

LEAP – Links (Digital Literacy): Developing the ICT competencies of regional and remote low-SES students [HEP1600038]

Sonal Singh, Macquarie University

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Modifications: Changed to meet WCAG 2.0 accessibility requirements.
Alternate text inserted for all images. Minor typographical errors corrected.

Higher Education Participation and Partnerships Programme (HEPPP)

2015 National Priorities Pool FINAL REPORT

LEAP – Links (Digital Literacy): Developing the ICT competencies of regional and remote low-SES students [HEP1600038]

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In accordance with the Conditions of Grant, you must submit to the Department a Final Report (Clause 6.1 of Part A) and an Acquittal Report (clause 6.4 of Part A).

To meet this obligation, please submit:

- the completed **Final Report** template, in Word and PDF
- the completed and signed **Declaration** form, in PDF
- the completed **Acquittal Report** template, in Excel and PDF.

All documents must be submitted to equity@education.gov.au by **31 January 2017**.

If you require additional guidance or clarification, please contact us at equity@education.gov.au.

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1. PROJECT SUMMARY (Conditions of Grant, clause 2.2(a)-(e) of Part A)

Objectives

Indicate the extent to which the Project Objectives specified in clause 3 of Part A of the Conditions of Grant were met. Where obligations established in the Conditions of Grant were not met, please identify these and provide an explanation of circumstances and consequences.

Table 1: Project objectives

IDENTIFIED OBJECTIVE	EXTENT TO WHICH THE OBJECTIVE WAS MET
<p>Enhance support to regional/remote low-SES students through identification and address of digital skills gaps for both teachers and students</p>	<p>An extensive review of literature on digital skills was conducted between November 2016 and February 2017. The review identified enabling factors as well as gaps and challenges to acquiring digital skills knowledge, in both teachers and students. The review provided directive evidence to structure a phased program to address some of these gaps.</p>
<p>Assist regional and remote low-SES students to build the digital competencies needed to succeed in school and through their transition to higher education</p>	<p>The LEAP Links Digital Literacy program was an evidence based project that allowed for the successful development of relevant content to support the gaps in digital literacy skills identified by teachers and students from regional and remote areas of NSW.</p> <p>An expert panel was assembled to participate as the project’s Reference Group, through which they were able to provide valuable insight into the challenges faced by regional and remote school communities, and guidance into the suggested structure and delivery of engaging workshops to support building digital literacy confidence in teachers and students.</p> <p>The program was evaluated at each of the following stages of development:</p> <ul style="list-style-type: none"> • Preliminary schools engagement (2016) • Pilot program delivery (2016) • Literature review (2017) • First Year University Student Survey (2017) • Rural and Remote Teacher Interviews (2017) • Reference Group Meetings (May and September 2017) • Teacher Workshops (2017) • Online Student Unit (delivered by teachers in the classroom context, 2017) <p>Recommendations to emerge from the evaluations confirmed the LEAP Links Digital Literacy program met objectives to assist students and teachers from regional and remote areas, to build confidence in</p>

IDENTIFIED OBJECTIVE	EXTENT TO WHICH THE OBJECTIVE WAS MET
	<p>digital literacy; and would greatly benefit from continued support and engagement beyond the program.</p> <p>Workshops provided effective targeting of information to improve teacher knowledge, confidence, resource accessibility and professional network connections. General skills explored in the workshops were transferred by the teachers into classroom settings, resulting in higher levels of student engagement and motivation to use ICT tools.</p> <p>Teacher feedback identified student opportunities to use digital literacy skills increased student knowledge, confidence and potential preparedness for transition into higher education; however preparedness would be better impacted through sustained, ongoing exposure to, and use of, ICT tools.</p> <p>In summary, the program successfully fulfilled the objective to assist regional and remote students from low SES backgrounds, by strategically equipping and supporting teachers with professional learning opportunities, information and network connections; that in turn provided support to students, to succeed in areas of digital literacy preparation for higher education.</p>

Project Activities, Milestones and Key Performance Indicators

Below, please specify whether:

- *all project Activities specified in Schedule 1 of the Conditions of Grant were completed*
- *all Project Milestones specified in Schedule 1 of the Conditions of Grant were completed*
- *all Key Performance Indicators specified in Schedule 1 of the Conditions of Grant were met.*

Where obligations established in the Conditions of Grant were not met, identify these and provide an explanation of circumstances and consequences

Table 2: Project activities, milestones and KPIs

TIME FRAME	PLANNED ACTIVITIES & MILESTONES	PROJECT ACTIVITIES & MILESTONES COMPLETED	IDENTIFIED KEY PERFORMANCE INDICATORS	KEY PERFORMANCE INDICATORS OUTCOME
November 2016	Project Team	Completed	Confirm and appoint a project team, including Project Officer and Project Administrator with the knowledge, skills and experience to successfully deliver the project	Project Officer secured in October 2016, and replaced with a new appointment in March 2017 following the officer's resignation. Project Administrator secured in January 2017
November 2016	Reference Group	Completed	Reference Group established to guide the project, comprising eight subject area experts	Twelve-member Reference Group (RG), (including eight external subject area experts) formed in May 2017 following extensive engagement and survey interviews with regional education professionals. Two face to face RG meetings were scheduled - for May and September 2017 – to raise discussion, ideas, seek guidance; and to disseminate project progress and findings
November 2016	Research Design and Evaluation Framework	Completed	Development of full research program design and logistics, including outcomes and measures of success	Design of program structure completed in January 2017, and revised in March/April 2017
November/ December 2016	Submission of application for ethics approval to Macquarie University and NSW Department of Education	Completed	Application for ethics approval submitted	Ethics application from Macquarie University granted in January 2017. SERAP clearance from the NSW Department of Education granted in January 2017
November/ December 2016	Literature review on digital literacy in regional and remote communities	Completed	Literature review completed and conceptual framework for the program developed	Literature review completed in February 2017
November/ December 2016	Review of technology used in regional and remote schools in NSW	Completed	Identification of opportunities for resource development and collaboration in digital literacies between schools and the higher education sector	Teachers and students from regional and remote schools in NSW were engaged in verbal and written interviews to identify the range of needs, skills, and the technologies used. Review was completed in November 2016

