



Submission

to the

House Standing Committee Inquiry

into

Education in Remote and Complex Environments

By

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M & S Consultants Pty Ltd welcomes the opportunity to lodge a submission to the House Standing Committee Inquiry into Education in Remote and Complex Environments.

M & S Consultants Pty Ltd is a Northern Territory based family-run company. The company specialises in distance education software and is the developer of the REACT software program which was developed specifically for the delivery of Interactive Distance Learning (IDL) over satellite which is often the basis for remote communications. REACT is currently used, and has been for many years, by Schools of the Air (SOTA) and Schools of Distance Education (SODE) in the Northern Territory and New South Wales. The University of the South Pacific also uses REACT to deliver online classes to students in 13 campuses across 12 countries in the South Pacific. <https://www.usp.ac.fj/index.php?id=campuses>

This submission focuses primarily on the technology component of Education in Remote and Complex Environments as in this modern-day, it is essential for communication, engagement and academic delivery of the Curriculum. It can be one of the key barriers to the educational journey.

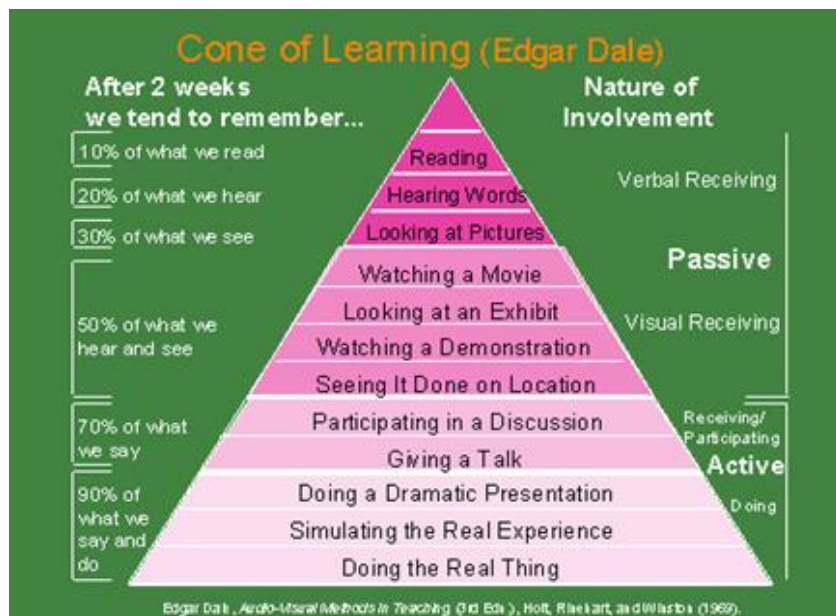
Interactive Distance Learning (IDL)

The concept of distance learning is that participants are usually separated by distance and/or time. There are two main components of distance learning.

1. Synchronous: This describes learning activities in which students and teachers who are separated by distance, but not by time.
2. Asynchronous: This describes learning activities in which the students and teachers participate at different times.

The importance of interaction

The reason for emphasising interaction is its strong influence on knowledge retention. The Cone of Learning (Dale) chart, as shown below, highlights the importance of giving students an active role in the learning process. It is evident that having students actively involved, by participating in activities and discussions, their expected level of retention will increase from 50% (passive receiving) to 90% (active participation).



Dr William Newman, with more than 25 years of teaching experience across all age groups, including over ten years in Distance Education (DE), has presented internationally at conferences about DE. In his paper “Education at a Distance and Engagement” (2012), he states that “Interaction is a key ingredient to gaining all forms of engagement in the distance education context. During a lesson, simple things such as eye contact are vitally important as is having something for every student to do and of course, keeping their interest in the 2D screen is of fundamental importance.” He further states that “Integrating socialisation and interaction are important considerations for every lesson.”

