

**Innovations to spark
the future of education**

The Australian EdTech
Market Census 2017

August 2017

EduGrowth conducted the Australian EdTech Market Census in 2017. With the data collected through that Census, EduGrowth and Deloitte have collated the findings into the insights and related commentary found in this report.

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Executive summary

Ready to spark the future of education?

The inaugural Australian EdTech Market Census paints a picture of a diverse and thriving sector with strong potential to grow. Based on respondents' stated monthly revenues and number of learners the survey shows that the sector already has revenues of upwards of \$1 billion per annum and significant traction with more than 3 million learners using their platforms and solutions. This is particularly heartening in light of the fact that EdTech is a critical enabler for our third biggest export; international education. Technology as a differentiator can give us the edge over global competitors to realise our international education growth aspirations and scale to meet the ensuing demand.

With the global EdTech market forecast to grow to \$252 billion by 2020¹ it is also encouraging to see that 46% of respondents' already have customers outside Australia and 22% of respondents' have plans to expand overseas. In a global economy characterised by rapid economic restructuring and change, the Australian EdTech market has an important and significant role to play in job creation. The EduGrowth survey shows strong forecast jobs growth in the EdTech sector with 60% of organisations looking to hire in the next six months and 10% of those looking to hire six or more employees in the next six months.

Most of our EdTech start-ups are located in the populous 'East Coast' primarily, because, in the fast moving tech sector, proximity and density are critical to a thriving start-up industry. Start-up ecosystems typically need access to talent, funding, clients, technology research, incubators and other start-up mentors. However, the survey also shows that 63% of Australian EdTech start-ups have no capital investment and 29% see raising investment as one of their major challenges in 2017.

At the end of this survey then, if there is one call to action it is that universities, policy makers and businesses all have a significant role to play in ensuring that our nascent and necessary EdTech sector continues to prosper and grow. Policy makers to define settings that attract capital investment into high-potential start-ups, and facilitate the acceleration and commercialisation of early-stage innovations. Universities to develop the research and build the pipeline of workers necessary to fuel the start-ups and wherever possible to help nurture and incubate start-ups. And, likewise, businesses to help nurture and develop talent, invest in high-potential ventures and help incubate and commercialise innovative ventures.

¹ The founding partners of EduGrowth are Navitas Ventures, Deakin University, Monash University, Charles Sturt University, La Trobe University and Griffith University

Survey context, purpose, methodology and sample size

EduGrowth launched in 2016 with the aim of driving innovation and technology use across the education sector. It was established by education providers and universities² who believe that Australia has the market leading expertise and collective ambition to become a world leader in the business of education technology.

At its core, EduGrowth is a national not-for-profit peak body whose objective is to accelerate the growth of tech start-ups and encourage the development of products and services for the education sector. Conscious that the Australian EdTech market already has a vibrant and thriving community of tech start-ups, EduGrowth launched the Australian EdTech Market Census to map the emerging landscape, track the on-going evolution and performance of the Australian EdTech market and better inform founders, investors, education providers and governments on ways to more effectively and efficiently foster innovation go

The census focused on education technology start-ups within Australia who are currently running an EdTech company, and also on individuals and teams with an idea for an EdTech start-up that they plan to launch in the next 6 to 12 months. It had a strong response with a total 157 respondents – bringing to life what's happening and what's possible across the sector.

It is estimated³ that Australia has approximately 350 EdTech organisations servicing the entire education ecosystem, giving the sample size of 127 start-up respondents (running an EdTech start-up as opposed to having an idea for an EdTech start-up) a confidence level of 95% with a confidence interval of 7.

The inaugural EduGrowth Australian EdTech Census findings in this report demonstrate that Australia has a fast growing and diverse EdTech industry.

EduGrowth would like to take this opportunity to sincerely thank all the participants that took part in the survey, their founding members and the entire EduGrowth community. Each and every participant's involvement ensures that we can illuminate the key trends, insights and findings across a number of topics.

81% of the respondents are running an EdTech start-up



19% of the respondents have an idea for EdTech start-up



² IBIS Capital and EdTechXGlobal (2016) 2016/2017 Global EdTech Industry Report A Map for the Future of Education

³ <https://www.austrade.gov.au/edtech/australian-education-technology-report-2017.pdf>

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The Australian EdTech market: a major economic opportunity

What role does the Australian EdTech market play? The contribution of digital technologies to the Australian economy is forecast to be \$139 billion by 2020, when it will equate to 7% of Australia's GDP.⁴

Technological progress is a fundamental driver of productivity growth and increased living standards in Australia. New economic modelling finds that Australians are better off by \$4,663 per year (in Australian dollars, in 2016) as a result of digital technology uptake, which increases the productivity of workers and businesses, improves the quality of products and services, and reduces costs. The benefit is equivalent to a 6.6% increase in Australia's gross domestic product (GDP) per capita over the previous decade.⁵ The Australian EdTech market is one of the key enablers underpinning technological progress in Australia. The key is to continue to attract investors overall – to drive further progress, innovation and development.

The Australian EdTech market offers a wide range of opportunities for investors



29%

see raising investment as one of their **biggest challenges** in 2017

The EduGrowth survey shows that 63% of EdTech organisations in Australia have no capital investment and 29% see raising investment as one of their major challenges in 2017. Venture capital (VC) has experienced a resurgence in recent years.

According to the Australian Private Equity and Venture Capital Association, Australian VC firms raised a record \$568 million from superannuation funds and other institutions last year.⁶ With interest rates still comparatively low globally, and some high-profile start-ups achieving eye-watering valuations, investors are being drawn to the potential lucrative returns in the tech sector and are looking for robust and viable investment opportunities.

Seeking success? The EduGrowth survey indicates that there is a ready and waiting supply of EdTech start-ups searching for investors. With the domestic market opportunity forecast to grow **to \$1.7 billion by 2022**⁷, there are opportunities to invest and to help realise the major economic opportunity in education. When you consider the relative ease with which EdTech products can be extended and scaled to reach major global markets and that the global EdTech market is forecast to **grow to \$252 billion by 2020**⁸ it's clear that these opportunities have the potential to have far reaching impact, influence and reach.

