

*The most dangerous phrase in the English
language is 'we've always done it this way'
- Grace Hopper*

ASSESSING AGRICULTURE AUTHENTICALLY

Using mainstream technology to capture authentic
evidence of competency in an agriculture context

An International Specialised Skills Institute Fellowship.

LEANNE BUNN

Sponsored by the Higher Education and Skills Group, Department of Education and
Training (Victorian Government)

© Copyright December 2018

Table of contents

i. Executive Summary	3	5. Considerations and Recommendations	21
1. Fellowship Background	5	6. Knowledge Transfer, Application and Dissemination	24
2. Australian Situation	7	7. References	25
SWOT Analysis – Integrating technologies in agricultural training and assessment	8	8. Acknowledgements	26
3. Skills Enhancement and Knowledge Acquisition Areas	9	Awarding Body – International Specialised Skills Institute (ISS Institute)	27
4. International Experience and Discovery	10	Fellowship Sponsor - The Higher Education and Skills Group	27
Destination: Kildalton College.	10	9. Appendix	28
Destination: Teagasc Research Centre, Moorepark	12		
Destination: St Anna Advies	14		
Destination: Wageningen University and Research Centre	16		
Destination: Scotland's Rural Campus - Barony Campus	19		

i. Executive Summary

With 10 year's experience teaching agriculture in the Vocational Education and Training (VET) sector, the Fellow has observed little change to assessment practices. Despite the increasing use of education software such as Moodle, an ongoing reliance on written assessments appears to remain. In part, this is seen as an 'easier' method of meeting compliance demands and the Fellow has witnessed many passionate and competent agricultural students stumble when demonstrating their competence using the written strategy.

This Fellowship aimed to explore the benefits of assessment strategies which utilise mainstream technology to provide authentic evidence of competency, engage learners and develop their 21st century skills. This approach aligns with the Victorian Government's introduction of the Skills First initiative and its focus on providing high quality training that students and industry can trust. It also supports industry and workforce needs with the growing need for technological competence; 'In such a rapidly changing technical, economic and social environment, contemporary learners must be 'world savvy' in order to be not only employable, but also equipped with the necessary skills for life'.¹ With agricultural industries integrating more technology, work ready graduates will need digital skills and digital literacy to prosper. TAFEs providing students with a head start makes good sense.

The Fellow's research included stops in Ireland, Scotland and the Netherlands with visits to agricultural training colleges, University faculties and a veterinary consultancy group in September and October of 2017. The opportunity to spend one-on-one time with the developers of an award-winning program at Barony

Campus was invaluable – providing both inspiration and insight into their strategies for introducing new initiatives.

Those who stir themselves to apply for an International Specialised Skills Fellowship find this critical process a cathartic one – seeking support from others to test and explore their theories typically leads to valuable exchange of ideas and great support - along with a dose of fear or trepidation about the wheels of change put in motion. Inherent in each application, is the desire not to keep doing things the same way. Regardless of the research topic, Fellows are all searching for the better version of what they do and who they are, and whoever said old dogs can't learn new tricks is wrong. A key driver of the Barony initiative was near to retirement. Competent use of technology is possible for anyone with the drive and inspiration to learn.

A key recommendation from this Fellowship report includes the formation of collaborative relationships to promote sharing of initiatives, knowledge and experiences – particularly related to assessment strategies. Dairy Australia's initiative of bringing together key providers of education is a step in the right direction for the Australian dairy industry. Inviting representatives from Barony Campus to share their insights would be beneficial.

Further government funding of professional development for trainers to gain competence in developing authentic assessments is recommended. A range of strategies including mentoring, communities of practice and workshops should be included.

ASQA's updated Standards require assessors to complete the TAE unit of competency: Design and develop assessment tools. It is recommended that training organisations and staff take this opportunity to explore assessment methods which are 'responsive to industry and learner needs'² through the effective integration of technology.

Policies which encourage a range of assessment strategies and embrace technology should be embedded in RTOs. Where possible, these should replicate industry needs, thus ensuring the rules of evidence around authenticity and currency are effectively met.

This report provides further details about key learnings from each visit with recommendations for follow-up. Whilst this report has a focus on training in an agricultural context, the findings are equally applicable to other industry training areas. Dissemination of findings is an ongoing process in both formal and informal contexts and the Fellow is extremely appreciative of the opportunity provided.