- **Community and family structures that support a child’s education and their attendance at school.**

In the early days of DE, the HF radio was used along with the traditional materials-based correspondence education. The HF radio provided a synchronous method of engagement and a way to communicate with each other during a lesson simultaneously. This also leads to a sense of community which is vital but hard to achieve when student and teacher and student and classmates are separated by hundreds and possibly more than a thousand kilometres.

HF radio was first replaced with software which whilst initially exciting, soon was found to have a shortcoming in that it only allowed the student to see the teacher. The teacher was unable to see the student/s and the students certainly could not see their school classmates. Today, REACT permits 2-way video that can be resized to fill the computer screen if desired, rather than the postage stamp size of some technologies. This is an essential step to enable not only collaboration but the interaction and engagement of all parties.

- **Effective government initiatives, past and present, that support remote communities to enable greater educational outcomes, including those that have improved attainment in literacy and numeracy.**

In 2002, the Federal Government offered grants through the National Communications Fund (NCF44) initiative, to the states and territories. Optus won an \$8m grant to provide interactive distance e-learning for remote Northern Territory and New South Wales rural students. “It will see interactive distance e-learning teaching studios set up in Darwin and Alice Springs and two-way satellite communications infrastructure established for rural communities and isolated homesteads across the Territory. Distance education will be delivered by 150 two-way satellite receivers located across remote areas of the Territory.”

https://parliament.nt.gov.au/business/hansard/transcripts/listing/nest_content?target_id=341987&parent_id=358668 While it provided two-way satellite communications, only the student could see the teacher; the teacher could not see the student and students could not see each other.

In 2007, the NT Government was successful in obtaining funding of \$4.5 million for a new satellite-based network to provide broadband services for education and health services in remote communities in the Northern Territory. The NT Government contributed \$3.1 million towards the project.

The new SkyConnect network aimed to redress the broadband deficiencies suffered by communities and homesteads across the Territory, which lack effective terrestrial connections. The broadband services were rolled out to 54 schools, 24 health clinics, 16 Charles Darwin University vocational education centres and 160 School of the Air sites. Senator Helen Coonan announced that “SkyConnect will allow teachers, students and parents to engage more effectively and extensively in collaborative virtual classrooms,” “The new generation satellite technology will allow teachers to see their students and their work online for the first time.”

<https://www.itnews.com.au/news/nt-schools-and-health-services-get-45-million-broadband-boost-91553>

This later became known as the STARS network and enabled two-way vision for the first time. The NT Government was totally in control of the network once it was deployed.

- **Key barriers to the education journey, including the effects of environmental factors such as drought on families and communities.**

Due to the success of this project, space on the satellite transponder was quickly taken up by other NT agencies such as NT Police. Inevitably, the Department of Education ran out of space and equipment for new students whose families were then left to provide internet for their schoolrooms and at their own expense whereas the NT Government is financially responsible for this.

In the Federal Government's response to the Independent Review into Regional, Rural and Remote Education it stated in part:

“While this is much broader than regional, rural and remote settings, this Government recognises the impact of the digital divide among the most disadvantaged students, including those living in rural and remote areas. For example, the National Broadband Network (NBN) Co’s Sky Muster satellite services became available on 29 April 2016. This Government prioritised work with NBN Co, the Isolated Children’s Parents’ Association and the education sector to develop a special product so distance education students could have the additional data they need to get the most out of their studies. As of 25 January 2018, 683 students across regional, rural and remote Australia were benefitting from the Sky Muster distance education product.”

“These initiatives are part of the Government’s on-going commitment to increase the opportunities which access to fast broadband can provide to rural and remote parts of Australia.”

In fact, there were two Sky Muster models developed by NBN to cater for the needs of distance education students referred to by NBN as a ‘Sky Muster Decentralised Model’ and a ‘Sky Muster Centralised Model’; the two models vary greatly in their technical capabilities and suitability to fit the needs outlined early in our submission, in particular, the need to provide face-to-face interactions between the student, their teacher, and their peers.

- The Decentralised model is what the Education Port is and does not guarantee audio and video and is what Qld SOTA uses for example – and they must use a telephone bridge (audio) for their lessons.
- The Centralised model is the only model that NBN guarantees video and audio. This is what the NT has trialled, and NSW will be trialling. This is a good model.

