



KELLOGG

RURAL LEADERSHIP
PROGRAMME



The future of technical knowledge transfer at Farmlands Co-operative Society.

Kellogg Rural Leadership Programme

Course 39 2019

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I wish to thank the Kellogg Programme Investing Partners for their continued support:



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Acknowledgements

Firstly, I would like to thank the support and generosity of all of the Farmlanders that have helped me along my Kellogg journey. The leadership team for seeing the importance of the Kellogg program for people like me that are keen to make a difference in the industry, Sara Shea from the Learning and Development team who has provided me with important guidance, Tim Bishell and Rob Derrick for being great examples of leaders for me to learn from, and every Farmlander who took time out of their busy day to help me with my project. I would also like to thank Clair Williamson from Ravensdown and Maurice Ward from Lincoln University for taking time to talk to me and impart some of their knowledge for the good of the project.

I'd like to thank Patrick, Scott, Lisa and Anne for their incredible support and organisation during the course, and all of Cohort 39 for being such a great bunch of people.

And most importantly, my partner Michael for his continued support and patience through weekends on end of me not being around following working weeks away travelling - couldn't do it without you.

Executive summary

Disruptive technology is all around us and changing how we work. Jobs are being replaced by robots and artificial intelligence, which is changing the set of skills we require in the work place, and new skills are being demanded of us before we can even train in them. This idea is explored further in this report, looking at how the world of work is changing, some of the key drivers behind this and new learning technologies that may help to decrease this widening divide between formal education and labour market needs. Technologies investigated include Massive Open Online Courses (MOOCs), microcredentials, blended learning, virtual reality, artificial intelligence and the 'learning in the flow of work' concept. It was concluded that all technologies researched will have a place in the future of learning in some shape or form and are all very complimentary of one another.

These new technologies were then considered in the context of Farmlands Co-operative Society, which is an organisation in New Zealand that supplies agricultural products and technical advice to farmers. A survey of Farmlands employees was completed with the aim of gaining insight into their perceptions of learning and development and how it could be changed to benefit the success and enjoyment of their role and future roles at Farmlands. The findings of this survey, in combination with learnings from Ravensdown, who were used as a case study, were used to formulate recommendations for Farmlands Co-operative Society to consider in the future when designing learning framework and delivering technical training across the business to ensure that employees feel well supported in their roles and to ensure they are prepared for the what the future of work has instore.

A key finding of this research was that retail store staff are most in need of more technical training as a priority group and that, more generally, all employees require access to more training and development opportunities after their first year in their role to ensure engagement and continued role satisfaction. It was also concluded that technical training opportunities need to be more visible to employees so they can take control of their own learning and so everyone feels they have the same opportunities to upskill, which would be further supported by continuing to encourage a learning culture within the organisation. Another key recommendation was to incorporate blended learning into technical training programs and to use forum functionalities in the learning management system to encourage collaboration amongst trainees. It was also recommended to utilise MOOCs where relevant and investigate further how virtual reality and artificial intelligence could be used in the future for technical training as both technologies have potential to take learning to a new level.

Introduction

Learning and developing is such an important part of enjoying life, and feeling like you are appreciated, fulfilled and empowered in the work place is a huge part of this. Learning has been something that has been critical for me in my career so far and the learning and development opportunities that I have been offered have given me so much opportunity to learn and grow and therefore feel like a valued 'Farmlander'. In my role at Farmlands as a Nutritionist a big part of my role is training people in the Farmlands business to improve their knowledge and confidence with the products and services offered to customers, and for me this is the best part of my job. There is only one of me though, and 3 nutritionists in total at Farmlands, so how do we take the knowledge out of our heads and spread it around to everyone that needs and wants it in a form that works for them and add value to the business and our shareholders? The reality is that not everyone needs to know as much as the subject matter experts in an organisation, they just need a selection of technical knowledge to do their role effectively, however some people may also want to extend their knowledge and learn more than is required for their role to challenge themselves and move into new roles.

Figure 1. Farmlands Co-operative Society's strategic imperatives from the 2018 annual report



'Leading agricultural knowledge and expertise' is one of the three pillars of the Farmlands business model, so it is important that the learning and development strategy delivers this and gives everyone in the business the opportunity to access quality training and the tools they need to do their job. Knowledgeable and engaged staff are a key point of difference for a retail business and technical support is a major reason why shareholders support Farmlands. It goes beyond ensuring we support the customers as best we can though and it is also about supporting our people in their roles to ensure they feel

supported, valued and challenged. Spreading knowledge effectively throughout an organisation and making sure everyone is sufficiently skilled to do their job and feel empowered in their role is a big enough challenge on its own, however add in the exponential technological advancements that are happening today which will change the roles we need in the workplace and change the way we work, it will be a real challenge in the future to make sure we have skilled people in the right roles in the business. How is Farmlands going to equip its people with the skills and tools they need to deal in the new world of work, in an efficient and relevant way, so that we can deliver the best technical advice to our customers?

The reality is that we need to change how we develop and upskill our workforce to keep up with changes in technology. The world is currently changing at a rapid pace and how people want to work and want to learn is shifting. Automation and artificial intelligence in the workplace is a real thing and disruptive technologies are changing the way we do things at an exponential rate. People in the workplace are expecting more flexibility and more variety in their jobs and the traditional 9 to 5 job is increasingly being replaced with options such as contracting and project work where multiple income streams are generated by different activities which is commonly referred to as the 'gig economy'. Flexibility is becoming much more important to people than job security and people are choosing who they work with and what they work on based on their core values (Cribb & Glover 2018). Skills are becoming the main currency in the work place rather than the classic 'it's who you know, not what you know' mind set. This in combination with the fact that technology is changing so rapidly means the goal posts keep getting shifted for people as role requirements and business needs are changing at a rapid pace. This means that upskilling the worker throughout their working life is much more important than it's ever been and its more about creating a lifelong learner that can evolve and adapt throughout their career. This idea poses a challenge for the traditional education system which is a slower moving beast that is struggling to produce what we need for the workforce. With an increasing divide between formal education and labour market needs (which is widening) skills and knowledge training and retraining increasingly needs to take place on the job throughout the work lifecycle. This responsibility doesn't lay just with business's either and individuals need to be prepared to broaden their skills and retrain throughout their career and be adaptable and open to change.

The online world is becoming huge in the learning space as people are demanding that their learning experiences work around them and their busy lives. Google and YouTube has flipped the world of learning on its head. Think about how you would find out how to do something you didn't know how to do. Maybe you buy an ingredient at the supermarket you have never cooked with before or something has broken on an appliance in your house— what would be your first step? There is so much content out there for people to explore so many different subjects. This all sounds very positive, however there are some downsides to this as it can be overwhelming with so much information available and at times information can be misleading and incorrect. Social media is a good example of misleading information, a quick look at any farmer forum on Facebook is abound with advice from people with strong opinions who may have no qualifications or even practical experience in a field. What information do we trust and how do we get it to people in a way that works for them to futureproof their careers and the Farmlands business?

Aim

The aim of this research project is to investigate new learning and development technologies and consider how people and organisations will need to change to accommodate the wave of exponential disruption happening in the world of work. This investigation, along with feedback from Farmlands employees, will help to formulate some recommendations as to how Farmlands Cooperative Society can future proof their technical learning and development strategy with the aim of empowering employees with the knowledge they require for their roles now and into the future. The recommendations will have a focus on transferring technical knowledge within a business, however would also be applicable to other areas of knowledge transfer as well.