1. Fellowship Background

Aims

The Fellow aimed to explore assessment strategies which increase learner and practitioner engagement. The Fellow believed a focus on this aspect of vocational education training would potentially improve the learning experience for students with flow on improvements to retention levels and work-readiness. Utilising technology to design and facilitate work-relevant and inclusive assessment experiences, learners are likely to be better engaged and connected. The Fellow went in search of examples where students' capture, share and collaborate on assessments using mainstream technology, to authentically demonstrate their skills and knowledge. This approach would have additional benefits of instilling greater employer confidence in quality graduates from Gotafe and other TAFES who embrace this approach.

Methodology

The Fellow planned to visit agricultural colleges in Scotland and Ireland to speak with program directors, tour site facilities and observe teaching practices where possible. Meetings with professors from the Education and Competence group at Wageningen University in the Netherlands will provide a more research based understanding of teaching practise. An industry visit with a veterinary based consultancy group will provide valuable insight to training initiatives developed for service providers in the dairy industry.

Time Period

The international travel component of this Fellowship occurred over a 3-week period in September 2017. Key themes emerged from these visits, which are discussed below under the four focus Skills Enhancement and Knowledge Acquisition areas.

Whilst the Fellow's trip to Ireland, Scotland and the Netherlands took place in September/October 2017, her on-going journey began four years prior to this research and continues to this day. Her interest was piqued upon hearing an ISS report given by colleagues from another campus at an end of year professional development session. The report described an amazing opportunity. Over the next few years as notification of each new round of applications came and went, the Fellow continued to explore options worthy of further exploration. As her interest and enthusiasm waxed and waned, she met a local recipient who proved an encouraging mentor. His accounts of the ISS Institute experience and further opportunities provided by undertaking the Fellowship program reignited her enthusiasm and with a deep breath of courage, she took the plunge and broached the topic with senior staff. Each of these conversations helped refine her proposal and increase her awareness of the great work already undertaken by the ISS Institute.

Opportunities for dissemination continue to arise – often on an informal basis. Findings have been shared with the South Gippsland Bass Coast LLEN, Gotafe colleagues and Dairy Australia. In program design and delivery discussions,

team meetings and discussions with the public, the Fellow has continued to advocate on behalf of the ISS Institute and present her research findings. It is an ongoing topic for conversation with the Fellow urging others to consider applying. Although the Fellow's employer at the onset is no longer operating, the benefits of this ISS experience go on and on – in all aspects of her life. They are transferable to her new workplace – the South Gippsland Bass Coast Local Learning and Employment Network – one of her original sponsors!

Biography

Name

Leanne Frances Bunn

Qualifications

- » Graduate Certificate of Education (Tertiary Education): University of Ballarat
- » Certificate IV in Training and Assessment (TAE40110): Goulburn Ovens Institute of TAFE
- » Diploma of Agriculture: Goulburn Ovens Institute of TAFE
- » Diploma of Business (Human Resources): Goulburn Ovens Institute of TAFE
- » Bachelor of Education (Arts): Melbourne University

Brief Biography

The Fellow, Leanne Bunn, is a professional educator. Upon commencement of the Fellowship she was employed by Goulburn Ovens Institute of TAFE (Gotafe). Gotafe is the largest post-compulsory, educational provider in North East Victoria, Australia delivering vocational education and training to more than 20,000 students annually. Campuses are located in regional Victoria at Shepparton, Wangaratta, Seymour, Benalla, Werribee, Terang, Warragul and Leongatha.

The Fellow was based at the Leongatha campus in South Gippsland – the heart of dairy farming and had a leading role in teaching best practice management skills that help build a stronger, more attractive and sustainable dairy industry. With students spread across the regions, much of the Fellow's teaching was via flexible on-line methods such as on Moodle or via Skype. This saw the Fellow deliver synchronous training to student groups from Queensland, Tasmania and across Victoria – either at home or on campus.

The Fellow was keen to learn how technologies could be better utilised to minimise any real or perceived loss of experience from less face to face training. With a background in secondary school teaching and dairy farming, the Fellow is a strong advocate for more enriching and engaging training and assessment strategies that move away from the traditional question and answer written format. Incorporating mainstream use of technology is engaging and effectively provides authentic evidence of competency which can be used for future reference and meet the current focus on compliance and record keeping.