A thriving Australian EdTech market is a critical enabler for our third biggest export

International education was estimated to contribute **\$21.8 billion to Australia's export earnings in 2015–16**⁹ making it Australia's third largest export. In this context, international education is defined as the expenditure contributed by international students studying at schools, vocational education and training (VET) providers, higher education providers and those studying English Language Intensive Courses for Overseas Students (ELICOS). International education currently supports over 130,000 jobs in cities and regions throughout Australia.¹⁰

Despite these successes, we have only skimmed the surface of the potential global opportunities that can be harnessed and leveraged across the sector. Deloitte Access Economics estimates that by 2025 there will more than 1 billion students actively seeking education and skills, and has identified international education as one of five key sectors that can drive the next wave of Australia's economic growth and continued prosperity.¹¹

⁴ <https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-economics-connected-continent-ii-2015-300315.pdf>

⁵ Australian Computer Society and Deloitte Access Economics (2017) "Australia's Digital Pulse Policy priorities to fuel Australia's digital workforce boom", pg. 1.

⁶ AVCAL (2016) "Venture Capital funding hits record high", <https://www.avcal.com.au/news/2016/venture-capital-funding-hits-record-high>, accessed 3rd August 2017.

⁷ Frost & Sullivan (2017) *Australian Edutech Market—Key Trends, Technologies, and Opportunities 2016–2022*.

⁸ IBIS Capital and EdTechXGlobal (2016) 2016/2017 Global EdTech Industry Report *A Map for the Future of Education*

⁹ <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/5368.0.55.0042016?OpenDocument>

¹⁰ <https://internationaleducation.gov.au/research/research-papers/Documents/ValueInternationalEd.pdf>

The sheer size of the global market and the nature of the opportunities that exist are enormous, as is the challenge posed by current and emerging competitors. Providers will need to have a much greater capacity and tenacity for delivering and meeting the requirements, or an understanding of their unique value and how they can work with others to form a compelling offering that meets the defined

target market. Technology is a critical enabler, and if Australian education institutions are to achieve the required scale, quality and differentiation of service. For Australian education to maintain its competitive edge, we need a strong Australian EdTech sector tailored to the unique attributes of our system and institutions that will help providers differentiate and scale.

Technology as a critical differentiator: the time is now

The Australian International Education Roadmap 2025 highlights the role of technology as a game changer that could give Australia the edge in realising our international education growth aspirations.

“Using the power of technology needs to be at the core of how the sector works, enabling not just delivery through online channels in the borderless space, but improving provider operations and understanding of student experience. At its most basic level this is about technical proficiency and efficiency in enabling operations, but at the other end of the spectrum it is harnessing the data generated from online delivery – tracking keystroke patterns by students to understand how they learn, identifying individuals at risk of non-completion, and ultimately using the data available to improve offerings.

Providers need to understand best-practice use of technology in learning delivery, and consider this against their own aspirations and capacity to develop their competency and systems – to place technology at the heart of how they improve their service offering – and embrace rather than resist technological change. Government must also improve its understanding of the sector of best-practice initiatives in technology application to learning, and to our own promotional and marketing activities in the sector – to showcase and build a reputation of technological innovation.”

The Australian EdTech market is making a significant contribution to job creation

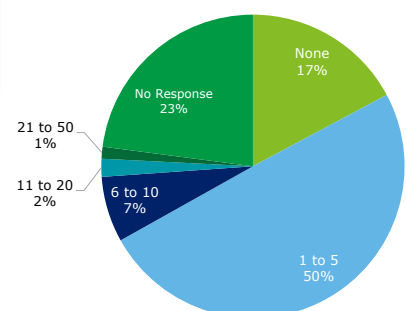
In a global economy characterised by rapid economic restructuring and change, the Australian EdTech market has an important and significant role to play in job creation.

The outlook for the employment of Information and Communication Technology (ICT) workers continues to be positive and Deloitte Access Economics forecasts that the number of ICT workers will increase from around 640,800 in 2016 to around 721,900 in 2022, at an average annual growth rate of 2.0%.¹²

This is in direct contrast to jobs within the primary industry and manufacturing sectors, which are rapidly disappearing. The Committee for Economic Development of Australia (CEDA: 2015)¹³ estimates that “within two decades, more than 40% of Australian jobs that exist today may disappear as technology reshapes entire industries.”

The EduGrowth survey shows strong forecast jobs growth in the EdTech sector with 60% of organisations looking to hire in the next six months and 10% of those looking to hire six or more employees in the next six months.

Companies looking to hire in the next 6 months - number of hires



157 responses out of a total 157 respondents

¹² Australian Computer Society and Deloitte Access Economics (2017) “Australia’s Digital Pulse Policy priorities to fuel Australia’s digital workforce boom”, pg. 27

¹³ <http://www.ceda.com.au/2015/06/16/five-million-Aussie-jobs-gone-in-10-to-15-years>

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What does the Australian EdTech market look like today?

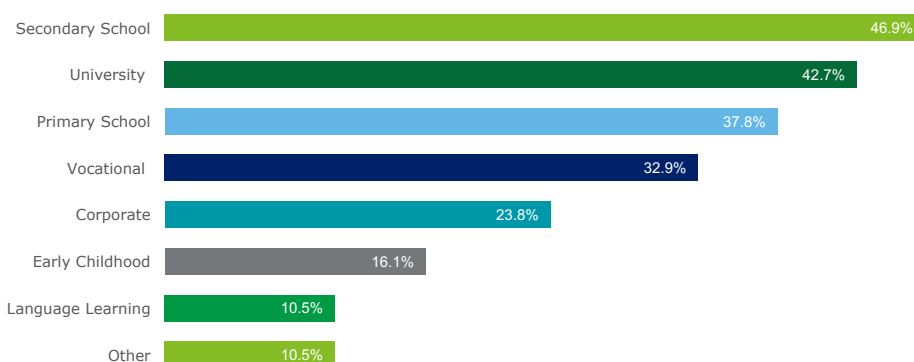
Matching overall revenue spend and focus the EdTech survey shows that the highest percentage of EdTech organisations are focused on secondary schools and universities

Mirroring the proportional spend on each segment of the education sector, the EdTech market survey shows that secondary schools and universities have the highest proportion of Australian EdTech organisations focused on creating products and services that target them.

