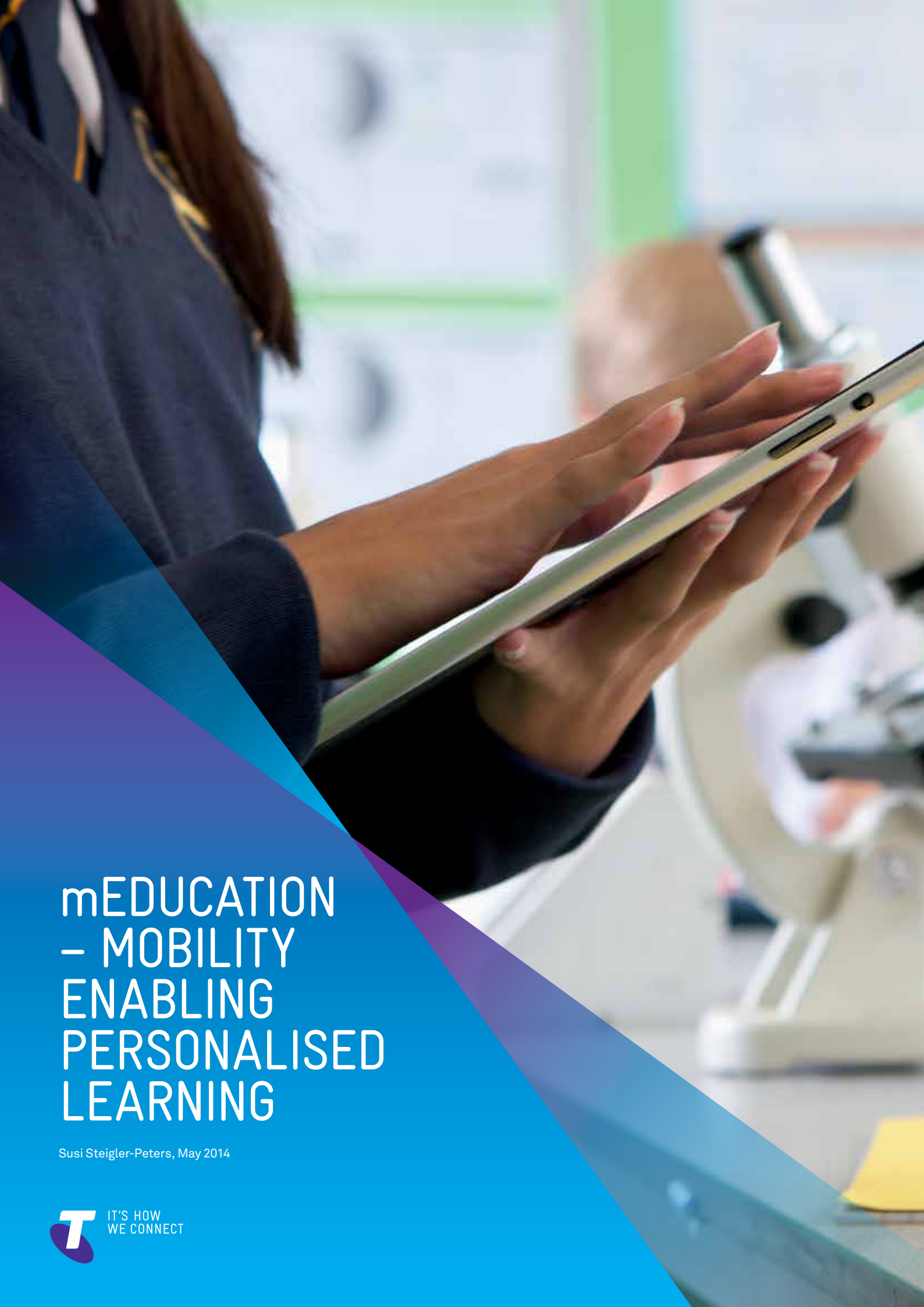


mEDUCATION – MOBILITY ENABLING PERSONALISED LEARNING

Susi Steigler-Peters, May 2014

IT'S HOW WE CONNECT

FOREWORD

It gives me pleasure to share this report with you.

As part of an ongoing study into better understanding the rapidly changing landscape of the role of technology within Australian education this third Telstra white paper takes stock of mobile devices in learning.

Together with the first and second papers, this report explores the impact of mobile devices on student learning engagement, teacher practice and new notions of what constitutes learning environments. It also considers behaviours, expectations and what is emerging as a new form of learner agency. In itself, this 'system-decoupled', technology-enabled agency is causing all education stakeholders to rethink how education services are best delivered and by whom.

Unsurprisingly, this report has raised more questions than answers.

To that end, the Telstra Education Roundtable Advisory Group, established in 2010, has continued to commission research to diagnose (and eventually diffuse) the repeatable elements of successful personalised learning ecosystems.

I commend this report to you and also invite you to be part of this greater education dialogue. I also take this opportunity to thank the survey respondents for their frank and honest feedback.

Susi Steigler-Peters
Education Industry Executive
Global Industries
Telstra Corporation
May 2014

1.0 EXECUTIVE SUMMARY

For some years now, the education sector has been abuzz with talk about how mobility will enable personalised learning.

This short, data-driven paper provides a snapshot of recent research conducted by Telstra examining what impact mobile technologies are having on education in Australia today. We look not only at access and engagement, but also device preferences, and the perceived benefits for both learners and educators.

The use of technology to drive educational outcomes is a subject close to Telstra's heart, and over the last couple of years we've published a series of papers relating to personalised learning: ***Personalised Learning – Meeting the Australian Education Challenge, 2011*** and ***Quality Teaching for Personalised Learning: Leveraging Technology for Exceptional Results, 2012.***

In this year's paper, we extend the theme with details of key findings relating to how mobility stands today among learners and educators.

2.0 INTRODUCTION

2.1 The classroom: then, now and tomorrow

Many reasons exist to explain why so many classrooms continue to consist of desks in a row, blackboards or whiteboards, teacher at the front, and students sitting in rows. But it all began with John Dewey – the man who formulated the philosophies behind modern education.

Dewey believed that education is essentially social and interactive; that learners are best served by a set curriculum; and that all students should have the opportunity to take part in determining and designing their own learning. Dewey was very much a modernist; however, growing up during the industrial revolution undoubtedly influenced his thinking.

Dewey's schoolroom essentially reflected a factory – a place for workers to assemble and produce. His raw materials were the textbook and instructor. Meanwhile, the centralised schoolhouse made mass education affordable, and the simple subject matter was meant to create a literate, yet homogenous workforce. Even the school schedule mimicked the factory's regimented workday.

Dewey's schoolroom – the same one that most of us attended – has long been the predominant model for teaching and learning:

- Teacher-directed
- Direct instruction (one-way)
- Focus on knowledge and content
- Focus on skills
- Focus on facts
- Time-based/slotted learning
- One-size-fits-all
- Classroom-centric
- School-centric focus

By the turn of the 21st century, technology was becoming commonplace in homes and classrooms in the form of computers and recorded videos and computer games and the Internet. Yet even as these new technologies arrived, the education model remained unchanged.