2. Australian Situation

The dairy industry is one of Australia's major rural industries with a farmgate value of production of approximately \$4.8 billion in 2014. Whilst the number of dairy farms is in decline, the size of remaining farms is increasing with larger herds and more employees. A skilled workforce is increasingly important as the industry embraces new technologies including robotic dairies, drones, milk meters and collars to monitor cow movement, health, rumination and heat to name a few. To ensure a sustainable future, Dairy Australia (DA) invests farmer levies and other funding in three strategic priorities: profitable dairy farms, capable people and trusted industry. Strategic Priority 2 aims to develop the skills and knowledge of the people working in the dairy industry to ensure long-term success.³ DA continues to support access to, and quality of, vocational educational programs to maintain industry skill levels.

Gotafe is the largest post-compulsory, educational provider in North East Victoria delivering vocational education and training to more than 20,000 students annually. Campuses are located in regional Victoria at Shepparton, Wangaratta, Seymour, Benalla, Werribee, Terang, Warragul and Leongatha. In 2005, Dairy Australia and Gotafe partnered to form the National Centre for Dairy Education Australia (NCDEA) – the division the Fellow worked within. The NCDEA developed a set of dairy specific teaching and assessment resources to include in Certificate II to the Advanced Diploma of Agriculture.

The Victorian government introduced Skills First⁴ in 2017 to reinvigorate the TAFE system. Key aims included a focus on high quality training that students and industry can trust, aligned to industry and workforce needs with improved access for students in regional areas. 'In such a rapidly changing technical, economic and social environment, contemporary learners must be 'world savvy' in order to be not only employable, but also equipped with the necessary skills for life'.⁵ With free WIFI common in public libraries and increasingly in public areas such as Bass Coast Shire, Ballarat and Bendigo, there is opportunity to design and facilitate richer, relevant and inclusive learning experiences that better engage and connect students including those typically disadvantaged by distance or financial constraints.

It would seem appropriate then to have teaching and assessment practices in the VET sector facilitate this growth by embracing technologies that accurately and authentically capture demonstration of practical skills whilst fostering skills that build adaptability, resourcefulness, responsiveness and resilience in the farming community. Given the increased use of online learning management systems such as Moodle, it would seem an ideal opportunity to decrease reliance on written assessment tasks.

3 Dairy Australia, 2016

4 State Government of Victoria, 2017

5 Bass Coast Shire Council, 2014

SWOT Analysis – Integrating technologies in agricultural training and assessment

Strengths

- » Skills First support from government for quality training initiatives provides a welcome boost;
- » Established networks with international dairy industries via Dairy Australia can facilitate collaboration and sharing of initiatives;
- » TAFEs are routinely shifting to LMS such as Moodle with built in options for non-written assessments;
- » Students are routinely using technology such as Smart phones;
- » The dairy industry is increasingly integrating technology in systems.

Weaknesses

- » Lack of e-learning champions in TAFEs – in part linked to ageing workforce;
- » Late adopters of technology amongst time-poor staff – resistance to change is often high;
- » Negative views of e-learning persist; often it's considered to be too hard, time consuming and or expensive;
- » Limited collaboration amongst educators;
- » A lack of resources/funding lead to a lack of impetus to change.

Opportunities

- » Increase adoption of online learning across the VET sector;
- » Increase employer confidence in quality graduates;
- » Improve student retention through more engaging and relevant training and assessment strategies;
- » More flexible learning at a time and place to suit wider audience;
- » Efficiencies for VET practitioners (e.g... auto correct, peer assessments);
- » Secure storage of evidence of participation and competency;
- » Compare and learn from agricultural training and assessment strategies in other institutes including overseas.

Threats

- » Resistance from staff and students;
- » Negative feedback from poor experiences in the past (students & VET practitioners);
- » Lack of training, resources and or connectivity;
- » Changes to government policies.

