

# **EDUCATION AND HEALTH STANDING COMMITTEE**

**HEARING INTO DIGITAL TECHNOLOGY IN EDUCATION**



**TRANSCRIPT OF EVIDENCE  
TAKEN AT PERTH  
WEDNESDAY, 12 JUNE 2019**

**SESSION TWO**

**Members**

**Ms J.M. Freeman (Chair)  
Mr W.R. Marmion (Deputy Chair)  
Ms J. Farrer  
Mr R.S. Love  
Ms S.E. Winton**

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**Hearing commenced at 10.43 am****Ms LISA RODGERS****Director General, Department of Education, examined:****Ms JENNIFER McGRATH****Deputy Director General, Education Business Services, Department of Education, examined:****Mr DAVID DANS****Chief Information Officer, Department of Education, examined:****Mr JAY PECKITT****Executive Director, Finance and Commercial Services, Department of Education, examined:****Mr LINDSAY HALE****Executive Director, Statewide Services, Department of Education, examined:**

**The CHAIR:** On behalf of the committee, I would like to thank you for agreeing to appear today to provide evidence in relation to digital technology in education. My name is Janine Freeman. I am the Chair of the Education and Health Standing Committee. I am going to introduce the other members of the committee. This is Mr Bill Marmion, who is the member for Nedlands and also the Deputy Chair; Ms Sabine Winton, the member for Wanneroo; and Mr Shane Love, the member for Moore. Ms Josie Farrer has sent her apologies. I think she is up in the Kimberley negotiating things. It is important that you understand that any deliberate misleading of this committee may be regarded as a contempt of Parliament. Your evidence is protected by parliamentary privilege. However, this privilege does not apply to anything that you might say outside of today's proceedings. We have our clerk, who you will have been speaking to and met, and we also have Hansard here.

Before we begin, do you have any questions about your attendance here today? No worries; and would you like to make a brief opening statement?

**Ms Rodgers:** No, just straight on into questions, I think.

**The CHAIR:** Straight on into questions—excellent; thank you very much. We have a copy of the Auditor General's report, and the Public Accounts Committee did write to you about the report and you gave them a response, but we just want to ask a few questions around that. We understand the department anticipated that the ICT vision statement would be published by 30 October 2018. We could not find it, as I understand. We had a look for it. Could you inform us as to whether this has occurred?

**Ms Rodgers:** Sure. So it is not published as yet. I will allow David to talk in more detail around the complexities with GCIO and what has been going on in the whole-of-government space, but we have a draft. We are about to talk to the minister about our draft vision, and so I anticipate it will be published within the next few months.

**Mr Dans:** One of the challenges is the GovNext–ICT model, which is largely centred around what I would call standard agencies, is difficult to fit to a school scenario, so we have been working with the OGCI, now the Office of Digital Government, to find a way that the model can apply to the school dimension. So we have been working on how do we do that; how do we modify that

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particular model. Particularly with the remote schools, a centralised model is not potentially practical for those. That influences the strategy and the choices we have been making. We have been working through with them on what is achievable and possible, coupled with the changes from the machinery-of-government changes that we went through. That essentially has been evolving as we have gone through that process.

**Mr W.R. MARMION:** Can we stay on that topic because that is an interesting one. Is that because GovNext works better if it is a centralised model versus a decentralised model? I would be interested in your comment—it might come up later anyway—of the benefits of either. Is one model better than the other?

**Mr Dans:** From a practical sense? From a school perspective?

**Mr W.R. MARMION:** From both—from a practical sense, but also, at the end of the day, it is about education.

**Mr Dans:** The challenge is that we have 800-plus schools scattered over 2.5 million square kilometres—some that are connected by satellite, some that have services that are washed away regularly by weather events and those sorts of things, particularly in the north west. The challenge for us is how do we make sure schools are able to continue to use services in those events. There are also large volume users, so 100 people connecting to the same service, and sometimes a limited service in those places. Trying to bring all that traffic back and forward to a metropolitan area is impractical from a school setting, so we have been working on how do we do that. Part of that was to work through and make sure that there is a model that allows us to continue to deploy technology in the school. The original model was that everything was going to be housed in three centralised government data centres in the metropolitan area, which has a practical challenge for schools. So, that has largely been the challenge, just to make sure that schools can continue to leverage services. That includes the internal school—the way the school network works—in the event of outages, plus performance and cost and a whole range of things.

**The CHAIR:** Is that aligning with an idea of the Classroom First strategy or is that a different aspect of what you are saying, because we understand that with the Public Accounts Committee, you were saying that the guiding principles of our vision is around the Classroom First strategy. Is that what you are talking about there?

**Mr Dans:** Yes. Every decision we make is around how we make sure the classroom continues to operate. That is the business, not East Perth, as it were. We are driven to make sure that they can continue to function. So that Classroom First element is the first guiding principle for the ICT strategy, trickling down through some of the other approaches that we have and then through an ICT strategy that is designed to deliver against those.

**Mr W.R. MARMION:** You are doing an independent review of two large secondary schools, one I think looking into the centralised one and one on their own, and I think you are due to publish that. To work out the effectiveness of either, can you report on how that went?

**Mr Dans:** I think that is a different element. That was on whether it was using a standard operating environment or a non-standard operating environment. That was, I think, done in 2016, and there was a finding that was done between the two schools, Willetton and Churchlands.

[10.50 am]

**Ms Rodgers:** If we are still on the GovNext question, if you do not mind, I would not mind responding to that as well. From a very non-technical perspective, I am not an expert in ICT, the way I understand it, of course, is that we have got an incredible scale across the region, without a doubt, and there are two parts to this that we need to consider. One is the size of the pipe going into

schools and then the other is the operating environment, of course, within the schools. We want to ensure that all schools continue to have the benefit of the size of the pipe and the connection that they have got, and Mr Dans can talk about the scale and size of the pipe. We are about to undertake a tender process around that pipe in regard to GovNext, because there could be efficiencies in regard to GovNext for schools in regard to that pipe. But we will not make a decision on that until actually we have got the detail that the tender process will supply. If schools currently have the best system operating as it stands, we will stick with that. If not, though, if there are efficiencies through GovNext, that will be a consideration for us, alongside, of course, the consideration with community benefit. So there is something to be said for one pipe going into one community that all services can tap into.