Yes, the classroom might include computers, but generally they were arranged in rows (in a computer lab) and shared by all. Learners may have had personal computers at home, but everything was pretty much 'fixed' in nature. You certainly wouldn't cart a computer from home to school, or vice versa. No one realised just how dramatically the world was about to begin to change.

In fact, most educators remained unsure of the coming changes because they firmly believed that the new technologies would merely serve as extensions of their existing toolsets – like books, only better. The tacit belief was that libraries would be the technological hub. Instead of a learner with a quiet book, now that quiet book might be a slightly humming computer.

Unfortunately, that model was based on the idea that learners would continue to learn as they always have, with one-way instruction from educators as the norm. Nor could it account for the tsunami of change about to occur, thanks to advances in mobile technologies.

This mobile revolution was kicked off by Apple's introduction of the iPhone a mere seven years ago, in 2007, followed by the iPad in 2010. While these devices are not alone in transforming education, the categories they introduced – smartphones and tablets – are certainly doing so. More potently, the change in behaviour they prompted has led to liberation in learning, where students and educators can be connected anywhere and at any time. Mobile devices have unleashed 'choice' and 'access' across the education industry.

2.0 INTRODUCTION (CONT.)

2.2 Mobility and 21st century learning

Many great thinkers have done their best to put the idea of how we learn and experience into context. Emerson believed that staying home and getting to know one's inner being was the best way to gain knowledge. He wasn't a big believer in day trips, or grand tours for that matter. Socrates, too, felt that learning is about understanding the essence of a thing. Both great thinkers made light of the idea of travel and experience, but may have missed the point: sometimes you *need* to interact with something outside of your normal routine.

What we know now, in today's complex world, is that there will always be something new under the sun. Innovation comes in waves – sometimes close together, sometimes spaced far apart. Until Gutenberg, the average scribe was confident of job security. The world would always need Bibles and poems and tomes copied – so with a bit of handwriting ability, nothing else was needed. We all know how that turned out.

> "See one promontory, one mountain, one sea, one river, and see all." – Socrates

When computers were invented several hundred years later, no one imagined their impact: Thomas Watson, former Chairman and CEO of IBM, was inaccurately quoted as late as 1958 as saying that "I think there is a world market for maybe five computers". While no proof exists that these were his specific words, many others shared the sentiment at the time. Think too of Sony several decades ago, and the scorn that initially greeted the CEO and visionary product managers who suggested that folks might be interested in listening to a personal stereo device called a Walkman. We also know how *that* turned out.

Innovations in telecommunications, wireless networks, computing, software and the like bring us into the 21st century, where the concept of mobility is only beginning to rise as a wave that may be as transformative as the Gutenberg press, the processor-based computer, or the personal listening device.

Mobility and what becomes possible with untethered living and learning smacks down the notion that there is nothing new under the sun. The walled-off classroom has been torn asunder by technology. The challenge now is to reconcile where we have come from as teachers and learners, and where we are going. We have a responsibility to take action.

The idea of 21st Century Learning[1] is predicated – finally – on a different model. With globalisation, a faster pace of life, a fast-changing workplace with more rapidly evolving worker requirements, education simply has to change.

Now it is:

- Learner-centric
- Interactive (vs. one-way instruction)
- Skills-centric (vs. knowledge only)
- Process-oriented (vs. content-oriented)
- Problem-solving and question-asking (vs. learning facts and figures)
- Practical application (vs. theory)
- On-demand (vs. time-specific)
- Personalised (vs. one-size-fits-all)
- Collaborative (vs. global)
- Positioned to learn for life – for better adaptability if nothing else (vs. learn only in school for a single career and life goal)
- Technology-enabled

John Dewey was all about the importance of developing a child's insight and thinking ability through experiential, problem-based learning, and he was an early constructivist. But the classroom was still the classroom, a finite set of walls and desks, patrolled by the teacher.

This is not to dismiss the excellence of the large body of educators worldwide that did very well in the classroom-centric model. Indeed, it's interesting to note that collaboration capabilities provided by technology are now taking us back to the good teaching and learning practices described by the likes of Piaget, Vygotsky, Montessori, and many others.

These practices are based on a 'zone of proximal development', in which the educator comes to understand the learner and where the learner is in *process* – and where the educator has a hand in moving the learner along. In fact, the effective educator of today has become more of a mentor, a coach and a sophisticated learning designer. An architect for learning.

One would think – and many have feared – that technology would create a barrier between educators and learners (as it can do if deployed or practiced unwisely and without adequate planning) but for every time technology has failed to serve, there are many instances in which it has proved transformative.

As we begin to shift pedagogical models to embrace today's technologies, a few things are clear. Learning is now social, as never before. And educators are beginning to understand that technologies can keep us apart, or bring us together; they can slow learning, or accelerate learning. We are in the midst of a transformation of attitude – but that transformation is not yet complete.

We've already seen dramatic change in the 21st century. Indeed, education has changed more in the past ten years than in the preceding one hundred, thanks to mobile technologies, bandwidth, the prevalence of apps, learning analytics, and context-sensitive tools. How we harness these new tools at our disposal is up to us.