According to the Australian Bureau of Statistics (ABS)¹⁴, government operating expenses at all levels of government across primary and secondary schools was approximately \$43.3 billion in 2014-2015, which equated to 51.1% total government expenditure on education. In addition to government spend, independent school revenues contributed a further \$5.5 billion in 2014-2015¹⁵, so that total operating revenue for primary and secondary school education in 2014-2015 was approximately \$49.5 billion – making schools the highest operating revenues by education segment.

After schools, universities have the next highest operating revenues. Universities Australia¹⁶ indicated that total operating revenue for Australian universities in 2014 was \$27.1 billion, primarily sourced from government grants, student fees and contributions. And the National Centre for Vocational Education Research (NCVER)

Sector Focus



The total is more than 100% as some respondents focused on more than one sector

143 responses out of a total 157 respondents

data shows¹⁷ that VET sector has the next highest spend with the total operating revenue for government-funded Vocational Education and Training in the 2015 reporting year at 9.8 billion. Government-funded is broadly defined as all activity delivered by government providers and government-funded activity delivered by community education providers and other registered providers.

¹⁴ <http://www.abs.gov.au/ausstats/abs@.nsf/mf/5518.0.55.001>

¹⁵ <http://isca.edu.au/about-independent-schools/the-school-funding-partnership/>

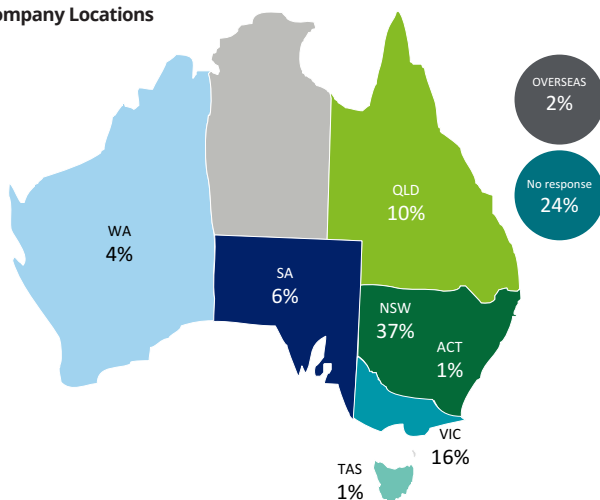
¹⁶ Universities Australia (2015) "Higher Education and Research Facts and Figures"

¹⁷ <https://www.ncver.edu.au/data/data/infographics/vet-finance-2015-infographic/>

The emerging rivals for Australia's EdTech 'Silicon Valley' are all in the East Coast

64% of survey respondents are located in Australia's East Coast. In the fast moving tech sector proximity and density are critical to a thriving start-up industry, because start-up ecosystems typically need access to talent, funding, clients, technology research, incubators and other start-up mentors. It's not surprising then that the East Coast is emerging as the 'Silicon Valley' for Australia, Sydney and Melbourne are the largest cities by population and arguably Sydney is Australia's financial hub, with many notable global technology companies Australian headquarters located in the city, such as Google, Facebook, Dropbox, SurveyMonkey and BuzzFeed. Universities, of course, also play a critical role in a thriving start-up ecosystem in terms of talent and research development and the East Coast's high concentration of universities and, in particular, universities with a strong focus on technology, help to generate and perpetuate the tech start-up community.

Company Locations

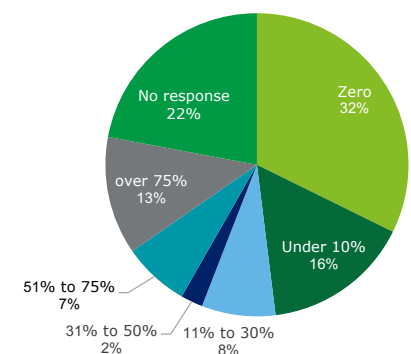


Last year's Start-up Muster survey¹⁸ of more than 600 start-up founders found that top skills for founding members were strongly tied to professional university-level qualifications and that university educated founders were more likely to founding start-ups in some of the most cutting-edge specialist fields like MedTech, EdTech and FinTech.

In 2012, Fortune named Sydney in the list of the 20 best places to launch a business¹⁹, however, the report also indicated that entrepreneurs from Australia face significant challenges influencing overseas markets and raise 59% less capital than their Silicon Valley counterparts.

Australian EdTech organisations are thinking global; 46% have customers outside Australia

Overseas Customers



127 responses out of a total 127 respondents running an EdTech start-up

It is heartening then to see from the survey that 58% of Australian Edtech organisations have customers outside Australia. Given the relatively small domestic market available to Australian EdTech organisations it is important that they have the ability to unlock the growth available to them in overseas markets.

One of the factors that Investors look for when assessing the investment opportunity is evidence of a large potential market and an international strategy is often critical for Australian EdTech Organisations to be able to demonstrate sufficient potential for scale.

¹⁸ Startup Muster (2016) "Annual Report"

¹⁹ <http://fortune.com/2012/11/27/20-best-places-in-the-world-to-launch-a-business/>

4

A tricky trio: finding customers, investment and talent

Biggest challenges faced by Australian EdTechs



Finding customers

34%



Finding investment

28%



Finding talent

23%



Expanding internationally

22%



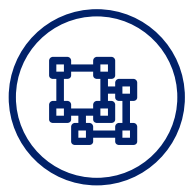
Finding mentors
& supervisors

13%



Regulation & government

10%



Other e.g. design,
marketing, technology

6%



Finding likeminded start-ups
& founders

3%

127 responses out of a total 127 respondents running an EdTech start-up

Australian EdTech organisations listed finding customers, investment and talent as their three biggest challenges. The following case studies give greater insight into the challenges facing EdTech organisations as they grapple with balancing the development of cutting edges products and services, acquiring customers and funding and sustaining operations.

Grok Learning is an example of a successful Australian EdTech 'boot-strapping start-up' and in the words of Grok Learning Chief Operating Officer Tara Murphy, "when you are a boot-strapping start-up, the challenge is cash, cash, cash!"