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November/ December 2016	Invitation to schools to participate in the pilot testing/case study of the teacher professional learning workshops, and the student online unit of work	Completed	Schools agreed to participate in the program. School principals nominate teachers to participate in the program	<p>Case study pilot completed in November 2016. Pilot involved one regional school participating in a three day staged program. A collaborative partnership between Macquarie University and BOSTES secured the required accreditation to deliver the pilot's digital literacy teacher workshops.</p> <p>A total of 18 teachers from 6 different schools, across 3 different regions agreed to participate in the pilot workshop.</p> <p>The program was promoted to Riverina through the principal's network and reference group. No interest was received from schools in Riverina with reasons cited as the unavailability of teachers and some of the teachers have attended an advanced professional learning workshop offered by other service providers. As a consequence the pilot workshops could only cover schools in 3 regions.</p>
December/ January 2017	Digital needs assessments of high school students through Interviews with *10 school teachers/principals *Two focus groups *an online survey of 50 first year university students	Completed	Interviews, focus groups and online survey targets are met. Data to complete digital needs assessment of high school students is gathered.	<p>Needs assessment evaluations were completed in early 2017.</p> <p>*69 first year university students completed an online survey in May 2017</p> <p>*5 Interviews with regional education providers were completed in May 2017</p> <p>*Focus group consultations with the RG were conducted in May and September 2017.</p> <p>The data collected during interviews and online surveys were robust and provide an in-depth assessment of high school students. Teachers and students were invited for focus groups in the regions but due to geographical location and distance between the four regions, teachers advised it was not practical to host focus group.</p> <p>The reference group consisted of members from NSW Department of Education, school teachers and principal from regional high schools</p>

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				who were presented with the findings from the digital assessment and agreed the assessment covered the needs of the students and teachers comprehensively. See attached the reports.
January/ February 2017	Data analysis	Completed	Data analysis enables identification of suitable topics for the teacher professional learning workshops and the student online unit of work. Reference group provides feedback on findings.	Evaluation of student surveys and teacher interviews were completed in May 2017 and compiled into reports for discussion at the May 2017 RG focus group meeting
February - April 2017	Materials for: *Teacher professional learning workshops *student online unit of work (delivered via teacher led collaboration)	Completed	Materials suitable for delivery developed on the basis of: <ul style="list-style-type: none"> • literature review outcomes • data analysis outcomes • Reference Group feedback 	An external content developer was contracted in June/ July 2017 to develop material for targeted teacher professional learning workshops and student online unit of work, as identified in the research and the assessment of needs. Content developed for the teacher professional learning workshops included: <ul style="list-style-type: none"> • Addressing the shift in pedagogy for using technology as learning tools in the classroom • Applying SAMR framework to integrate digital literacy skills with theory and practice • Immersive skill-building activities using Google Suite • Practical ways to teach key elements of digital citizenship • Expanding personal learning networks to discover new online teaching resources. The online unit of work developed as part of the program included a series of reference guides to support teachers and students with ICT digital literacy skills in the following areas: <ul style="list-style-type: none"> • The 5 Ps school leaders can do to support ICT capabilities in teachers and students (Planning/Pedagogy/Providing vision/Policy/Professional Learning

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				<ul style="list-style-type: none"> • 21st Century Learning – What parents and caregivers need to know • Choosing digital tools for your child • Student Acceptable Usage Agreement • 5 FAQs about digital literacy in the classroom • How is technology being utilised in Australia? • Materials developed for the workshops and online unit were completed in August 2017
February - April 2017	Promotion of identified pilot schools of: *teacher professional learning workshops *student online unit of work (delivered via teacher led collaboration)	Completed	Learning events promoted to the identified pilot schools. Five schools indicate their interest in their staff attending the workshops. Students indicate their interest in undertaking the online unit.	<p>Teacher professional learning workshops were widely promoted across regions of NSW during August 2017, using contacts within the NSW Department of Education.</p> <p>The workshop was promoted in</p> <ul style="list-style-type: none"> • Far West • Central West • Riverina • New England/Far North Coast.
March/April 2017	Application to the Board of Studies, Teaching and Educational Standards (BOSTES) NSW for accreditation of: *Teacher professional learning workshops *student online unit of work (delivered via teacher led collaboration)	Completed	BOSTES accreditation granted.	<p>Accreditation from New South Wales Education Standards Authority (NESA) was granted for the workshops delivered by in October 2017.</p> <p>Registered course name: <i>'2017 Digital Literacies in Teaching Practice: LEAPing into the Future.'</i></p> <p>Course code: 2017MQLEAPDigLit.</p> <p>Participating teachers were credited 7hours for the program in Information and Communication Technology (ICT). (5.5hrs for face to face workshop time and 1.5hrs for the follow-on online unit)</p>
April - August 2017	Teacher professional learning workshops	Completed	Delivery of one workshop in each of the following regions: <ul style="list-style-type: none"> • Far West 	<p>Three face to face registered NESA-accredited workshops were delivered in 3 schools, across 3 NSW regions that included:</p> <ul style="list-style-type: none"> • North Coast

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			<ul style="list-style-type: none"> • Central West • Riverina • New England/Far North Coast <p>10 teachers report increased:</p> <ul style="list-style-type: none"> • confidence in delivering integrated digital learning • knowledge of digital literacies • digital competency • school capacity to delivery digital learning to students 	<ul style="list-style-type: none"> • Central West • Far West <p>A total of 18 teachers from 6 different schools participated in the workshops.</p> <p>Teacher feedback confirmed the workshops delivered:</p> <ul style="list-style-type: none"> • Exposure to different tools and platforms • Hands on experience • A wealth of relevant, innovative and new digital literacy information • Motivation to apply the knowledge into the classroom environment • Valuable career development and network connections <p>A total of 18 teachers from 6 different schools, across 3 different region. The program was promoted to Riverina through the principal's network and reference group. No interest was received from schools in Riverina with reasons cited as the unavailability of teachers and some of the teachers have attended an intermediate professional earning workshop offered by other service providers.</p>
May – September 2017	Student online unit of work (delivered via teacher led collaboration)	Completed	<p>50 students complete the unit and report increased:</p> <ul style="list-style-type: none"> • confidence towards digital learning • interest in using online tools for educational purposes • understanding of the digital requirements of higher education 	<p>Online unit of work developed as part of the program included a series of reference guides to support ICT digital literacy skills.</p> <p>Teacher reflections following the incorporation of digital literacy skills in the classroom context confirmed student confidence increased, and the majority of students showed high motivation levels to use online tools. Overall student understanding of digital requirements for higher education increased, however would need to be further supported through more regular use of ICT tools to ensure students were confidently prepared. Issues identified as inhibitors to the</p>