> "Travel is a fool's paradise." – Ralph Waldo Emerson

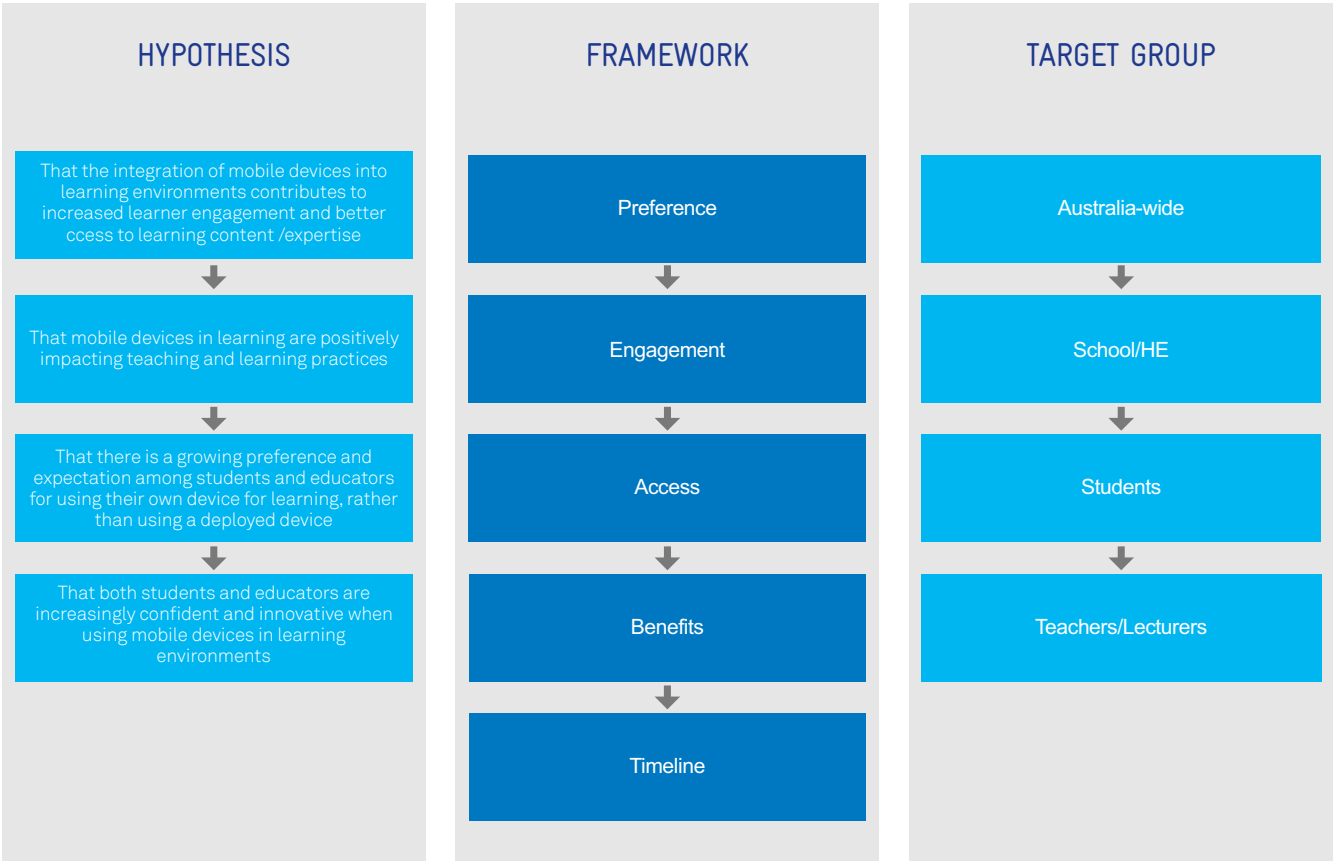
[1] Australia has its Assessment & Teaching of 21st Century Skills project headquartered at the University of Melbourne, and the US has what is referred to as the P21 Movement, its Partnership for 21st Century Skills initiative.

3.0 BEYOND THE CLASSROOM: OUR RESEARCH

Telstra designed this study based on discussions with participants in our Roundtable symposia and through analysis of the requirements of our educational customers. It began with four central hypotheses:

1. That the integration of mobile devices into learning environments contributes to better **access** to learning content/ expertise and increased learner **engagement**.
2. That mobile devices in learning are **positively impacting** teaching and learning practices.
3. That there is a growing **preference** and expectation among students and educators for using their own device for learning, rather than using a deployed device.
4. That both students and educators are **increasingly confident and innovative** when using mobile devices in learning environments.

Our research examined learner and educator preference, engagement habits, access behaviours, and perceptions of benefits. A survey of 106 educators and 726 learners was conducted between September and December 2013. The survey was national, and targeted both primary/secondary learners attending government and non-government schools and higher education students, as well as teachers and lecturers in both segments. In some instances, entire classes were made available to complete the survey.



4.0 SURVEY FINDINGS: STUDENTS

Anyone stepping inside the doors of a classroom today is confronted by a paradox: the same technologies that were forbidden in the past are now prevalent inside and outside the classroom.

Telephones – long thought to be a distraction – are everywhere, and not just limited to the office or staffroom. In this changing context, the Telstra survey offers these major findings on mobility:

Access – 90 per cent of student respondents say they own a mobile device and 70 per cent of this group say they are already using it for learning at school.

Engagement – 72 per cent say they use their mobile device to share information for learning purposes.

Preference – 80 per cent of student respondents say they use their mobile device more than a desktop computer.

Social use – three out of four (72 per cent) access their social networks on their smartphones.

There is a growing preference and expectation among students and educators that they be able to use their own device for learning. Doing so allows them to know one device, and blur the lines between school and personal data (much like professionals now appear to prefer a single device for both work and personal life).

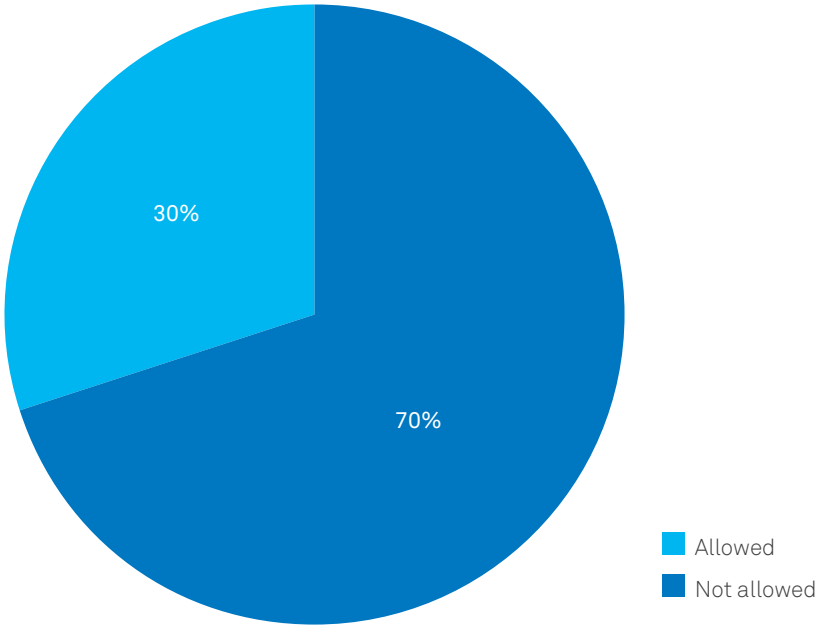
But as you will see, some learners would prefer *not* to use their own devices, for fear of damaging them.

Overall, the data show that students already use their devices for learning. And we believe it is highly likely that those who don't use it explicitly for learning, nonetheless still carry these devices with them in the learning environment. *How* they are used varies, as the data show.

4.1 Access

Telstra asked learners if they are able to use their mobile devices in a formal learning environment. Only 30 per cent are "allowed" to use their devices in class – 70 per cent are not however they continue to do so and this creates the unfortunate situation where the gap could very well widen between the haves and have-nots. Being an equity issue, this needs to be considered at a range of levels, including policy and planning.

