

	When	n
Needs Assessment survey NAS (across programme)	February 2016	201
Digital literacy survey DLS (across programme)	April 2017	64
Focus group discussion FG	May 2016 (FG1), Nov 2016 (FG2), May 2017 (FG3)	
JISC Tracker survey JS (across programme)	February 2017	55

Table 2: Overview of data collection strategies

The focus group discussions were unstructured and sought to explore both students academic and personal uses of their device, the location of their use and whether they experienced any benefits and/or challenges with the device.

Findings

Flexibility of learning

While all students had a personal mobile device (as a consequence of the project), over two thirds (67%) had more than 1 device (usually a tablet and smartphone or laptop and smartphone). However 87% of students indicated they still relied on computer labs and 67% on University printers. This showed that while PMDs were useful for many activities they did have limitations. Qualitative data highlighted both the benefit and limitations ...*"It's a 50/50 for me because I use it for, like, for my readings. I do it on my tab and then here, like it's to take notes and stuff during lectures. (FG2)"*.

The main reason for making use of the computer labs on campus were to submit assignments and to print. Others indicated some of the challenges of small screen, mobile devices for particular types of activities *"with assignments, yes...things like MAM [a module] which run the Excel things, I would go to the labs yes..." (FG1-b)*. *"Well, the thing is, I can't really, like, do my essays and stuff on it because I have to like email it to myself and then go print. It's a process. So, I would rather just go to the xx Labs..." (FG1-c)*.

One of the benefits of having a PMD is meant to be the opportunity to study anywhere anytime. This is to some extent true as most students indicated they used their devices on the move on a regular basis.

Access learning on the move

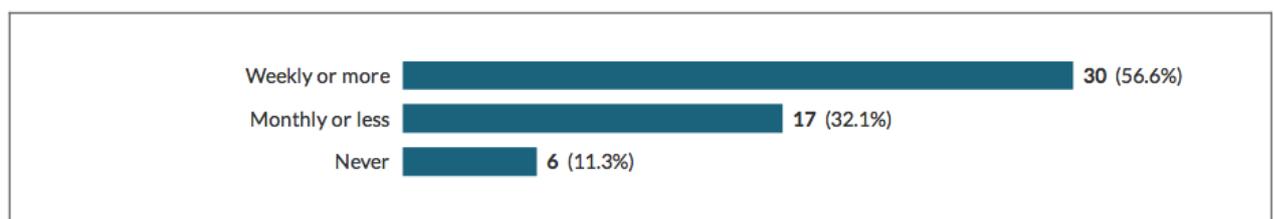


Figure 1: Using PMDs to learn on the move n = 55

However in a developing context like South Africa, students flexibility is constrained by other factors. Students are very aware of safeguarding their devices especially those who live in low socio economic areas and travel to and from campus using public transport. *"When I go home during the weekend to the townships, you can't carry a tablet around with you. It will be gone" (FG1 -b)*.

Some students express how challenging it is to travel using public transport. The train system is usually overcrowded and one student highlighted how easily your personal property can be stolen without realising it. *"But when you stand, like in the mornings, then someone's following you... You know what I'm thinking because everyone's bumping against you. It's like, tab, nice, close. Only when you get here, and you are here and you are like, where's my tab?" (FG1-b)*.

Another limitation for students flexibility is the lack of access to the internet. 95% of students use wifi when on campus. Off campus, 59% rely on public access (eg public hotspots ie libraries, cafe's, restaurants, shopping malls) or have none.

Type of Internet access	
3G/4G	22%
ADSL or multiple	19%
Public	23%
NONE	36%

Table 3: Students access to internet off campus (JISC Survey n = 55)

However students learnt strategies to deal with this challenge. *“Like on campus, I download everything and when I go home it’s available to me...Like for me to read. I don’t need to go on the Internet to go and download, it was already on the tab. So, that was accessibility even at home without Wi-Fi”* (FG2).

Formal versus informal learning

PMD’s were used for a range of activities both formal and informal. In the course program lecturers made an effort to provide multi modal resources and engage the students digitally with materials (Brown, Haupt & Hunma, 2018). However in addition over half of the students also looked for additional resources not prescribed by the lecturers.

Activity	Weekly
accessing notes and recordings	92%
making notes or recordings	73%
managing links and refs	71%
watching / listening to learning materials	67%
accessing learning on the move	56%
looking for additional resources	51%
discussing learning informally on social media	36%

Table 4 Weekly learning activities using PMDs (JISC Survey n = 55)

Focus group discussion supported the survey results with students indicating a similar range of activities. More specifically students highlighted research as being an important use of their PMDs *“...all my notes are on there and like...lecture slides and everything a part of the research subject”* (FG1-c) and *“...with sociology you get people that you have to do research on, so I can just go on YouTube and hear what people say about that person and then I can go and read my book”* (FG1-a). Exam preparation was also a specific focus *“I use the tab to download the past papers”* (FG1-b) and *“Yes, for the exams. I was preparing for the exams. And doing some assignments and stuff”* (FG 2).

Inclusivity

The issue of equity and inclusivity is a significant reality in a resource contained context like South Africa. As a student said *“For me ... when I came here I didn’t have a laptop and financially I was not going to be able to have one”* (FG 3-1).

The value this had for students in terms of opportunity can only be expressed in their own words. *“When I first came here it was a different space coming from my school to university and everything was different. I didn’t even have like access to like laptops now that we have to submit everything online using computer So, I was still staying in my township, so it was quite hard to make things like on time. Then the tablet came through...But with the tablet I could actually do that at home and just submit on [the LMS] with it. Before I had the tablet, I had to*

like come here onto campus and work, like write my assignment on a book and then come and type. So, it kind of made things a little bit more easier for me, to type, to save my assignments and those to catch up even with my school things at home because ...Even our library doesn't like open for...After eight" FG 3-1

Students reported very positively about the less tangible benefits of having access to a PMD and being able to learn digitally. Fitting into university life was something that over two thirds of students concurred with. Although fewer found digital learning connected them better with other learners or lecturers (a finding that was not necessarily surprising as the course program was part of face to face program).