Grok Learning under the innovation spotlight

Case study interview with COO and co-founder Tara Murphy

Grok Learning was founded in 2013 by Tara Murphy, James Curran, Tim Dawborn and Nicky Ringland. At this time Tara Murphy was a senior lecturer in Astrophysics at the University of Sydney, James was an associate professor in the school of IT and Tim and Nicky were computer science PhD candidates at the University.

Grok provide online courses and online platforms to learn and teach programming in the classroom for universities and high schools. Grok now have about 39,000 students using their courses and platforms across 1800 schools and a further 6000 university students across 4 universities. They also have contracts with the Australian Government Department of Education and Training and the Queensland Department of Education. Their primary target audience is universities and high schools, but they do have courses and programs that go down to years three and four.

What have been the key challenges?

For them personally as founders it has been the commercial reality of running a business where the buck stops with them. In a university environment there is always the safety net of an employer to provide marketing support, media support and to pay employees. In the start-up world the reality is there is no safety net.

For a bootstrapping start-up the key challenge is cash, cash, and cash! Revenue comes in spurts and as a start-up you have to weather these peaks and troughs in order to maintain operations and grow.

Beginnings – what inspired Grok Learning's founders?

Back in 2013 the co-founders had been doing a lot of outreach and they developed a system at the University of Sydney to provide a platform for students who might trying to learn to code on their own, outside university time or in regionally remote settings. The platform uses intelligent feedback mechanisms to provide personalised learning, targeted at the individual learner.

Nicky and Tim were both extremely passionate about teaching and outreach and wanted to expand the reach of the platform beyond the university to make it sustainable, reach more students and create interesting jobs for themselves, and others.

The founders took a 'bootstrapping' approach to the creation of Grok Learning, investing their own money and time from the outset. No investment has been sought or received from external investors and the team have been successful in achieving solid growth with revenues doubling year-on-year for the last two years.





Key learnings

One of the key learnings and key advantages for Grok Learning has been the dual strengths that the team have in education and computer science. Tim Dawborn as the Chief Technology Officer and James Curran as his supervisor are both computer scientists with expertise in language technology.

The team were able to apply the learnings that they had from their academic environment to the platforms they were developing and as they researched and learnt more about the learning platform space they discovered that lots of players fell into two brackets; typically they were either teachers or software developers. Having expertise in teaching and computer science was a definite advantage.

Another key learning for Grok Learning was that they had to be very serious about security and privacy. With their backgrounds in academia and computer science they were already well grounded in the importance of security and privacy in academic and online environments, but their federal and state government clients meant that they needed to be able to demonstrate extremely high levels of privacy, security and scalability and they needed to be able to ensure all student data is hosted in Australia.

Tara Murphy, Grok Learning's Chief Operating Officer is keen to point out to others the incredible source of talent that exists in the students in our universities; their recently acquired technical and business skills, ideas and enthusiasm are a potent source for start-ups.

As the Chief Executive of Universities Australia pointed out in a recent article, "many students now want to start their own businesses and careers – rather than work for someone else." Tara points out that many of the team members at Grok Learning have given up higher salaries to work on something that is personally meaningful and that has been enormously beneficial.

Social impact

It has been very important to James Curran and Tara Murphy to found a company and have the autonomy to create projects that are purely about social impact, in addition to the activities that are more revenue generating in nature. Although all courses on their platforms have an element of social impact, their Cambodian Childrens Fund is particularly important, because it is entirely not-for-profit and close to their hearts.

It is the first ever free STEM program for coding for children in Cambodia! As a start-up it is often difficult to provide all the perks that a large organisation can provide, but they are able to attract talent based on the nature of the work and the impact that they can have.

GO1 under the innovation spotlight

Case study interview with CEO and co-founder Andrew Barnes

GO1 was founded in 2015 by Andrew Barnes, Vu Tran, Chris Eigeland and Chris Hood. At the time, Andrew Barnes was an economist and Rhodes Scholar working on his masters of education technology at Oxford University. Barnes had previously started a web agency in 2005 while at a Brisbane high-school with his co-founders Vu Tran (now a medical doctor), Chris Eigeland (a lawyer) and Chris Hood (an engineer). Having started their ventures with a professional services type business model the founders saw an opportunity to exit the web agency to launch GO1 with an increased potential market reach via the creation of a two-sided platform for training solutions.



GO1 is a marketplace of training options connecting employers and training providers. GO1 also helps organisations to identify what their training needs are using information related to their type of business, geographic location, size and scale to identify their specific compliance training requirements and the like. One of their key value propositions is a single platform for training provision across the organisation. To this end the platform can aggregate across other online training providers, such as Lynda.com. Today GO1 has 75 employees and 500,000 users on the platform. Their target market is organisations with 200 -1500 FTEs, but the platform can easily cater to much smaller and larger organisations. Their largest customer, to date, has over 100,000 FTEs and the smallest has 4 or 5 FTEs.

What have been the key challenges?

One of their biggest challenges has been the two-sided platform challenge; training providers want lots of employers on board before they join and customers want lots of providers on board! So in the early days they had to get really creative and use a variety of measures to build the provider base, including paying providers to join, making the onboarding process as easy as possible by taking on the tasks themselves, and using the traction created by a big corporate signing up to the platform as an opportunity to get the organisation's training providers to sign up.

Scaling internationally has also presented challenges to scaling a consistent culture across continents and time zones in the Philippines, Vietnam, Australia and the USA. Their solution has been to ensure strong cross-pollination between offices via staff movement between the different offices. The organisation rents accommodation in each location that can be used by visiting and seconded staff.

Beginnings – what inspired GO1's Founders?

Each founder had their own individual education and workplace training experiences where the unique need for a marketplace of training solutions started to emerge. Vu Tran in his GP training experienced the pain that medical professionals experience when they are required to complete compliance training, such as adopting new hand-washing technique, and are then required to find a computer with the correct software, complete the training, print it out and record it somewhere else again. Likewise Chris Eigeland in his time at the United Nations experienced the pain of process duplication and fragmentation in the UN training requirements of different service providers. As they shared their experiences, the idea crystallized and GO1 was born.