**The CHAIR:** I am going to pass to Shane in a minute. But when you are talking about this pipe, are you just talking about the internet or are you talking about all the services, like the operating systems and whether they use Microsoft or Apple or whatever else? I mean, the pipe is not just —

**Ms Rodgers:** No.

**Mr Dans:** No. The pipe is bandwidth. We provide a platform to schools that allows them to manage. We provide, obviously, some central governance and rules around that, but then also for the local school community to apply its particular flavour. That may be having a regional intake and therefore that is the first place that kids get to connect in their day to day, and so they will have a different approach. We facilitate that through the platform, so that is part of it. We provide the tools for schools to be able to look at how the resources we provide are being used, so they can make policy decisions inside the school. Then there is obviously the bandwidth, if you like, the carriage that goes through the thing, and that is probably the single biggest challenge for us.

**Mr R.S. LOVE:** I just noticed some of the schools are still on copper —

**Mr Dans:** Yes, there are five schools.

**Mr R.S. LOVE:** — and some are on satellite, so if you could just outline what is in place for those schools, and I do have some questions around the satellite to follow up.

**Mr Dans:** Okay. I am happy to send this around; this is something that gives you a picture of dimensions of the agency, because it is quite useful to frame that. Currently, we have five schools on copper or 4G. All of those schools also have an NBN satellite connection now. So we have supplemented that. They are very remote schools, so the ability to run a fibre service to them is either impractical, impossible or just physically not achievable at this stage. We have 15 schools still on satellite only. All of those schools also have a supplementary satellite service. We have leveraged the new services as they have become available from NBN. I think we have four more to complete. Again, the logistics are what the challenge is—getting there and configuring them, they being remote schools. Again, all of those schools we have supplemented their existing service with a secondary service. We are continually looking for ways to —

**Mr R.S. LOVE:** A secondary service as well.

**Mr Dans:** So an NBN satellite service. There was a satellite service that became available in the middle of last year—NBN made it available—that fits the education need, and as soon as that became available, we piloted four schools, proved that it would work in those, and then we rolled it out to every school where it is possible. As I said, there are four that are still in the stages of construction—dishes being installed, for example. At two schools, the dishes were installed last week.

**Mr R.S. LOVE:** I have a few questions that are not hugely technical. The fibre network that you are operating on—you have only five schools on copper or 4G. A lot of schools in my electorate are in

towns that are not on the NBN blue-cable system. So you have got to deal with another fibre operator. Is it Telstra? If that is the case, what is the capacity of that fibre network as opposed to the NBN?

**Mr Dans:** In many of the remote schools, one of the challenges is that schools tend to be not in the town where there are other agencies or elements are in the suburbs. So that is one of the challenges, and another challenge in the GovNext context. But what that means is that we have been able to roll fibre through the mobile blackspots program. So wherever they rolled out a tower carriage for that, we have been able to reticulate fibre from those services into the schools—a direct connect into fibre. I think 53 potential sites have been identified at a government level where fibre would benefit. We are already in 51 of those with fibre. In 2003, we had about 55 or 56 per cent fibre connectivity to schools. We are at 97.1 per cent fibre connectivity at the moment. We do not expect that that will increase. For example, that includes Cocos, Christmas and Keeling Islands, which are problematic—although Christmas Island may get fibre some time later next year. The other ones are right on the edge of the desert with the Northern Territory or South Australia. One is Kalumburu, which is a physical challenge. We are constantly looking for ways to do that. We are working with providers. With the NBN satellite service, we leveraged a different provider from what we currently use, because they were able to give us a service early for schools. We use a company called Clear Networks, not Telstra, which is generally our provider.

**Mr R.S. LOVE:** Telstra does not operate in the Sky Muster satellite system anyway.

**Mr Dans:** It is essentially a purchased service. We can buy from different providers. Clear Networks were faster to provide us with an offering for our schools.

**Mr R.S. LOVE:** With the schools accessing these different types of networks providers et cetera, who is picking up the cost for that access?

**Mr Dans:** We provide central services to every school. We try to provide a minimum, and we have gradually increased that minimum. We have plans to do that again. We provide all that core service. Schools can supplement from a local provider if one exists, and buy what we call a schools-managed internet service alongside that from their one-line budget, because they may have a particular program or —

**The CHAIR:** Does that happen a lot in metropolitan schools?

**Mr Dans:** In some it does. We have about 189 schools, I think, as of two days ago, that are taking that option up. That is in country schools. So Capel, as an example, is one of the non-metropolitan schools, and the first school to actually take it up. That was a program again we rolled out once it became practical and we could prove that we could keep it secure and safe for schools as well.

**Mr R.S. LOVE:** In terms of access, is that centralised system based on a download per person in the school—or what is that based on?

**Mr Dans:** The original model was based on school size—so, how many students—and then whether it was primary or secondary. We are in the process of beginning to roll out another model that removes that need, because the uptake of technology in primary and secondary is pretty much the same now. We are also looking at bringing in the staff counts into that consideration as well. We have large schools with large staff populations, and we want to account for those. So it is essentially the kilobyte-per-user model, which is a model that is being adopted across the country by most jurisdictions.

**Mr R.S. LOVE:** The five schools on copper at the moment, or 4G, what is the difference in the capacity that they have in terms of their performance, and what are you doing to address that?

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**Mr Dans:** A copper service basically stops at about two megabits. We cannot buy any more than that. It is not possible to drive that. What we have supplemented all of those schools with is a 25-megabit NBN satellite service to each of those schools, which effectively significantly increases their capacity. Our minimum for any school, regardless of size, is 10 megabits at the moment. We are trying to lift that to 30.