	Agree	Neutral
More independent learner	70%	23%
Understand things better	63%	36%
Fit learning into life more easily	67%	25%
Connected with lecturers	47%	38%
Connected with learners	34%	52%

Table 5: Benefits of digital learning

Discussion and conclusion

This study has shown how one cannot and should not assume equity of technological access. Even in contexts where access is assumed to be adequate, students' diversity of socio economic backgrounds will always result in issues around equality. Whilst increasing numbers of students do have access to personal mobile devices not all devices are necessarily suitable for learning needs. Campus based facilities such as labs are very important and remain a necessity. Increased mobility and personal ownership were highly valued by students and influenced how they used technology to support their learning. Cheaper devices like a basic tablet are good enough to bring the learning together, enable students to do all the in between bits of learning and bridge and connect the formal and informal learning environment. This demonstrates that personal ownership and use of a device does enhance the learning experience. Technology can transform the traditional dynamics of learning spaces.

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Paper Title: Designed for learning: A literature perspective on supporting academics towards effective teaching in new spaces

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Abstract

New learning spaces in tertiary institutions around the world are designed for learning that is active and collaborative. This may prove to be a challenge for teachers unprepared or even unwilling to change their existing teaching practice as they move their classes into new spaces.

Our academic advisory team wanted to review our provision of support for teachers in the ten collaborative learning spaces at our institution. This presentation identifies some of the key aspects in the literature in relation to pedagogical approaches to learning and teaching appropriate for new generational learning spaces. An overview of how the institution can work towards sound pedagogical practice is followed by suggestions for ways to support teachers more specifically, including having access to the experience of others, as well as input around and reflection on the possibilities and challenges of working in new spaces.

Introduction

Higher educational institutions around the world have invested considerably in creating new formal learning spaces over the last ten years. While much evaluation of these spaces focuses on design and characteristics of the space in terms of being fit for purpose, research has also explored how use of the space by students and their teachers impacts on the learning and teaching that occurs in new classrooms (Brooks, Baepler, & Walker, 2014b; Fraser, 2014; Hyun, Ediger, & Lee, 2017; L. E. Wilson & Sipe, 2014). As Ling and Fraser (2014) identify, 'one of the key drivers of next generation learning spaces is their design for learning'. Equipped with flexible furniture and new technology, learning spaces are only as good as the teaching and learning that occurs in them (Lippincott, 2009).

In a meta-analysis of 225 papers (from 2005-2016) related to tertiary technology-supported physical learning spaces, Guiney (2016, p. 1) asserts that, 'The major barriers to successful use of technology-supported physical learning spaces are: a lack of teacher and student capability; insufficient training, guidance, or support for teachers and students; and, inappropriate pedagogical approaches from teachers.' Clearly, for teachers to be successful in embedding appropriate pedagogies for spaces, they need to be familiar with innovative approaches to learning and teaching (Ling & Fraser, 2014), as well as being aware of, and able to implement, the affordances for learning and teaching inherent in new spaces. Academic development teams are still identifying the best ways to support academic staff in understanding how to adapt their teaching appropriately to new spaces (Hall, 2013; Morrone, Ouimet, Siering, & Arthur, 2014; Steel & Andrews, 2012; G. Wilson & Randall, 2010).

The problem being addressed

Our interest in professional development that leads to effective teaching in new spaces

stems from the development of new collaborative learning spaces at our institution. As part of a strategic decision to reduce a sprawling campus and with the intention to build classrooms that are fit for purpose, Unitec developed two prototype learning spaces in 2015. The central academic advisory (Te Puna Ako) team had a significant role in the design (as suggested by Rook, Choi, & McDonald, 2015) and in the evaluation of these collaborative high-tech learning spaces, and worked with teachers to ensure they felt confident and competent to teach in new spaces.

Three years later, and with ten collaborative learning spaces now operational, teaching in new spaces is considered 'business as usual'. A much larger number of academic staff from a wide range of disciplines are now teaching in new spaces and many do not see the need to engage with our training. Teachers may well not be changing their pedagogical approaches to suit the new space, but rather continuing to use existing strategies for teaching and to support learning as Brooks and Solheim (2014) observe. It is timely to review our provision of professional development, and also to undertake research into the kinds of learning and teaching that are occurring in rooms originally designed for active and collaborative learning.

Revisiting the literature is a first step to understanding how other institutions design and support effective professional learning around the kinds of pedagogies identified as being appropriate for these new spaces.

Study design/Approach

The literature detailed in this paper is limited to research into formal learning spaces at tertiary institutions. The focus on tertiary spaces is justified in that higher education differs from the compulsory sector in several ways. A wide range of subjects is taught at higher education institutions, and a high degree of student autonomy in relation to learning is generally assumed. Another aspect of tertiary teaching is that many staff in higher education, rather than having gained formal teacher qualifications, are discipline experts, often with research demands to meet (Carr & Fraser, 2014). With the lecture as the norm for efficient content delivery on campus, active or collaborative learning may be more challenging for academics to implement.

The starting point for this literature review was reading two significant books about learning spaces published in 2014 (Brooks et al., 2014b; Fraser, 2014). Guiney's (2016) annotated bibliography also provided a useful overview of the field (2005-2016) and confirmed our decision to limit our search to literature from 2011 on. This date was a pragmatic choice given our limited resources and also the changing nature of technology available for classroom use. The very relevant online Journal of Learning Spaces (established in 2011) was used to test search terms. Based on our immediate need for supporting teachers in new classroom spaces, the most effective search terms used in relation to Guiney's annotated bibliography and the Journal of Learning Spaces were 'teacher development' and 'pedagogic approach'. However, in searching broader educational sources (specifically, Ebsco education databases, Taylor and Francis' Education Collection and Google Scholar), including the term 'active learning classroom' proved most useful in finding relevant articles. The thirty-five sources listed in the bibliography represent the most useful literature in the field found in this review in relation to the development of teachers' pedagogical approaches in active/collaborative learning spaces.

