

ABSTRACT:

What do you do when you find a gap in both the generic ICT and digital literacy skills of your student cohort? What happens when you know that both of these skills have emerged as prerequisites or highly desired job skill sets? What do you do? You build a bridge to fill the gap.

A bridge called a DigiLab. By establishing DigiLabs, TasTAFE Libraries have aimed to concentrate on digital literacy skill sets with a focus on areas such as: cloud computing, coding using robotics, social media, virtual reality, new technologies (how to use a 3D printer and scanner), and developing an ICT mindset. The DigiLabs were to provide not only access to new technologies but the physical space to learn those technologies.

In this paper - we find out how TasTAFE Libraries, with support from the eLearning team, went about sourcing funding to get this project started. Once funding was obtained a DigiLab project team of library staff have since worked towards establishing a statewide program, through collaboration with LINC (Tasmanian Public libraries and adult literacy services), University of Tasmania (UTAS), Professional Learning Institute, and Government run Innovation Hubs to initiate

programs such as Train the Trainer and encourage participation from members of the public.

The DigiLabs program was to provide an opportunity for staff and students to be exposed to new technologies including a variety of devices and software. They create a culture of discovery, creativity, experimentation and innovation. DigiLabs would encourage members of different TasTAFE delivery teams, as well as internal and external groups to collaborate, experiment and create new communities of practice.

The digital world is constantly evolving, making it essential that our students not only have basic Information and Communication Technologies (ICT) skills, but also a mindset that allows them to adapt to change. DigiLabs would also help to address disadvantage by providing easy access to social, learning and entrepreneurial opportunities at low or no cost. The DigiLab can also be a bridge between school-based programs and more advanced computing groups.

DigiLabs are designed to be interactive, with teacher involvement considered integral to ensuring the spaces are effectively utilised, and that these experiences are focused on learning outcomes for students. Teachers are encouraged to bring

students in to use the facilities by running a course themselves, joining a library run session, or participating in a collaborative activity run by a community member.

Teachers who lack confidence in the use of technology or just need support (e.g. editing a training video) are also seen as a key focus of DigiLabs.

DigiLabs are new and innovative and TasTAFE is at the forefront of digital literacy in Tasmania. The variety of resources available and the project team who are continually sourcing new DigiLab technologies ensure that the DigiLab spaces will continue to evolve as a hub of learning.

There have been many challenges since starting the project and there will be more challenges to come as TasTAFE libraries strive to continue funding DigiLabs into the future to ensure the technologies are continually sourced. TasTAFE libraries will also have to maintain on-going staffing and support for DigiLab areas, and library staff need on-going professional development to upskill themselves.

It is an exciting time in Tasmania as our DigiLab Bridge leads a path from the past to the future in technology and learning.

PAPER

TasTAFE definition of a DigiLab:

A DigiLab is a technology based Maker Space that is available for TasTAFE staff and students to use in their lessons, or can be provided by library staff, on how to use the digital technology that is available. This space has the same equipment in each of the three (3) regional areas.

TasTAFE and its Libraries:

TasTAFE provides vocational education and training (VET) in Tasmania. It has twelve (12) campuses state-wide and is the largest VET provider in the State. Our campuses are supported by seven (7) libraries throughout Tasmania.

TasTAFE has an ongoing commitment to meeting Tasmanian community expectations and the needs of all of our students. Given that the TasTAFE focus is to provide educational and training opportunities, students are taught to seek relevant skill sets to enable them to join the workforce, gain a promotion or to change careers.

Part of the role of the library within the TasTAFE environment is to enhance and assist our students to acquire and build upon their understanding and knowledge of modern information and technologies. With this in mind all seven (7) libraries work

together as one team to support the student learning experience via the services we offer students and staff.

The state-wide library team has working groups who meet regularly via 'Skype for Business' and in person at least once a year. Any Library Technician, Librarian, or Senior Librarian can join any of the working groups which interest them. As a result these bodies vary in size and some can even be made up of technicians only. The groups are self-managed and decide when to meet, who will organise the next meeting, and working together to set their own objectives and outcomes. One of these groups is the DigiLab group, who are constantly receiving feedback and driving the use of and interest in digital technologies.