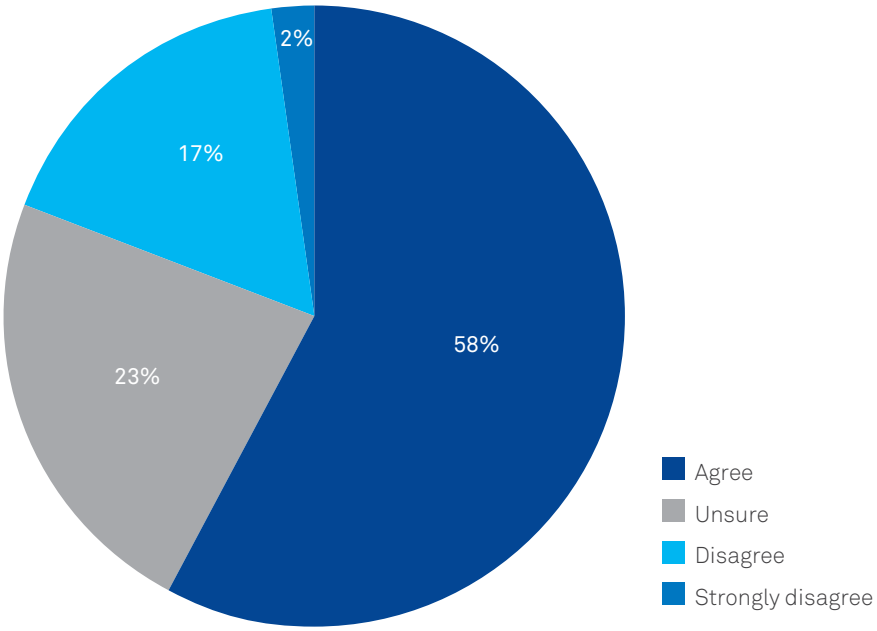
Are you able to use it at school for learning?



At the same time, Telstra asked learners if using a mobile device provides them with better access to subjects and courses not usually offered at their particular schools. Three out of five learners (60 per cent) agree or strongly agree with this statement. Australia has long been a leader in distance education, which has a strong history in addressing the tyranny of distance to ensure that all students have equal access to quality learning opportunities. It's clear that mobility has an important role to play here.

However, another 23 per cent of learners are unsure. It could be surmised that this group of learners does not struggle with curriculum choice.

Using a mobile device I have better access to subjects/courses that are usually not offered at my school



4.0 SURVEY FINDINGS: STUDENTS (CONT.)

4.2 Engagement and benefits

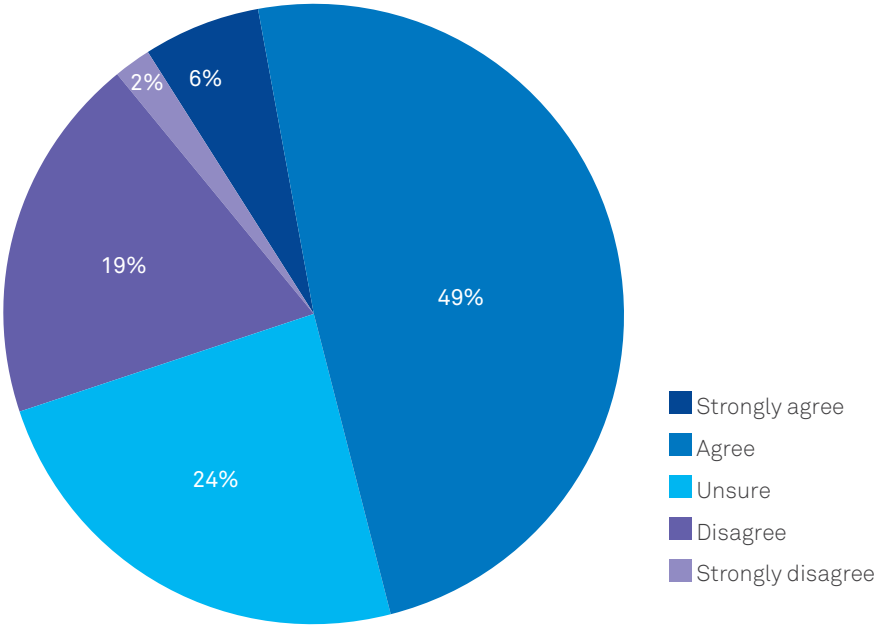
Our research indicates that the integration of mobile devices into learning environments contributes to better engagement and access to learning content/expertise.

Telstra asked the learners if using a mobile device improves their learning. Interestingly, more than half of student respondents (55 per cent) agree or strongly agree that using a mobile device improves their learning; another 24 per cent are unsure. Only one in five (21 per cent) disagree or strongly disagree.

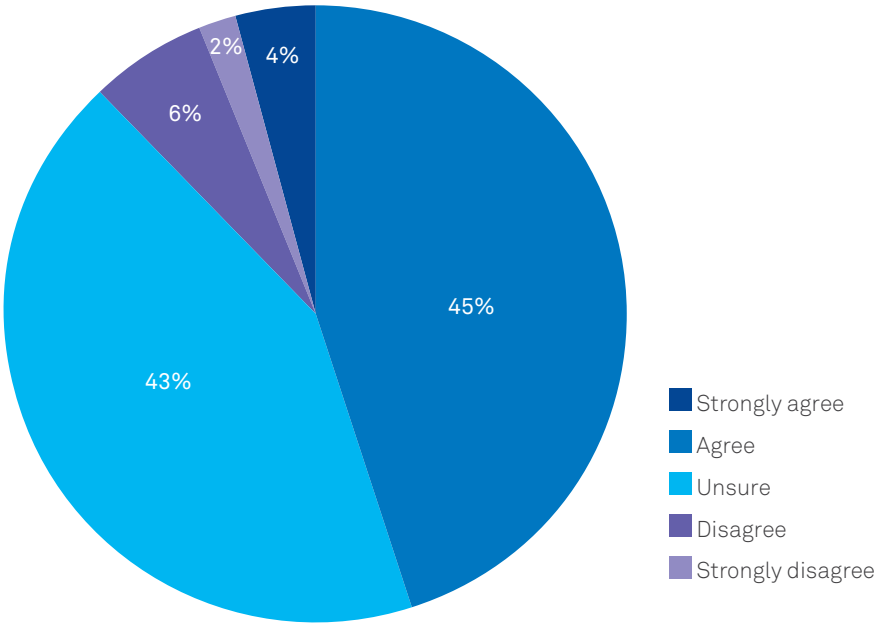
A significant number of learners also state that using a mobile device *has changed how they learn*. This number is not quite as high as those who state that using a mobile device improves learning, but close: a total of 49 per cent state that using a mobile device has changed the way they learn. This is not too surprising, because the mobile device changes how the learner interacts with instructors, other learners, and content. Participants commented:

- Yes, because you think more
- Because we do it ourselves, we have responsibility
- In a good way because for me to remember things I need to see them
- You don't learn anything if you don't do it yourself
- It's made learning more visual and interactive
- Yes it's faster than looking in a book
- It's a better form of knowledge gathering