As providers of guidance and support for academic staff, our interest is in supporting teachers to develop appropriate pedagogical approaches for new spaces. The two questions that guided our reading were

1. What are appropriate pedagogical approaches for teachers in new collaborative learning spaces?
2. What professional development strategies have proved successful?

Findings

There is still discussion in the literature as to whether teachers do, in fact, change their practice through teaching in new spaces (Fraser, 2014), although Brooks (2012) asserts that space will impact on what teachers do and the kinds of activities they design. However, what is clear is that teachers need to adapt their pedagogical approaches in order to make the most of the affordances of new spaces (Brooks, 2012; Brooks & Solheim, 2014). Alt-

though teachers may initially be concerned about learning to use technology in new spaces, Florman (2014) avers that this is actually a quicker and easier task than getting to grips with the educational philosophies that have informed the design of active learning classrooms.

Much of the discussion around teachers developing appropriate pedagogical intentions suggests that teachers accustomed to lecture-style content delivery might find this way of teaching less successful in new flat floor spaces and will need to adapt activities to be more active (Baepler & Walker, 2014; Brooks, 2012; Cotner, Loper, Walker, & Brooks, 2013; Ling & Fraser, 2014). The framework in Figure 1 summarises the pedagogic principles that Ling and Fraser (2014) identify as underpinning learning and teaching design in new spaces.

Learning Spaces Need to Provide	Learning Activities Need to Be	Learning Activities Need to Involve	Learning Activities Need to Facilitate
Rich learning environments that reflect the real world so are: <ul style="list-style-type: none"> • Authentic • Complex and use technology appropriately	Student-centred Focused and outcome oriented Connected Challenging and facilitate individual meaning making	Active learning Social interaction Provision of guidance and feedback	Selective engagement Critical engagement Application

Figure 1. A pedagogic framework for use in next generational learning spaces (Ling & Fraser, 2014, p. 79)

Giving teachers agency in the learning process is crucial. Teachers' beliefs about how students learn and what the teacher's role looks like are fundamental to how they teach. Individual conceptualisations of how students learn will inform what teachers ask students to do in new spaces (Ge, Yiang, Liao, & Wolfe, 2013; Gebre, Saroyan, & Aulls, 2015; Ling & Fraser, 2014). Steel and Andrew's (2012) seminal article identifies the value of supporting teachers to 're-imagine' their classroom teaching, through a process of making their belief systems explicit and identifying pedagogical and technological possibilities afforded in new spaces and how these relate to their own disciplinary contexts. Crucial to teacher learning is having the time to explore their own practice and consider what might work for their learners (Ling & Fraser, 2014; Morrone et al., 2014). Teachers also need to be supported in establishing evaluation and feedback processes in relation to new space (Park & Choi, 2014).

Discussion and conclusion

As academic advisors in the institution, a central interest was on identifying ways in which other institutions supported teacher learning for new spaces.

Institutional management should support academics systematically and holistically to ensure pedagogical success (Carr & Fraser, 2014). The role of the academic development team is critical in supporting teachers moving into new learning spaces (Brooks & Solheim, 2014; Walker, Brooks, & Baepler, 2011; Whiteside, 2014). As well as demonstrating the physical and technological affordances of the room, teachers need to be supported to make informed and appropriate decisions around 'course re-design, pedagogical transformation or technologically-enhanced learning' (Brooks & Solheim, 2014, p. 60).

From a broader perspective, redesigning courses or creating active learning opportunities is a time-consuming process and institutions need to allow individuals time for this (Cotner et al., 2013; Fahlberg, Rice, Muehrer, & Brey, 2014; Van Horne et al., 2014; Wanless, 2016). Other initiatives can include encouraging all teachers at an institution to engage with general approaches to learning that will help them adapt quickly to new spaces, such as collaborative learning (Carr & Fraser, 2014) and active learning (Rands & Gansemer-Topf, 2017). Identifying specific teachers as champions of teaching in new spaces (Carr & Fraser, 2014; Ertmer & Ottenbreit-Leftwich, 2010) means they can advocate for good practice within their departments.

Specific strategies suggested in the literature for professional development can be identified as a) learning from the experiences of others and b) receiving input around what active and/or collaborative learning might involve.

Direct observations of others teaching in the space before teachers work in new spaces is ideal (Fahlberg et al., 2014), and Morrone et al. (2014) suggest building a library of 'video-based faculty spotlights'. Case studies help teachers understand how varying pedagogical intentions might look in the same space (Brooks, Baepler, & Walker, 2014a; Langley & Guzey, 2014). One way of encouraging these understandings was through sharing personal experiences of re-configuring spaces through visuals (Ramsay, Guo, & Pursel, 2017). Team teaching, especially in large spaces, with reflection together on experience is invaluable development (Metzger, 2015).

Academic developers who have observed teachers (or who have experience teaching in the spaces themselves) can create appropriate materials describing classroom activities or management techniques for teachers to access (Fahlberg et al., 2014; McNeil et al., 2017; Van Horne et al., 2014). Research articles similarly can offer descriptions of specific challenges and strategies to address these (eg. Petersen & Gorman, 2014). Finally, establishing communities of teacher users allows teachers to share their experiences and continue to explore possibilities (Fahlberg et al., 2014; Morrone et al., 2014; L. E. Wilson & Sipe, 2014).