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			<ul style="list-style-type: none"> aspiration towards, and preparedness for higher education 	<p>effective transfer of knowledge included ongoing regional and remote telecommunications service provision.</p> <p>Teachers encouraged students to conduct a collaborative unit of work using the digital tools students learnt in the curriculum utilising the following skills:</p> <ul style="list-style-type: none"> Acknowledge Sources Avoid Plagiarism Understand Copyright <p>Students designed a presentation of no more than two minutes for their class on their selected topic and named the source of images, videos, music from the Creative Commons repositories they have learned about.</p> <p>46 students completed the unit of work of which :</p> <ul style="list-style-type: none"> 41 students reported increased confidence towards digital learning. 43 students reported increased interest in using online tools for educational purposes. 43 students reported increased understanding of the digital requirements of higher education. 43 students reported increased aspiration towards and preparedness for higher education.
June/July 2017	Apply to present preliminary Project outcomes at: *Students Transitions Achievements Retention & Success (STARS) Conference, 2017	Completed	Two project team members attend each conference, to present preliminary project outcomes to the conferences, if applications are approved	<p>The Project Officer and Project Assistant attended the 2017 UniSTARS and HERDSA conferences.</p> <p>A paper titled <i>'LEAPing into the Digital Future: Increasing digital literacy for teachers and students in low SES regional and remote</i></p>

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	*Higher Education Research and Development Society of Australasia (HERDSA) Conference, 2017			<p><i>schools'</i> was accepted and presented at the 2017 UniSTARS conference.</p> <p>An infographic poster titled '<i>Closing the Digital Divide through LEAP-Links (Digital Literacy)</i>' was accepted and presented at the 2017 HERDSA conference</p>
November 2017	Follow-up meeting with teachers who completed the professional learning workshops	Completed	<p>Follow up meetings are held in each of the following regions:</p> <ul style="list-style-type: none"> • Far West • Central West • Riverina • New England/Far North Coast <p>10 teachers report increased:</p> <ul style="list-style-type: none"> • Student engagement • Delivery of integrated digital learning • Knowledge of digital literacies • Suggestions for improving workshops 	<p>Follow up surveys were delivered to teachers electronically via Qualtrics. Teacher reflections relating to the online unit of information available for students, and the application of ICT workshop learnings were also completed online.</p> <p>For teachers to acquire NESA accreditation, they had to complete surveys post the professional learning workshops. Surveys was a requirement from NESA.</p> <p>Surveys replaced the meetings as the most practical way to follow up on teacher feedback</p> <p>Teacher feedback indicated:</p> <ul style="list-style-type: none"> • Students were engaged and motivated to use new digital tools • Digital learning was incorporated in more informal ways in classroom contexts, and this was well received by students (particularly as some students were noted to not have access to ICT tools at home) • Workshops were valuable for learning new and relevant digital skills • Follow up support and sessions with practical activities, as well as on-going resource sharing and local resource-use were flagged as recommended program improvements
November 2017	Apply to present Project outcomes at:	Completed	Two project team members attend each conference, to	The Project Officer and Project Assistant attended 2017 SPERA and EPHEA conferences.

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	<p>*Society for the Provision of Education in Rural Australia (SPERA) Conference, 2017</p> <p>*Equity Practitioners in Higher Education Australasia (EPHEA) Conference, 2017</p>		present preliminary project outcomes to the conferences, if applications are approved	<p>A presentation titled <i>'Digging Deeper into the Regional and Rural Digital Divide'</i> was accepted for delivery at the 2017 SPERA conference.</p> <p>An abstract titled <i>'Designing Digital Literacy Professional Learning Workshops for Teachers in Regional and Remote High Schools'</i> was submitted to the 2017 EPHEA conference.</p>
November/ December 2017	Dissemination of Project Outcomes	Completed	<p>Project outcomes are disseminated to stakeholders through:</p> <ul style="list-style-type: none"> • LEAP website • Make your Mark Website • Reference Group • Professional and stakeholder networks 	<p>Project outcomes of the LEAP Links Digital Literacy project were disseminated through various means, including:</p> <ul style="list-style-type: none"> • published on the Macquarie University Widening Participation website • Reference group distribution • Professional and stakeholder networks, including through Macquarie University's Department of Educational Studies <p>LEAP Links Digital Literacy information was not published on the Make your Mark website as it was not deemed to be the most relevant avenue to reach the project's target audience.</p>
March 2018	Final Report and Acquittal Report	Submitted	Final Report and Acquittal Report are submitted to the Department of Education and Training	Final reports completed and submitted

Highlights and Issues

Provide a summary of highlights and achievements arising from your project (maximum half page)

- Engaging and connecting with teachers from rural and remote areas to identify their challenges and realising their strong professional commitment to create networks of collaboration that support their digital literacy competencies and knowledge, and that of their students
- Positive teacher feedback to the materials developed and delivered. Teachers indicated the workshops were valuable professional learning opportunities, and wished to have continued engagement with the network they had established as a result of the workshops, for on-going support and resource sharing
- Positive feedback and response from Macquarie University's Department of Educational Studies to take over the delivery of the LEAP Links Digital Literacy program, by making it a continuing program that will likely expand the network of contacts established by the NPP program, and extend the reach and impact to other communities of students and teachers in regional and remote areas, with the end aim to better prepare student digital literacy skills for higher education.