I believe that using a mobile device improves learning

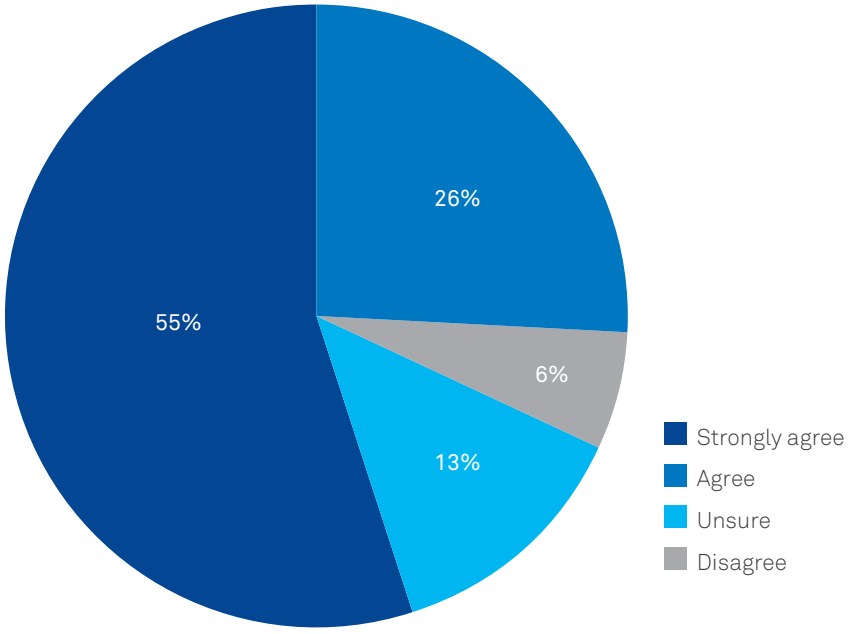


Using a mobile device has changed the way I learn



A total of 68 per cent say that using a mobile device provides them with better access to real-time information like breaking news, interviews and chat. One thing is obvious: what is occurring is a lot of experimentation. This leads to our belief that mobile devices are adding some value to the learning experience.

Using a mobile device I have better access to real-time information (for example; breaking news, interviews, chat...)



4.0 SURVEY FINDINGS: STUDENTS (CONT.)

4.3 Preferences

Telstra asked learners, "When it comes to learning, do you prefer to use the mobile device provided to you by your school?" A total of 54 per cent say yes and 46 per cent do not. The predominant reason for not using a personal device is fear of losing or damaging it.

The large number of learners who currently do not want to use their personal device for learning is possibly an issue, particularly at a time when more and more learners are actually bringing their devices into learning environments. Is it a question of how their teachers/ lecturers are effectively integrating mobile devices into lesson design? If learners can't afford, or do not want to use their personal devices for education, then at what point does it become incumbent upon educators to do so? This is a hot topic.

Regardless of whether devices are provided by the school or the student, we at Telstra believe that firm policies and guidelines surrounding usage of mobile devices are essential.

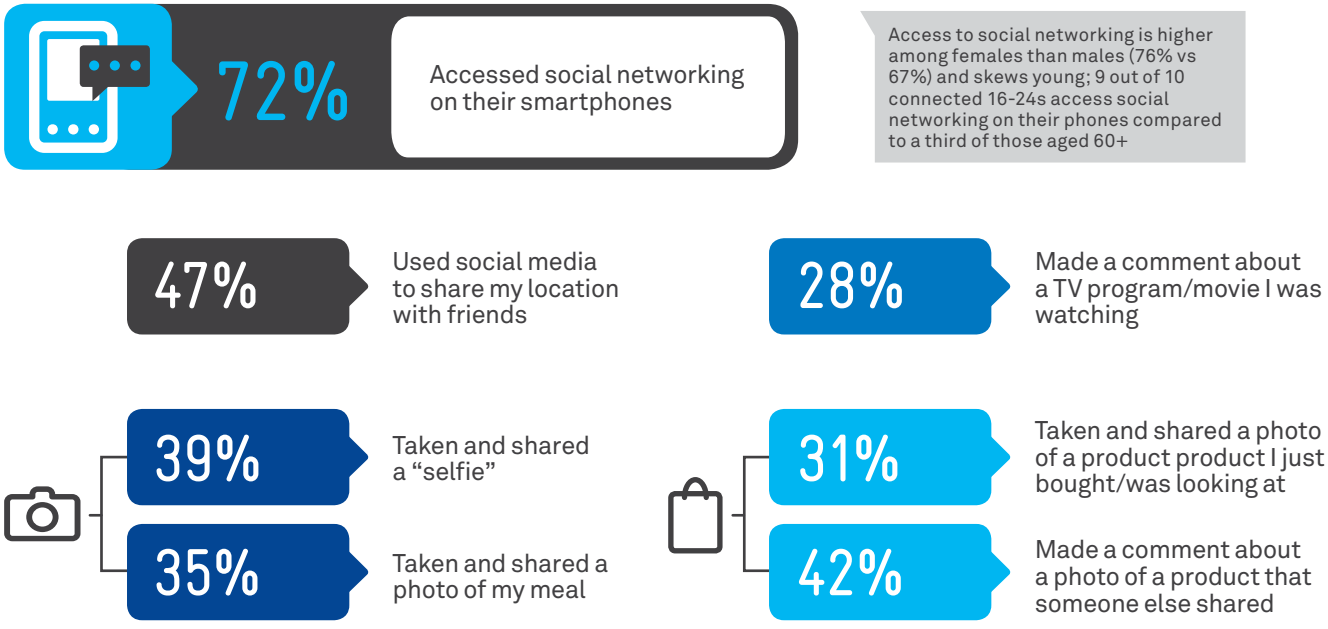
4.4 Social use

As any parent would know, even if some learners aren't using their devices for education, they are certainly using them for social interactions. From the Telstra Smartphone Index survey carried out in late 2013, we see that three out of four (72 per cent) access their social networks on their smartphones; 47 per cent use social media for sharing location with friends; 42 per cent have made comments about photos of products; 39 per cent have taken and shared a "selfie" picture; and 35 per cent have taken and shared a photo of their meal.

When one in three are already doing these activities, two things become apparent:

1. More of them are likely to do so in the future; and
2. If given the right apps and guidance, even more of them will do so – not just for sharing and interacting, but also for learning.

Social used for sharing and interacting



5.0 SURVEY FINDINGS: EDUCATORS

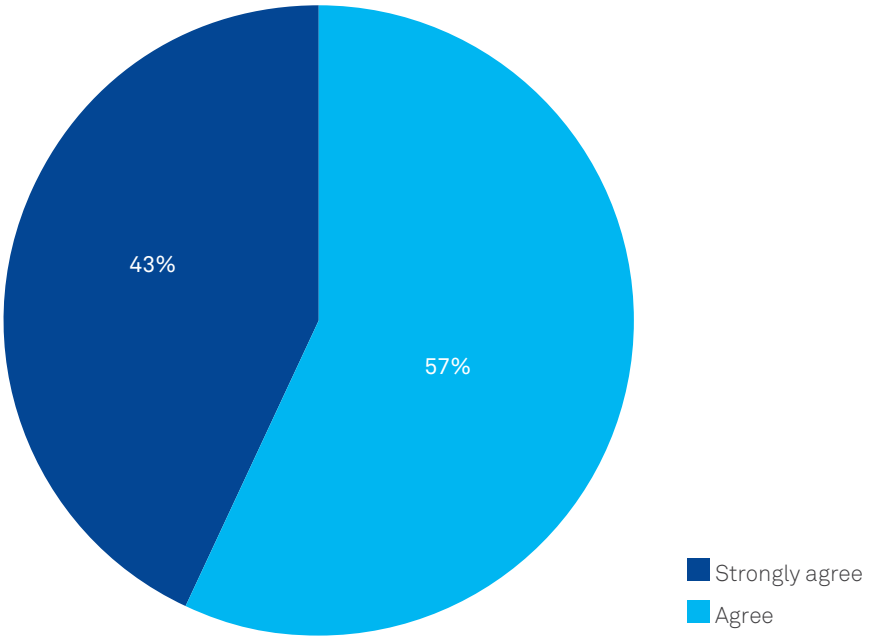
Educators agree that using a mobile device gives them better access to the information that they need – no surprises there. But perhaps what *is* surprising is that three out of four teachers surveyed believe that use of mobile devices is revitalising their teaching.