Having identified a clear business need they were quick to successfully secure investment from a range of high profile investors. Notably the American seed accelerator Y-Combinator (best known for their investments in the likes of AirBnB and Dropbox) selected GO1 into their Summer 2015 program. Other prominent investors include Oxford University, Shark Tank's Steve Baxter and Tank Stream Ventures.

Key learnings

Barnes thinks that the combination of skills and experiences is critically important, a key learning for the team has been the need to deeply understand technology and education as it relates to training needs. EdTech is an exciting nexus between education and technology and the founders have discovered that their unique combination of education, training platforms and technology solutions expertise and experience has been critical to their success. Each of the founders worked on training platform solutions prior to establishing GO1, each had their own experience using training solutions, Barnes studied education technology and importantly Chris Hood as their CTO is their tech guru with the deep computer science experience and expertise required to deliver the technical solution to the business need. Even with this unique combination of skills and experiences the team are aware of the need to consciously test their own biases and assumptions. It's also been important for GO1 to find peers to benchmark their progress, especially in the beginning. It was difficult to gauge their success without relevant metrics, such as open rates, NPS, and account revenue, etc.

Social impact

The social impact delivered by the provision of an effective education and training platform was and is a motivating factor for the GO1 founders. The social impact factor as a driver and motivating force behind the creation and ongoing growth of EdTech start-ups is a common theme that we find occurs repeatedly in case studies of organisations across the sector.

5

Education providers seek tailored solutions to improve their service offering

Differentiation and fit are a high priority for Australian education providers

When sourcing an EdTech solution education providers want solutions that are tailored to the unique needs of their institution. Whilst some in the technology sector might argue that process improvement is often achieved by adapting institutional processes to fit their highly optimised technology solution, this is not always the case. All too frequently EdTech providers want education providers to adopt a generic solution that is at best ill-suited to the – environment and to the Australian education system – they are happy to charge a premium for the consulting services to adapt the product. Australia has been at the receiving end of this not-so-great arrangement from many a global technology vendor looking to grow their market. As a result, there is a real opportunity for homegrown EdTech organisations to provide solutions tailored to the market and the institution.

Of course the other key factor for an education provider is how this solution is going to help them differentiate and grow. Arguably, this is about having cutting edge technology that demonstrably helps improve their offer. It's important to ask robust questions around: How can they use virtual reality to showcase world leading approaches to architectural design courses or to produce the best surgeons in the world? How can they use Artificial Intelligence be used to improve research outcomes?

Having an understanding of cutting edge technologies, the potential applications of those technologies for education providers and examples of their use by Australian education providers is critical.

The key solutions education providers seek are related to online and customised learning, digital student experience and process automation

What do education providers seek from EdTech solutions?

1. Improved learning outcomes

Unsurprisingly improved learning outcomes are highly sought after by education providers from schools and universities through to vocational education providers and corporates. Perhaps the most exciting developments in EdTech in this space are customised learning, which uses technology to target the specific learning needs of the student.

2. Enhanced student experience

With the rapid evolution and pervasive nature of consumer devices and applications student expectations are rising. In the current globally competitive environment with the downwards pressure on budgets, this is creating the imperative for a digital student experience from education providers that both delights and optimises their operational efficiency. Artificial Intelligence is already being used in this arena to create more meaningful experiences.

3. Optimised service delivery

As technology advances and education providers seek to grow and improve efficiency and make data driven decisions, there is an increased focus on technology transformation to optimise service delivery.

4. Improved employability and employment outcomes

For many education providers employability and employment outcomes are a critical measure of success. EdTech solutions are increasingly being used to provide platforms and solutions that match and link students and employers.

In addition to this research universities also seek use EdTech to improve:

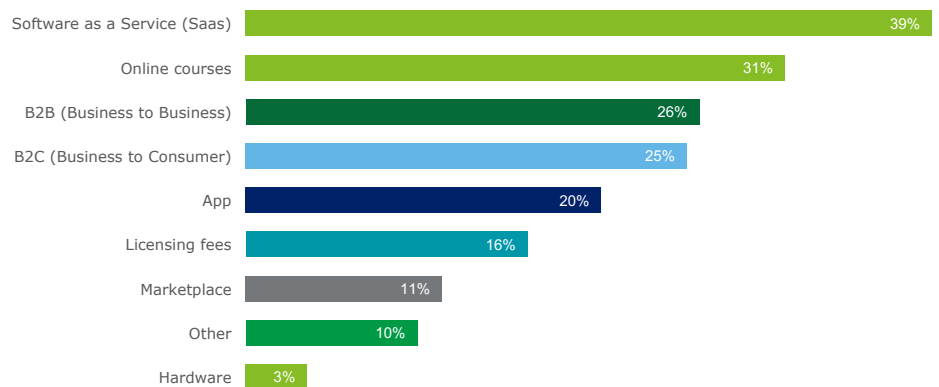
5. Improved research outcomes

Research, innovation and technology are inextricably linked. To be a global leader in research requires access to world class technologies and research platforms. It is critical for research universities that they enable improved research outcomes via the appropriate leading edge technology.

6. Optimised research administration

For a research university it is also critical that researchers be able to focus their efforts on their research. Hence researchers and the professional staff who support them need to be able to reduce the burden of research administration by optimising research administration via effective research administration systems.

Start-up Themes



The total is more than 100% as some respondents focused on more than one sector

157 responses out of a total 157 respondents

The key start-up themes identified by the EdTech organisations are Software-as-a-Service and online courses

Although it's not possible from the start-up themes and survey data to work out exactly what is being provided, it's reasonable to surmise that Saas and online courses will most likely be addressing some of the key solutions that education providers seek, in the form of online and customized learning, digital student experience and process automation.

Cutting edge technology under the spotlight



Artificial Intelligence

Artificial Intelligence (AI) definition:

Artificial Intelligence (which is sometimes referred to as Cognitive Technologies) augments human decision making. Key features include:

- Ability to continuously learn and improve performance based on feedback
- Automation of repetitive and human intensive decision processes, which involves the movement of workflow automation towards intelligent automation
- Discerning the meaning of expressions based on context
- Generating hypotheses and apply rules to make decisions
- Inference of relationships between unrelated concepts to make sense of a situation
- Recognising and understanding handwriting, voice and image recognition to ingest and process data.