3. Skills Enhancement and Knowledge Acquisition Areas

The Fellow researched the skills enhancement and knowledge acquisition areas required for TAFEs to improve the quality and relevance of assessments, particularly in an online context. Specific areas of focus included:

1. How could technology enhance assessment strategies to capture authentic competency and currency?

- » Observe examples of award winning assessments which utilised drones, Mahara and annotated photos
- » Workshop with program designers to gather key lessons
- » Investigate best practice use of technology in assessment design
- » identify benefits of using technology to encourage practitioner uptake
- » identify which online learning platforms are used and how

2. Explore the value of a collaborative approach to assessment design

- » Interview key parties of an award winning team to identify key recommendations
- » Interview university researchers for their perspective of successful assessment design

3. Developing 21st century skills of TAFE learners – how?

- » Observe examples of online learning tools embraced by learner cohorts
- » Identify strategies to support learner uptake of technology
- » Identify opportunities to align industry technology with assessments

4. Professional development for VET practitioners

- » Research strategies to encourage educators to embrace the use of technology and maintain currency
- » Interview local ‘champions’ of award-winning program design

4. International Experience and Discovery

The Fellow was extremely fortunate to meet with a range of organisations from the Netherlands, Ireland and Scotland. A summary of the visits and meetings is outlined below.

Destination: Kildalton College.

Location: Piltown. County Kilkenny, Ireland.

Contact: Paul Hennessey – College Principal



Kildalton College, Co. Kilkenny, Ireland



Paul Hennessey, Assistant Principal



Bessborough House 1744

Kildalton College immediately grabs the attention of its visitors with Bessborough House, built in 1755 as the focal point of its lush, green 167 hectares. The largest agricultural college in Ireland, it has provided training in equine, horticulture, machinery and dairy since 1971. It delivers the training component of Teagasc - the Agriculture and Food Development Authority in Ireland; the other components being research and advisory services.

The Fellow was fortunate to spend the day with Principal Paul Hennessey who provided an overview of the College's training programs, links to higher qualifications at Waterford Institute of Technology and Dublin University all within the context of the Irish dairy industry.

A key objective of the Kildalton Dairy Unit is to provide a centre of excellence where students receive a dairy industry acclaimed qualification, view dairy farming as a sustainable and fulfilling career and are highly motivated to continue learning

best practice systems. With a fully functioning dairy and herd of 110 Friesian x Jersey cattle, students are provided the opportunity to cultivate and hone their skills in animal husbandry and milk harvesting over the duration of their course. Accommodation for approximately 80 first year students helps to build a strong sense of community and support.

James Ryan, lecturer and manager of dairy operations, facilitated a farm tour and introduction to students and other lecturers. The opportunity to observe practical sessions on fencing, cattle scoring and calibration of chemicals was welcomed. Typically, students spend the morning in classrooms and the afternoon participating in various practical sessions in groups of 14. The opportunity to seamlessly move from the classroom to paddock is enviable.



Practical session at Kildalton

Key Learnings:

1. The abolition of milk quotas in 2015 has seen a rapid increase in Ireland's milk production with many farmers switching to dairy. This situation creates strong career opportunities in dairying as well as the need for more training.
 - » *In contrast, Australian milk production declined in 2016/17, reflecting reduced confidence and a generally lower milk price. Typical flow on effects to this scenario include cutbacks to staffing and training.*
2. Farmers must have a minimum of Level 6 Green Cert to access government funding, grants or concessions. For example, stamp duty exemption when transferring the farm to a son or daughter, Greening Payment for farming practices that benefit the climate and environment or the Basic Payment Scheme.
3. Farmers are eligible to receive payment for participation in Knowledge Transfer discussion groups over a 3-year period. They aim to:
 - » Encourage efficiency and effectiveness of work
 - » Help farmers to deal with complex issues
 - » Build capacity of individuals in a group environment
 - » Ensure farmers engage in a process of continuous improvement
 - » Encourage innovation and new ideas
 - » Enhance the delivery of other related measures proposed under the RDP (Department of Agriculture, Food and the Marine)
 - » *To cultivate a culture of life time learning and well educated farmers, Australia should consider options for replicating this model*
4. Students require continuous access to a commercial farm for the duration of their training, to develop proficiency in farm skills and complete course assignments.

» *The Gotafe model also reinforces this approach.*

5. Full-time Level 5 Certificate students at Kildalton have a daily routine of both classroom and practical sessions, with full access to the dairy operation's animals and machinery. Assessment includes a practical exam where skills must be demonstrated. Classwork remains predominantly paper-based exercises. Moodle is used for some distance learning.