The NBN Industry Consultation Paper ‘Education Services over the Sky Muster Service’ outlines technically the clear contrast between the two models and their ability to meet the requirements for DE. We sought permission from NBN to quote from the document in our submission; however, the request was refused.

The cost (commercial in confidence) of NBN is prohibitive, so much so that NSW is the **only** jurisdiction planning to take it up and if it is not financially viable for government education departments, then it is certainly not viable for individual/small schools and groups. There is no benefit in having a good product if it is priced beyond the reach of even government depts.

- **A child’s journey through early childhood, primary, secondary, vocational and tertiary education in remote communities, like the tri-border region of South Australia, Western Australia and the Northern Territory.**
- **Community and family structures that support a child’s education and their attendance at school.**

Mounting costs force Departments and Governments to cut services, but NBN fails to consider this. For example, it is well known and documented that the WA government attempted to close the SOTA’s in WA in December 2018 due to the cost of maintaining them but met with such a huge public outcry, that they were forced to backflip "Despite the fact that you have to make tough decisions, you need to get the balance right between the dollars that you save and the level of service that people expect to get out of that particular area," Ms Ellery said (2018 ABC News)¹

While it is appreciated that education is a state/territory governments’ responsibility, there are certain factors which the Federal Government should consider concerning DE. The cohort numbers of students studying by DE is small in comparison to the overall numbers in mainstream schooling and indeed those that are studying by DE as a result of geographic isolation as opposed to medical, social or family preferences, is even smaller.

¹ WA closure of SOTAs - <https://www.abc.net.au/news/2018-01-11/wa-government-backflips-on-schools-of-the-air-closure/9320742>

The significance of these small numbers is that providing the necessary internet for these students is prohibitively expensive to the relevant state/territory government as NBN insists that each state/territory have individual agreements (managed service).

If the Federal Government were responsible for the DE students' provision of the internet for education, they would have the 'buying power' to broker a far more inexpensive solution from NBN. Or the Federal Government provides one centralised service that can be accessed by multiple small remote schools; this would save significant monies.

This would also expand the base student cohort for which educational opportunities could be increased. Subjects such as STEM could be taught by specialist teachers wherever they are located and gifted students could be better catered for.

Further, consideration should also be given to the fact that DE students, once they reach year 7 (aged 12-13) – and now year 6 (aged 11-12) in South Australia must go away to boarding school to continue their education or the family (or part thereof) must relocate to a regional centre to avail themselves of education at an urban or rural school. A centralised service or federally provided internet for education would probably allow students to stay in the family home for more years of their schooling.

“These initiatives are part of the government's on-going commitment to increase the opportunities which access to fast broadband can provide to rural and remote parts of Australia.” (Australian Government Response into the IRRRRE, Pg 11).

- **Access and support to deliver the Australian Curriculum (including STEM) in a flexible way to meet local learning needs and interests of remote students, including examples of innovative ways in which the Curriculum is being delivered in remote schools.**

The modern Curriculum including Science, Technology, Engineering and Mathematics (STEM) and language subjects, including Early Learning Languages Australia (ELLA) require modern technologies to enable a rich experience. The importance of Lip-Synchronisation (lip-sync(h)) or matching of lip movements with spoken or sung vocals, cannot be under-estimated. It is essential for the teaching of languages, music for singing, and where students may have hearing difficulties and rely on lip-reading to assist their hearing.

Most DE schools do not consider this, nor does NBN in their decentralised model, and hence students are often faced with a loss of lip-sync or lip-sync error. As stated previously, some states' SOTAs/SODEs use the telephone for the voice component while simultaneously running a software program for the visual component. Students in these classrooms are unfairly disadvantaged in not having lip-sync.

In conclusion, NBN has engineered a brilliant service in their Centralised model. However, it is prohibitively expensive for the relatively small number of geographically dispersed students and schools to individually take advantage of.