In addition to the above, AI includes a range of other aspects including Machine Learning, Natural Language Processing, Speech Recognition and Robotics. For example, machine learning refers to computers with the ability to learn from being exposed to new data without being explicitly programmed and Natural Language Processing refers to computer understanding and manipulation of the human language to react to stylised requests and interact with people through dialog.

Example: *Deakin University and IBM Watson. An interesting example of the use of artificial intelligence in an Australian University is the partnership between Deakin University and IBM to use IBM Watson to improve student experience on campus. Watson is accessible to Deakin students through the student portal DeakinSync, where they can ask Watson questions and get tailored answers. Watson uses the Deakin website and other sources of information to answer questions and of course it learns from previous questions.*²⁰

What are the potential applications of AI for education providers?

- 1. Improved efficiencies in research** – Cognitive insights and the growth of sophisticated data will enable greater quality of research.
- 2. Interacting with AI to gain insights in classes** – Using AI analytics will enable students to gain deeper insights into how to solve business problems, making them better equipped for employment.
- 3. Customised learning** – Adaptive learning technologies can instantly provide study assistance to students who struggle, and more advanced materials for those who master content quickly. Provision of personalisation at scale.
- 4. AI combined with AR/VR** – AI could be combined with AR/VR for truly immersive experiences for students by utilising complex data to construct realistic environments and simulated agents that react to user actions.

²⁰ <https://blogs.deakin.edu.au/deakinlife/2016/03/09/interact-with-watson/>



Augmented Reality and Virtual Reality

AR/VR (Augmented Reality and Virtual Reality) definition: Augmented Reality overlays contextual information on the immediate physical environments users see before their eyes, thus blending digital components and experiences with real life. Virtual Reality makes it possible for users to immerse themselves in manufactured surroundings that depict actual places or imaginary worlds.

Example: *National Institute for Experimental Arts UNSW: The 3D Visualisation Aesthetics Lab at the University of New South Wales National Institute for Experimental Arts has harnessed the data from a high resolution scan of a breast cancer cell to construct a virtual world using technology from the gaming industry. Scientists are now able to observe the virtual interaction of therapeutic drugs as they penetrate the membranes of the cells they interact with.*²¹

It has the potential to help cancer researchers to see their data in a different way, which can in turn lead them to design better monotherapies.

What are the potential applications of AR/VR for education providers?

1. AR in enhancing the learning experience – AR's is already being used in fields as diverse as medicine, architecture and law to recreate a virtual world of the body, cells, buildings and case scenarios to enhance their learning.

2. AR enabling learning without scarcity issues – AR renders lack of physical resources unimportant. For example, AR can be used to study the human heart in the absence of a physical human heart.

3. VR in experiential teaching – VR can be used to practice in relevant simulated scenarios, for example simulated work environments for pilots or construction workers.

4. VR for training without physical limitations – VR can be used to practice without the limitations of safety issues etc.



Gamification

Gamification definition: Gamification is the process of implementing game mechanics into a non-game context to drive user engagement. The idea of gamification is to provide an incentive to participate and in most cases to achieve certain goals, by playing on the natural tendencies of people to compete with each other, and to be recognised for their achievements by a community. It leverages certain features of games such as points, achievement badges, leader boards and real-time feedback to incentivise people to participate and adopt certain behaviours.

Example 1: *Kaggle is an example of a gamification platform used to crowd-source research. The platform hosts predictive modelling and analytics competitions in which companies and researchers post data and statisticians and data miners compete to produce the best models for predicting and describing the data. Kaggle was acquired by Google in March 2017.*²²

Example 2: *Grok Learning (see vignette case study) run regular coding competitions on their online learning platform to encourage challenge based learning that supports formal curriculum based learning courses. Competitions are aimed at primary, secondary and university students.*

What are the potential applications of gamification for education providers?

1. Integration with AR/VR – The best applications of gamification in the future might include AR or VR software to produce advanced immersive learning experiences.

2. Collaborative learning – Shift from individuals towards learning in groups with the focus on students teaching and learning from each other.

3. Challenge-based learning – Students no longer follow strict curriculum, but learn by participating in various challenges and competing with their peers.

4. Crowdsourced research – Crowdsourcing, which has elements of game principles, could be applied more widely to research. Potential for rapid scientific breakthroughs.

²¹ <http://www.smh.com.au/technology/sci-tech/virtual-reality-trip-inside-cancer-cells-can-help-design-better-chemotherapy-drugs-20160815-gqsr9l.html>

²² <http://www.afr.com/technology/google-buys-australias-kaggle-20170308-gutzx3>

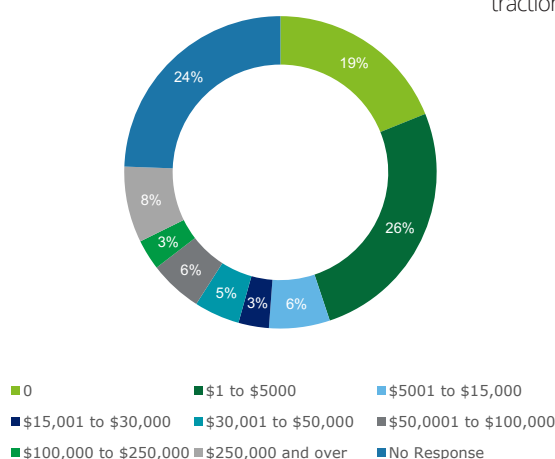
7

Investors look for traction, team and potential market

Investors know that capability is key

A great idea is important, but investors know that a strong and well-rounded team, experienced in education and technology is critical to turn that idea into a successful EdTech venture. The product or service must meet market and technical due-diligence measures.