**The CHAIR:** Yes, I was going to say—that is pretty small.

**Mr Dans:** That is in both directions.

**The CHAIR:** I know that some schools in the area I represent around Mirrabooka had real problems getting the —

**Mr R.S. LOVE:** Internet?

**The CHAIR:** Yes, the internet and the speeds they needed. Is that a big problem? It looks like they are connected but in fact there is not enough cable going into the school or there is not enough capacity. Is that still an issue in various schools in the metropolitan area?

**Mr Dans:** In some older schools, it is certainly a challenge. We have increased the capacity in terms of more broadly metro since the inquiry. We were doing about five gig total. That is how much we had to share around. Currently we have around seven, so we have increased that, and we are currently going to plan over the next two years that will take that to about 25 gig. That is again redistributing in a different model that will allow us more flexibility to give capacities to schools.

**The CHAIR:** Is there ever a time when we think we are going hit the amount that we need? Because every time you up the gig, you up the price of that, do you not?

**Mr Dans:** Yes.

[11.00 am]

**The CHAIR:** Is it not going to cost you more, the more gigs, or does it not become more costly in terms?

**Mr Dans:** That is one aspect, but we have been very creative; that is probably the way to do it—very efficient. We have been able to do this without significantly increasing the budget in finding different ways to do it, looking for new technologies, new delivery, and making sure it is an equitable outcome across the state, because that is one of our drivers, to make sure we do not differentiate based on location. But that is just a constant process. The tripling that I was talking about that we are about to embark on is not going to cost us any more money at all.

**The CHAIR:** I have to say that I went to the Telstra thing, where they invited a whole bunch of politicians to come down to their conference. Anyway, there were a few of us there.

**Ms McGrath:** Vantage, I think it was called.

**The CHAIR:** Yes, that is right. We went down to it.

**Ms McGrath:** Yes.

**The CHAIR:** And they were big time selling 5G, like big time, as an alternative much better than NBN they were saying—absolutely much better than NBN—which makes sense, you know, because that is their product that they are selling. I gather you are looking at all of that mix in terms of delivery?

**Mr Dans:** So 5G is about three years away, even in the metropolitan area. It is going to be a much longer time before it is in remote and regionals because it requires a density model to have lots of things. The practicality of that is probably not suitable for many of our schools. It will certainly be something we will add to the arsenal of things that we can provide schools.

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**The CHAIR:** No worries. I actually just want to ask you some more broader questions, if that is okay, unless people have got questions.

**Ms S.E. WINTON:** Yes.

**The CHAIR:** I suppose I want to ask that sort of broad, vision, strategic question about what you think the key recent and future developments in education and technology are, and what those will be in terms of teachers in Western Australia embracing in terms of using technology to learn as such?

**Ms Rodgers:** I wonder, Mr Dans, if you could talk about the future of technology, and then we will respond in terms of education, because we probably need the context first.

**The CHAIR:** Yes.

**Mr Dans:** Underpinning all of that is bandwidth. Most of the services are now delivered online or a portion thereof. That is why the most significant piece of the ICT budget is trying to keep schools connected and grow them. Consumption has grown basically about two to three times every year and has shown no signs of slowing. One of it is to enable schools to be able to do that. That enables the ability to bring a lot of learning technologies. We have deployed some new technologies to improve remote and distance learning. We have applied much more modern technologies using some products from some of our partners. That has enabled us to provide much more interactive experiences for particularly our remote and regional schools.

**The CHAIR:** What would they be?

**Mr Dans:** I will give an example, and Lindsay can probably talk about this more. An example that even took me by surprise, in the arts, in music tuition, they have been able to get teachers into those processes—so delivering some of that technology to provide detailed instruction and tuition to children that is instructed-led up into the Pilbara, for example. So it is not your standard videoconferencing with somebody standing very passive, but much more interactive. Our educators have been able to leverage that technology to bring art education to some places that we would not have been able to provide. Other things that it has allowed to do in the Pilbara and the Kimberley is actually to bring those communities together through some of the technologies. They have been some of the fastest adopters when we have found technologies that we think will help. They have been able to bring in some of the remote community schools and the more distributed schools into a much more collective delivery model. So that has been really good. The other one I think, and the challenge coming up for us, is probably about starting to use some of the mixed reality, augmented reality and those sorts of things. Again, that is entirely going to be dependent on bandwidth. How do we get the material to them?

**The CHAIR:** Yes. We recently went to a conference where we put on some goggles and did augmented reality to fix a machine. Whilst that seemed okay, it was really reliant on the speed, clearly, of the internet, because it juddered sometimes in terms of that. So I can imagine when you are trying to deliver that in schools, that is going to be part of your difficulty. Have we got any schools that are using augmented reality?

**Mr Dans:** There are schools using, I would say, a virtual reality —

**The CHAIR:** Virtual reality, sorry.

**Mr Dans:** — mix. There is a little bit, that I am aware of, of mixed and augmented reality. It is not widespread. It is a challenge. We are a bit ahead of the technology curve. The cost profile of that is still quite high for anybody, and the development of curriculum material for that is still coming through. There are some very good point examples out there, and the ones that I —

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**The CHAIR:** Can you tell us where they are?

**Mr Dans:** The schools?

**The CHAIR:** Yes.

**Mr Dans:** No, I probably could not tell you the schools.

**Ms Rodgers:** If I answer the educational kind of challenge that we have got or opportunity, and then I can give you a really great example actually, which is not a school but it is a provider of initial teacher education. The challenge for us or the opportunity in terms of education is we are getting to a point where you can learn anytime, anyplace, anywhere, so we are really moving away from the notion of education actually being in the school building, in a kind of gated community. It is such a great opportunity but it is a challenge for us. But regardless of the technology, you still need a teacher. We know that if you give a device to a child, you get immediate engagement. The research is definitive on that. Attendance increases, engagement increases, but actually the jury is out in regard to whether students actually learn any more. So you still need the teacher in order to enable that improvement. It is how do we get the workforce prepared to support that learning anytime, anyplace, anywhere, of course, with some of the unforeseen consequences around mental health issues, stress and being supposedly accessible 24/7. So that is the opportunity; that is the challenge. I think we are still catching up with the workforce in regard to digital technologies and their use.