More traditional workshop sessions can include some of the above aspects, but focus more directly on pedagogical principles behind what teachers do. In-class team-based learning, peer instruction and inquiry guided learning were the strategies that informed teacher development at the University of Iowa and made up the 'Essential' experience that teachers had to work through before they would be allowed to teach in a new TILE space (Florman, 2014; Van Horne, Murniati, Gaffney, & Jesse, 2012; Van Horne et al., 2014).

To conclude, this literature review gave our team insights into how we could improve design and content of professional development to support teachers into new spaces. It also helped to ground the specific areas we planned to investigate in our research with teachers, namely: how teachers adapt their teaching practice to the new space, and a frame to help identify good pedagogical practice in order to provide examples of effective teaching and learning practices in our new collaborative learning spaces.

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Workshop Title: EVA in Education - Enhanced Video Annotation: Don't just watch, Learn.

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Overview

eTV is proud to announce our newest online tool, EVA. With 17 different types of interactions, EVA makes videos come alive with added content such as labels, text, tables, links and images. Enrich any eTV video with response-enabled tools including single, multiple and cloze text questions, drag and drop, true/false and hotspots.

With the ability to fit in at any point in a student's learning journey, EVA is more than just video annotation software and can be used as an interactive assessment tool, from diagnostic testing, to in-depth analysis which allows the teacher to easily-monitor student progression towards desired academic outcomes.

At the beginning and early stages, educators can easily use EVA to introduce the student to a topic to gain maximum engagement, carry out simple/advanced diagnostic testing in a common, non-threatening environment and utilise reporting functions to assist and monitor student progression towards desired academic outcomes. And because EVA can be actively edited, students can continue to use the same resource (video) while the teacher changes the annotations and layered content. Teachers can easily scaffold the student through levels of progress by updating the EVA when needed, so that the student will have continuous access.

EVAs are not just a 'watch it once' DVD on the resource room shelf, but a 'Watch and Learn' interactive tool. Accessible at any time and available wherever the student has access to the internet, EVA creators can use embed codes for Learning Management Systems and direct links for sharing.

EVA enables the personalisation of content and context while stimulating engagement and facilitating student-centered and differentiated learning opportunities. As Student Creators, learners are able to share their EVAs with school and home communities, transfer relatable contexts and use their home language in sub-titles, questions and comments, creating multifaceted encounters for the promotion of both teaching and learning and promoting the concept of Ako throughout the student's course of learning.

Description

The Purpose of this workshop is to introduce delegates to eTV's Enhanced Video Annotation Tool by providing varied examples of how EVA can be used in teaching and learning programs.

Educators at any level can attend and because both eTV and EVA can be easily accessed through any modern web browser, the entire presentation will be carried out online.

The main goal of the workshop is to show delegates how EVA can transform any teaching and learning program into an interactive and engaging learning space. Usable at all levels of learning, students can both create and view EVAs for a huge variety of learning tasks and experiences.

Attendees will have the chance to create and interact with EVAs by using any eTV video.

Paper Title: Social media for professional learning: Five years on

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Practice paper outline

In 2013, I challenged undergraduate students in an online teacher education course to harness the potential of social media for professional learning. What began as the 'social media challenge' evolved through various iterations over a five year period, with the help of student input and critical feedback. This paper explores the journey from inception of the social media challenge as an optional extension task for students through the progression in student learning, experience and course design, reflecting on issues, highlights, failures and critical insights along the way. The paper includes suggestions for tertiary educators, and others seeking to incorporate social media in coursework, as well as for those interested in a proactive approach to professional and lifelong learning.

Evidence is drawn from the design of learning and assessment tasks, student reflections and work samples, complemented by insights from wider research and attendance at the European Conference on Social Media (ECSM), and a student-authored article for publication.

Takeaway messages suggest how to support student learning through social media, alongside a process of teaching as inquiry as a way of invigorating teaching at all levels. Finally, there is an opportunity for cross-institutional, interdisciplinary collaboration, in order to progress this work.

Introduction

Having taught online elective papers for preservice teachers for a number of years, looking at ICT, digital literacy and innovative pedagogies, I wanted to generate a new level of challenge to encourage students to explore beyond the LMS. As a fairly new Twitter user and blogger, I had some awareness and first-hand experience of the affordances of social media for professional learning, and aimed to support students in their own discoveries. My intention was to encourage students to experiment, explore, and to make use of freely available social tools in order to complement their formal degree studies, and to raise awareness of the possibilities for continued professional learning beyond their initial teacher education.

Conceptually, the use of social media can be understood as a shift to connectivist learning (Siemens, 2005), prompted by the primacy of connection and the growth in the abundance and complexity of knowledge (Siemens, 2009). Learners can harness social media to generate a personal learning network. However, as is always the case with digital technologies, the affordances are not necessarily realised and learning is by no means guaranteed. Not all uses of social media are educational or of sufficient quality to contribute to knowledge building. Alarming, not all uses of social media are ethical or socially responsible. Risky, inappropriate, damaging and even illegal episodes on social media have led to promotion of eProfessionalism in fields like health sciences (Chester, Kienhuis, Pisani, Shahwan-Akl, & White, 2013). This is a reminder to members of professional groups, including graduates joining pro-

fessions, to be mindful of the need to take great care with the use of social media in order to safeguard their own credibility, and the confidentiality of clients.

Issues with social media include the time consuming nature of establishing and maintaining social media contacts (Lupton, 2014; Richardson & Mancabelli, 2011). For many educators, there are concerns about separating public and private life, and a wish to preserve privacy (Johnson et al., 2014; Fox & Bird, 2017). Teachers are troubled by issues around online safety and security (Johnson et al., 2014), including fear of becoming a target of attack (Lupton, 2014). As a result, teachers can be reluctant to use social media for educational purposes, and may confine their use to private and recreational functions (Selwyn, 2011). While resistance may be due to a lack of awareness of the educative affordances of social media, it can also be a deliberate choice in order to avoid the pitfalls mentioned, and it cannot be assumed that student teachers will necessarily extend their use of social media in ways that are supportive of learning and teaching. In order to do so, tertiary students and emerging professionals need to develop an awareness of how to harness the affordances of social media in ethical and socially responsible ways, proactively safeguarding against the very real dangers, and challenging outdated notions to fully understand the new opportunities, alongside the new risks and complexities (Osborne & Connelly, 2015; Fox & Bird, 2017).