Did the project lead to implementable outcomes? What changes will result at your institution/nationally? How is research being translated into practice? Are there activities resulting from this project that will be continued?

Through the program's engagement with internal Macquarie University stakeholders, LEAP Links Digital Literacy has been agreed to be adopted as an on-going program, under the Department of Educational Studies. This attests to the strength and quality of the research on which the program was based, and the value that the program delivered to targeted regional and remote communities of low-SES students. The Macquarie University Department of Educational Studies have the scope to deliver the program to a wider community of regional and remote schools.

Did you undertake an evaluation of your project?

Yes No

Please summarise the findings and attach the evaluation report.

- Of the sample survey group of students, more than half (54%) reported they felt under prepared in their digital literacy requirements, as they transitioned from high school to tertiary education
- Students indicated the top three areas of digital skills that schools could work on to support student preparedness were:
 - Working with spreadsheets (Daily use of spreadsheet work at university increased 150% over the rate of use at high school, and it was revealed that 1/3 of students had never used spreadsheets prior to university)
 - On-line researching (On-line research was the highest digital technology used daily, at both high schools and university)

- Referencing (Daily use of referencing nearly doubled (+94%) at university, relative to high school use. 60% of participating students did not use digital referencing tools at high school)
- The digital divide is created by varying levels of accessibility and affordability of technology resources. Students from regional and remote areas face unique challenges in overcoming the digital divide, based on location and the compounding impact of low SES status towards accessing resources.
- Targets to attract 10 teachers to participate in professional learning workshops were exceeded, following the attendance of 18 teachers from 6 regional and remote schools, across 3 regions
- NESA accredited teacher professional learning workshops were valued by the majority of teachers for providing:
 - Exposure to different tools and platforms
 - Wealth of information
 - SAMR
 - Engaging and supporting teacher networks
 - Hands on experience
- The majority of teachers strongly agreed the workshops provided:
 - Relevance
 - New content
 - Career development/networking
 - Perceived value
 - Applicability
- Suggested workshop recommendations included:
 - Longer workshops
 - On-going application, resource sharing and follow-up support
 - Australian SAMR content
 - Follow-up progressive workshops
- Follow-on Unit of work, delivered by teachers to students in their classroom setting resulted in:
 - Increased teacher confidence to explore different ICT tools
 - Increased student motivation and engagement to learn content using a variety of different technology mediums
 - Increased knowledge of the digital literacy skills needed for higher education – alongside acknowledgement that more exposure to, and consistent use of ICT tools would help raise that knowledge further and subsequently result in higher levels of preparedness in students.
 - Highlighting the acute and on-going limitations to capacity with telecommunication services in regional and remote areas

Where applicable, indicate number of the following resulting from this project:

Student contacts	90
Journal (or other publication) submissions	4
Conference Presentations	3
Websites developed	1 https://www.mq.edu.au/about/about-the-university/offices-and-units/widening-participation/the-leap-program/leap-digital-literacy
Educational or marketing campaigns	4
Community organisations engaged	N/A
Schools engaged	6
Parental/family contacts	N/A

Optional - If you included transformational/behavioural change KPIs in your EOI please summarise outcomes here:

Describe any issues that occurred during the year and any mitigation strategies you implemented.

- While the project was successfully and efficiently completed, initial milestone timelines and program structure were impacted and delayed by the resignation of the Project Officer in early 2017.
- Some teacher feedback identified the follow-on online unit of work developed for students, and the incorporation of workshop learnings were not able to be effectively accessed or delivered due to poor telecommunication networks.

2. OTHER PROJECT MATERIAL (Conditions of Grant, clause 2.2 (b)-(e) of Part A)

List the titles of any published reports, pamphlets or other documentation produced in the course of the Project and attach them to this Final Report.

Table 3: Additional materials produced over the course of the project

TYPE	AUTHOR	DATE OF PUBLICATION	PUBLICATION DETAILS
2017 UniSTARS Research Conference Paper ' <i>LEAPing into the Digital Future: Increasing digital literacy for teachers and students in low SES regional and remote schools</i> '	Maimuna Musarrat, Carolina Morison, Ruth Tregale, Rebecca Turnbow		http://unistars.org/papers/STAR2017/06B.pdf
LEAP Links Digital Literacy		November 2017	https://www.mq.edu.au/about/about-the-university/offices-and-units/widening-participation/the-leap-program/leap-digital-literacy
2017 HERDSA Conference Poster ' <i>Closing the Digital Divide through LEAP-Links (Digital Literacy)</i> '	Rebecca Turnbow, Maimuna Musarrat		https://www.mq.edu.au/about/about-the-university/offices-and-units/widening-participation/the-leap-program/leap-digital-literacy/HERDSA-Poster.pdf
2017 SPERA Conference presentation ' <i>Digging Deeper into the Regional and Rural Digital Divide</i> '	Rebecca Turnbow, Maimuna Musarrat	Wednesday 27th September, 2017	https://www.spera.asn.au/wp-content/uploads/2015/11/SPERA-Conference-Program.pdf
2017 EPHEA Conference Presentation ' <i>Designing Digital Literacy Professional Learning Workshops for Teachers in Regional and Remote High Schools</i> '	Rebecca Turnbow, Maimuna Musarrat	Thursday 23rd November, 2017	https://ephea2017.org/wp-content/uploads/2017/11/Program-1.pdf
LEAP Links Digital Literacy Program Flyer for Pilot Program	Widening Participation Unit, Macquarie University	November 2016	
LEAP Links Digital Literacy Research Brief	Carolina Morison, Rebecca Turnbow		
LEAP Links Digital Literacy Teacher Professional Learning Workshop Evaluation	Carolina Morison, Rebecca Turnbow	December 2017	

TYPE	AUTHOR	DATE OF PUBLICATION	PUBLICATION DETAILS
<p>LEAP Links Digital Literacy Online Content. Including:</p> <ol style="list-style-type: none"> 1. 'The 5 Ps school leaders can do to support ICT capabilities in teachers and students' 2. '21st Century Learning – What parents and caregivers need to know' 3. 'Choosing a device for your child' 4. 'Student Acceptable Usage Agreement' 5. '5 FAQs about digital literacy in the classroom' 6. 'How is technology being utilised in Australia?' 	<p>Rebecca Turnbow, Muna Musarrat</p>	<p>November 2017</p>	

3. ACQUITTAL REPORT (Conditions of Grant, clause 6.4(e), clause 6.7-8 of Part A)

Have you fully expended the Grant Funds provided under the Conditions of Grant?