In terms of virtual reality, Murdoch University has got a really good—I do not know—suite now where they select their pre-service teachers, and so they are selecting pre-service teachers on a range of aspects in regard to literacy, numeracy and a whole lot of other things. They put them in this scenario whereby they have kind of got the goggles on and they are put into a class to see how they would react. Have you seen that? It is fabulous.

**Ms S.E. WINTON:** I know Sue Ledger who is involved in it, yes.

**Ms Rodgers:** Yes. So we are starting to see other parts of education pick up this technology and use it in fairly sophisticated ways. I cannot tell you whether their selection for pre-service teachers is any better than any other university, but they seem to think it is. But the jury is out.

**The CHAIR:** So that is getting it in, and how are teachers embracing it? What is the issue with teachers? How are they going? We have just had someone come in and say the unfortunate factor for teachers is that because of assessment, they teach to assessment; it is not intentional. He did not say this; this is my interpretation of what he said. It is not with any malice or it is not with any negative intent, but because you are going to be assessed, you teach to assessment. Unless technology feeds into assessment, then they are not picking up technology necessarily.

**Mr Hale:** Without having heard what you have heard today, I just think that probably may well be. I am sure that is a perception that a number of teachers have, but I am not entirely sure that it demonstrates a full understanding of the curriculum. The assessments that children and young people undertake are based on the curriculum, so I do not quite understand. It would be interesting to test this out, because if teaching to the assessment means that you are not teaching the breadth of the curriculum, then there is something wrong with the assessment. I am not sure that that is the case, because a lot of effort has been gone to in recent years to make sure that the assessment does in fact reflect the full range of the curriculum.

**The CHAIR:** They may be doing that and they may be doing the full range of the curriculum, but the question at the core of what I was asking is not whether that is a good process or not. It is your process, and you are clearly very committed to it.

**Mr Hale:** It is not our process. I should say that is an independent process of the standards authority.

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**The CHAIR:** Yes, whatever. The underlying question is: because it is the process, how does IT intermesh in that so that you are getting technology?

**Mr Hale:** In terms of how children are assessed or what they are assessed on or both?

**The CHAIR:** No. How you are delivering that education.

**Ms Rodgers:** Okay. What it affords is the opportunity for the technology to support students in regard to branching up and down an assessment. Whilst we do have pen-and-paper tests still and teachers are using a whole range of different assessment methods—it might just be a conversation to check in—what the technology affords is for students to be kind of assessed in the moment in regard to things that they know. This is fundamentally what NAPLAN is trying to get to and many other assessment systems in the world have indeed got to, whereby the student will be online. They will begin an assessment, and as they respond to that particular prompt, the assessment will either go up the curriculum or it will go down the curriculum, according to exactly where the kid is at. What that means is, first, there are efficiencies in terms of the assessment, and we get far greater nuance and detail about what the student actually does know and what they do not know. It is the information that they do not know that is most important in terms of the next teaching moment. So, the use of technology in assessment has actually gone quite far. Where it needs to go further is in regard to understanding general capabilities. The thing that we have struggled with in assessment really is understanding how students develop in regard to application of content knowledge to strategic thinking, results orientation, and just working with people. Employers want students that have got foundation skills and can work with people. Lots and lots of people around the world are trying to work out how we assess those critical competencies. It is a way off, I think, but we will get there.

[11.10 am]

**Mr W.R. MARMION:** I understand the assessment side of IT, but the jump within the curriculum is that you apply the curriculum but you are going to use some sort of technology. So if you have got the you-beaut person who is just a natural and loves geeky stuff, how do you get the teaching of the new technology so that you actually double what you learn in the time frame? In fact, you learn more; you still learn the curriculum. As a parent of five children, I actually like the teacher that goes outside the curriculum and they do models and things, and they learn coding and algorithms. It may have nothing to do with the curriculum, but you think, “This going to be great for the future.”

**Mr Hale:** First of all, all of that has to do with the curriculum, and those really cutting-edge teachers are actually making those curriculum connections. But I think the fundamental point that you make is absolutely right. Actually the take-up in relation to use of digital technologies and teaching of digital technologies is very, very good. Obviously, we have a considerable way to go, and the boundaries are always moving out. It is a bit like the same challenge we have with bandwidth; no matter how much you have done today, tomorrow the demand will be for more. So that is part of it. But I think the important thing is that this is not just about curriculum. Curriculum is important in the sense that there is a digital technologies component to the curriculum, so it is quite visible in the curriculum. But then there is also a growing expectation that teachers, in fact, in many cases are leading themselves to apply the digital technologies learning and capability across the whole curriculum. That is going on simultaneously at a time when children and young people have more and more take-up of the use of technology themselves, in any case. What we guard against there, though, is often that is as passive recipients, and we want them to be engaged and in control, but, nonetheless, they are engaged, so we have got that piece. We have got the curriculum piece. We have got the actual upskilling of teachers, which we are heavily engaged in. A lot of that is done teacher to teacher, so networks of teachers working together and creating new ideas together. But

we also have the fact that our teachers are heavily engaged in online learning in various ways themselves and that many of the systems we use administratively to run our whole system and to run our schools, so these are all mutually reinforcing.

Now, we go to particular points and need to pull particular levers, especially around the understanding of—it is tricky when you talk about the STEM curriculum, because of course our curriculum is based in subject disciplines, and STEM, in a sense, is as well science, technology, engineering and mathematics, but of course that can be applied. The idea of STEM is not just to think of it narrowly in subject discipline. It is to think of it as a capability across the whole curriculum. That is part of our task, too—to make the STEM component visible right across the whole curriculum. So a lot of our work is about skilling teachers to do that, whether it is through explicitly what they are teaching or whether it is through the application of technology to do the teaching and learning itself.