Improving the technical knowledge of Farmlands employees has the potential to have a wider impact on the agricultural industry in New Zealand as Farmlands is a place where farmers go to for advice, not simply to buy product. If we can upskill the Farmlands network interacting with farmers daily, we can upskill farmers and have a positive impact on the agricultural industry in terms of animal welfare, farm productivity and sustainability.

Methodology

The research techniques used for this project include an initial literature review to investigate technologies in the learning and development space and evaluate the applicability of each technology to Farmlands. A survey was then used to gain insight from the Farmlands business to learn more about their preferences when it comes to learning and development and their thoughts on future training techniques. Finally, a case study approach was used to gain insight from an organisation in the agricultural industry with a well-developed learning and development strategy to see how different training techniques can be put into practice.

Who are Farmlands Co-operative Society?

Farmlands Co-operative Society is New Zealand's largest farmer owner co-operative, established more than 50 years ago with the specific intention of providing competition in the retail farm supply industry to reduce farmers' input costs.

'We exist for one simple reason - to use the collective power of our shareholders to negotiate better deals and improve individual profitability. With more than 1,000 staff servicing more than 64,000 shareholders through a network of 82 stores, Farmlands has evolved from the "bread and butter" of rural life, to a top 20 New Zealand company, with turnover in excess of \$2 billion annually. Offering shareholders competitive pricing on everything from fuel to finance to fertiliser, Farmlands is proud to continue fighting to make prices more competitive, while offering expert technical advice Through its diverse and industrial high-end business units – Card, Retail, Fuel, Lubricants, Grain and Seed, Nutrition, Real Estate and Horticulture – Farmlands is a major player in New Zealand rural industry.'
Excerpt from Farmlands website (2019).

In 2018, Farmlands was the New Zealand winner of the KPMG Customer Experience Excellence (CEE) Award placing Farmlands alongside global brands such as Emirates, Apple Store and Singapore Airlines.

Clarification of terms used in this report unique to Farmlands Co-operative Society

Farmlands Used instead of full organisation name

Farmlander A term used within Farmlands to describe a Farmlands employee

Current training and development activity at Farmlands

Farmlands currently have some great learning and development initiatives already in place that are working well. Farmlands is currently undergoing a transformational change called 'Braveheart' which is merging multiple computer systems into a single, integrated, 'state of the art' national operating system. This has required a huge effort from the learning and development team and the business and this three-year journey will continue into 2020. As well as the significant transformation with Braveheart, Farmlands has started a program of development as part of its People Strategy which focuses on leadership, culture and capability development. In February 2018, Farmlands received the Award for Talent Development and Management at the NZ HR Awards for taking a data/evidence based approach to identifying learning needs and planning capability development activities. Farmlands also won an NZ HR Award in 2019 for the way it is managing the significant people change resulting from Braveheart and the bold decision to recruit more than 150

internal staff to train their peers. In addition, over the last two years, as part of the people strategy, Farmlands has run a number of core development programmes including:

- ‘Leading Farmlands Together,’ which has developed the skills of 160 leaders in executive, senior and frontline leadership roles.
- ‘Future Field Experts’ for frontline staff to develop their technical capability and agricultural expertise and;
- ‘Future Fit’, a programme for 220 staff which developed the confidence and skills of Farmlanders in using technology and preparing them for Braveheart.
- There are also a number of other training activities occurring across the business, from health & safety, to technical & product knowledge and IT skills.

There is certainly a lot of opportunity for Farmlands employees to learn and develop within the organisation.

Definition of technical knowledge

This report focuses primarily on technical knowledge transfer within Farmlands. Technical knowledge, for the purpose of this report, is defined as knowledge about the science of farming and how that relates to the products that are sold at Farmlands. For example, knowing about the science of a cow’s digestive system, and then connecting that knowledge to the different nutrition products for cows that are sold at Farmlands and how they could best fit into a shareholder’s system. At Farmlands, technical expertise and knowing about the products that are sold is important as our shareholders rely on us to help them make decisions about the products they purchase. If Farmlands can be leaders in agricultural expertise, then Farmlands will become the go to place for farming advice. Technical knowledge is quite different to leadership skills, sales skills, computer system skills or any other skills required in the workplace and therefore needs to be treated differently. This is because there are many different levels to technical knowledge and the levels of knowledge required for different roles can be very different, from beginner through to expert.

An investigation into why we need to change the way we are learning

The world is currently changing at a rapid pace unlike anything that's been seen before in what is being called the new industrial revolution or 'second machine age'. For us to keep up in the work place, we need to be continually evolving to keep up with the changes so we can fit into the new world of work which will inevitably involve more human-machine partnerships. Right now, disruptive technology is changing how we do things. Robots and artificial intelligence technologies are being successfully developed to do non-skilled labour jobs to replace the human workforce and this technology is being developed with increasing competencies and functions, with robots becoming as good as us at tasks (and even better in some cases). The scope of what robots can do is increasing all the time with this technology no longer just replicating simple repetitive tasks that do not require special cognitive or problem-solving skills, but going beyond this and pushing the boundaries between humans and machines. In 1997 a chess playing computer beat the reigning world chess champion which demonstrates how good this Artificial Intelligence technology is becoming with increasing ability to do complex tasks and learn from their experiences, just like we do (Dell Technologies, 2018). According to a 2017 report by PwC (a multinational professional services network) more than a third of UK jobs are at high risk of automation by the early 2030s and robots could take over 38% of current U.S jobs in the next 15 years. The risks appear highest in sectors such as transportation and storage (56%), manufacturing (46%) and wholesale and retail (44%), but lower in sectors like health and social work (17%). This new technology is really challenging traditional career paths – what will we do if robots can do our jobs better than us?

Self-checkout tills are taking the place of retail staff in supermarkets, 'Click and Collect' is becoming more popular for our weekly grocery shopping, but agricultural stores provide more technical information to customers than food retailers. For Farmlanders to add value to customers they increasingly will need to be able to advise which product is most appropriate within the myriad of lines Farmlands can supply within each market segment so they can add value to the purchase.

This new wave of automation and artificial intelligence isn't just happening in other countries either, it's happening right here in New Zealand, and in the agricultural industry. Kiwifruit harvesting robots have been developed that can go through an orchard and pick the ripe kiwifruit. GPS collars have been developed for cows that can draft animals, training them using sound based technology, reducing the time spent out on the farm moving animals which can save farmers many hours a day and has the potential to totally change how we manage animals on farm. Does this technology mean that one day we will all be replaced by robots though? The reality is that *no*, it is highly unlikely that new technology will make humans redundant in the workforce on a large scale as it is

much more difficult for even the best artificial intelligence technology to do tasks that require creative and social intelligence. What the advancements in technology will more likely mean is that there will be less humans in lower skilled roles that have a large component of repetitive tasks, and there will be more need for people in roles that require more high-level skill and high-level thinking as well as humans learning how to augment their work alongside technology. We will require a more educated and more highly skilled work force for roles that require more emotional human to human interaction, more technical advising and with more of a requirement to give insight and add value to the businesses they work for rather than just perform more simple, monotonous tasks that require a lower level of thinking.

