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To Whom It May Concern,

**Re: Submission to the Education and Health Standing Committee: Digital Innovation in Secondary Education**

On behalf of the School of Education, Edith Cowan University I provide the following submission. This submission draws on the expertise within the School of Education which includes national and internationally recognised researchers and teaching scholars.

I acknowledge that this inquiry is focussing on how ICT can be used to enhance teaching and learning in schools and not on teacher competency or skill.

**1. How digital innovation can assist secondary students to learn anything, anywhere, anytime**

Digital innovation can assist secondary students to access material anywhere and anytime. There are many opportunities for students and their parents/carers to access websites that can assist students to engage with content to support what occurs within the classroom. A risk for many students and teachers is being able to discern quality sites that have reliable and verifiable information. Currently in secondary schools, students are taught about cyber safety and digital literacy however there is the need to move to a broader engagement with Digital Intelligence (see Appendix for definition). Connectivity to a virtual world is dependent on two major variables, the coverage and quality and reliability of the Internet Service Provider (ISP) and the access package for the account that is linked to the device.

**2. The role of digital technology in addressing secondary student engagement and retention**

There is growing need to ensure that In-Service Teachers have access to quality, externally benchmarked and verified professional development as set down against the Australian Professional Standards for Teachers at Proficient Teacher level. This would enable teachers to build confidence in their own knowledge and understanding as well as skill-sets. Examples of externally benchmarked professional development include the work of

the New South Wales Educational Standards Authority (NESA) which assesses and benchmarks teacher [professional development](#).

Graduate teachers being employed within Western Australia represent a small proportion of the overall teacher workforce. However, Pre-Service Teachers studying a nationally accredited Initial Teacher Education program will have met the Graduate Teacher Standards as detailed in [Professional Knowledge](#) (Standard 1.2; 2.2 2.6 and 4.5). Any Higher Education provider would have had to demonstrate the content covered, assessment undertaken as part of Stage 1 of accreditation and provided evidence of impact as part of Stage 2.

When teachers effectively utilise digital technology and incorporate this into their daily teaching within the curriculum there is a positive impact on student learning as supported by the research. Additionally it can have a positive impact on increasing student engagement and student retention as supported by the following research.

### **3. How digital innovation can increase equity of opportunity in secondary education**

The use of digital technologies provides opportunities for teachers to differentiate teaching to suit multiple learning requirements of students within a classroom. It also provides opportunities to increase student-centred learning rather than an emphasis on teacher-centred learning. It can provide opportunities for students to learn about technology that can be used in a positive practical manner.

Whilst digital innovation and application has and will continue to cause changes to industry, skill sets required and resulting in greater efficiencies it also comes with a greater dependency on applications, devices and proprietary products with users unsure or unaware of how the device or application functions or operates and compromise security of data. This dependency is manifested by users having minimal understanding of the technology behind the application or device but learned skills in how to utilise the application or devices. It is not a new phenomenon. An example is the carpenter who had and still can use a panel saw but may have very limited knowledge or understanding about how and if the saw can be re-sharpened and set. The technological advancements in portable saws requires a skill set which many carpenters may not have and will require those with technical skill sets to repair, upgrade and replace components.

Using and understanding the fundamental principles behind the technology and its applications can be applied within the classroom to help students develop social intelligence, adaptive thinking, critical and creative thinking and cross-cultural competencies. Please refer to [Future Work Skills 2020](#).

### **4. The potential for digital technology to cater to the needs of high performers and at-risk learners in secondary education**

All students can benefit from the effective integration of digital technology in schools. A major requirement is to have teachers skilled and continue to be skilled in digital pedagogies which complement specific subject knowledge and teaching strategies. Schools are currently supporting students in a number of ways. Those high performing students typically are or should be linked to universities or external programs where the tasks require deep learning and problem solving skills. Many opportunities exist for high performing students to not use a device but rather work from a Problem Based learning (PBL) approach to engage with and potentially solve real world problems.

Conversely at-risk learners can utilise a number of applications to ensure they are included within a classroom including applications for those students with impaired vision, impaired hearing or impaired mobility. There is also the capability to ensure students who have health issues that require at home or in-care stays can be connected to the classroom in real time and participate with their peers and teachers to ensure continuity of learning.

Additionally, some schools are supporting students who come from low income families and not able to provide their child with a BYOD, with laptop through a laptop borrowing system usually based in the school library and in some cases through recycling laptops. Support for teachers is readily available through on-line platforms such as [AltSchool](#) and [Schoology](#). These sites can assist teachers in creating innovative learning opportunities for students of all abilities.