5.1 Access

For starters, mobile devices give educators the flexibility about where and when they teach. In what is perhaps a survey first, every single educator agrees with the statement that they get flexibility from using mobile devices.

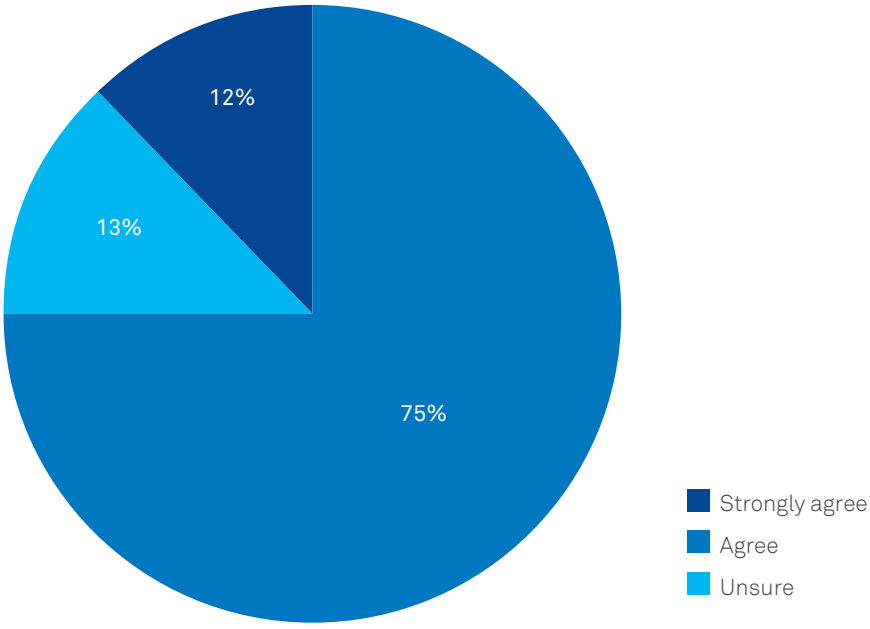
Additionally, 80 per cent agree that 'Using a mobile device I have better access to the information I need'. And 100 per cent state that they are able to access teaching materials quickly using a mobile device (57 per cent strongly agree; 43 per cent agree).

Using a mobile device gives me flexibility about where I am when I teach



Regarding access, almost all educators surveyed (87 per cent) strongly agree or agree that using a mobile device offers more 'on-demand' learning opportunities. Only 13 per cent are unsure, and again, no one disagrees. There's no doubt that mobility and on-demand technologies are encouraging educators to rethink how they develop new learning pathways.

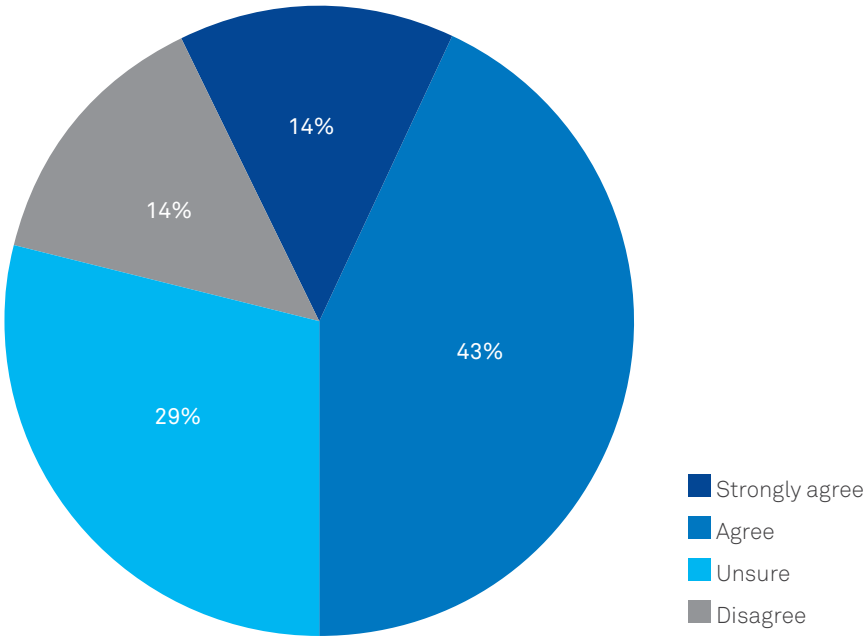
I believe using a mobile device offers more 'on-demand' learning opportunities



5.2 Engagement and benefits

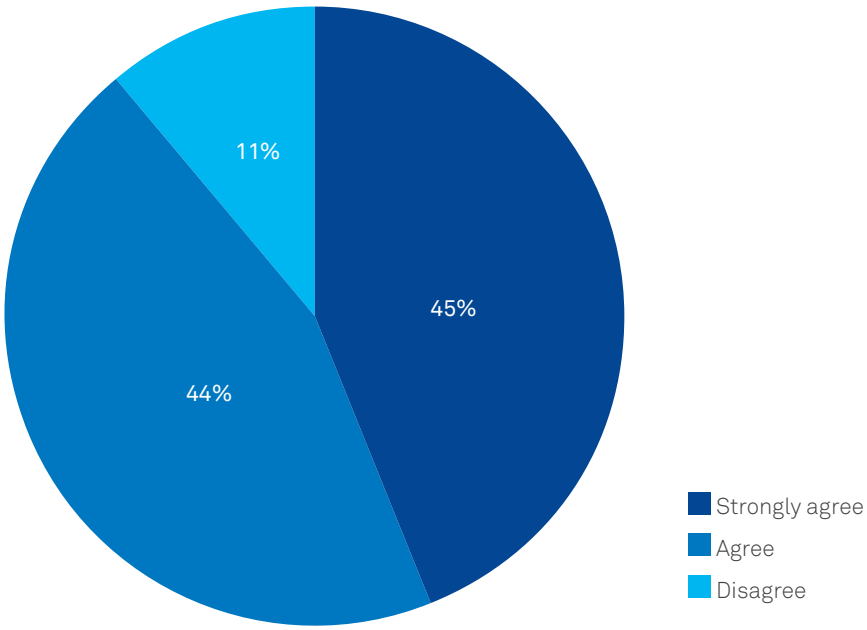
In our survey, the majority (57 per cent) of educators – almost three out of five – feel that they can modify learning design paths more rapidly with a mobile device. Another 29 per cent are unsure. Why is this so important? Just like we asked learners if mobility is having an impact on how they learn, this question asks educators if mobility is *helping them change how they teach*. And it is.