This technological disruption has been happening in some capacity for a long time in the world of work and there have always been disruptive technologies that come in and make jobs obsolete. The home refrigerator is a good example of this with its development making the ice harvesting and delivering business redundant. How would you react to this situation if you were in the ice harvest business and could see the trend of refrigerators making their way into every home on the horizon? A good strategy may be to firstly be aware of the new technology and accept that it will change the future of your business, and then perhaps get into the business of selling and maintaining refrigerators. This however would require considerable effort into upskilling and retraining. The big difference with what's happened in the past and what is currently happening is the pace at which this new technology is causing disruption – it's happening exponentially, faster than ever before. The exponential nature refers to the rate of change of the disruption; this is explained by Moore's Law, which states that approximately every two years, technology will double in processing power and halve in cost. This is partially the reason it took us about 20 years to develop personal computing to its current state, but the same level of development of the smartphone took about five years, and far less money. The exponential nature of change makes it much harder to predict so therefore much harder to prepare for.

So, what does this exponential disruption mean for us and the future of work? It is no longer a viable option to train and get a qualification at the start of your career and then expect that to last your whole career without retraining or changing direction. Fixed knowledge will no longer equal success in this rapidly changing technological age and being a lifelong learner and accepting the need to change and evolve to stay current is very advantageous. We need to take individual responsibility to educate ourselves to be best positioned to take full advantage, rather than fall behind. An Oxford University study looking at the future of employment (Frey & Osborne 2013) attempted to quantify the susceptibility of different jobs to computerisation using modelling and concluded that 47% of total US employment was at high risk to computerisation over the next decade or two. They looked

at 702 occupations and grouped them according to low, medium or high risk depending on their probability of computerisation (1 being at least risk and 702 at most risk). For the purpose of this report, the most relevant jobs have been extracted from the report into the below table for perspective into the agricultural industry. This demonstrates how jobs that require more critical thinking, more creative and social intelligence and more high-level knowledge will have less of an impact with computerisation, which will significantly change the way we educate our workforce.

Figure 2 An extract of data from Frey & Osbornes research (2013), ranking of jobs susceptibility to being replaced by computerisation

RANK FROM STUDY (1-702)	PROBABILITY	OCCUPATION
38	0.0075	Farm management advisors
86	0.021	Soil and plant scientists
106	0.029	Veterinary Technologist and technicians
137	0.047	Farmers and other agricultural managers
147	0.061	Animal scientists
228	0.25	Sales reps: technical and scientific products
501	0.87	Miscellaneous agricultural workers
570	0.92	Retail salespersons
649	0.97	Farm labour contractors

A Dell Technologies investigation considering emerging technology and the impact on society and work by 2030 estimated that 85% of the jobs that today’s learners will be doing in 2030 haven’t even been invented yet (Dell Technologies 2013). The traditional education system, which is a slower moving legacy system, will find it very difficult to react to this need and on the job training will become much more important, so finding more of an intersection between the two will be important. Organisations that are on the ball and understand this huge wave of change on the horizon will be planning to grow their own work force to fill the needs for their business in the future, rather than relying on the traditional education system to produce what they need.

1. Investigating new technologies for the future of learning

This part of the project will look at some new learning and development technologies and consider how these tools could be used to upskill people and prepare for the changing face of the world of work. Some technologies mentioned were trialed by myself, so feedback may include my own experiences.

1.1 MOOCs

Massive open online courses (MOOCs) are courses that are generally developed by Universities often in partnership with second party organisers and are then made freely available online to anyone that would like to participate, with no limit on how many people can enroll. They usually include videoed 'microlectures', reading material, forums and quizzes and tend to be free of charge or a very low cost. MOOCs are a game changer for higher education and they have the potential to greatly reduce barriers to education as they present quality and trusted information to the masses in a very curated way that removes the need to surf the web on a subject. The general MOOC philosophy is to focus on connecting people, not just getting information out to people and discussion forums are generally a part of the course so people can chat about different topics or ask questions (Educause, 2013).

MOOCs have caused some disruption in the higher education world as they do pose major changes to the financial model of higher education and challenge longstanding models and premises about education, however more universities are getting on board with them. Earning 'credits' for completing a MOOC remains uncertain and they currently cannot be added together to get any form of official qualification. Any certificates earned don't mean much as they do not officially add to the academic record, although they are still a great way to upskill yourself and more employers are realising that alternative ways to upskill yourself, such as MOOCs, are becoming important so they are gaining credibility in this way.

MOOCs are usually 'housed' on second party websites that behave as the virtual classroom, and once you have completed a course the content is still available for you to go into and go over when you need to pull on that information. 'Coursea' is a prominent website that I came across for housing MOOCs, however 'LinkedIn Learning' is another that is growing in popularity, and as it is owned by Linked In, which is a popular platform for professional people wanting to show the world the skills and knowledge they have, it could be one to watch for the future.

I completed a MOOC as research for this project. The MOOC was on the topic of chicken behavior and welfare and it was put together by the University of Edinburgh and delivered on the platform

'Coursea'. The course was free of charge, unless you wanted a certificate to be posted out to you once completed. I found the course to be well put together and very engaging. Videos made up the main part of the course and they featured Dr. Victoria Sandilands, a senior scientist at the University of Edinburgh, so this made the information highly reputable. I have already used some of the information from the course in my job and I have all the course content still available to me online so I can go back and view the content when I want to pull on the knowledge, which I have done since completing the course. The forums within the MOOC were very useful and I did ask a question myself as I went through the learning and got a reply from a course coordinator very rapidly. In the past, I have googled things related to chickens and often found myself on un-reputable forum style sites with various opinions on different topics that I couldn't trust, so this MOOC was of real value to me.

There is a potential use for MOOCs within an organisation for background learning of topics. Why reinvent the wheel if there is good content out there already that can be blended into technical training created by a business? If the MOOC was reviewed first by an in-house expert on the subject and signed off as relevant and technically correct and aligned with the organisations values and direction, it could be a good way to expose employees to international experts on subjects, expose them to different ways of thinking and lighten the load in terms of in-house content creation. For example, if there was a need in the business to upskill employees on chicken knowledge due to the fact chicken nutrition and welfare products were sold in store, completing a MOOC could be part of a wider chicken course, followed on by an in-house built eLearning module that contextualised the new knowledge learnt from the MOOC and pulled in actual products and services the business offered to make the knowledge more applicable to their work place.

1.2 Microcredentials

Microcredentials (also referred to as 'nano degrees') are quite a new technology in the space of learning and are still developing traction. Microcredentials have been picked up already by some New Zealand education providers such as Otago Polytechnic and they have recognised by the NZQA so are now an officially recognised qualification in New Zealand. They are certification-style qualifications that individuals choose to study to improve a skill required in a certain area in an industry. They are short, low-cost online courses that provide learners with a digital certification or a 'digital badge' when complete. Microcredentials focus on the assessment end of learning rather than the actual learning process and they are a way to gain official 'credit' for learning a new skill that is directly related to a skill required in the workplace. What this means is that the microcredit itself is just an assessment of the skill, and the microcredit will just recommend a way to learn the

skill that is being assessed and it may suggest completing a certain MOOC or reading a certain textbook before the assessment is attempted, so the microcredit really works hand in hand with MOOCs and eLearning in the online space.