The practice under scrutiny

Using social media, cohorts of students between 2013 and 2018 have connected and reflected, sharing and reviewing resources, tracking news, and engaging with the wider profession. This presentation will share some of the processes involved and feedback received throughout the past five years, as well as ideas for the future.

Briefly, the presentation will cover:

1. Starting out in 2013

Teacher education students established Twitter accounts, started following teachers and educational authorities, and joined communities of professionals to discuss educational issues. Students often lurked in Twitter, following and reading, before gradually beginning to retweet and to post links to teaching resources. The most confident students seemed to be influenced at an early stage by a particular hashtag, group or individual. A few tentatively established blogs, struggling with uncertainty about “what to blog” but gradually finding their voices. Students critiqued the usability of the social media tools and exchanged advice on how to overcome hurdles relating to confidence and technicalities. As the semester progressed, students persevered and followed a wider range of international educators, read more widely in the blogosphere, and independently located then shared online resources like tutorials. Pinterest and Scoopit entered the range of possibilities. A class hashtag was established. Those who identified a specialist interest to blog about were able to sustain their blogging adventures.

Student feedback from the class of 2013 indicated a wish to formalize the social media challenge in some way, via summative assessment for course credit, and closer integration with the assigned work in the course. Students valued the activity but found it time consuming, and wanted license to spend more study time on the social media challenge.

2. POPLN 2014

In response to the success of the social media challenge in 2013 and student feedback and suggestions relating to the development of the task, a more comprehensive approach evolved in 2014, entitled *Professional Online Presence and Learning Networks* or the POPLN challenge. Students were assigned background reading about professional uses of social media in education and were prompted to consider cybersafety, proactive and lifelong learning, and the need to challenge themselves professionally.

This presentation will illustrate this growth in the POPLN challenge, with task design elements, and student feedback gathered via a progress forum and final report. I intend to share common challenges articulated by students, learning progressions, and both problems and breakthroughs along the way.

2015 – Sharing POPLN with the world; learning from European experience – links with Edinburgh’s Digital Footprints project.

2016 – Beyond teacher education; The need for differentiated scaffolding.

2017 – Instagram; Promoting student publication

Discussion/conclusion

Considering the aforementioned experiences, there are a number of emergent issues and challenges, briefly summarized next.

Reluctance

Teacher education encourages critical thinking, questioning, and reflective practice. However, when faced with social media, teachers sometimes respond with the kind of cynicism that detracts from open-mindedness (Greener, 2015). Furthermore, as Selwyn (2011) suggests, not all students will readily leap at the chance to use social media in an educational and professional context.

Teachers as Learners

It has been a challenge to have teachers take a step back and to put their own learning first. Student teachers are cautioned not to rush to use social media with students, but instead to take time to try out the tools and social media environment, for professional learning, in order to become more familiar with the risks and possibilities.

Safety

In this day and age, avoidance of a digital footprint is unrealistic, as anyone who Googles his/herself will learn. It is dangerous to leave management of one's online identity to chance, or to other people. Rather, it is the responsibility of each individual to proactively protect and project online identities that are in keeping with our best selves. This is not a simple matter of image management, in a shallow form, but rather a plea to use the Internet in ways that are safe, protective of privacy and human rights, ethically astute, discerning, and in keeping with one's professional roles and social responsibilities.

Take home message

Teaching as inquiry is applicable at all levels of education, and a good starting point is to try something out and ask students to help you grow your ideas.

In relation to social media, for many students the biggest challenge is finding the confidence to post. Surmounting this hurdle is a significant breakthrough, and with it comes the realisation of the power of social media for collaboration and discovery.

This presentation will suggest practical approaches to integrating social media with coursework tasks. While there are challenges related to attitudes, learning dispositions, and safety risks, the highlights are significant. Not least among these is the importance of disrupting assumptions, opening minds, and raising awareness of new possibilities with social media in education. Developing critical, discerning and learning-oriented uses of social media is a crucial part of preparing emerging professionals for ongoing networking in ethical and socially responsible ways.

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Paper Title: Changing the pace, place and face of Professional Learning through Networked Learning Hubs

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Practice paper outline

The pace, place and face of professional learning is changing. Traditional professional learning courses consisting of defined content being delivered by an 'expert' at a predetermined pace in a set place, are arguably becoming less relevant and meaningful. New approaches to professional learning see knowledge as being co-constructed with others in various learning networks across different places over time. Ongoing life-long learning beyond formal study; life-wide learning across different contexts and disciplines; and life-deep learning of embedding values into practice are some of the shifts in thinking about professional development. The affordances of new technologies such as digital badging and eportfolios provide opportunities to recognise, credential and foreground this kind of learning. This paper outlines a new professional learning initiative that is designed around networks of formal and informal learning and uses digital badging and eportfolios to credential life-long, life-wide and life-deep learning. The initiative grew out of a pilot study of professional learning for Special Education Needs Coordinators (SENCOs) and has developed into a Ministry of Education funded project to create a network of expertise in the area of Learning Support. Findings from the pilot study as well as the design and development of the new Learning Support Network initiative will be presented.

Introduction

As part of the NZ Ministry of Education funding and support for on-going Professional Learning and Development (PLD) for teachers, a needs analysis was undertaken on how to best support and strengthen existing PLD structures. They identified that for PLD to be successful, it needs to be: for teachers, by teachers; agile, responsive and timely; provide relevant and current resources and examples of best practice; be needs-driven; include a blended approach and not just online portals; and must support in particular single-teacher subjects (Childs, Dryden, & Jeffries, 2017).