The story behind the start of our DIGILAB journey

In 2016 Linda Gilmore, a TasTAFE Senior Librarian began investigating whether Maker spaces would be a suitable environment to develop in TasTAFE as a learning tool for our staff and student cohort. Her research involved reading the [Horizon Reports for Libraries 2015](#) , [Higher Education 2015](#) as well as viewing relevant TED Talks content, library conference papers and other materials regarding the potential benefits of a 'digital hub' within the library environment to help develop the digital literacy skills of our student cohort. The report that really made an impact was the Australian Curriculum, Assessment and Reporting Authority, which announced that only 51% of Tasmania's Year 10 student cohort had met their ICT benchmark. This

is a discrepancy that has been exacerbated by a lack of ICT skill development throughout school years. [The TasICT Tasmanian Information and Communications Technology Workforce Plan 2015-2018](#) report says that “generic ICT skills” and “digital literacy” have emerged as prerequisites or highly desired skills for jobs across the economy, and are also central to the process of learning’ (p.12). After numerous senior level meetings which reviewed the needs of our students and the logistics of how to proceed, it was decided to investigate if the TasTAFE libraries would be able to secure a funding grant to help build our technological holdings. The grant was to cover the setting up of ‘technology hubs’.

The name DigiLab was chosen to prevent confusion between the TasTAFE project and a Tasmanian Government run initiative with a similar name.

Interestingly, whilst writing this paper a TASITE (Tasmanian Society for Information Technology in Education) Newsletter with a plug for the [Modern Learners blog](#) has referenced a very apt paragraph

"We are in the midst of huge, rapid changes in the worlds of learning, education and schooling, but we at ML (Modern Learning) believe that these changes are not yet well understood by school leaders, education decision and policy makers. This isn't about adding a layer of technology to the traditional thinking and practice of schools; instead, this is about

fundamentally rethinking the roles of schools, teachers, and classrooms in light of the growing ubiquity of knowledge, information, people, and tools we carry in our pockets and backpacks."

Applying for the grant

Senior TasTAFE Library staff discussed how best to move forward and they developed a project plan. Senior staff investigated appropriate grant funds that would allow our hubs to be built. A Librarian was given the project task of finding and writing the application with some input from library management. The funding that met the libraries' needs was with the Training and Work Pathways Programs through the Department of State Growth (Tasmania).

The grant would cover the establishment of three 'Innovation Hubs' in or near to a library in the North-West, South and North of Tasmania.

The remaining four (4) libraries would be smaller pop-up satellite labs with some of the equipment loaned to these libraries for demonstrations and classes.

What we aimed to accomplish with the grant

The DigiLabs aim is to provide opportunities for students to develop knowledge and digital literacy skills to a level that employers are asking for. While Student Support, Vocational Preparation and English Language Services (VPELS) have established ongoing arrangements to assist people with literacy, numeracy and basic computing skills, students lack a supported environment outside of class where they can develop digital literacy skills to use or offer the workforce by fully participating in their work environment and further study. Teaching staff also need further targeted and tailored lessons to help improve their digital literacy skills and recognise the potential for their teaching. This will in turn help students with their learning outcomes.

The opening of the DigiLabs and their pop-ups contribute to and help improve digital literacy by developing and implementing training programs focused on teaching these skills to participants it has also opened the door to presenting new ways to teach.

Initial Programs in application (*Training and Work Pathways Programs Stream 2 application*):

- Cloud computing and storage, for example Drop Box, Google Drive
- Basic computing, for example how to save and locate files; how to use Outlook, Word, Publisher and Excel
- Mobile devices and apps, for example how to use Apple and Android devices; how to search, download and use apps

- New technologies, for example how to use 3D printer and scanners; and their application to VET teaching areas
- Coding, for example how to program robots
- Social Media, for example identify common social media platforms and their applications; how to reduce social isolation; how to develop a professional online presence and stay safe online
- Develop an ICT mindset, for example by building confidence levels; becoming adaptive to continual change in ICT developments and improving ICT problem solving and troubleshooting abilities

Successful completion of any training would earn a Certificate of Attainment which clearly outlines the individual skills that have been acquired. The outcome of the training would be evident with the student being able to show their skill sets to prospective employers.

Why do the project?

Information and digital literacy skills are key focuses of the library staff. Staff frequently provide one on one training of related skills such as using online databases, how to print, and how to access and attach documents to their email for staff and students. TasTAFE delivery teams know that the library provides help with digital skills, therefore, if departmental staff identify a person 'at risk' person / a

person with poor digital literacy skills they will send this person to us. Reinforcing this inter-departmental relationship by formalising this understanding will benefit all.

Forty nine percent (49%) of Tasmania's Year 10 students as of 2015 are not meeting the ICT educational benchmark. By addressing this ICT deficit it will improve social inclusion, learning and employment options for those lacking essential ICT skills. According to [The New Work Order](#) (p.2) it is estimated that literacy skills will need to be improved in the next 10 – 15 years as 50% of employment positions will require a significant level of digital literacy skills. Our student cohort includes older people, migrants, disengaged learners, Aboriginal and Torres Strait Islanders, younger people, people with disabilities, TasTAFE learners from low socio economic areas forty seven percent (47%) as well as other groups will benefit from improved access to digital literacy tools. It is an area of focus for the project to overcome this imbalance in digital literacy skills and help improve education and training completion rates.