The hyper-specific focused and 'bite-sized' chunk nature of microcredentials make them a cost efficient and time efficient way of making our education system more adaptable. Focusing in on skill development that is not currently catered for in the tertiary education system, and for which there is strong evidence of need by industry, employers, and community is the massive benefit microcredentials can offer. Developing a traditional qualification can take two to six years from its inception to when graduates are putting it to use in the workforce. When you consider the pace of changing technology and the changing nature of work, that's a long time, whereas microcredentials can be developed in as little as six weeks and graduated even more quickly than that.

Microcredentials are usually developed with industries in mind, ensuring that the qualification meets industry-specific needs, is relevant and is recognised by future employers and there is increasing interest from organisations to make microcredentials a part of their learning and development strategies. More than 90 'Edubits' have been tailor-made for local employers in New Zealand, including the Southern District Health Board, the Department of Corrections, and the New Zealand Defense Force. Microcredentials currently available via Otago Polytechnic (called 'Edubits') include things such as 'Te Reo Māori for the Workplace', 'Writing a Business Proposal', 'Health and Safety on Farms' and even a course of how to make coffee and maintain a barista machine.

I completed the 'Future of Learning' Edubit as research for this project. The microcredit suggested doing a MOOC on Coursea as background learning before attempting the assessment. I found the whole process easy and very easy to fit in with everything else going on in my work and personal life and it was good to know that the work I did was officially on my academic record.

Microcredentials offer a way for organisations to assess specific skills that an employee needs to be able to have to do their job, with the added benefit of the assessment offering NZQA credits that are recognised on their academic record, which has the potential to increase the engagement with completing the assessment as there is more in it for them. They also give the organisation more concrete evidence that employees have the certain skills, assessed in an official and external way, so they offer real potential to manage critical skills needed in an organisation for higher risk activity. For Farmlands, this could be technical skills such as chemical recommendations or use of veterinary registered additives that have a big knock on effort if wrong advice is given to shareholders.

1.3 Blended learning

Although internet based learning is becoming a larger part of education due to all the benefits it brings with it, there are some downfalls to internet only learning such as limited human interaction, (or when interaction does occur in the eLearning space it tends to not be as natural as in a person). Motivation can also be an issue causing noncompletion of a course. A blended approach to learning combines eLearning and face to face workshops together in a way that complements each other to enhance the learning experience. Online learning can be a great way to transfer information to people in a more time and cost-effective way than doing it face to face and breaks the 'death by PowerPoint' mentality. It also offers flexibility to the learner as they can view the content where and when suits them (while lying on their bed, or during TV adverts) and they can easily go over sections that aren't clear to them. On the other hand, processing, testing out, configuring and applying information is easier to do in a face to face social environment which can help to develop a deeper understanding of knowledge and take it to the next level from merely knowledge transfer (Russell & Graham 2003). Although this sort of collaborative learning can be done online, it is much more difficult to create the same experiences as in a face to face session. This is why blended learning can be so powerful because it captures the best of both styles of learning.

Flipped learning is a blended learning model where students access all learning objects and resources outside the classroom online and when 'inside' the physical classroom students focus primarily on active approaches to learning such as problem based learning, case studies and peer interaction. The key benefit to blended learning is improved engagement in participants due to breaking away from the traditional mechanistic transfer of knowledge or 'content broadcast' in the face to face environment and instead using precious face to face time with people to coach and test out new knowledge. A flipped learning model has the added benefit of creating well prepared students that have done their 'homework' prior to the face to face session, have had time to process and think deeper about new knowledge and are eager to participate in a meaningful way. This style of learning is very much in line with Blooms Theory of Learning with the learning requiring the lower levels of cognition (knowledge transfer) occurring outside the classroom while the higher levels of cognition such as creativity, are practiced within the classroom and in the group environment. (Conrad & Openo, 2018)

A part of this project I met with Maurice Ward, an Education Designer from Lincoln University, who was a wealth of knowledge on blended learning models. A key benefit to a blended module is increased engagement and improved completion rates of courses compared to online only courses and this is because participants are more motivated to get online learning content completed before

a face to face session. This highlights a key point Maurice made, that when designing a blended course, you must always have face to face sessions already booked in the calendar before the online content is delivered so that participants have something concrete to work towards and are therefore motivated to finish in time. Maurice also stressed the importance of forums in the online learning virtual classroom so that people can connect and collaborate with each other in the online space and create a community. Discussions can be between the trainee enrolled on the course at the same time, or with the tutor. Maurice mentioned that you must let your trainees know the expectations around when you, as the tutor, will get back to them on the forums for example there might be a time of the day when you check and answer and questions and interact in the virtual classroom. Maurice also talked about the importance of the statistics you can get from online virtual classrooms that can tell you a lot about your trainees and how they are making their way through the eLearning, which can be a powerful tool. It allows you to see exactly how your pupils are behaving in the learning which can be helpful to know to give more individualised help to pupils if they require it.

A blended approach is a logical way forward to combine the best of both the virtual and real-life worlds. I think this is especially relevant in the agricultural sector as lot of the topics covered have a heavy practical element, and often your teaching people that like to be out on the farm 'doing stuff', so getting that baseline knowledge transferred to them on their own terms in the online space, but then having those more robust conversations and contextualising that knowledge in the real world is likely to have massive benefits.

1.4 Virtual/augmented reality and artificial intelligence

Virtual and augmented reality may have once (not that long ago) sounded a bit sci-fi and too futuristic for applications in learning, however it is fast becoming a go-to tool for education, especially for the younger generation. These technologies represent a fundamental shift in information presentation because it allows people to engage with the information and use all their senses to process it. Virtual/augmented reality can put learners in realistic scenarios and can test out decision making skills and review knowledge transfer much more authentically than more traditional testing methods and therefore can help to improve confidence with applying knowledge in real life situations. Virtual reality is also a very interactive way to transfer knowledge in a way that lets the learner guide themselves through the learning and explore themselves which can help with consolidating that knowledge transfer and improves engagement. Wearable headsets are one technology that can allow people to interact with the environment and this sort of technology is becoming more accessible. Virtual reality simulation will be a way of preparing people for future situations they may find themselves in, bolstered by easy access to information that helps them