Aligned with this approach to PLD, in 2016, the authors provided a 'short course' as PLD for Special Education Needs Coordinators (SENCOs). The role of the SENCO is to facilitate equitable and inclusive education systems in schools. This role is not formalised in New Zealand and typically these teachers are based in individual schools,

and are relatively unsupported with no professional learning pathway. 75 SENCOs across New Zealand participated in the blended (online and face-to-face) non-formal 'short course'. An evaluation of this PLD was conducted and findings from this project led to the Ministry of Education funding a larger initiative to develop a national network of professional learning in Learning Support.

The practice under scrutiny

The national Learning Support Network initiative presented in this paper was developed from findings of the study of 75 SENCOs across New Zealand who participated in the pilot PLD 'short course' (Kearney & Mentis, 2017). Findings from this study revealed that despite being time-poor and under-resourced, SENCOs actively sought and valued opportunities for team-work and collaboration. In addition, SENCOs indicated high levels of flexibility, autonomy, and job satisfaction. Given these findings, a case was made to create a learning network that supported the autonomy and flexibility within the SENCO role, provided improved structures for ongoing professional learning and sharing of practice, as well as opportunities to build capability and leadership within schools, while avoiding standardising and prescribing the role.

A national Learning Support Network was thus designed to provide SENCOs with a range of modalities to connect, communicate and collaborate with each other across four blended (online and face to face) hubs. *Hub 1* is an *open and free network* where SENCOs can share resources, debate and co-construct knowledge around evidence-based practices. *Hub 2* involves paying a subscription to a more extended *members' network* that includes opportunities to: attend regional and national face-to-face workshops and virtual webinars; collaborate around research; inquire into practice; participate in journal clubs; share resources and access updates on professional events. *Hub 3* is a *professional learning network* where authentic learning within practice can be used as evidence to meet competencies of SENCO practice. These artefacts and evidence of learning can be added to an ePortfolio and digitally badged as an alternative form of credentialing learning in practice. This learning is thus individualised, contextualised and authentic, and contributes to the SENCOs ongoing life-long, life-wide and life-deep identity development. *Hub 4* is a *formal learning network* where these alternatively credentialled credits via digital badging in ePortfolios can potentially be bundled together and cross-credited as modules towards a university qualification in Learning Support (LS).

Digital badging and ePortfolios offer a fluid and flexible way for professionals to learn in different contexts and be recognised for the knowledge and skills acquired in these alternative environments. They challenge traditional approaches of teaching and learning and offer innovative alternatives to credit skills and knowledge outside the formal curriculum. These tools offer the possibility of displaying (eportfolios) and verifying (digital badging) an achievement, ability or skill. They then become a means of transition from informal (hubs 1 & 2) to more formal learning (hubs 3 & 4). Badging and eportfolios can transform conceptions of learning and provide ways of recognising more diverse learning pathways and opportunities for learners, that can then transition into formal qualifications.

Discussion/conclusion

Overall, the four hubs of the Learning Support Network will meet the SENCO need for: collaboration; on-going learning; recognition of their role; increased reputation; and mapping of expertise in the network. It is important that this is achieved while retaining the autonomy and flexibility of the individual SENCO role, providing for differentiated learning pathways and opportunities to learn through projects and case-work as well as relevant social media. Through the collectively designed and evolving network, SENCOs will be engaging in life-long, life-wide and life-deep professional learning that integrates the informal and formal yet remains individualised.

This design offers potential for other professionals who seek to create learning networks that are more collective, sustaining and authentic, and for whom traditional professional learning and development courses do not work. The Learning Support Network offers a fresh approach to conceptualising and designing for professional learning that moves away from traditional, didactic methods to more innovative networks of learning. This shift in teaching and learning is away from homogeneity to more open and diverse experiences of learning in practice. For Wenger (1998) the link between learning and practice is critical and best occurs in situated and authentic communities and networks. Learning in networks can be facilitated through the affordances of emerging technologies, as indicated in Goodyear, Banks, Hodgson & McConnell's (2004) definition of networked learning where they foreground the important role that technology (ICT) plays in networked learning to promote connections "between one learner and other learners; between learners and tutors; between a learning community and its learning resources" (p. 9). These contemporary notions of knowledge and learning as being connected, situated, technology-mediated and networked have much to offer professional learning initiatives wanting to shift to relevant and meaningful approaches that will more effectively support ongoing practice.

Take home message

The pace, place and face of professional learning is changing. Networked learning with alternative forms of credentialing through digital badging and eportfolios, offer viable alternatives for meaningful and authentic life-long, life-wide and life-deep learning.

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Paper Title: To infinity and beyond: evolution of an online course

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Practice paper outline

What happens when you involve learners in the design of a course? How does it work?

This paper looks at the practice of creating a course to be delivered online that is developed with input from the target users. Using an example of a course for professional development for Middle Leaders in education, developed by CORE Education, this paper details how the course was created, and the learnings of the development team after the experience of working alongside learners to develop a course. It focusses on the evolution of an online course from being teacher-centred to being student-centred.

Introduction

The role of school middle leaders has continued to increase in both scope and workload. Whilst middle leaders are responsible for the pedagogical leadership that impacts on student learning, they often feel unprepared for this complex role. In the absence of a national middle leadership development programme, and the fact that middle leaders report the feeling of being overwhelmed and undervalued, an online middle leaders course was developed. Robson and Bassett (2017) have designed a 'Middle Leaders Matter' online course, in conjunction with the Learning Design team, and potential participants, in order to meet the needs of middle leaders who require a specific set of leadership skills and dispositions.