**The CHAIR:** So what do you see as the main barriers to teachers in terms of being able to do that?

**Mr Hale:** I do not think actually there are significant barriers. I think for us, as a system we have now got some pretty powerful strategies in place to advance that. I do think there is a discussion that we are probably at the beginning of to say we have a range of programs we are doing and there has been an attempt to strategise those, but it is probably time to refresh our thinking and check in again to see whether the actual approaches we are taking to things like professional learning are giving us the best bang for buck. I do not think we need to think of it in terms of challenges or barriers, but I think we can probably extract more efficiency and effectiveness from what we are doing, and we probably need to do a better job now of seeing what the return on the investment to date has been and seeing where we should be out of that focus. One thing I think we are well past is resistance. I think there is actually quite a degree of excitement, and if you have an opportunity at all to go into it, at times we will have room for 100 or so teachers across primary and secondary education who have been engaged in a program, say, over a year, where they do some professional learning face-to-face, they go away, they do some project work based on real work with their students and with their peers. I have been to a couple of those lately where it has been at the end of the 12-month period. The excitement of those teachers is contagious.

**The CHAIR:** Who runs those? The education department runs those?

**Mr Hale:** For public schools our statewide services area runs those, but often we engage outside experts to assist us—university-based people, the innovation unit, a whole range of people that bring cutting-edge understandings to that work.

**Ms Rodgers:** Could I just add to that. We can provide you with a list of all of the supports that are available to teachers from the department. I think, though, in part—and I absolutely agree with Mr Hale—the issue for us, though, is not it is a barrier; it is how do we leverage the opportunity.

**The CHAIR:** Opportunities, yes.

**Ms Rodgers:** And I do not think that we really have mastered that. We have got an ageing workforce. We do have a lot of teachers that are not as familiar with technology and the opportunity it affords as perhaps some of our younger teachers. So we have got an issue there in terms of upskilling that we are responding to. But the research is a bit inconclusive in terms of ICT use and greater progress and improvement. We cannot assume that technologies will enable students to improve faster. We know sometimes it does, but I do not think we are clear about how and how to maximise that. And it is the pace. The pace and the scale of the change is so fast. To try and ensure that 25 000 teachers—a huge profession—are across the scale and pace of that change across the curriculum is a challenge.

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**Mr W.R. MARMION:** Just on that theme, because, you know, you are enthusiastic about technology, the danger is you go overboard on technology and you are not actually improving the actual outcome. The jury might be out on that. You do not want to have also a system where some people can take it up better than others and maybe the other people that cannot take it up because of the different use of their brain or knowledge or learning, and they get left out.

**The CHAIR:** The question is?

**Mr W.R. MARMION:** The question is how do you balance that up and are you considering both those aspects?

**Ms Rodgers:** The focus is on the outcome for the students. So actually our focus is on where are the students at in regards to the curriculum and how much growth and progress are they making. The mechanism for teaching through that really is largely teacher based. And we would expect teachers to be very clear about where their kids are and use the most appropriate pedagogy and the most appropriate forum and mode to teach. Now, that might be a book; it might be iPad, but that is something the teacher is expected to do.

**Mr W.R. MARMION:** What if it is a class of 20 or 40. It is different for all the different kids.

**Ms Rodgers:** Yes, for sure, without a doubt, and we would expect that teacher to be able to differentiate.

**Mr Hale:** Could I just make one other comment in relation to that. I am a secondary English teacher by background, a long time ago, so I am not an expert in this, but what I have observed is our really skilled primary teachers, who are engaging now in considerable numbers in things like really understanding how to teach coding to quite young children—that is not just about digital technologies. The spin-off from that is that it goes back to the foundational skill development in literacy and numeracy, and so that is why the link to the curriculum and the teacher capacity to make those linkages and be very explicit in making them, both in their own minds in how they are designing their teaching but also in the minds of the children themselves, I think is actually vital. So those foundation skills that we want remain as important as ever. We do not want these digital technologies to just be a sort of bolt-on; we want it to be deeply embedded in a way that is mutually reinforcing of the learning.

[11.20 am]

**Ms S.E. WINTON:** I have got a couple. You were saying before that you could provide us with some information on the support that is provided to teachers. We just had a point about the digital-technologies teacher development and innovation and partnership schools, and Vasse Primary School was mentioned. Are we able to get some other schools that are doing some good work, perhaps potentially for us to —

**Mr Hale:** I think to be honest, there is so much that it would be better if we took that on notice and tabled those.

**Ms S.E. WINTON:** It would be good because I think we do want to look at going into the field a little bit. So any suggestions you might have would be really good. I just wanted to touch on the general capabilities. The previous gentleman we had in, we talked about it too. A lot of this depends on teachers being able to connect the dots in the different learning areas and we assess the particular learning areas. Any thoughts on how we are going in our schools with focusing on the general capabilities? It is my understanding they do not get formally assessed in schools, do they? I am just trying to think. My background for the last 10 years was with the PEAC program and the general capabilities. We did formally assess them, but I do not think in the traditional sense we did.

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**Mr Hale:** No. So this is work that at a national level ACARA is leading, and the various state jurisdictions are engaged in those discussions. In our case that is SCSA who lead that discussion but obviously look to our system but also Independent Schools and Catholic Education for advice. I think the reality is that this is early days and it is something people are grappling with. There is great interest in schools about how one might do that and people are at a sort of experimental stage. The challenge is that as soon as you start applying the system, you do need to have a clear standard so that you are actually getting useful data out of it. I think we are on our way to that. Director general, did you want to say more on that?