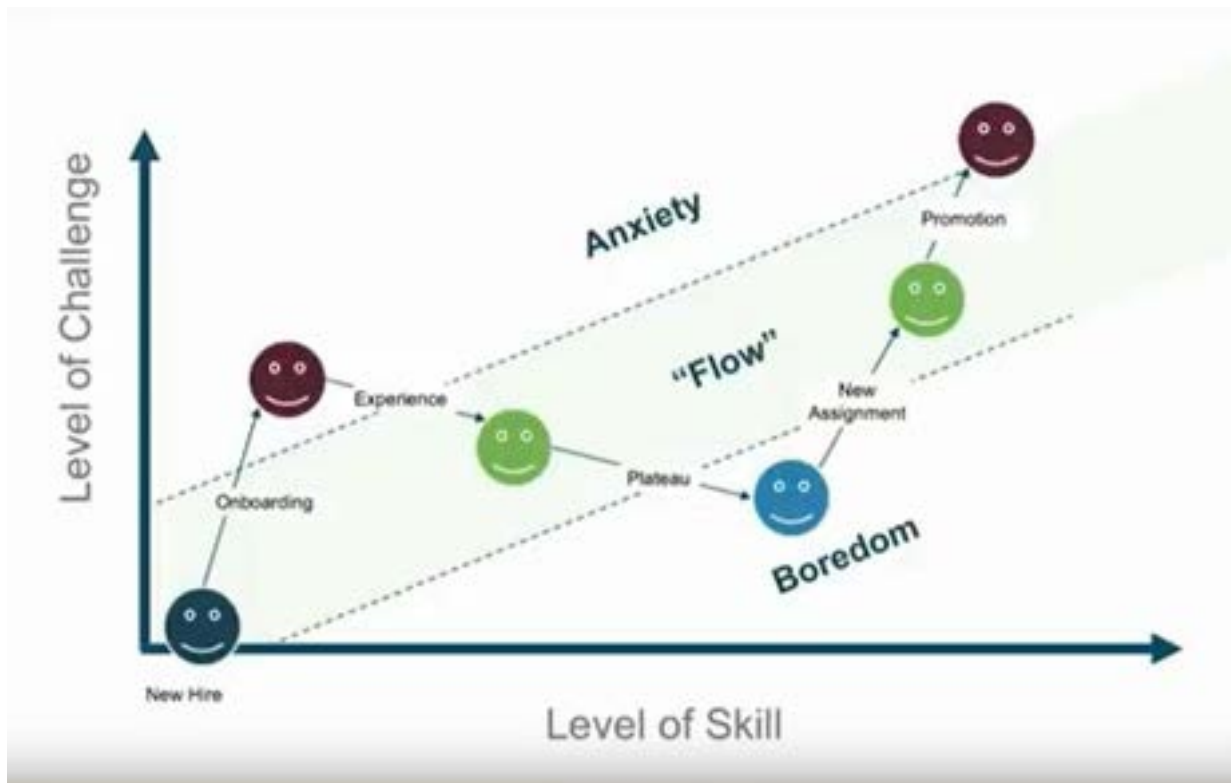
through the simulated situation as they require it, so it blends the physical and virtual worlds. (Dell Technologies, 2019). Currently this technology is very expensive and requires a specific set of skills to create and author the content for use with these new technologies, however it is likely that the software will get more affordable and simpler, so it will be more accessible for wider use.

Artificial intelligence is another new technology that will be highly likely to change the way we learn in the future too and it goes hand in hand in augmented/virtual reality. Imagine virtual teachers that can see you as they teach you and react to your emotions and adapt the content according to your level of knowledge and the areas you want to learn more about. It would be like eLearning, but taken to the next level and much more personalised to the individual. This is a possibility in the future and this type of technology is already being developed. Even now chatbots are being used on websites to answer questions people have as they surf the website, and technology such as Google's Alexia or Apple's Siri can answer questions for you as you go about your day. There is potential to blend artificial intelligence into the working day to learn on the job and pull on info as and when you need it, and as artificial intelligence technologies improve and computer systems learn from their experiences the learning system could pull the knowledge it thinks we need as we work through a training session. This application of these technologies requires more investigation to look into how they could fit in Farmlands in the future.

1.5 Learning in the flow of work

The idea of 'learning in the flow of work', a concept pioneered by Mihaly Csikszentmihalyi in the 1970s has recently being revived by Jo Bersin. It takes into consideration that everything we do at work is some form of learning, from 'tit bits' of knowledge to bigger chunks of learning, right through to more comprehensive courses, and its logic is to match up these different types of learnings to work in with where an employee is currently on the 'curve of learning' so it fits into their flow of work. The 'curve of learning', is a model that demonstrates the requirement for learning throughout an individual's time in an organisation. New people to the business, perhaps in their first year, are going to need to learn lots so will be consuming lots of learning content, but there may be point at which they become very bogged down with workload as they develop into their role and extra training may cause more stress than benefit at this stage. However, further on in their time with the company this may change and they may be ready to grow and learn again, so to keep them engaged and feeling challenged in their role there needs to be opportunities when they need it. It's all about keeping people in the flow of learning and giving them what they need when they need it.

Figure 3. The curve of learning created by Josh Bersin (2018)



This concept aligns well with the idea of creating people in your organisation that are lifelong learners. It's not just about supporting people in the early stage of their career, but right throughout it to keep them engaged and fulfilled, which is especially important these days with new technologies changing how we work.

Josh Bersin considers there to be two main types of learning required in an organisation – micro and macro learning. Micro learning is the 'I need help right now' learning so is designed to be short, problem based, indexed and searchable and available to help someone in the moment they need to know something. Micro learning is about learning something, applying it and then getting back to your work and are great when you want pinpoint information and quick answers to questions you are facing in the moment. Macro learning is the bigger chunks of learning when an individual needs/wants to learn something new. They take longer (perhaps hours or even days), are assessed in some way and may include coaching and support. These different types of learnings and then correlated to a person's position on the curve of learning. An example of this in practice could be a new person who is more likely to need to do more macro training in the first year in an organisation, compared to someone that has been in the job for longer who may require a micro learning to learn something new to build on old knowledge (e.g. if a new product that they are required to sell comes out). There will also be time when a macro learning will be required for a more established

employee if they require extension to keep them engaged in their role or even to move to a new role.

Figure 4. Josh Bersin’s idea of micro and macro learning and the differences between them (2018)

Micro-Learning	Macro-Learning
I need help now	I want to learn something new
<ul style="list-style-type: none"> - 2 mins or less - Topic of problem based - Search by asking a question - Video or text - Indexed and searchable - Content rated for quality and utility 	<ul style="list-style-type: none"> - Several hours or days - Definitions, concepts, principles and practice - Exercised graded by others - People to talk with, learn from - Coaching and support needed
Is the content useful and accurate?	Is the author authoritative and educational
Videos, articles, code samples, tools	Courses, classes, MOOCs, programs

The next level of learning in the flow of work is to embed learning into the platform people are working in so that the system that you work in can coach and train you on the job without needing to get out of it and go find your answer in another place. Imagine if learning systems even picked out new content for you based on other learning material you had consumed and made recommendations like Netflix does? The technology will be coming to be able to do this and the benefit of this is that it takes away the time required to browse and find learning content that suits and with the need to learn more these days, but with less time to do it, this could be a game changer for learning.

Josh Bersin made the insightful comment in his key note address at the 2018 Linked In conference, that learning in the flow of work is happening already everywhere in organisations and that people do it without having the official structure in place just to survive and do their job, so learning and development departments need to get onboard with the concept or risk getting left behind.

Farmlands is already doing some work in this space as part of the new ‘Braveheart’ computer system is a knowledge management database which is currently in the process of getting filled with content. Knowledge management systems are an example of a micro learning and they are designed for employees to search when they need to know something as they go about their daily job. They are like an inhouse ‘google’ filled with content relevant to the business. This is a great initiative, however the challenge will be getting employees to jump on board with using the knowledge management system and it will be important to focus on creating the habit of searching in it when knowledge is

required. It will also be important to ensure that information put into the system is relevant and up to date so that people see the benefits of using it.

1.6 Findings and Discussion

All the new learning technologies researched for this project have merit and would fit into the future of Farmlands technical knowledge transfer. In reality, a combination of all technologies would be the best way forward for Farmlands as the technologies are all very complimentary and build on one another. Taking the best from each concept that fits in best with the Farmlands core values to best fit Farmlanders would be the best approach.

2. Collecting information from Farmlands employees

From the research in this project it is clear to see that we need to change the way we teach and develop people in organisation to prepare them for a world where they will need to be working at a higher level technically, socially and creatively in order to be more successful - but how ready are people for this change?