Leadership development is a specialised form of professional development focusing on building the capacity of leaders (Cardno, 2012). Leadership development can take the form of training, education, or support and should be context specific (Bush, 2008). Although middle leaders' role has expanded (Fitzgerald, 2009), there is still a lack of leadership development equipping them with the required skills. Due to the challenges and complexity of middle leadership, it is imperative that middle leaders are provided with leadership development to enable them to effectively perform their role.

Against this backdrop the authors set out to develop a course by starting a course creation team that has worked alongside target users. Previous work by McLaren, Robson and Whiting (2016) had looked at engagement and retention when the course was running, but what about engaging learners before the course had started? Driven by a desire to see how course creation might work when learners are involved from the start, the course creation team has involved learners in discussions and workshops to better understand the role of middle leaders and incorporate the challenges and complexities of the role into course design decisions.

The practice under scrutiny

The continued lack of leadership development programmes specifically targeting middle leaders has created a sense of urgency to equip middle leaders with the skills required to meet the increasing demands of their leadership role. Therefore, an online middle leadership course of four modules was developed to provide participants with adequate time to engage in a series of iterative learning cycles in which they examine their own assumptions about leadership.

Initially the modules were designed around four key areas: Module 1: Understanding Middle Leadership Leaders - which explores the role, expectations and challenges of middle leadership. Using a framework, leaders will identify and assess their leadership capabilities and areas of support. Module 2: Leading your Team - leaders examine the characteristics of effective teams, and explore the dispositions for creating teams, managing conflict and building team capacity. Module 3: Leading from the Middle - leaders explore the principles of shared vision, developing culture, building relationships, and systems and structures. Module 4: Connecting Community - leaders will critically reflect on an action they have undertaken as part of their middle leader inquiry, by connecting with their Community of Leaders.

The four modules were structured to support the professional learning of each participant, by being responsive, inclusive and contextually relevant. With a combination of interactive webinars, provocations, online discussion forums, and curated resources, middle leaders will be challenged and provided with a supportive middle leadership development programme. Additionally, it was intended that middle leaders would undertake individual coaching and mentoring. In an online environment, participants would access to a field of expert facilitators and lecturers, and have authentic opportunities to forge connections with communities of leaders across Aotearoa, New Zealand.

However, sometimes course creation, that is created within prescribed templates and structures, and with a set format for group assessment, does not actually meet the needs of the participants themselves. In order to ensure that the course we were proposing would meet the needs of the middle leaders who would use the course, we workshopped several of the modules at conferences with the target market, and with the learning designer present, to get feedback and help shape ideas for the course.

This feedback confirmed the need for this type of course, and raised other ideas, like senior leaders in Communities of Learning | Kāhui Ako wanting to work alongside their middle leaders. So, as part of our ongoing collaborative professional inquiry, we questioned whether there was another way to structure the course so that it might better meet student needs. From here, it was essential to inquire further to evolve and shape the online course.

- What were we missing that the target market needed?
- How could we make this happen for them?
- What facilitation techniques, teaching and learning approaches, tasks, assessments, design and delivery decisions should we make?

As we noticed questions/comments from participants were about how I do my job, how I have too little time, how I have to prioritise tasks in my role, how talking with others highlighted shared experiences, we wondered whether our initial proposed four module online course needed to evolve. In the current climate of increasing work overload, the teacher shortage crisis, fewer people interested in taking on middle leader roles, and new tensions between the newly created Across Schools Leader positions within CoL | Kāhui Ako, we need to be cognisant of further burdening participants will defeat the whole aim of ensuring middle leaders matter.

Discussion/conclusion

It is possible to move from a teacher-centred online course to a learner-centred approach. By taking the risk, reconsidering our role, and involving students in course design (Bovill, 2014) we have learnt more about what they want from their learning, what would engage them, and ultimately how best to impact a change in their leadership practice. This means the project team was able to collectively develop ideas with learners rather than implementing a pre-defined course. The goal for approaching course design in this way was to create a more engaging, contextually relevant, inclusive and accessible course. Moving from infinity to beyond.

This has implications for others who are designing online courses because the co-creating the course with learners in this way has affected decisions about activities, resources, assessment tasks, course design and delivery. For example, less content with deeper impact ensures that time is utilised more effectively. It has also led to a shift from writing/designing what was familiar to the subject matter expert to a course that is responsive to student needs from the outset.

Take home message

The continued evolution of the online middle leaders course is essential to ensure we meet the gaps/needs within the sector, and other sectors accordingly. In the 21st century, it is essential that learning is relevant, flexible and ubiquitous to empower our leaders to infinity and beyond.

By providing an online middle leadership programme that is accessible, ongoing, contextually relevant, and inclusive, middle leaders across Aotearoa New Zealand will be equipped with the knowledge, dispositions, and skills to inquire into their own practice, while being held accountable and, ultimately, developed specifically as a middle leader (Bassett and Robson, in press).

Including learners/students in the design process is worth it as it leads to interesting considerations that you might not otherwise think of. When you are faced with courses for learners in complex roles, it is essential to include them in course creation so it becomes more authentic and inclusive, leading to more contextual relevance and accessibility.

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Paper Title: Integrating EndNote from download to research report for distance masters students

Authors, - Linda Laven, Fiona Murray, Kim Baxter, Kate Hill

Outline (250 words)

In order to complete a Masters, students are required to demonstrate a high level of skill in the completion of an original research activity, which relies heavily on information literacy. The Masters of Veterinary Medicine (MVM) is a 120 credit online distance programme comprising of four or five 15 credit taught online courses (15 credit), and a research report (45 or 60 credits). The MVM team identified a need to incorporate the bibliographic software tool EndNote into the online taught courses. Prepopulated compressed Endnote libraries were inserted into the Moodle platform of each taught online course alongside an Endnote instruction forum. Endnote skills or tasks were also provided throughout the online classroom (Moodle) and written materials.