Yes No

If the answer is No, please specify:

- *the amount of funds remaining: \$*
- *the reason for this underspend:*

Ensure that the completed Acquittal Report template is signed by an appropriate university officer and attached to this Final Report.

**IMPORTANT NOTICE - Unspent 2015 National Priorities Pool Grant Funds*

- *Grant recipients must fully expend these 2015 National Priorities Pool funds in the project period for which the grant is made and report on this expenditure to the Commonwealth, including the amount of any unspent funds.*
- *If a provider fails to spend the full amount granted it in respect of a year, the unspent funds may be recovered by the Commonwealth.*

DECLARATION

I declare that:

- I am authorised by the university to sign this Declaration on its behalf, and
- to the best of my knowledge, the information that I have provided in the **Final Report** and **Acquittal Report** for the HEPPP 2015 National Priorities Pool project *Live, Learn, Grow* is true, correct and accurate in all particulars.

I understand that:

- The provision of false or misleading information or the making of false or misleading statements to the Commonwealth is a serious offence under the *Criminal Code Act 1995 (Cth)*.
- If any actual or potential conflict of interest arises, I must notify the Commonwealth immediately in writing of the facts giving rise to the actual or potential conflict of interest and to take such steps as the Commonwealth may require so as to resolve or otherwise deal with any conflict of interest that may arise.

I agree to publication of the Final Report on the Department of Education and Training website, once accepted by the department.

Title Vice-Chancellor and President
Name Professor S. Bruce Downton
Position Chief Executive Officer (Vice-Chancellor)
Signature

Appendix 1: Teacher Interview Summary of Findings

Introduction: Method

Phone interviews were conducted with teachers and education professionals who were working in regional and/or remote areas for some time. The interviews were recorded and transcribed. Transcripts were analysed qualitatively using thematic analysis method with the help of NVivo.

The themes that emerged fall under the two levels of the digital divide: 1) Access and Affordability to technology and technology support affecting teachers and students, and 2) Knowledge and Skills to operate the technology affecting teachers and students

Access and Affordability Challenges

Affecting Teachers:

- Limited bandwidth/unreliable internet
- Lack of access to IT support
- Lack of resources and funding
- Obsolete technology

Affecting students:

- Affordability of devices and data plans at home
- Limited retail outlets in area selling affordable devices and service plans
- Issues with BYO (Bring Your Own) devices running different operating systems

Knowledge and Skills Issues

Affecting Teachers:

- Lack of access to professional development training
- Teachers stepping out of their comfort zone to try technology
- Challenge of updating information, version control, while collaborating
- Shifting teaching style/pedagogy
- Time consuming to learn new platforms

Affecting students:

- Students don't have the right skills. Busting the digital native myth
- Students/Parents lack guidance on the type of device needed for certain years
- Parents attitudes around using technology

Findings: Access and Affordability (Digital Divide Level 1)

First degree digital divide affecting Teachers

Low bandwidth/unreliable internet

One of the most commonly mentioned challenge is the lack of reliable Internet, as a result of low bandwidth in regional and remote areas.

"bandwidth is a big issue. If we were really honest about this and looked at some of the recommendations from as far back as 2005, the Department was looking at a data connector, was looking at Illuminate, and Illuminate was by far the best way to go. As you're probably aware, Blackboard purchased Illuminate, and if we look at the schools in Canada, around the States, the Blackboard platform is - when it comes to that really remote delivery - and that's what it's like in Australia."

As a result of bandwidth issues, collaboration suffers. Some schools collaborate through Adobe Connect but when there are a higher number of participants (more than 3-4) the connection fails.

"Within our corporate unit of education, we've now been trying to use it over Connect for probably three years and it's great in two or three - collaborations of two or three. Once you get 20 or so online, you might as well just throw it away, and we don't use it for that any more"

"I might have a 20mbps link into my school, and then it says, 'oh you beaut, 20mbps', but if I start adding a couple of video conferencing units, and we've got more and more kids using devices on there, it kind of becomes like Parramatta Road."

"...they don't have reliable internet in some of the more western schools. So that's an inhibitor as well. So teachers would always probably prefer paper based and go that way, because of the lack of reliable internet and/or resources in the school."

"our internet speed is always a problem being where we are and so therefore students get a bit frustrated, as we know students do, if things are taking too long or timing out. It depends how many students we're trying to get on at any one time, so that does impact on things."

Lack of access to adequate IT support

"..if you have a good person in a school of the 20 or less teachers in that school, then you have more ICT skills and that professional development around that. But if you don't there's a big kind of void there."

"We no longer have a technology person who is set aside, whose job it is, is only technology. We did have one for a number of years but then when the laptop program went out then we lost him so it's up to our Head Teacher Maths to get around and deal with all the technology issues. Of course she's on class and so that is a challenge."

"We really don't have any - we don't have a computing supporting person. We did a few years ago and then he transferred to Forbes High and that's it. We haven't got anyone to - but I think he was just there for the role out of handing out the laptops to year 9 - I think that may have been while he was there - but we just have to depend on the good grace of a couple of people that are quite computer savvy for tech support. Otherwise there's - you know, just - you just have to struggle [that out] with yourself."

Lack of resources/funding

"when I go out to see my rural schools they just don't have the resources available, like the funding. The schools just are under resourced when it comes to computing basically, so they just don't have enough computers for students to use. So therefore, the teachers will opt not to do computer type based activities, because of that reason, and/or their internet is slow as well, and..."