Understanding where the future of learning is heading is important to incorporate into a learning and development strategy in a business to ensure it is as engaging as possible so that it is actually utilised by the business, and future proof - but what about the employees of a business? Are they ready for the futuristic way of learning yet, or does more time need to be focused on building a learning culture and core skills in the business before learning platforms and tools are more developed? To gauge this within the Farmlands business a survey was sent out to Farmlanders, targeting predominately people working in the retail/infield space, as this was perceived to be the part of the business that is most in need of having technical skills to do their job. Technical skills were picked to hone in on in this survey as opposed to other skills due to the importance of technical skills to the Farmlands business and shareholders.

Aim: To collect information from Farmlands employees working in the retail space about their perceptions on learning and development and how it could be changed to benefit the success and enjoyment of their role and future roles in Farmlands

Method: An anonymous online survey targeting people that I have done face to face training with in the past 6 months to obtain a better response rate compared to sending it out across the whole retail network. The survey was sent out, involving managers where possible, explaining the background of the project and the purpose of the survey to give context. The survey consisted of 19 questions, both qualitative and quantitative.

The 3 main targets of this survey were the below:

Store staff from retail stores – in store based sales team. Based in the 82 retail stores across New Zealand

Technical Field Officers - On farm based sales team. Connected to a retail store, but on farm more of their time than in the store.

Nutrition Specialists – On farm and instore based sales team that just focus on nutrition products.

Participation: Overall 53 people completed the survey, and from a mix of people giving a good perspective over different roles so provides a satisfactory representation of Farmlands employees.

Results & Discussion:

Below I will go through the key questions from the survey that collected the most insight, giving averages where possible but also pulling on key themes and quotes.

Technical training is important for my role

Overall for this question, it was rated high with an average rating of 4.8/5. This indicates that people feel that technical training is very important for their role. This rating was consistent across the differing roles, with store staff rating a 4.6, Technical Field Officers a 4.8 and Nutrition Specialists a 5. This is in line with the Farmlands strategic imperative of 'leading agricultural knowledge and expertise' and it is positive that employees feel technical training is important.

At Farmlands I feel well supported when it comes to receiving the technical and product training I need to do my job.

The average for this question was 3.6/5 which indicates that people feel less supported than required to do their job. They feel the technical training is very important, but aren't getting supported enough to get what they need. In this question, there was more inconsistencies across the different roles with store staff rating a 3, Technical Field Officers a 3.8 and Nutrition Specialists a 4.2. This indicates that store staff are the most in need of more support when it comes to technical training.

The very interesting thing about this question is that the overall demographic that gave the lowest score was the people that had been working for Farmlands for 1-3 years, with an average rating of 2.9. This is very much in line with the 'learning in the flow of work' concept as it is suggested in this theory that people learn a lot in the first year of a job, but then decrease their learning in the next phase of their role, until a larger challenge may come along later in their working life that amps up the learning again, but they could feel dissatisfied until this challenge presents itself. This could explain why people are more likely to leave a job after that year period. This could indicate that more training opportunities need to be targeted at this group of people to keep them feeling valued and challenged in their role in this in between period between being 'new' and 'old' in the business.

What do you feel are the biggest barriers to getting the technical training you need for your job?

Participants were asked to rank some different reasons from most relevant to least relevant to them.

- 'It's too busy and too hard to get time off work' was ranked the number one barrier to training by 88% of participants, so was overwhelming the biggest barrier to training

- Coming in second was 'it's too hard to travel for training' which 48% of participants put as their 2nd biggest barrier to training.
- Third was 'I need to do a lot of this training in my personal time and I am not prepared to do that' which 52% of participants put as their 2nd biggest barrier to training.
- Fourth was 'My manager doesn't support me to develop my technical skills' which 32% of participants put as their 2nd biggest barrier to training.

This further highlights that it's not people not wanting to learning and develop, but its more about time and location restraints. This highlights that more emphasis needs to be put on technical training and the fact that is it as important as other things we are prioritising over it. This comes down to the culture of learning in the business. Online solutions would also help as they offer more flexibility and no travel– however Farmlanders also didn't want to learn in their own time so time must be put aside in the work week to learn.

Are there any other barriers to getting the technical training you need for your job that weren't listed as options in the question above?

This was an opportunity for participants to identify other barriers to training. Key themes from this question were not knowing what training opportunities were available for them to do them/no training available. Amongst store staff this feeling that they didn't know what training was even available to them was a reoccurring theme. Personal time management skill issues was also a common theme.

Some quotes from participants that encompass these key themes are below:

'At branch level there is so much technical knowledge required in so many different fields that it gets way to hard to a, know where best to start, b, where to go to get the training, c, how to best fit it around my work role.'

'There is no communication regarding what training modules etc, are available to us.'

'I find the biggest barrier is knowing what training is available.'

'Only myself, not making the time to put aside to organise and do it'

It is important to me that training I do while at Farmlands is NZQA recognised and can go on my academic record.

The average for this question was 3.77/5. This was very consistent across the different roles with all roles rating between 3.7-3.9. Where this question was answered differently though was amongst the different age category of the participants. The 20-30 age group rated NZQA recognition a 3.8/5, while the 30-40 and 40-50 age group rated it a 3.3 and 3.4. The 50-60 age group had the highest rating of 4.3 which is interesting and very encouraging as it is in line with this idea that the work force will have to keep retraining throughout their career to keep up, so it's great to see that the older group of Farmlanders are interested in improving their knowledge.

Offering NZQA recognised training as part of my job would increase my engagement in technical training offered by Farmlands or Suppliers. Please give your reasons for the answer.

This question was answered very similarly to the previous question in terms of rating with an average of 3.7/5. The key theme coming from this question was that having training that is recognised by NZQA and added to their academic record was a 'nice' thing to have and could help them in future endeavours with other companies if they left Farmlands, but overall not an essential thing to have, and they felt it would not increase engagement in any training offered as they were keen to do the training anyway.

Some quotes from participants that encompass these key themes are below:

'I don't see having NZQA recognized accreditation is that important to myself. What's more important to me is that it is recognized and valued by Farmlands'

'Being NZQA recognised isn't of high importance to me I would still be just as engaged if it wasn't NZQA recognised.'

'I like all of my training records to be kept together in one place and feel the link to NZQA gives any further training credibility.'

'Not looking for qualifications, just want best possible knowledge to assist shareholders'

How much time in a week (just a rough estimation) do you spend on learning related to your job?

Participants estimated that they spend an average of 3.1 hours a week on learning related to their job. There was quite a range amongst the participants though with some doing no learning at all in a week, while others commented that they were always learning on the job. One thing that cropped up a few times from store staff was the idea of learning from customers that came into the store. This is in line with the finding earlier in the survey that the store staff require more technical training

then they currently get, although people on farms truly understand the regional and seasonal differences that each new day brings so are a wealth of knowledge for Farmlanders to learn off. Another key theme was the idea of learning on the job - that people are finding the info as they need when they need it, so this is in line with the learning in the flow of work 'micro learning' technique.

Some quotes from participants that encompass these key themes are below:

'Only probably an hour a week, every time something comes up if I don't know anything about it I have to learn about it'

'I would spend a few hours a day because I find I learn from customers. Sometimes they teach me something or they ask questions I need to find the answers to.'