Improvement of connections to community groups and industry related bodies will be an outcome that the libraries will work towards, by allowing those agencies to give advice, help with promotion and identify people who will benefit from using our DigiLabs. These agencies have access to the labs to run their own community help courses external to TasTAFE.

How did we?

The establishment of three (3) DigiLabs in the state with another four (4) libraries to act as pop-up labs allows all TasTAFE campuses to have access to digital and information literacy facilities. The libraries will run all orientation and training sessions with a greater focus on digital literacy for students as well as staff. In 2015 library staff ran one hundred and forty six (146) training sessions reaching one thousand nine hundred and sixty (1960) students approximately fifty percent (50%) of the statewide total of students, while the aim of the DigiLab in 2016 was to provide three thousand (3000) students with digital literacy training. TasTAFE Libraries also aim to convert training sessions into online tutorials that students can access through TasTAFE's Learning Management System (LMS), Canvas.

The DIGILABS were thought to be an ideal arena for eLearning Consultants to further help staff with their online lessons by providing up-to-date software and high spec laptops for technology enriched learning and videoing lessons. It is envisioned that teaching staff will attend a training lesson with library staff, together with the eLearning Consultants. The libraries will offer training sessions to further improve staff members understanding of digital literacy.

Who was initially involved in our DigiLab?

All TasTAFE staff and students, industry and community groups will be welcome to use the DigiLab facilities and be able to use and contribute to and help with direction and advertising.

With the grant, a DigiLab project manager was employed at 0.3 FTE. The manager was an eLearning consultant with IT experience. eLearning consultants in TasTAFE support the development and implementation of quality eLearning and Virtual Learning Environment (VLE) lessons.

The project manager was to work closely with representatives from the TasTAFE Libraries and eLearning to develop and maintain a close working relationship and consistency across the all of the DigiLabs. The manager will also organise and promote the launch, oversee learning programs, write procedures for the use of the space and expand connections both internally and externally to TasTAFE.

Library staff book and provide lessons for the DigiLabs, and are developing programs and lessons for the DigiLabs technology and providing back-up for teaching staff who need help with technology. It has been acknowledged by senior library staff that not all library staff will be interested in taking part in running the DigiLab. Initially there were library staff to drive the project, and then interested library staff at the designated DigiLab campuses were asked to step forward and learn the equipment and discover what can be done with it. Other library staff are then provided with training so they can assist with the lessons and offer training and classes if they need to.

Project risk management

There are many risks involved with running the DigiLab project: staff leaving, low user engagement and poor usage statistics, keeping equipment relevant, consistency across campuses, getting Information Technology Services (ITS) Management on-board, purchasing relevant equipment, and staff training are just some of the areas that need to be put in place.

Contingencies were established to provide backup and leadership with a staff member from the project team addressing these risks to prevent the risks becoming problems.

One risk area that became a reality and could not be mitigated was the appointed Project Manager departing TasTAFE employment four (4) months into the set-up of the DigiLabs. TasTAFE Libraries Senior Management decided that a state-wide DigiLab Committee would be convened to drive the project forward. The committee consisted of library staff from the three (3) libraries that would host the DigiLabs and some staff from the four (4) other libraries. The DigiLab Committee meetings are held via Skype for Business and minutes were stored in the state-wide drive so interested library staff could keep up-to-date with the project.

Work health and safety

Special consideration was given to the health and safety of anyone in the DigiLab areas, consistent with the ethos of TasTAFE.

It was discovered that a 'buddy' system needed to be initiated for people using the HTC Vive Virtual Reality (VR) equipment as the cord running from the visor to the computer is long and when people are moving around in the VR world they are unable to see the cord so it poses a very real trip hazard. There was also the small chance of motion sickness or the person having a seizure.

Another consideration was the filament used in the MakerBot 3D printer. On inspection it was found not all of the 3D printers contained a filament that complied with recommended Australian standard protocols. Some libraries had a closed off room with a window that enabled the 3D printers to be positioned in front of the window which helped to minimise the risk to staff and patrons of inhaling the dust when the 3D printer is in use. The libraries that didn't have a room for the printer purchased a Perspex box to put over the printer while it is printing. Another safety procedure is wiping down the printer and the surrounding area so dust doesn't accrue and present a possible health risk for patrons and staff. Chemical gloves and safety glasses were also purchased for staff to wear when removing the printed object.

The Edison robots are positioned and used on table tops and in taped off areas to help prevent trip hazards. Batteries must be removed from the robots when they aren't in use and if any modifications are being made to the robot to prevent battery seepage and explosions.

Where are we now?