Obsolete technology

"The Wi-Fi system at the school, I think is pretty much like the rest of New South Wales, is now obsolete, so they are rolling out a new system but we can't actually get new points put in around the school because they don't have the hardware for it. It's the same in the front office. We have a boardroom where we have our meetings and it's not Wi-Fi connected. So yeah, there's a few issues with that and a major issue in terms of careers because we're constantly having to go to computer rooms and then have to share technology. "

"That challenge also affects the students in terms of BYOD. I know you've got down there about BYOD. We are a BYOD school but it's probably not taken up as much as many people would like it to and that Wi-Fi connectivity is just one of the reasons why. "

"Some students have devices, other students don't have devices, so that's always a challenge if we're trying to set things up. Then our old technology in terms of our fixed computers around the school, they age and so some are working and some are not. "

"The network, and the computers didn't have enough memory to support these heavier applications."

"Our computers are fairly primitive. We have three computing rooms that have probably about 20 - 24 operational computers. There's usually a couple that aren't functioning. We have laptop pads - pods sorry. They're - quite often if I'm using those there's be laptops that aren't charged because someone - they haven't been charging. We really don't have any - we don't have a computing supporting person."

First degree digital divide affecting students

Students cannot afford devices and/or internet at home

"Even though there's sort of the BYOD model that's been introduced by the Department (of Education), it's still - not many students can afford any type of computer at all, so often they'll come without one."

"I had a class of about 17 kids that came to class and there was at least eight of them that didn't have a functioning device. A couple of them weren't working properly, a couple of them left them at home, a couple of them went flat....and that's turning teachers off doing it, because they have to make two lessons, one

lesson for the kids that don't have technology and the other lesson. When you're trying to teach them all at once it becomes a problem in the classroom."

"There are a couple of kids that bring their own (device) but there are a lot of kids that just won't bring them and - or they don't have them. It is surprising the number of kids that don't have access to the internet at home.

"even if you are able to afford the hardware - let's say you get it for Christmas - it's a very special thing - it's the data and the Wi-Fi service - the internet service.

"Some students have devices, other students don't have devices, so that's always a challenge if we're trying to set things up."

Even if they can afford, there aren't many outlets where they can purchase the right device

"We've only got one shop in [our town] that sells computers. So unless they drive to Wagga or Griffith they don't have access to buy them anyway, or they can buy them online I guess, but then they're fraught with problems if they - with warranty and stuff like that. So the parents have to consider all this."

Having a BYOD policy doesn't work if the technical support isn't there

"We relied on a lot of students having their BYO devices. But that created a lot of issues too in terms of having all the different platforms and the connectivity between iOS and the other types of phones. It was just a nightmare. So and the kids didn't - from a low socioeconomic area, the kids didn't cope with that kind of learning. They just - once they got free reign with technology they just went off task."

Second Degree Digital Divide: Knowledge and Skills

Second Degree Digital Divide affecting Teachers

Lack of access to Professional Development Training

Distance being a major challenge for regional and remote teachers, some couldn't attend professional development training programs because of the locations where they were held:

"[The] professional development [trainings] seems to be centred more around the larger regional areas. When I say regional, I mean like Newcastle, Armadale, those kind of places. So anywhere to travel for professional development was a minimum of around two hours to three hours to be able to attend. So we couldn't attend a lot of the professional development because a lot of the time the funding wasn't there to put you up overnight teachers aren't - when they travel six hours."

"So to be able to go places is limiting and also finding casual teachers to take our classes while we're away. Obviously being out in the western area we don't have a huge supply of casual teachers so yeah, there's all those sorts of things that act against it."

That also meant the teachers have to do with the limited resources they had in their own schools:

"I know that there is a lot of - certainly training is moving more online and self-paced so it's a matter of getting yourself some time to do it."

"So that's why we had our own which was very supportive, but it was also a bit limiting in terms of what you were exposed to in terms of what professional development was running within the department."

Teachers not trying out new technology

"Teachers need to get out of their comfort zone to be trying out new technology. Not everyone is comfortable with the rapid changes within the technology sphere: For instance, we needed to get some information out really quickly. I said, let's put a Google form together. [Others went:] "Oh, no, that will be tough".....but that's what it is. It's - we don't spend - like this technology has changed pretty rapidly in the last - if we look at the Google Suite, every time I go on and have a look there's a change, and with most people, they need a hand. They need time."

Collaboration

"One of the big difficulties we have with too many schools is how to get our learning materials shared out to the schools, how to make sure that the materials are up to date, that it's the correct version for them to use, and that's why we need to go electronic."

"...distribution of curriculum and that ability to distribute online and in real time."

Issues with teaching style/pedagogy

"The problem that they've got, in a lot of cases, it's still a 19th or 20th century pedagogy with 21st century tools, and that's the problem. So what they haven't done is move to, say project-based learning as much. Some schools have. Some haven't. But where you're just using it for drill and practice, and you're using a technology at a very simplistic or substitution level, [unclear], it's a lot of work for not a lot of gain."

"It all comes back to... pedagogy. You go well, okay, what's this tool capable of doing? A tool that's capable of doing just about anything, really, because you can - yeah, I can record video. I can edit music. I can do all of these things. I can surf the web and make transparent walls in my classroom, and bring the world in. I can do all these things. The question is, now that I have this tool, have I, as the teacher, taken advantage of its functionality?"

"...Most teachers haven't been going oh, is there a different way of getting this concept across? So for instance, if you look at project-based learning, you're going okay, well you have got to provide some material up front, because it's about rich questioning, and it's about giving the kids greater ownership, and it's about managing that process rather than content delivery. You've had to do

some deeper thinking and planning to make it look really flexible and let the kids own it. You've got to do a bit of mental planning up front"

"Let's just be honest, there is a real lag for a lot of teachers in going - they're still, in a lot of cases, teaching how they were taught. So, what they do need to do is see some good examples of what other schools are doing to transform how they utilise that. Because in the end, the technology needs to be transparent."

Time consuming

There's so many of the packages out there, I had an Edmodo, I had a little - each one of those comes with its own I guess benefits and faults. But it's very beneficial once you've established it, but setting all that system up and the training required to be able to make it as user friendly as it could be is fairly intensive. Unless you have a lot of people collaborating on that and producing something that was going to be beneficial to a lot of teachers, for one teacher if you had to do that for every subject that they ran it was going to be very time consuming.