**Ms Rodgers:** I agree with you. We are talking here in the formal rounds of delivering an assessment, in its most traditional sense of the word, so a series of items that we expect the children to respond to and the students to respond to. I think there are a lot of schools that are already assessing their general capabilities, but what they are assessing those general capabilities on are generally professional judgements in regards to how well the kids are doing. And we have got instances. For example, the ADC that were actually asking teachers to make general assessments in regards to emotional and social wellbeing, cognitive competence, language and social skills. They are called different things but actually they are essentially the general capabilities that we see in the curriculum. I think schools are making assessments about how well kids are faring kind of emotionally and socially, and you often see that in almost every school report. The formal realm of actual national or statewide testing is something that is still in development. And I think we have to be cautious about going there. I think we probably should.

**Mr Hale:** If I can just comment on that. An interesting part of the problem is that some people in a well-intended attempt to address those general capabilities start to think of them almost as if they are another subject, which of course they are not —

**Ms S.E. WINTON:** No. The point is that that is supposed to go into it.

**Mr Hale:** That would be actually completely destructive to the agenda, and, of course, this in a way is the way schools have always been engaged in. I am sure for all of us part of our school experience was the development of social skills, but it was not necessarily laid out. I think that is the world we are getting into, and it will require teacher judgement, but it needs to be teacher judgement that is against a standard and can be moderated. There is also the “so what?” question. Once you learn something about a young person, what is next? It would need to feed into actually thinking about how you develop those capabilities as well, not just how you assess them.

**Ms S.E. WINTON:** Yes. I guess the reason for my question, I have a particular interest in critical and creative thinking, but one of the key ones obviously is the IT side. So I am asking to what extent is there an expectation on schools? This is technology we are talking about. To what extent is that general capability out there in schools from your perspective?

**Mr Hale:** I think the STEM general capability is probably the one that at the moment systems right around the place are investing the most energy in, but I think schools are alive to the full range. I think particularly people in schools are very interested in developing creativity. Of course, these things do not have to be done in isolation. Many people are approaching STEM in the way that does encourage those other capabilities you want, such as creativity and also the ability to work in a team. We know—well, we do not know. The predictions are from the experts that as the world of work changes and the need for STEM capability grows ever stronger that in fact it will be those human characteristics, like the ability to work in a team, and the ability to be creative, that are actually going to be the basis of what is going to make a person employable. They will need the STEM skill to engage, but the engagement will be useless if they are only capable of doing repetitive, mindless

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tasks. So actually in an area where technology becomes more and more important, the human element is actually the bit we need to develop.

**Mr R.S. LOVE:** I think earlier you were talking about the problems of having the ageing workforce. I represent an area where there are some schools where teachers may have been in place for 30 or 40 years in the same school. They clearly do not want to change the way they teach. I was just in a school the other day where a lot of the students bleed off from a district high school because of the ancient teaching staff there. How do you actually, as a department, engage with that older workforce to actually ensure that they are even aware of this technology, let alone incorporating it in their classroom style and in their teaching; if not, then if you are just relying on new graduates to go out there and be the changing face, maybe we need to be a little bit more proactive in not waiting for 20 or 30 years for the old staff to retire?

**Ms Rodgers:** It is really interesting. As we came in here, there is a piece on talk-back radio in regard to teachers only being present in the profession for five years before they leave.

**The CHAIR:** Oh, really?

**Ms Rodgers:** Yes.

**The CHAIR:** On 720 or 6PR?

**Ms Rodgers:** I cannot remember. Was it 6PR?

**The CHAIR:** It does not matter. Keep going.

**Ms Rodgers:** Anyway, the point was that I was reflecting on whether that is a problem for us. So I take your point in regards to the ageing workforce. We do have a number of teachers who are about to retire, but our focus of course is the outcome for the students. We have data for every single school in regards to every single student, and we are able to work out actually how well those students are progressing. We readily review schools and ask schools questions about how well the kids are faring and whether they are faring well enough. That becomes the conversation which is in regards to student outcomes at the end of the day. Having said that —

**Mr R.S. LOVE:** I do have schools where they have been on the red line for years and nothing has changed, so the same staff are still there. They have been teaching the same classes to the same dwindling students who are moving down the hill to Perth or somewhere else to do their education.

**Ms Rodgers:** Yes. Having said that, we have got the workforce that we have got and we have to make sure that those teachers are provided the opportunities to upskill. There are a range of supports in place that teachers can access. There is a question about whether they will put themselves forward for that. With the statewide services model—and perhaps, Lindsay, you might like to talk about this—we are looking at the services we deliver to particular schools, (1), if they request but, (2), if they would rather not have us be there. So how do we make sure those people in the workforce are indeed upskilled?

**Mr R.S. LOVE:** Are you not the overarching department that is employing these people? Can you not enforce them to actually get with it or get out?

**Ms Rodgers:** Yes—in part we do. We have also got to look after our staff. So we look after our staff but make sure actually that we are delivering outcomes for students. In regards to the statewide services model, we do ask schools to participate in particular types of learning if we think indeed that they require that support.

[11.30 am]

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**Mr Hale:** It is a genuine issue, and I think we are embarking on some rethinking in our approaches to whom we deliver professional development. There are a few pieces to it. So if we just go back a step—not that I am arguing against our responsibility as a system, because there is no doubt about that and we accept that fully—but there is a key responsibility of a school leader, a school principal, to ensure that their staff are actually engaged in the way that they should be. Of course, I am sure you could retort with an example of where the principal has been there for 30 years as well.

**Mr R.S. LOVE:** I know actually—I can think of examples where principals have been there for three months at a time, but anyway.