'1 hour, I learn from customers who are knowledgeable and give me advise and other staff members, like listening to them and what they know.'

'I am learning on the job all of the time but often in stressful and busy situations where I need to be focused on the needs of our customers rather than learning.'

What do you think you would miss out on from online learning that you would get from a face to face training?

The common theme coming through from this question was that with online learning people felt that not being able to get their question answered may be an issue. Also, people thought that missing out on the practical element of training could be a problem, especially for practical minded people. People also thought missing out on networking and engaging with other people on the same course could be an issue too. This highlights the requirement for forums when delivering online learning so that people can feel connected to the trainer and the other participants and discuss things. The blended learning model is a good way to get around this lack of connection as it brings learners together to discuss content more deeply to gain greater understanding and bounce off each other.

Some quotes from participants that encompass these key themes are below:

'A lot of learning comes from others in the room. Sharing experiences and challenges and from conversations.'

'Less opportunity to ask questions in the moment and bounce ideas off other people in the same role as yourself as to how they would solve the problem'

'The ability to interact and to debate. Ask questions and to hear differing opinions'

What do you think online learning can offer to make your technical training experiences better?

The key things people felt online learning could offer them was more flexibility, less travel and the ability to work at their own pace. Another key benefit that came through was being able to pop back into the learning module when they needed to review content.

Some quotes from participants that encompass these key themes are below:

'Not having to be out of the branch for long periods of time, which often lead to short staffing issues'

'Being able to go back and see what I've done and re learn anything'

'With online learning, you can learn at your own pace and you always have access to it.'

What suggestions do you have to improve the way Farmlands delivers technical training to you?

The key themes from this question were:

- The need for more tiers of training from beginner to expert so that people are better supported at their current level.
- Advertise the training opportunities more so that people who want to utilise them can.
- More interactive/practical sessions that relate the knowledge back to how they will use the knowledge in their everyday role.
- More in the flow of work options and micro learning that fits into people's everyday role so they can access information when they need it.
- A wider range of training mediums so it suits different peoples learning preferences.

Some quotes from participants that encompass these key themes are below:

'Somehow break the staff into more levels so that the content is targeted to the right level.'

'I suggest we take the time to understand how each individual learns and tailor the training to the individual'

'Quick fire answers to common issues that are easy to grab at short notice'

'relate this back to real situations where we need to use the knowledge to benefit decision making on farm.'

'Training opportunities need to be advertised and readily available to us'

'It would be helpful to create a warehouse of 101 videos for technical skills. This is in an easy to access place so staff can find them'

Conclusions:

Overall this survey has shown that Farmlands employees understand and see the benefits of technical knowledge for their roles. They believe they need to have good technical knowledge about the products and services they are selling to do their job to the best of their ability and they believe in the strategic pillar at the heart of the Farmlands strategy 'Leading Agricultural Knowledge and Expertise'. They however do not feel particularly well supported with this technical training and there is room for improvement in the way technical training has been built and delivered to the organisation. They are also feeling that there isn't enough time for training as they are too busy doing day to day tasks, which indicates that more 'in the flow of work' training is required and that the business needs to work on nurturing a learning culture in the business so that people feel it is worth making time to learn because it is a priority.

There is a particular requirement to improve the training being delivered to the people working in the retail stores. These people are the face of the business at a store level and are key to delivering technical information to customers so it is worthwhile spending time improving their technical knowledge and not only to help the customers but also to overall improve their job satisfaction and make them feel they are making a difference to the organisation and are challenged and extended in their role. In my experience working at Farmlands, starting by working in a retail store is a way that many young people enter the industry as a way to build knowledge and experience towards a career in the agricultural industry, so it's important they feel they can develop in their instore role. There is potential to have sector experts in each store e.g. someone with equine or calf rearing experience that can be called on to answer more technical questions to which a higher level of training is directed.

People that have been in their roles for a 1-3 year period also require more attention as they were the demographic that scored the lowest when it came to support with technical training which is a

key issue identified by Josh Bersin in his 'learning in the flow of work' theory as these employees are no longer in the rapid learning phase that happens when you first start a job, and may not have been offered a new challenge yet in their role, so they may be feeling unsupported and unengaged until a new challenge comes their way. To alleviate this issue, we can make sure that as people enter this phase of their role that we deliver them a development opportunity to extend them in their role. (Bersin 2018).

One other key learning from this survey I found was that salespeople were very hard to reach in order to deliver them the survey. Technical Field Officers and Nutrition Specialists are actively on their work phones/tablets and laptops during the working week, however store staff (particularly salespeople) do not seem to actively check their emails or use the computer so they become very hard to contact and deliver information to. To get this survey to them it was emailed out to store managers and then requested to be passed onto their sales team, however completion by store staff was lower than other roles. Of the store staff that did complete the survey, a common theme was not being aware of training that was available to them, so again this indicates a communication issue.

If Farmlands is going to keep up with the exponential disruptive on the horizon which will change the world of work and the roles that will be in the business in the future, we need to work on upskilling our staff so they can evolve and change as the needs of the business change.

Ravensdown Learning and Development Strategy as a Case Study

To get a different perspective of how other agricultural based organisations train their staff Ravensdown was approached to use as a case study. Ravensdown has a very successful learning and development program in place so to learn more about how they have got to where they are I met up with Clair Williamson, Learning and Development Manager, Ravensdown.

Aim of case study: To learn how the Ravensdown Learning and Development team structures, creates and deploys their learning opportunities for employees as an example of an agricultural business in New Zealand that is doing a good job of upskilling their team.

Main themes covered and key takeaways from the interview.

An overview of learning and development tools currently used by Ravensdown

-eLearning built using Articulate 360, including a good balance of videos, interaction and assessment. Ravensdown have found that eLearning is great for *'just in time'* training as it can be put together and deployed to people very quickly and gives people *what they need when they need it*.

-Podcasts. This is something new that people have requested and is currently in development.

Driven by people in the business, not the L&D team so more of an interview style podcast on different topics with different people featuring each time.

- Webinars 'Lunch'n'Learn' a good option for training more *remote locations* in a time effective manner for the trainer. This style of learning brings people in a location together for a training session that is delivered online to multiple sites at once.

- Classroom based learning still has a place for internal training but it's important to have a **practical element** to this.

- Ravensdown puts internal facilitators through **train the trainer style courses** through an external company 'Auldhouse'. It's a 2-day program that focuses on learning design, facilitating and presenting. Ravensdown also offers managers and employees in roles which include an element of coaching, a course which focuses on how to coach effectively.

- A suite of courses developed by the Ravensdown tech team and **Massey University** on a variety of topics. This extra mural study is also available to anyone in the business, no matter the role, who wants to advance their career. However, they do have to write a proposal to apply which explains why they want to do it and how it will be beneficial to Ravensdown. Ravensdown does pay for the course for participants, but they only pay back the money on passing of the course and they have found this is a good way to encourage the right people to do the course

How do you effectively get training in front of the right people at the right time?

'Just in time training' is a key goal which is why eLearning is such a great tool, especially when you have people working all over the country. eLearning is quick and easy and you can put together modules very quickly and get them out there. They may not be perfect and look really flash, but it does the job and gets that info out there.

