NSW SECONDARY PRINCIPALS' COUNCIL

TECHNOLOGY POSITION PAPER

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1.0 Purpose

This reference group recognises the need for schools to prepare their students for the world after school in this innovative and changing 21st century. We seek to enable leaders to make informed planning decisions for the improved educational outcomes of students. The paper is written with the intent of informing principals of secondary students on:

- The current and emerging programs and projects within the NSW Department of Education Information Technology Directorate (and others Directorates where relevant) and the impact it will have on schools - teaching, learning and administration.
- The current and emerging trends on the use of ICT in schools as teaching, learning and administrative tools.
- How ICT is and can be used, in schools to engage and educate our secondary students.
- Support principals with specific IT related issues as they arise or made known.

2.0 Rationale

The impact of change (imposed and reactive) upon schools is happening at an increasing rate and within the area ICT, this change is ongoing, rapid and invasive. To be effective leaders of schools, principals need to be aware of and prepared for ICT changes and the impact on school operation. Our goal is to monitor DoE processes and progress and the impact it has on schools. We aim to ensure the Department is kept abreast of school requirements and the impact that DoE change practices has on school operation. As well, we seek to make principals pedagogically aware of future focus initiatives to enable effective planning within their school domains.

3.0 Preamble

The TRG was established to align with the DoE's Information Technology Directorate. Over time the size of the ITD has grown. Some areas currently aligned with this reference group's portfolio are now aligned to Directorships outside of ITD. This includes, but is not limited to, Business and Learning systems. This can result in having multiple senior department executives having ownership of various projects to which the TRG is aligned. This "ownership" of the project can often change without the TRG knowing.

The TRG also desires to inform and improve educative practices in schools utilising ICT. We do this via, professional development opportunities, identifying and sharing best practices as well as modelling new and innovative practices for state principal colleagues to evaluate.

4.0 Historical Context of IT in Schools

ICT began to have an impact upon schools in the 1980s however, due to excessive costs, bulky devices, limited allocated funding and limited software, it was not until the 1990s, with the introduction of internet web browsers that school computer programs began to have an impact on school curriculum design and operation. The Department of Education at that time began to realise

the significance of the ICT in schools and began mandating school involvement through syllabuses, year 10 Computer Skills Testing and some allocated funding. Later syllabuses began to inculcate ICT use into all syllabus areas. This practice has carried through to today's Australian curriculum.

Around this time, ICT usage in schools increased worldwide. World-wide research was published outlining the merits of its effect upon student education. For NSW secondary schools, the point of no return was reached with the introduction of the then Government's "Digital Education Revolution" (DER). Each state received Commonwealth Funding to ensure increased student access to technology. Bravely despite the risks, the NSW DoE (2009) took the initiative to turn this funding into a year 9 - 12, "1:1" student laptop program with Wi-Fi installed into every school classroom that had a year 9 cohort. This program also featured, school-based Technical Support Officer (TSO) and other network support features to assist students in its operation.

The DER program allowed schools to undertake large-scale experimentation of their curriculum practices. The program ran for five years in a government-funded program and then stopped. School leaders recognised the value of these initiatives and tried to maintain changes where financially possible. Whatever model it was clear that for secondary schools few were taking a backward step pedagogically.

Around the conclusion of the DER program, the DoE simultaneous implemented various administrative processes that require this DoE infrastructure (LMBR – SAP, SALM, Synergy, Online testing, eT4L – UDM, Internet, AMU, SMU …) which has significantly changed school administrative practices. Though not as apparent in Primary schools, secondary schools have found that third-party products are needed to supplement and even replace these products as they limit the innovative work done in schools.

5.0   Current school context

As of school day 1, 2018, all secondary schools have access to the following features:

1. Internet access (with varying Bandwidth supply). Problematic for some Rural and Remote schools
2. An eT4L server and all of the features it brings (software, printing, file storage, virus protection etc). At the time of publication of this paper around 20 schools had the hardware but had chosen not to connect it).
3. Wi-Fi- access in all teaching spaces. This Aruba system is predominantly out of warranty and ITD is releasing information on replacement equipment imminently.
4. Some funding included in school SBARs that have historically included computer funding.
5. A T4L allocation to each school based on student number.
6. Access to IT support through EdConnect.
7. All teachers and students have access to software via a DoE licencing including but not limited to MS Office, MS 365, G-Suite, Virus protection software, Adobe Creative Suite …
8. Access to an online hardware ordering system that features devices that are DoE compliant and competitively priced. This includes computers on various operating systems such as Windows, Mac OS, and Chrome OS etc.
9. Access to online training including YouTube, Lynda.com and DoE resources
10. Online administrative process.