The Libraries have had the opening for the three (3) DigiLabs and have purchased some equipment for the remaining four (4) libraries. At every orientation the DigiLabs attract a lot of interest from the students. This has in turn resulted in the increased interest from staff members towards what the libraries can offer to help with the digital literacy components of their courses.

Pleasingly staff members from different course areas are now using the VR equipment to teach about body parts, guiding (using Google maps) and art (by touring art galleries and using software to paint 3D images ([Using tilt brush](#)), the built environment and many other departments are being catered for as relevant programs are found that meet the projects objective of building digital literacy skills.

Robots are being used to teach basic coding, 360° cameras are being used to map the libraries for online tours and visiting school groups and TasTAFE students are

using the available equipment to document learning moments. Electronic kits are teaching basic electronic techniques.

With the popularity of the VR equipment, the purchase of more VR sets is being considered so staff and students have access on their own campuses without a DigiLab facility. These proposed purchases are a great achievement for our libraries in user engagement and advancing digital literacies. More Edison robots have been purchased to allow robots to be taken into classrooms and off-site.

Increased interest in the libraries and where they are heading next has been expressed by many people, and an increase in foot traffic into some of the libraries to visit the labs has been noted. There have been visits from LINC staff, with interest in working more closely together, which would be a great outcome for the program and for developing digital literacy skills throughout Tasmania. Digital literacy classes are being held at our southern DigiLab in collaboration with the Migrant Resource Centre in Hobart. Discussions are in progress with computer clubs for participation in the DigiLab with a possibility of holding 'club nights @ TasTAFE'.

The DigiLabs have been successfully received by our English Language Services students, who are finding the Edison robots to be great learning tools. These students from non-English speaking backgrounds are either using a robot for the first

time and need simple instructions, for example, hand clap once to turn left, twice to turn right, or are becoming familiar with the pre-coded barcodes to get the machines to do simple tasks. The Edison robots have been used by some students to write simple instructions and further advanced students are learning how to write their own simple code.

An Aboriginal Training program is using the Edison robots to teach basic coding with the intent being that these students will progress to more in depth coding.

The southern TasTAFE Campus ITS (Information Technology Services) students in a certificate III course are running a help desk service once a week from the Hobart DigiLab. These students are also writing some of the 'how to' instructions for the new equipment as a competency for completing their course. The DigiLab experience is also helping the students with learning customer service techniques.

Visits

Between November 2016 and June 2017, two thousand, five hundred and nineteen people have undertaken training at the DigiLabs. The training sessions have been one-on-one, in small groups and full classes. There have been primary schools classes, members of the public that have come with IT clubs or from general workplaces, planning managers from councils investigating if VR is the way forward

in their workplaces, home schooled children, and migrants that are learning English as a second language. Having the DigiLabs open to the general public is helping TasTAFE build a rapport with the Tasmanian Community. It is a great way for people to get to know what happens in the VET sector.

Moving forward

The public launch of the DigiLabs was held in Burnie and was attended by the Minister for Education Jeremy Rockliff with TasTAFE staff, students and community groups also in attendance. The Minister was given an overview of what the DigiLabs were designed for and was given lessons with our new equipment. The Minister enjoyed his taste of the VR world.

This project has had its ups and downs, as you would expect with any new technological changes in the workplace. Library staff have all taken part in the DigiLab project either by being on the committee, helping with the implementation of individual DigiLabs on campus or covering those people in the day-to-day running of the libraries. Not all library staff are willing to work in the DigiLabs as they feel they don't have the training or knowledge to teach TasTAFE staff and students. This is currently being addressed.

The committee members have put forward a recommendation to senior staff for a DigiLab Manager to be employed separately from the libraries. They believe the workload of running the DigiLabs and writing guides is taking them away from the running of the campus libraries. With a manager overseeing the policies and training of all library staff there should be improved consistency, for example: advertising, building a working partnership with other interested parties, creating a master class series, and improved timelines for completion of smaller projects within the DigiLabs.

Creating pop-up DigiLabs is another project that is being investigated by the DigiLab committee. This will give staff the option of going to other sites either on or off campus to run digital literacy lessons.

The ongoing progress of this project relies on continued funding by the libraries from their own budgets, which has significant consequences, however senior staff do see the value in continuing to support the DigiLabs so there is much thought going into keeping the technology up-to-date and relevant to meeting the needs of TasTAFE staff and students. It will not help us to meet and grow Tasmania's digital literacy if the equipment or lessons we offer aren't relevant to today's or continue to look to the future needs of students in the workplace and to bridge the gaps for students and our community in Tasmania's digital future. However, if managed thoughtfully the DigiLabs project could have a hugely positive impact on digital literacy among TasTAFE students and the wider Tasmanian community.

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