Monthly revenue per company



127 responses out of a total 127 respondents running an EdTech start-up

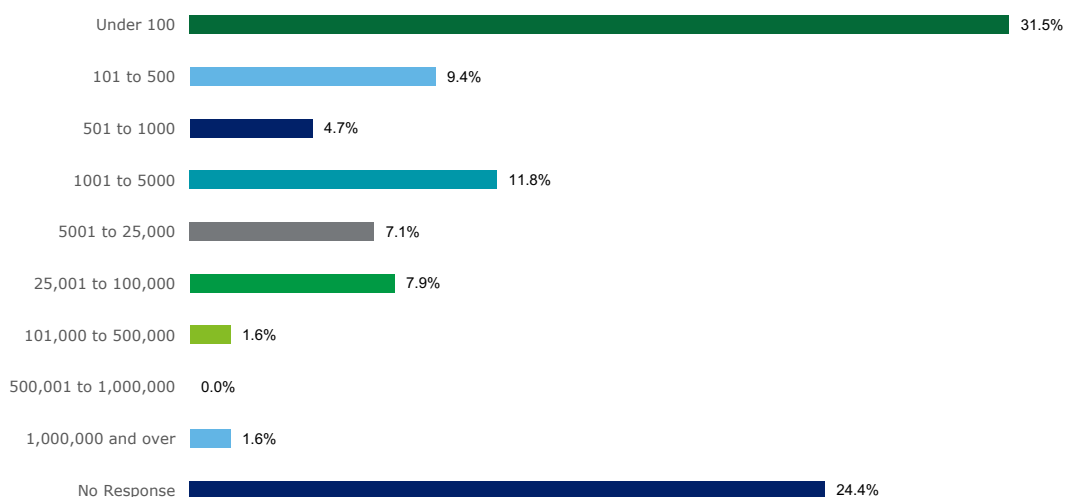
Traction in the market

Investors want to see solid product-to-market fit demonstrated by classroom, school or institution adoption. Ultimately they want to see evidence of this traction in the market in the form of revenue, users, and pilot programs in relevant education institutions or corporates. The EduGrowth survey indicates that the majority of EdTech organisations in Australia can demonstrate traction in the form of traction and revenues.

Point of difference and evidence of a large potential market is needed

The business case for an investor rests and falls on the forecast revenue growth; why invest if there is no return? So, if an EdTech organisation is going to secure capital investment they need to be able to provide evidence of the size of their potential market. To be in the best position the organisation will need to have a strong understanding of, and ability to communicate, their point of difference from any established providers or their ability to create a market.

Number of learners per month



127 responses out of a total 127 respondents running an EdTech start-up

8

Where to from here?

It's clear that the future of education is something that will need to be powered by innovation, collaboration and transformation.

The entire education sector is undergoing significant change and development. From digital transformation to an enhanced student experience, the use of robotics to an increasing understanding of analytics – both locally and globally we're seeing innovation move front and centre stage.

It's critical that across all sectors – from government to businesses, the community to start-ups and more – we all work together to ensure that education excellence continues to thrive.

Education can be seen to be *fuelled by the past, shaped by the present and inspired by the future*. In an increasingly globalised and connected world, education is the heart of economic performance – enhancing competitiveness and improving the lives of every single person.

What role will you play?

Ready to learn more?
Get in touch with the team.



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Riley Batchelor, the CEO of EduGrowth, is a serial tech entrepreneur, investor and start-up adviser. Riley was the local partner and founder of General Assembly Asia Pacific. Through a joint venture with the US-based digital skills education start-up, he opened General Assembly in Sydney in 2012, later expanding it to Melbourne, Singapore and Hong Kong. Riley is passionate about changing lives through education and improving education models through technology. He is also the Chairman of venture-capital-backed TidyMe, a Sydney-based home services start-up, and adviser to a growing group of new education technology ventures.



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Colette leads Deloitte's national education practice, and has worked with education departments and education providers on a range of strategic transformation initiatives. Colette specialises in tertiary education, leading the development of university and VET provider strategies and change programs in response to policy shifts, external change drivers and internal challenges. Colette's work has considered the role of digital and analytics in supporting the transformation of teaching and learning, as well as support services. In this regard, she has also led projects to reshape the operating models of Universities and VET providers through strategic realignment and operational efficiency and effectiveness.



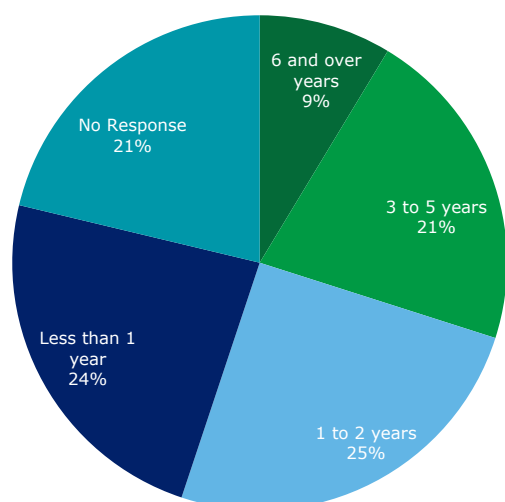
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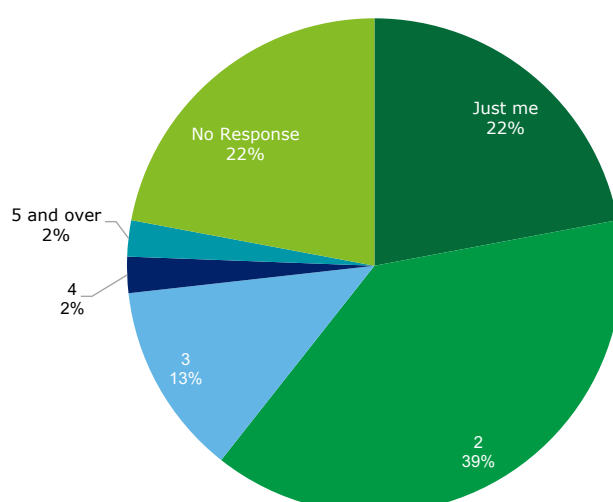
Christine is a Director in Monitor Deloitte's Strategy practice, she is an expert in education, digital technologies and innovation, currently advising clients on how to establish innovation programs, accelerate digital delivery, and deliver on strategic objectives through customer-centred design and digital enablement. Her expertise and experience also includes technology and market due diligence work for tech sector VCs and market sizing and forecasting of new and existing business service areas for technology sector clients. She has worked with start-ups, incubators and the boards and senior executives of technology vendors and education providers across North America, Europe and Asia-Pacific.