Utilising these resources, schools are creatively leading student growth via evolving curriculum practices.

Over the past decade, schools have been inundated with change practices that utilise ICT. Some have been helpful to schools and leaders but unfortunately, some have acted to halt and even send school practices backwards. Over the past few years, the DoE has realised this and taken action to rectify problems. At the publication of the document, all issues seem to be functioning appropriately. Despite this, the rollout of practices needing ICT structures continues.

Schools with a secondary enrolment are all significant users of ICT and they all rely on a Wi-Fi network.

6.0   SPC Technology Reference Group Position for Secondary schools

As a team we have worked across the greater domain of ICT use in and outside of school. Based on our determination, including comments from SPC members, we have concluded the following areas to be the minimum position for the satisfactory operation of effective schools in NSW High Schools with secondary student enrolments.

- The Department of Education will provide every child entering high school with their own personal digital learning tool. For the purpose of this paper, we shall refer to the device as a "laptop" however option may include, but are not limited to a: notebook, Chromebook, iPad, Android device etc.). This tool will support their school's teaching and learning programs. We are currently recommending that minimum funding/allocation should be for a device such as a Chromebook or iPad. Purchasing functionality should also include the ability for schools to pay extra to enable them to purchase devices with greater functionality.
- The Department of Education is to provide each permanent school teacher with a laptop (or equivalent device) enabling teachers to operate and teach in a digital environment. This device is to be compatible with student devices.
- Schools are supplied with a pro-rata extra allocation of laptops for temporary teachers and casual teachers.
- All teacher and student laptops have easy access to a range of free software to support teaching and learning. This includes, but is not limited to, MS 365, G-Suite, Adobe CS. This software should be kept current and based on Industry standard.
- Software provisions should also include expansion into new or emerging areas. Examples may include, AI, 3D software, Hi-speed graphics and virtual reality (VR) applications.
- Schools have access to sufficient bandwidth and Internet operating speeds which will allow them to function and operate without delay with a scope for growth as school needs develop.
- Schools are to be equipped with appropriate up-to-date wireless systems that support teaching and learning systems.
- Wi-Fi systems are to be installed in every school learning an environment as well as scope for external Wi-Fi access points outside of classrooms for student use.
- Wi-Fi access should be uniform, without blackspots and be able to accommodate 30 students per wireless access point (WAP) as a minimum.
- Every school with a secondary cohort is provided with flexible funding to be used to employ a Grade 5/6 Technical Support Officer to support local school IT systems. The role of this employee will include maintenance and support of staff and student hardware and software systems as well as the support of whole school operational systems.
- The Department of Education provides resources that ensure school-based IT related issues are addressed immediately where possible. When this is not possible, schools are contacted

within one school day outlining the support process that will be put in place to rectify their more complex issues.

- Appropriate school staff have direct phone access to a Department IT regional support specialist enabling rapid solutions to minor problems. Logged school calls can them be used for more complex situations.
- Department of Education staff can access professional learning across the full range of IT related areas and these events published on a yearly calendar for employees to review.
- Schools (not principals) should have access to an internet monitoring tool that allows appropriate school leaders to investigate the current and past state of the school's Internet and how it is being used.

7.0   Future impact of technology in schools

To help leaders plan for ICT in schools for tomorrow the Technology Reference Group is also looking beyond current school needs. Examples of existing areas include:

<u>DoE ubiquitous support</u>

All schools have an eT4L server structure. Except for those who have "opted out" the DoE will ensure the ubiquitous roll out to schools of software and virus updates, operating system fixes, online computer repairs, facilities enabling schools to make rapid repairs and software deployment and many other features. It is expected that this facility will be in operation for many years and should minimise ICT related school workload. This eT4L structure is also accessible for regional technical support staff which enables them to identify problems and prepare for repairs when necessary, including remotely implemented solutions.

<u>Wi-Fi</u>

The Wi-Fi infrastructure in secondary school utilises an Aruba WAP (Wireless Access Point), a legacy of the past DER program. This has proved invaluable to schools. It has been a reliable tool but cannot run forever. This infrastructure was a costly endeavour to install and was fully funded by the NSW DER initiative. At the time of publication of this document, the DoE ITD was trialling an updated system that may be made available to schools, however the burden of costs is yet to be determined. ITD was investigating possible financial models of implementation. If this burden does fall to schools, finances will need to be allocated.