## **5. Challenges to implementation, including provision of digital infrastructure, resources and technical support**

There are a number of challenges regarding digital infrastructure and technical support. A major issue is “whole of government approach” as adopted in many jurisdictions which is applied within Government School sites. This practice across several jurisdictions of Australia creates limitations regarding bandwidth to each school and data download.

This approach creates and maintains a culture of “risk-averse” rather than a “risk-managed” approach particularly in regard to supporting student learning, teacher professional development and support services for parents and carers.

While a risk-averse approach may be applicable for policing, correctional services and health, school environments are different. Schools are places of learning and overwhelmingly a positive engagement. There are missed opportunities within the current Government school system to utilise synchronous video connectivity between schools and from external educational services such as universities. Other jurisdictions have rolled out classroom connectivity utilising video connectivity in real-time to support and enhance student learning, teacher professional development and parent/carer services. Given the vast distances within WA and the high cost of face to face professional development and curriculum support for teachers and students, having high speed connectivity and a data allowance capable of taking quality video connectivity would enable schools to offer subjects currently not offered due to low student numbers, support teachers teaching “out-of-field” with real time support within classrooms and provide specialist support services to students at-risk. Additionally it affords the opportunity for students to link to other students and be supported within their local school. It provides opportunities to enhance schooling in rural and remote settings.

There is still a sense of disconnect of what constitutes core services to a school site. Whilst water, electricity and gas is viewed as required in all schools there still appears to be a lack of understanding of the role the Internet has in daily activities and functioning of schools. Indeed what constitutes a base allocation of connectivity (including download and upload speed) and data appears problematic. There needs to be a wholesale review of the way access to the Internet is made available to Government schools and what would be a minimum requirement reflective of the third decade of the 21<sup>st</sup> century.

Within Government schools specific examples of the digital issues include when teachers log IT issues with the central support office. They may sometimes wait days to receive a response and eventual resolution. This affects a teachers’ ability to teach using technology and leaves them disengaging with technology. Shorter wait times at the

central level need to be prioritised with staffing levels appropriate to need. Hub and spoke IT support offices could be set up to support clusters of schools and reduce wait times for resolutions and work closer with schools to respond to their individual IT needs.

Another recent example occurred this year when WA students took part in NAPLAN tests online for the first time. This was a pilot for the full roll out of the online NAPLAN system. Approximately 40,000 students were not able to properly complete the test. This caused disruptions, distress and confusion to school, teachers, students and parents. (<https://www.abc.net.au/news/2019-05-15/naplan-test-glitches-prompt-wa-schools-to-abandon-computers/11114770>). This example highlights the need for new digital systems to be tested and piloted before mass-rollouts.

There remains a lack of curriculum clarity in regards to Digital Technologies. Interpretation by schools is varied and contextualised to bespoke circumstances. Currently there is a lack of informed conversation from / with the systems and sectors in regards to workforce needs in this space. Typically, messages sent from conferences speak of the changing workforce requirements and of jobs that will not exist as well as jobs that will be required that we are not aware of. Unfortunately there is little informed discussion about jobs and skills that have existed for millennia and will continue to do so and the basic skill set required which has been enhanced rather than diminished by technology. This technology includes enhancing the health and safety of those working in those trades. One example is that of [stone masonry](#).

In conclusion, Digital Innovation in Secondary Education is occurring in all schools. There are challenges that can be met but it will require a cultural shift on many levels that will require additional funding. However this represents opportunities for Western Australia to lead in innovative approaches within Secondary schools given the underlying fundamentals of digital infrastructure and accessibility are recognised and rectified.

Yours sincerely

A handwritten signature in black ink, appearing to read 'S. Winn', with a long horizontal line extending to the right.

Professor Stephen Winn  
Executive Dean, School of Education  
Edith Cowan University.

Appendix.

Definition of Terminology used in this submission.

Digital Intelligence	Digital intelligence is the sum of social, emotional and cognitive abilities that enable individuals to face the challenges and adapt to the demands of digital life. “DQ is a comprehensive set of technical, cognitive, meta-cognitive, and socio-emotional competencies grounded in universal moral values that enable individuals to face the challenges of digital life and adapt to its demands.” <a href="https://www.dqinstitute.org/">https://www.dqinstitute.org/</a>
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