I feel I modify learning design paths more rapidly when I use a mobile phone



Some 89 per cent of educators strongly agree or agree that they feel they can share their work more easily and quickly with others; 11 per cent are unsure. For teachers – who are so dependent on dialogue and collaboration and sharing – that figure is a resounding endorsement of mobility.

Using a mobile device I feel I can share my work more easily and quickly with others



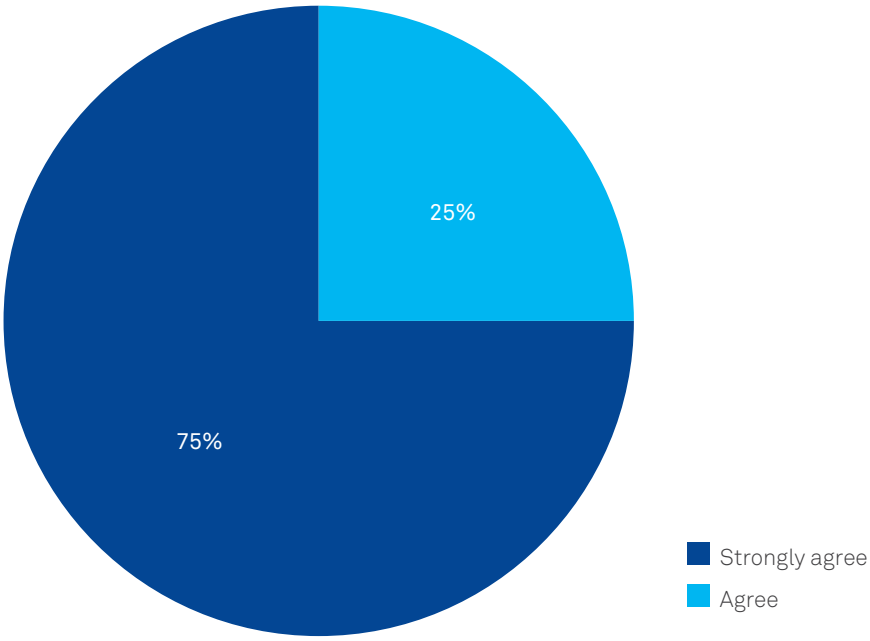
5.0 SURVEY FINDINGS: EDUCATORS (CONT.)

5.3 Preferences

One particular query in the survey also shows *why* educators are endorsing mobility. Again, every single educator strongly agrees (75 per cent) or agrees (25 per cent) that use of a mobile device makes teaching more interesting.

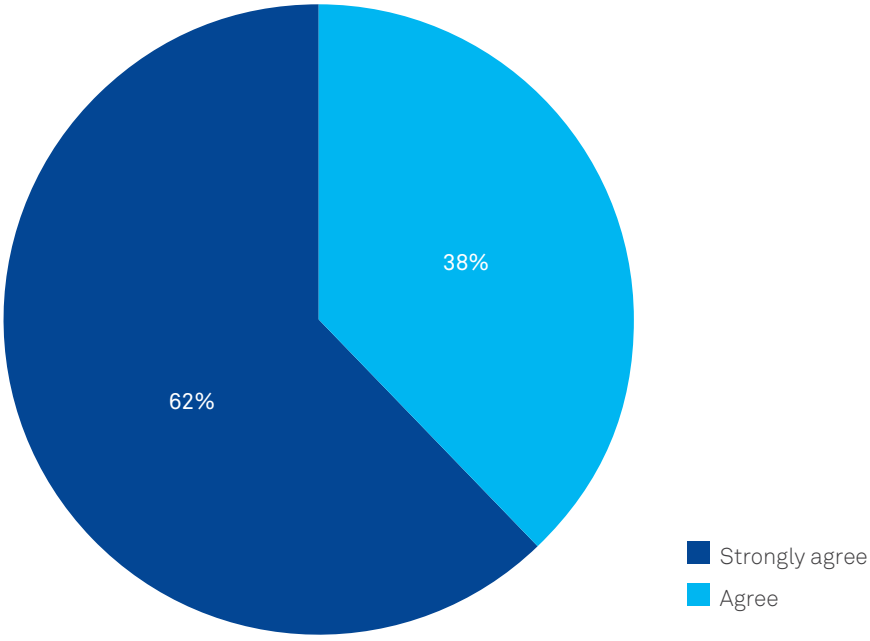
Again, it is rare that *any* technology achieves this degree of acceptance this quickly. The net result: mobility is here to stay, as a platform for teaching and learning, as a means of opening up the classroom, and as a mechanism for enabling increased access and flexible learning experiences.

I feel the use of a mobile makes teaching more interesting



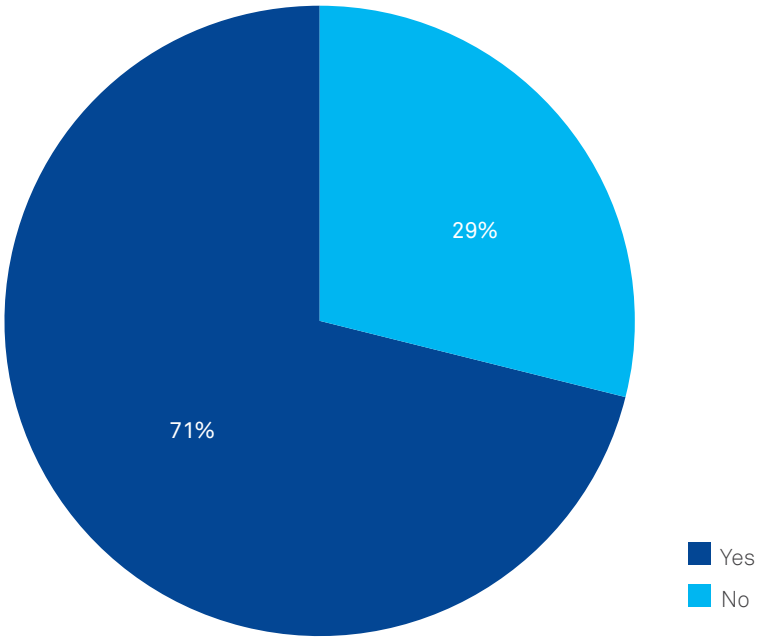
A total of 62 per cent strongly agree that they like using a mobile device to help them teach, and another 38 per cent agree. This is yet another resounding endorsement of mobility – it's rare *under any circumstances* for 100 per cent of participants to agree on a single statement.

I like using a mobile device to help me teach



Not everyone yet incorporates mobile devices into their lesson design. But seven in ten (71 per cent) do.

Do you incorporate your mobile device into your lesson design?



Think of what becomes possible when educators begin to shape content and learning pathways built around what the technology makes possible. Among the possible benefits: more agile content creation; user-generated content; and creative methods of assessment.