**The CHAIR:** All right. We will get back onto technology.

**Mr Hale:** Of course. I just want to caution a little bit that we be careful that we do not cast all older teachers in the same way, because many of the people I have seen really heavily engaged in a lot of this work are older people who have made that choice. I think there are challenges. First of all, we have not had universal school review for some time. We now do. We are cycling through so that every school over three years—we started this midway through last year—will be reviewed as a matter of course, and the DG retains the right, having seen the performance or had reports on performance, also to intervene somewhere outside of that. That is revealing to us. There are schools where frankly for at least some people in our system the world has passed them by somewhat. When that is uncovered through that review process, then an agreed plan is created as to how the school will work its way through that, either on their own if they have that capability drawing on support or with assistance, and the assistance generally comes from the people in my world—statewide services—under the guidance of our regional executive director, which of course in regional schools in particular is very important because you need someone close to the school to do that. So that is in response as we uncover an issue. The other thing we need to do—and this is kind of the flip side of the really good outcome we have had. We have had some terrific uptake of people really wanting to engage in cutting-edge professional development and learning and applying that in their classrooms. The director general and I have been discussing this just in recent times. I think we have got to a place where we run the risk where that has been too dependent on schools or teachers putting themselves forward to engage in that. A colleague of mine remarked to me that he had been at a significant STEM learning event, and he was a bit disappointed to look around the room and see that while it was terrific, he felt as though he was looking at the same group of people. We are now going back to the drawing board to strategise: how do we make sure that no school gets left behind? It is partly how we deliver those services and how we make sure we get in there, but it is also, as the director general says, how do we make sure that we go right down to what is visible to us about the outcomes for children? When we identify a problem, we do I think have to move to a system where we are not just waiting to be invited to assist; we will assist.

**Mr R.S. LOVE:** Okay.

**The CHAIR:** That is very important in terms of inviting and changing that way that you are looking at how you are dealing with those sorts of aspects. The 2007 update to the International Society of Technology in Education standards for teachers shifted the emphasis from learning to use technology to using technology. Do you think that is now reflected in the WA curriculum? Is that part of the changes that now are starting in the WA curriculum? Are we moving that way as well in terms of the vision? Getting back to the vision that you are going to be putting out, does the vision not just talk about provision and the pipeline but does that talk about the way we look at technology and the use of technology? Learning to use technology is something of the past, because everyone is using it, so using technology to learn.

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**Mr Hale:** I think the tasks that people were given in creating the so-called vision was a vision that was actually about the technology. There is a separate focus required, which I think is emerging. It is evident in the curriculum. It is evident in the work going on at a national level led by the Chief Scientist. Also the state STEM strategy, I think goes to these things, which we have participated in and fully support. I think that is what you are describing. That in combination with and under the banner of the present government's priorities is a next task for us in public education to set that vision for our schools and our young people in terms of, with all due respect to my colleague, not just the nuts and bolts, but what it means in terms of learning and outcomes and how you use it. I think the shift that you have described is well and truly underway, and of course actually it always has been with technology of whatever sort; now we are talking about digital technology. Classrooms have been slow to move from the factory model of the nineteenth century, but I think we are seeing the change happening now and happening faster than ever before, and technology is part of what is driving that.

**The CHAIR:** It drives it, but I am talking about that is driving it, as in using it for education and learning to use it versus the capacity for it to be a learning tool, a learning opportunity.

**Mr Hale:** That is exactly what I meant.

**The CHAIR:** That is not part of the vision?

**Ms Rodgers:** Can I just add that actually there is a part that we need to be clear about. It is already part of the professional standards for teachers in Western Australia that they are able to use ICT. So in order for them to be professionally registered, they need to ensure that they are able to select and use ICT equipment in their classrooms. They need to demonstrate that they are able to use ICT in the delivery of the curriculum and throughout the curriculum across the various discipline areas, and they are also required to ensure that they are able to support students to use ICT responsibly and safely. So, it is already part of our professional standards in order to be a registered teacher in Western Australia.

**Mr R.S. LOVE:** Can I just ask a question again on some of that perhaps at smaller schools, perhaps not always. The use of technology in mixed classrooms, like in years 1 through 3 or whatever that might be, does that present any particular challenges and are there any strategies for those types of environments that need to be done differently that you are aware of, or do you just leave that up to the teacher to try to make sure that there are not gaps emerging in student outcomes within that?

**Ms Rodgers:** It is about opportunity. The ability to use technology to differentiate across a broad range of abilities can only be a useful thing. If we have a class that may have 30 students, even if they are the same age, there is likely to be at least four years difference in terms of their ability across particular disciplines. Having ICT in the classroom allows that teacher to differentiate and make sure that the content resources delivered to that individual child actually meets them where they are at, rather than the delivery of one particular lesson to a whole group of students that could be in very different places in regard to their learning.

Lindsay, is anything you would like to add?

**Mr Hale:** No. That was the point I was going to make. I think that the challenge with the issue you are describing is more about the teacher's skill and capacity in dealing with a multi-age group. In fact, if that teacher is skilled in that and brings to bear technology on that, that is actually all to the good. I do not think it creates extra problems. In fact, there is quite good evidence to suggest that where a teacher is skilled to teach a multi-age group, it often has advantages for the group, and often parents who are fearful of what multi-age groupings mean —

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**The CHAIR:** West Leederville Primary School.

**Mr Hale:** But when they see them in action, though, often they come to appreciate the benefits. I do not think I have more to add on that. As our director general said right at the start, it still comes back to the teacher. Our main focus is on making sure that we have got the best quality teaching that we can possibly have.

[11.40 am]

**Mr R.S. LOVE:** The use of technology within the classroom, is there a place for that in doing away with some educational disadvantage to people who are from a background where they may not be privileged to have an understanding of, “I had everything growing up”, or does that actually lead to a situation where you are going to stratify that gap even further in the future?

**Mr Hale:** First of all, the uptake of digital technology, even among people who are quite disadvantaged, is actually very high. The short answer is yes. It is always the work of public education to address disadvantage, not just in this area but in every area. This is the catch-all avenue; that any child or young person gets the opportunity to engage with the sort of kit you are talking about, to engage with connectivity, to learn about how to apply those things usefully. So, I think the short answer is yes. That is a key part of our work in schools. We were discussing this morning that there is a growth in bring-your-own-device situations, but our schools strenuously ensure that that does not disadvantage a child or young person who might come from a background where it is not easy for the family to provide that and make sure that those tools are available for everybody.