Introduction

The Master of Veterinary Medicine programme (MVM) is a postgraduate qualification with a large domestic and international cohort. The MVM is open to veterinarians, and the majority are practicing clinical veterinarians. Students often worry about their writing skills when they enter the programme as they only write brief reports in their day to day veterinary practice. For many students developing the writing skills to write reports and assignments is a steep learning curve.

Students are expected to reference articles correctly when using online forums during course time, and for assignments. By the time the students enrol in a research report, it is expected they are familiar with searching and referencing the literature. Often the solution to supporting writing and information literacy skill development is to refer students to central services like the library or academic writing support centre. While there are advantages in doing this, it is important to provide additional support inside the MVM courses that is specific and gives students opportunities to incrementally build up their writing and referencing skills. Combining forces with the library, a series of support measures were developed to introduce the use of EndNote referencing software so that students could manage the many scientific articles they were collecting and using.

Tools like Endnote can help to free students from the repetition involved in referencing. There was a recurring theme amongst the students of downloading EndNote only to be put off by the empty shell and giving up. Providing the students with a pre-populated EndNote library containing the key references for the course enabled the students to immediately make use of the library and students have then gone on build a custom reference library.

Practice under scrutiny:

During course review and planning discussions the MVM team flagged that introducing EndNote to research report students was too late. Additionally, students reported informally that they would have liked to have known about Endnote earlier in their studies to make the most of it. With a raft of new skills to master during their Capstone year many students felt that learning to use referencing software was overwhelming although they could see how useful it could be.

It was decided that EndNote would be encouraged by providing low key, supported delivery, aimed at students in their 2-4th MVM course. These students would already be familiar with the online learning environment of Stream (Massey's version of Moodle), and therefore ready to add another technical skill to their bow. In addition, they were at a stage in their study where they would be planning ahead regarding the completion of a Capstone course.

Presenting information in bite sized portions at the time of need is important especially for distance students. Stone and Lowe (2010) discuss this as taking advantage of “*teachable moments*” to engage students in the development of their academic literacy skills. These authors also highlighted the importance of a teacher presence in the form of librarian “office hours”, a physical and online presence to ensure help was available when needed. We agree that this is an important aspect of any distance instruction and have collaborated with the Massey university science librarians to deliver this EndNote support program.

A dedicated forum with step by step threads has been developed for Stream/Moodle. Each thread adds a new feature or skill. The post is short and includes signposts to existing university library and internet sources for additional help. Threads are released into the discussion forum in a timed manner. An initial group of posts to get underway, then at an interval of two weeks throughout the course. Students are able to post questions in reply to any thread. An MVM team member is assigned to monitoring the forum, providing timely assistance or referring students to the Science librarians for remote help by the distance library service.

Discussion

3. How do I find a full text to go with my references?

1. How do I download Endnote to my computer?

2. How do I download the compressed course EndNote library from Stream?

Rather than start from scratch with an empty EndNote library, there was collaboration with the Science librarians to create a course specific populated, compressed EndNote library for each course.. This way the students can immediately use the citations for the readings in their forum posts and assignments.

General Forums



Announcements



Social forum



EndNote- Support Centre



118.752 Endocrinology EndNote

To encourage and support the use of the software short tasks like these are seeded throughout the study materials and learning activities to develop EndNote user skills.

Key factors in the introduction of EndNote were:

1. To provide students with a populated compressed library customised for each individual course of study to allow students to instantly grasp what the software could do for them and take away the hurdle of starting from a blank template.
2. To seed EndNote skills throughout the programme by indicating where students could utilise EndNote during the completion of their course learning activities to support their learning and allow them to be more time efficient.
3. To provide a library and enable students to create smart groups or introduce annotations to their entries to inform their areas of research interest and help them identify their Capstone projects while they undertake the taught papers.

4. To provide a 'safe, friendly' place for students to ask questions within the established online community rather than expecting students to look elsewhere for the information.

Discussion/Conclusion

During learning portfolio submissions in taught courses, students were asked to set goals around academic writing skills for their next submission or future assignments and reflect on how these might be achieved. Short examples were given e.g. "watch the online tutorial on how to download EndNote software". We were overwhelmed with the interest in referencing software and discovered that many students would value support to use it. While students were interested they had not sought the information via the library website where it was readily available.

EndNote support centre forums were introduced not only to July start courses in 2017 but also retrospectively to the up and running February start courses as a result of this goal setting exercise. This has allowed us to refine the instructions provided and consider the best order for introduction of EndNote skills and plan activities for integration into course materials ahead of future MVM courses.

Rather than reinvent the wheel, instructions were pitched to allow students to pace themselves but always signpost the existing and comprehensive Library resources so that students who wanted to move on and were comfortable with the technology could use this alternative resource.

Initial informal feedback from students has shown that they are seeing the benefits of EndNote. Posts have started to appear on the Stream/Moodle forums expressing their delight in EndNote. The reason for undertaking this EndNote support project was to ensure that students entering the final capstone had the knowledge and skills to use EndNote ahead of undertaking their research. Evidence of the success of this will become more obvious as the 2018 students embark on their Capstones.

Take home points

Populated libraries were a good driver for the adoption of a new practice. Providing populated libraries means that students are able to immediately harness the benefits of EndNote without the burden of creating a library from scratch. Once students see the benefits they are more inclined to add to the library.

A supported introduction from within the established online community should be considered even if the information is already available to students through another pathway. Students often stick with what is familiar without venturing out to see what else is on offer. Many institutions have a wealth of services for students that they might be more inclined to use if there is specific reference to them within their courses.

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SILVER SPONSOR



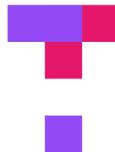
KEY NOTE SPONSOR



COFFEE SPONSOR



GENERAL SPONSORS



TOP HAT

Blackboard

EXHIBITORS