Interestingly, teachers have sometimes relied on their students as tech support:

"They (students) can be sensational tech support. I got a new computer the other day and I was having difficulty with something and I just asked a couple of them. Oh yeah, no you do this, you do that, yep, fixed the problem in 30 seconds probably."

Some devices themselves can be limiting. Parents and Students with limited knowledge about device requirements for specific years.

"They (iPads) just are so limiting, especially for high school. I get that they might be good for primary but they just do not cut it for high school. So we haven't banned them - you can't do that - but we've sort of said, right, if you're at the stage now where you're going to purchase a new device, please purchase a laptop."

"They (iPads) are not just cutting it. Number one, the screen size, number two, you just can't do half the stuff or less with formatting and - yeah, they're just not good for school"

Second Degree Digital Divide affecting Students

Students not having the right skills. Busting the digital native myth.

An important finding from these interviews is that although there is a common belief that young students of current age are generally computer savvy, some teachers revealed their Grade 7 or 9 students often came with very limited digital skills.

"Before we were getting year 7s and they basically knew how to play video games on computers and that was it. Maybe they'd done a Word document before, butbasically they were a blank canvas, came with nothing. They had never checked their emails, they didn't even know how to do email and that was the time they were in year 7"

“Look, I was teaching in [school name removed] back when they gave year 9 kids their own computer and every kid had a computer. A lot of kids weren't using them but I said no, every lesson we're going to be using your computers folks. Get them out and we're going to use them for a bit of research and I'm going to give you class notes. Everyone said oh, kids learn how to type in primary school. I was flat out getting half a board of notes down because these kids just couldn't type. They... These are smart - quite savvy kids and they didn't know how to put a table in and they didn't know how to (type). So I was a little shocked.”

Even if they have the skills, do they have the right skills?

“Sometimes students have advanced YouTube skills (can upload videos, etc) but don't know how to highlight a Word document. Professional skills are lacking.

Sometimes parents have a negative attitude towards technology

“Whenever they (parents) see their kids on a device, (they think) they are wasting time playing games or on social media, getting themselves into trouble. So it's hard. You have to even convince the parents that the devices can be used for good.”

Parenting on device usage is challenging and new to most parents

Appendix 2: Survey Report: Digital Technology Use for Learning among Students Transitioning from NSW High Schools to University

Introduction

The question of whether high school students transitioning to tertiary education are prepared for the digital learning environment of university is a multifactorial one. One popular point of discussion is that 'digital natives' are not as digitally literate as we assume they are. Another is the generation of students currently moving through the educational system encounter a great deal of variation in the digital skills gap among teachers, parents and administrators, as well as among schools. What we can surmise is the presence or lack of digital technology use in high schools will be most apparent when transitioning to 21st century learning environment.

"Uni seems to think we all know and are able to do, but it [sic] takes me a couple hours to find out what on earth they're talking about."

— Year 3 University Student

Researchers describe the digital divide among communities as having two levels – 1) access and connection to technology and 2) knowledge and skills to use it in a meaningful way. Students from regional areas and low socioeconomic backgrounds face unique challenges in closing both levels of the divide. These challenges include:

- Access: few retail outlets to purchase computers/devices with service or warranty plans and cost prohibitive data plans;
- Connection: limited bandwidth and lack of IT person to troubleshoot connectivity problems at high schools;
- Skills: Little to no influx of new high school teachers with digital skills;
- Knowledge and Skills: Limited access and time for professional development on new technology for schools; and
- Knowledge and Skills: Parents, teachers and administrators questioning the worth of technology use in classrooms.

"Google docs could be used more at high school, I didn't have many group assignments at high school but google drive & docs has become essential with communication at University."

— Year 2 University Student

Objective

The aim of this survey is to understand the perceived digital competency of students transitioning from high school into university and identify the gaps in key digital skills. We wanted to understand if the digital technologies students learnt in high school are transferable to those required at university.

Method

Over two weeks, the Widening Participation Unit recruited Macquarie University students who graduated high school in NSW to complete an online survey on their use of digital technologies for learning in high school and university. Eighty-one students completed the survey. Twelve were excluded because they completed HSC prior to 2012. We analysed data of 69 students, nine graduating from regional high schools and 60 from metro area high schools in NSW.

Key Findings

“My high school prepared me for the digital technology requirements of university” N=69

High School Preparation

When we asked students if their high school prepared them for the digital technology requirements of university, half agreed or strongly agreed, while the other half remained neutral or disagreed to strongly disagreed.

Digital Technology Use for Learning in High School versus University

In comparing students’ digital technology use for learning in high school versus university, the results show students use spreadsheets more than twice as often at uni than in high school and use social media for learning 38 percent more often in university than in high school. Even more telling, a third of students never used spreadsheets in high school, whereas only 7 percent have yet to use spreadsheets for their university studies. Additionally, nearly 6 in 10 high school students report never having used digital referencing tools like Endnote in high school, whereas 66 percent of students use it weekly or monthly at university.

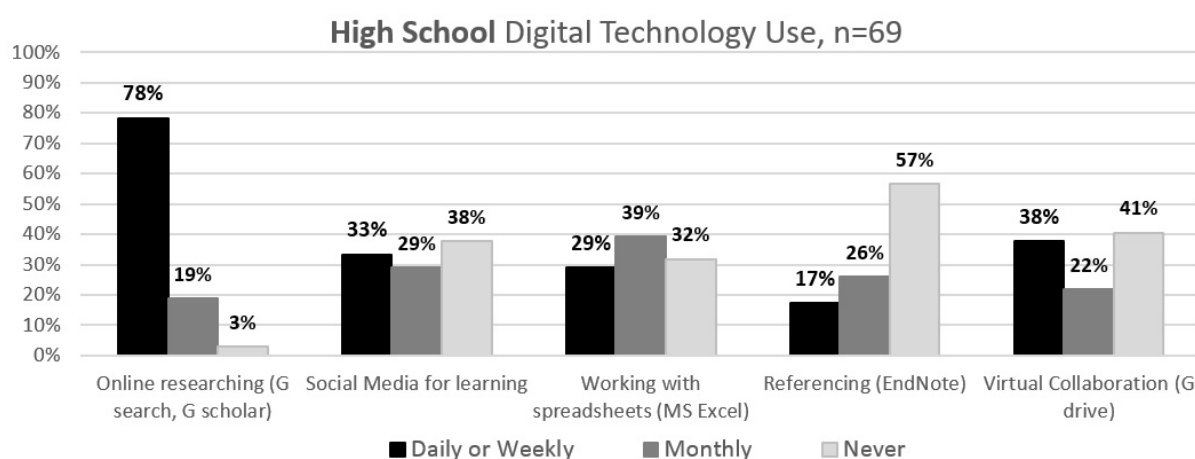


Figure 1: What digital technology did you use for learning in high school?