**Mr R.S. LOVE:** Do you look at specific tools to overcome learning difficulties?

**Ms Rodgers:** Yes—disabilities?

**Mr R.S. LOVE:** Disabilities or difficulties.

**Mr Hale:** Yes.

**Ms Rodgers:** Yes; there are three areas. I was in Roebourne yesterday, and we are able to provide every one of those students that turn up to Roebourne District High School every day access to the best technology and, of course, internet access. So that is number one. A lot of those students do not have that at home, so through education they have got it in their hands. The second thing is that access to technology means that teachers are able to differentiate far faster than they would ordinarily have done, because the technology will be able to do some of that differentiation for them, which again can support students in terms of their growth and progress. I think some of the biggest gains, though, are in the space of disabilities and us being able to use technologies to ensure that students have access to the curriculum and access to teaching.

Do you want to say anything on disabilities?

**Mr Hale:** I probably cannot speak in enough detail to make it valuable, although if you would like examples, we could probably provide something.

**The CHAIR:** You can come to two of my schools. I have got two schools that use technology pretty amazingly.

**Mr Hale:** There are examples where we actually have people who devise particular applications of technology in response to the needs of even individual children, depending on their disability. I cannot speak to that in any detail off the cuff, but we can certainly provide some examples.

**The CHAIR:** Yes, that would be good.

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**Mr R.S. LOVE:** The School of Isolated and Distance Education—where does that fit in your planning for this type of technology? Is that moving to things like virtual reality and direct-teaching methodologies, or is it still stuck in the correspondence era?

**Ms Rodgers:** SIDE is a beacon. The view of SIDE is that it is a schooling option of last resort. Now, I think we need to re-conceptualise SIDE and to think of it in terms of a beacon, to ensure that every student can learn anytime, anyplace, anywhere.

**Mr R.S. LOVE:** Very good.

**Ms Rodgers:** Yes. It is certainly part of our vision.

**Mr Hale:** I should just add that even just in recent times, we have shifted to new online learning systems with SIDE. They have always been at the cutting edge. I think there is a residual misconception in the broader community that somehow this is like the old-fashioned correspondence model, where a parcel came in the post and maybe you pedalled away and got on the radio. SIDE is a million miles from that now. Perhaps the best way to see that, if people are really interested, is that we invite you to come and actually see SIDE in action and see how that sort of engagement now actually works.

**Mr R.S. LOVE:** I would like to.

**Ms S.E. WINTON:** If it is okay, I want to just go back to the beginning and talk about the ICT vision statement again. Previously, when we started at the beginning and asked, you said, “In the next few months”. Can we get a little bit more specific information from you about what is in it? From my perspective, I am not very clear on that. And, I guess, more than the next few months, is there a clear time line when that is going to go to the minister or when there is going to be some sort of vision going out to schools? I am happy for that to go on notice. I am also interested in terms of the time frames and measures of its success, and how that is going to be done with schools.

**The CHAIR:** I am going to wrap this up in five minutes, because we have to go.

**Ms S.E. WINTON:** Yes, that was quite a lot.

**The CHAIR:** You get rid of us because of our time constraints!

**Ms Rodgers:** Where we are at, literally—this is the plan on a page—but we have got a formal document –

**Ms S.E. WINTON:** Which is that? Is that —

**Ms Rodgers:** No, it is a different one. We just have not spoken to the minister about it, so literally it is imminent. In the next week or so, we are wanting to go and talk to the minister about the vision. I do not anticipate that there will be any issues with it at all, so I am hoping to get it out in the next few months. We can certainly perhaps take it on notice and provide you with just some of the key principles and the details around that.

**Ms S.E. WINTON:** In terms of the processes —

**The CHAIR:** Or you could provide it to us in camera. If you want to check whether you can do that, that would be worthwhile for us.

**Ms Rodgers:** Yes.

**Ms S.E. WINTON:** I think it will be usual for our investigation.

**The CHAIR:** Let us not dwell on that too much, because one of the other questions is around whether we have computer census data and stuff like that. We might come back to you with a few questions that we might put in writing, because we need to wrap it up. I did do this a couple of years back

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when Education came in and we were having a general discussion about vocational education and training in schools or something or other else—you know, just general. I said to the director general at that time, “If we were going to do something useful that could contribute to the debate that you need around this, what would be something that would be useful for us to look at in this space of digital technology in schools?” We like the idea of using technology to learn in terms of looking at some of the showcase things, but if that is not very useful, have you got an idea? It does not mean we will do it; it would just be nice to know if you have an idea of something in an area that you would find useful for us to look into as a parliamentary committee.

**Ms Rodgers:** I think what would be incredibly useful would be to help us with the narrative around being able to learn anytime, anywhere, anyplace—really opening up the opportunity for schools to get online and learn at any point. I mean, we have attendance issues; we have kids that are disengaging from the physical location of schools. If we could somehow change the narrative to allow students to engage in schooling, to engage in education in a different way, that would be really very good. The other thing would be around leaving with a qualification. The narrative, again, is often around VET qualifications or ATAR qualifications. What we need is for students to be leaving with the Western Australian Certificate of Education. That is the currency. The currency is not ATAR; the currency is not VET necessarily. What we can do is use technology to essentially micro-credential or credentialise students when they master parts of the curriculum, so that they do not have to go into stratified pathways but are able to access the curriculum in multiple ways. As they move forward in the curriculum, we somehow credentialise them, because then we are catching them in, rather than having to undertake a VET course or an ATAR pathway. If we could somehow credentialise them through their pathway, so that they come out with a range of skills, that would be exceptional.

**The CHAIR:** That might need a bit of thinking about—where you find the capacity to do that—but yes. Thank you very much. It was really enlightening and we really appreciate your time. It seems that you have been pretty busy if you came back from Roebourne. Thank you very much.

**Hearing concluded at 11.50 am**

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