9 Appendix with additional survey results

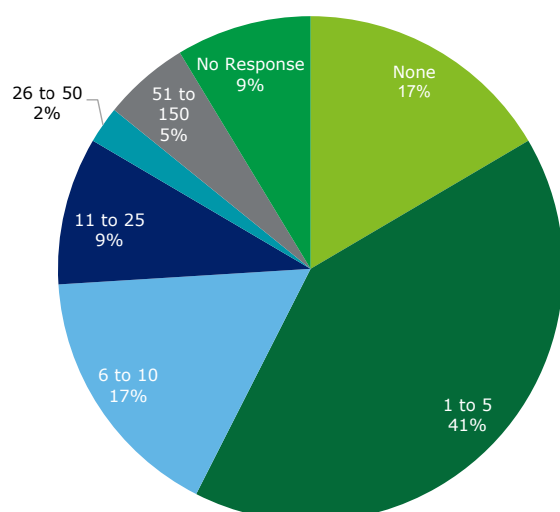
Company age



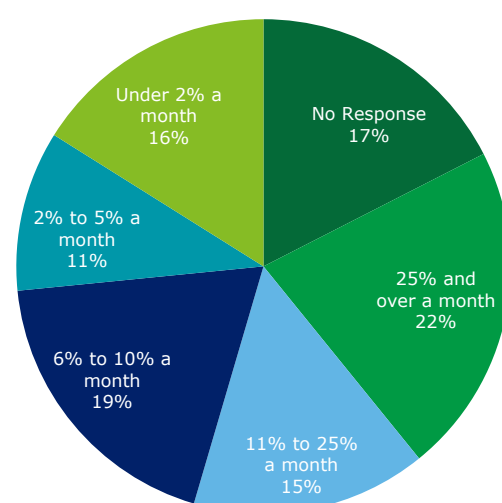
Number of co-founders



Number of employees

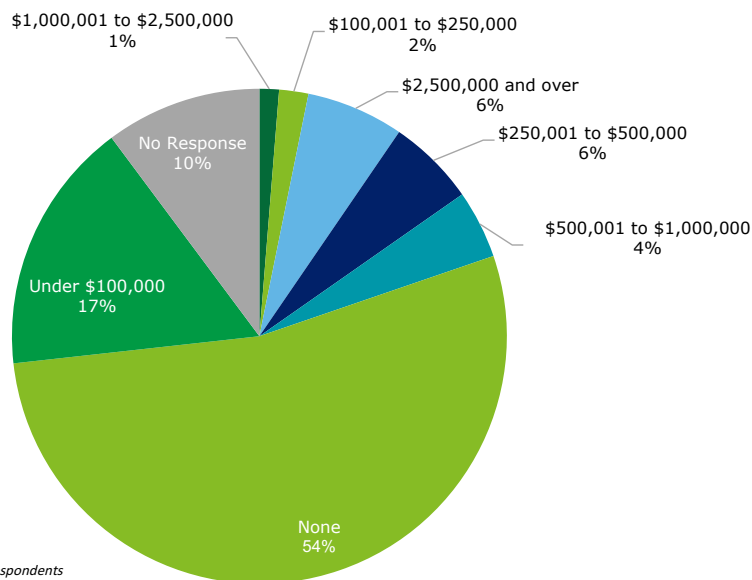


Expected revenue growth over the next 6 months



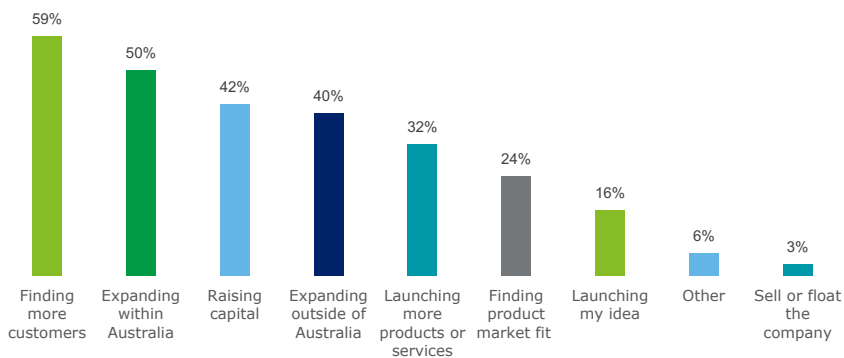
127 responses out of a total 127 respondents running an EdTech start-up

Capital raised



157 responses out of a total 157 respondents

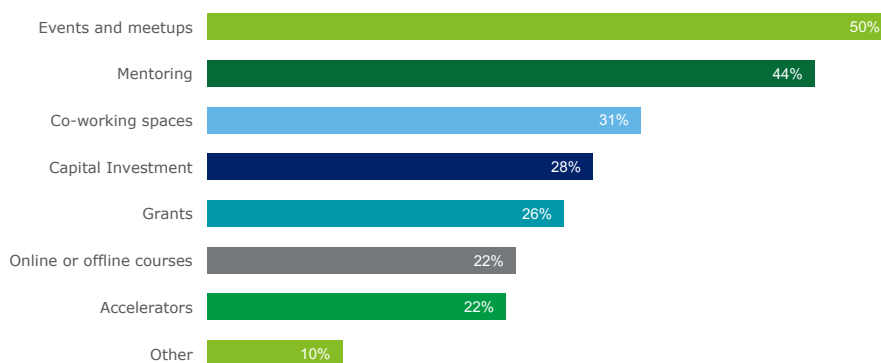
Near future focus



The total is more than 100% as respondents were able to pick more than one category

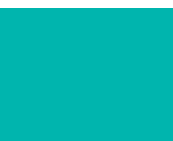
143 responses out of a total 157 respondents

Most beneficial support



The total is more than 100% as respondents were able to pick more than one category

143 responses out of a total 157 respondents



Notes



Notes



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