<u>Usage and monitoring</u> <u>Broadband access</u>

The DoE purchases internet access for schools. They have increased the amount purchased several times over many years. Monitoring of bandwidth usage indicates school teaching and learning related usage and also sites accessed unrelated to school needs (social media, games, BYOD updates etc.). Every member of your school community who utilises the school's internet "consumes" some of the school allocated broadband/internet space (sometimes referred to commonly as "pipe"). This is true for both W-Fi and "cabled" computer connections. If this "pipe" is fully utilised, users will have to wait until space in the "pipe" becomes available. If the "pipe" is being consumed by large file (sound/video, large network print jobs etc.) the wait time can be long (minutes to over a full day). This situation can be exacerbated by DoE corporate systems utilising some of this state "pipe" space during large downloads (Note ITD has been working with Doe to ensure this is minimal during school hours).

Local school internet "pipe" usage can only be monitored by Principals via their PNI portal tool. The PNI tool monitors daily, weekly and monthly usage along with sites accessed. Principals can instantly see if their school is reaching their assigned limit. It is of growing concern that as schools increase internet usage for new ICT projects and also as enrolments grow the demand will be even greater (BYOD, STEM, Mixed reality teaching …). Finally, not all secondary schools receive the same "pipe size" allocation. Generally, schools do not know what their pipe size is. This allocation is aligned with past usage.

Currently, principals need to monitor their PNI and inform EdConnect when average regularly usage exceed 80%. The SPC TRG have asked the DoE to investigate an alternative system where monitoring can be done outside of schools by people who understand the process and can act accordingly.

ICT and Multimedia Procurement

The SPC TRG will continue to represent the state secondary principals' needs in terms of hardware and software contracts to meet the needs of the school. ITD will continue to provide competitively priced hardware and software for schools. Schools can continue to request specific software and hardware as per need. If a device is needed that is currently not available via the T4L site, schools can purchase their own devices. These local bought devices, however, cannot be supported by DoE support services and access eT4L server functions including software downloads, virus protection, rebuilds and remote repairs (plus other functions).

Website filtering

The changing nature of internet usage by all members of the school community requires continued monitoring of the restrictions placed upon it. This is reflective of the ongoing requests from staff to unblock sites. The TRG will continue to work with the DoE in ensuring the protection of our students and the needs of schools.

ICT Training

The SPC TRG will continue to work with DoE to ensure appropriate training is available to all school members across a range of delivery platforms. This can include, face to face or online training, professional support networks (Yammer) and phone support.

8. School Curriculum and ICT

It is within this area that school leaders are seeking the most support or guidance as they try to align their current practices with the goals of the Melbourne Declaration for Goals of Young Australians and the NESA syllabuses. Each school's curriculum is unique and leaders will develop programs and practices accordingly. The TRG will work to ensure principals are aware of future-focused practices enabling informed curriculum delivery. Initiatives include, but are not limited to Project Based Learning (and variations POL, PDP, SOLE …), cross-curriculum programming, computational thinking, coding, robotics, ICT based teaching and learning including mixed reality teaching, artificial intelligence, Anytime Anywhere practices etc.)

9.0 Conclusion

The world is more connected and the speed of connections are growing as fast as engineers can design better systems. Access to hardware is becoming increasingly easier. What form this will have in schools over the next decade is unclear. Connectivity is becoming more ubiquitous and the future only knows what that will look like in our schools for our students. Schools have historically been

places isolated from the world outside the school fence but in this 21st century, students are bringing the world into school without teachers being aware.

LMBR, SAP, Learning Tools (G-Suite, MS 360), various game-based learning (Minecraft…), CAD and CAM are being implemented in some schools now. Mixed reality, 3D applications and AI are in development or being trialled at the time of publication of this document. Hardware is evolving rapidly and software developers are keen to make products consumed by the vast number of learners around the world.

Secondary schools are rapidly moving away from 20th-century models of learning and are preparing students for tomorrow's society. We look to each other and around the world for models of best practice. Our reference group aims to support schools with issues today but also to make our principal colleagues aware future practices. Whether that is working with the team at ITD and the DoE in general or monitoring practices globally, we hope to support our secondary principal peers as we all work for the improved learning outcomes of all of NSW's state schools students.

Warren Parkes

For the Technology Reference Group

Acronyms

IT   Information Technology

ICT   Information Communication Technology

ITD   Information Technology Directorate

DER   The Digital Education Revolution (2008 – 2012)

DoE   The NSW Department of Education

TSO   Technical Support Officer

TRG   Technology Reference Group

WAP   Wireless Access Points