Some big modules that were quite comprehensive were developed, but they do take quite a bit of time for someone to work through and as such are not so user friendly if someone needs to find a **quick answer during their working day** (i.e. just in time training). The comprehensive modules are kept in place and are referred to as 'The bible of a topic', but going forward a more **micro learning approach** is the plan to make the content more accessible and easy to digest as and when its needed.

The learning management system (LMS) or 'virtual classroom' being visible to people is important so that people can easily see what training is available to them and search for different topics that they might have an interest in. Ravensdown use an LMS that has an Ap which is **downloadable to a smart phone**. Because the Ap is on their phone, people can very easily search what training is available to them and complete it at times that work for them as it's so readily available. It is important that the LMS that is used has a **good search function** so that people can browse it and find what they are looking for. People can even use their personal phone for this, if they don't have a work one, and if WiFi is available to them at work, people are happy to use their own phones. All courses are visible in a course catalogue. So, although someone has not been assigned the learning, everyone can **self-discover** if they are interested in a topic.

Advertise the learning opportunities to employees so everyone feels informed and has **equal opportunities** to complete training. Ravensdown has a training section at the top of a weekly staff newsletter/email that they find gets good reach across the business. The newsletter included info such as who's leaving, who's new, who's had a baby etc so people are very interested to read it.

Not one style of learning is going to work for everyone so having the same info in different avenues can work well. It's important to accommodate to a variety of training styles but also be aware that it would be very difficult to come up with in-house training that suits everyone across a whole business when it is a very complex business

A personalised approach to learning and if people do struggle with an eLearning module for example, they will work with that person to come up with a plan to get them to the level they need to be at and work with them on an individual basis.

How do you find the need for the eLearning and go about creating it?

The need to create a piece of eLearning comes both from the L&D team, but also come from people in the field that feels there is a need. The L&D team have created guidelines and templates that the technical teams can use to gather content, which is always checked by the L&D team who create the eLearning modules before deploying. As the L&D team is small they do rely on other people in the business creating/gathering content and they can accept the *level of personalism* that comes along with doing this, however they feel the benefits of getting more knowledge and training out there is more beneficial than having perfect training that always conforms perfectly to templates.

What are some new technologies in the learning space you think could be useful?

Ravensdown has been looking to experiment with virtual reality type learning to take online learning to another level using 360 videos. For e.g. Health and Safety training using different virtual scenarios or identifying issues in crops. 'Show How' is a NZ company that works in this space.

Case study conclusions

- Training opportunities need to be visible so that people know what's available to allow a level of self-discovery.
- eLearning modules don't need to be perfect. To master the 'just in time' training some level of personalism will need to be accepted so that tech teams can push training out to people when its needed.
- Have macro and micro lessons. Macro for when people need to learn a lot about a new topic, micro for 'just in time' training.
- More support should be given to people delivering training across the business so the quality of training is improved.
- Use different mediums to deliver the same messages you want to get across to the business so it suits more learning styles.
- Consider new technology in the virtual augmented reality space to improve learner experience and better test how knowledge learnt can be used in more real-life scenarios.

Final recommendations to Farmlands

To create a learning and development framework that will continue to support Farmlanders to do their job to the best of their ability and support their careers now and into the future, Farmlands should consider the following recommendations:

1. Focus on delivering more technical training to store staff in the retail stores as a priority, as this group of people felt the least supported when it comes to the technical knowledge they need to do their job. A good quick win can be eLearning aimed at specific promotions. This sort of promotion supporting targeted learning is a good way to upskill staff where they really need the knowledge to respond to customers interested in a promotion. Some store staff may also require further technical support to develop their careers in some cases, as working in the store is a common starting point to a longer-term career in the agricultural industry.
2. Improve the communication pathway to salespeople in the retail stores so that technical training can find its way to the people that need it.
3. Improve the visibility of technical training on offer so that everyone in the organisation can see what is available, take learning opportunities and 'self-discover' courses.
4. Define the different levels of technical knowledge from beginner, to intermediate, to expert in the learning and development framework for each area of expertise, and match what each role in Farmlands requires as a base level of knowledge to do their job. If Farmlanders want to extend their knowledge above what their role requires this should be encouraged, and the next level of knowledge could be offered to them as a step towards working towards a new role.
5. Consider having champions in the retail network for different areas of technical expertise. This is already being done to some level at Farmlands, however making it more official by awarding champion status by completing a set 'further learning' course, and making it more obvious who these champions are would be taking this idea a step forward. This could be anything from a badge on their uniform, a certificate on the wall of the store, or a logo for use in their email signature - something they can be proud of to showcase their skills to colleagues and shareholders.
6. Consider using MOOCs as part of the learning and development strategy at Farmlands, especially as a tool for macro learnings, as long as the technical experts in the particular field have approved the MOOC for use.
7. Consider microcredentials in the future as a way to ensure critical skills are acquired by the roles in the business that require them, but not as a priority at this stage as in general

Farmlanders thought it would be a good idea, but didn't think it would improve their engagement in training. Technical skills that have been assessed and verified by an external recognised body ensures management that people are up to a certain standard in their technical knowledge. This could be especially useful in cases where high skill needs and high risk are present, or where compliance is required such as the use of high risk veterinary registered additives in products sold in store.

8. Blend online learning with face to face sessions where ever possible, and not just a suggestion of a face to face session but one that is already booked in and clearly a part of the learning framework of a course so that participants have something tangible to work towards as part of the eLearning experience.
9. When delivering eLearning, ensure there is a forum area where participants can chat and ask questions to create a supportive community online and learn from one another, and make it part of the learning criteria to participate in the forum. The 'Totara' learning management system used at Farmlands currently has forum functionality however other Aps such as Yammer, Slack or one of the other many forum technologies could be considered.
10. Empower Farmlanders to take control of their own learning by ensuring that the learning management system used has a good search function so Farmlanders can search for content that might interest them and consider a learning management system that is accessible via a mobile Ap so that Farmlanders have easier access to learning.
11. Offer more support and guidance to people in the business that are delivering technical training (both online and in face to face sessions) such as Nutrition Specialists and Agronomists, so they are more skilled to deliver training in the future and can utilise new learning technologies that will become important.
12. Consider adopting the 'learning in the flow of work' concept and come up with a learning and development framework that fits in with this concept, working in both micro and macro so people can access the type of learning they need when they need it. The new knowledge management system in the new Braveheart systems is a great place to start, however a key part of this will be getting Farmlanders to start using the knowledge management system, making it a habit to go there for information they need.
13. Look at ways to blend the place where people learn in with the place where people 'do work' to further support the idea of learning in the flow of work so the busyness of day to day work interferes less with learning.

14. Experiment with some virtual reality style learning in the future and consider employing or upskilling someone in the business in authoring virtual technology content so things can be authored in house.
15. Keep abreast of new technologies in the space of learning, particularly as more artificial intelligence technologies enter the learning and development space.
16. Consider getting people across the Farmlands network to create content for the learning portal, not just the technical people in the business. This will help people to engage in the learning and collaborate with others. Short videos and photos are great for this. If content is checked before it is put into the learning system by technical people the quality of learning will be upheld.
17. Work on continuing to foster a culture of learning so that learning becomes a top priority for employees and seen as good use of time by employees and their managers. This may require further investigation into strategies to do this successfully and may require more focus on training and development in annual staff reviews so the training can be linked back to the 'what's in it for me' for the employee. Also hold managers accountable for completion of their staffs' training completion.

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