And in the words of Australian educators themselves:

- Teaching is more flexible
- I am able to reference more information
- I have better access to up-to-date information
- More accurate reporting and record keeping
- I'm more organised

And one educator shows that he/she wishes to carry that newfound mobility beyond the classroom walls, with this very telling comment:

- I want it to work on the 3G or 4G network as well as Wi-Fi

6.0 WHERE TO NEXT? CONCLUSION AND ROADMAP

While conducting the research for this paper, we reviewed many of the authors who have published on the topic of the link between education and technology. And we noted something that reminds us of how quickly change is now coming to our beloved field of teaching and learning.

The American authors Clayton M. Christensen, Michael B. Horn, and Curtis W. Johnson published an important treatise in 2008 called *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns*. In that book, these authors evaluated the impact of technology on education in America, and predicted that spending on technology will increase dramatically later this decade.

Their focus at the time: student-centric pedagogy, computers in the classroom, the importance of assessments and research, and methods of creating innovation in the classroom and at the legislative level. What's missing from this seminal work: almost *any* discussion of mobility. This tells us how much the world has changed in six short years. And Telstra's research bears this out.

It's clear that both students and educators are increasingly innovative and confident with the use of mobile devices in the learning environment. The reasons are not clear, but one could speculate that educators are as intrigued as students when it comes to engaging with the device and exploring its capabilities. Maybe it's not too far a stretch to suggest that this, in itself, builds confidence and fosters innovation.

We see the confidence exuded through the data. According to the Telstra Smartphone Index of 2013, the current status of smartphone ownership in Australia sits at some 72 per cent. A total of 90 per cent of students own mobile devices, as do 100 per cent of teachers and academics. We're well beyond the point of early adoption. Mobile smartphones, phablets (their big-screen cousins) and tablets and are now mainstream. Anytime, anywhere is fast becoming right here, right now, and preferably on the user's own terms.

Yet while the devices are influencing behaviours and expectations, we are still at the early stage of addressing the following:

- What is possible with subject-specific apps and games?
- How to build learner content?
- How to adapt existing static or digital content to the new mobile world?
- How to develop programs and processes to ensure the technologies are well understood and well deployed by educators?
- How to use devices and software to better assess learner progress?
- How to collaborate with other educators, content providers, government entities, and the like to achieve best practices?

Until these questions are better understood – and we're certain they will be – mobile technology will remain underutilised as an education tool. Learners and teachers will be walking about with pocket rockets – powerful weapons of mass education missing the fuel to drive lift-off.

So what does this all mean for teaching and learning? First, we ask you to consider the scale of change we've seen in just a few short years. Then, depending on your particular role – as an educator, administrator, ICT professional, parent or content provider – ponder some of these questions:

- What does this mean for how we plan?
- What does it mean for professional learning?
- What does it mean for education service delivery?
- What are the possibilities for innovative learning experiences?
- How does this support personalised learning?
- What are the likely impacts on current technical infrastructure?

Telstra believes the answers for implementing mobile technologies in education will come from partnering with our customers – with all of us contributing to an ongoing discussion.

To help build the future together, we welcome your feedback and input. Email us at susie.steigler-peters@team.telstra.com.

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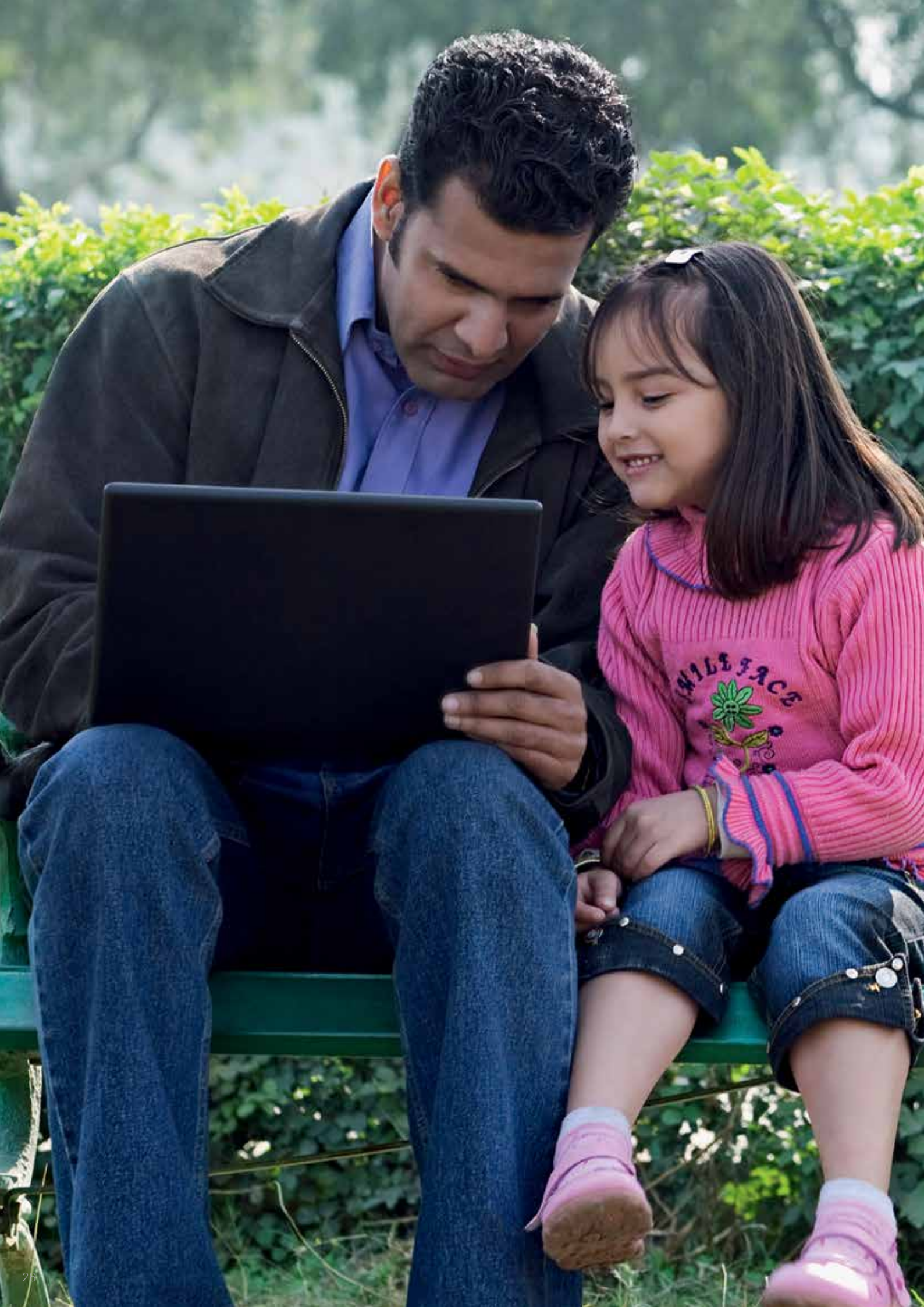
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IT'S HOW
WE CONNECT