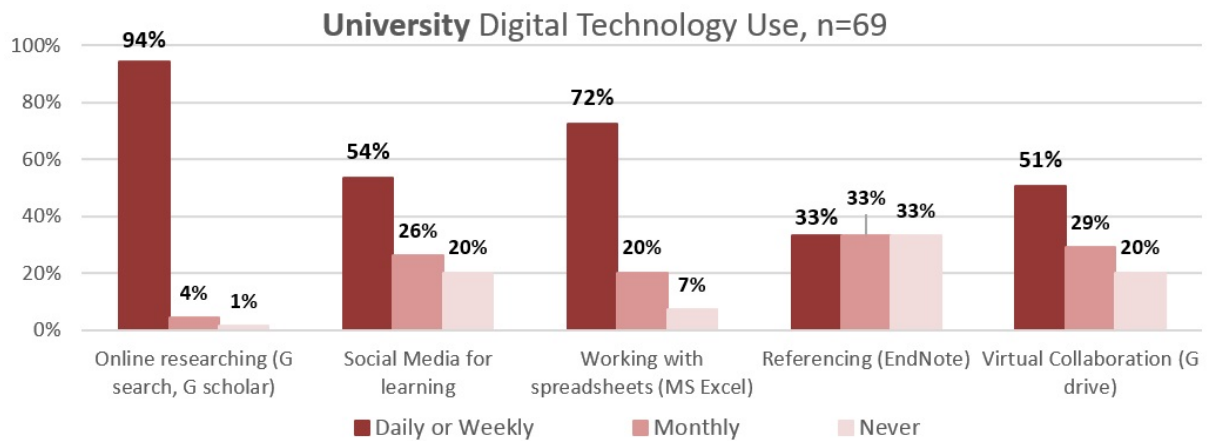


Figure 2: What digital technology are you using for learning at university?

Recommendations for First Year University Students

Of the 54 open responses, 30 students recommend learning to use spreadsheets (Excel) before commencing university. The other notable recommendations were to learn how to use online collaboration tools (Google drive), referencing software, coding/programming and online research techniques such as effective searching of online databases.

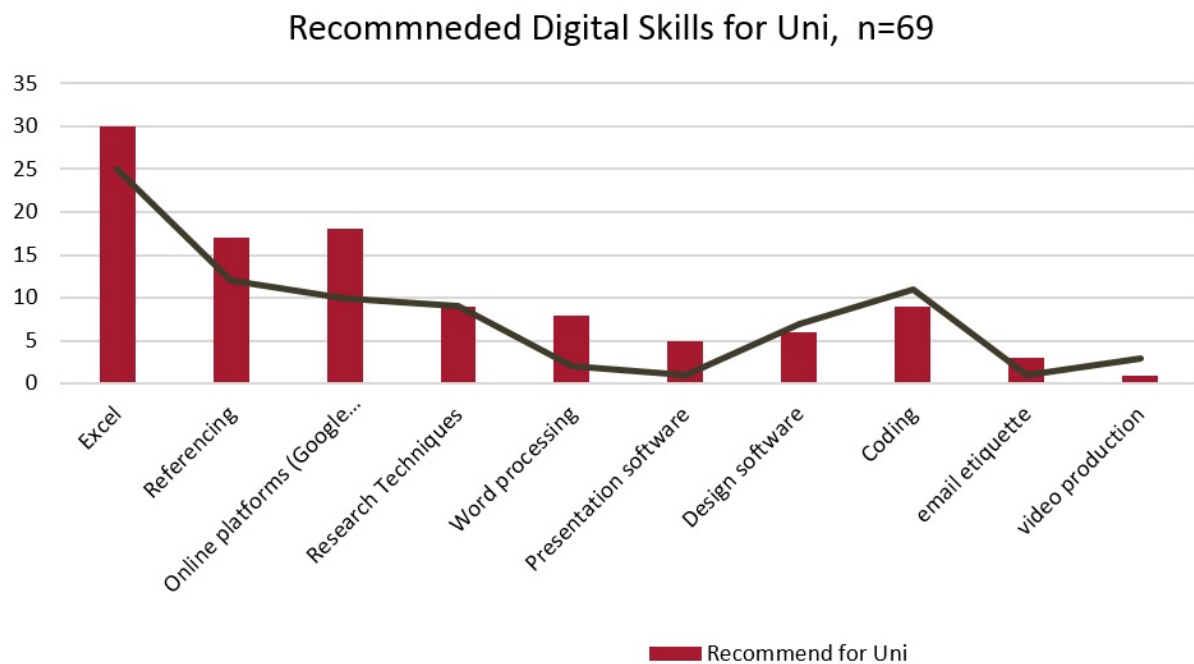


Figure 3: What digital skills do you recommend before commencing university?

Further Discussion

What role do universities play in bridging the digital divide?

Universities invest heavily in building robust, technology-rich courses. High schools simply do not have the time or scale to do so. What support is needed to ensure a smooth

transition from high school to the digital learning environment of university? What can universities do to better prepare students for a smooth transition to the digital world of university?

NPP LEAP Digital Literacy Project

To learn more about our program LEAP-Links (Digital Literacy), please contact us.

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Macquarie University's Widening Participation Unit LEAP (Learning, Education, Aspiration and Participation) Digital Literacy program is funded by the Commonwealth Government's National Priorities Pool.