» *The Gotafe model does not include access to campus farms. The upside of this is the impetus to visit a broader range of farming operations. This increases industry engagement and provides the opportunity to showcase both the students and different farming systems.*

6. In Year 2, students may enrol in Level 6 Advanced Certificate in Agriculture (Dairy Herd Management). This comprises 20 weeks of course work in the college as well as a 12-week Practical Learning Period on an approved training host farm. This often takes place in New Zealand.

» *The opportunity to organise intensive farm placements outside of the local area would provide valuable learning experiences. Gotafe in conjunction with Dairy Australia could explore options for reciprocal placements.*

7. Staff selection is based on interview and practical demonstration of skills, including scenarios.

» *The Gotafe model does not include a practical component. The interview and referee process should sufficiently cover these aspects.*

Destination: Teagasc Research Centre, Moorepark

Location: Fermoy, County Cork, Ireland.

Contact: Marion Beecher – Research Officer & Program Coordinator



Moorepark, Fermoy, Ireland.



Paddy O'Keeffe Innovation Centre.

Moorepark is a Teagasc research, technology and innovation centre for the dairy industry. Two areas of focus are Animal and Grassland Research and Innovation and Food Research. The flexibility provided by the ISS Fellowship allowed this unplanned visit to learn more about the Level 7 qualification: Professional Diploma in Dairy Farm Management. Programme Coordinator Dr Marion Beecher outlined the program design, shared examination papers and her experiences in working with Moodle.

Another key attribute of ISS Fellowships is the opportunity to promote the great work being done in the Australian VET sector. The Fellow was able to showcase and model some aspects of her own Moodle design and development, and provide insight into the benefits of using this learning management system.

Key Learnings:

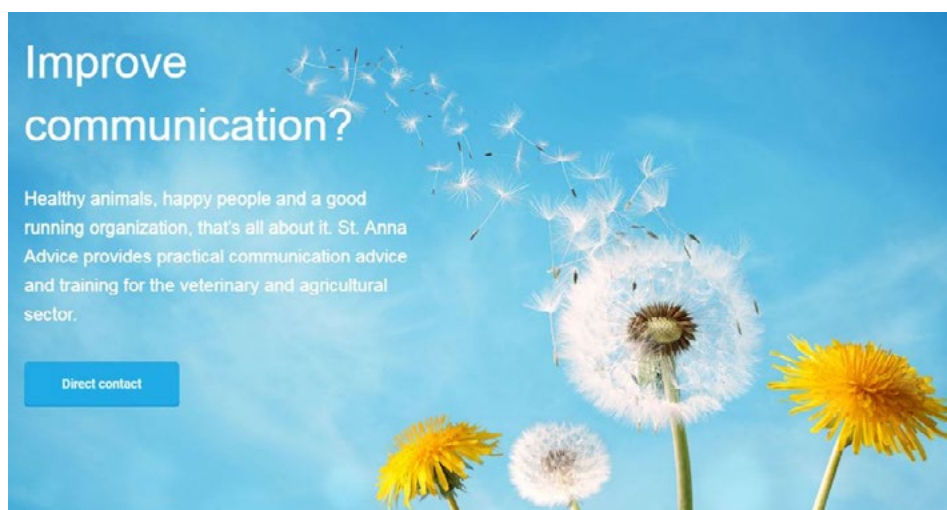
1. Students complete 2 years of professional work experience on **approved progressive** commercial dairy farms. Programme coordinator interviews host farms to ensure students will have full access and opportunity to develop their skills in both practical and business information.
 - » The very fact that it is called 'professional' work experience demonstrates the high value placed on this industry. Ensuring that workplaces are approved also ensures integrity of the program and optimises opportunities for learning. Adopting these approaches could benefit Australian models.
2. Program includes **block** release components of study at Kildalton College and Moorepark
 - » In contrast – Gotafe training is predominantly scheduled one day a week. Whilst block release often presents issues around accommodation and farm labour shortage during absences, the sense of collegiality is beneficial for the industry.
3. Students gain insights from guest presentations by farmers, researchers, advisors and other industry experts.
 - » The Gotafe model follows this approach where possible.
4. Examinations were paper-based, scenario based questions
 - » The Fellow does not advocate exams. Online quizzes can effectively assess understanding through shuffling of questions, question banks and set time limits if deemed necessary. Scenarios provide authentic opportunities to apply learning however, collaborative responses would promote learner engagement, develop communication skills and higher level thinking skills.
5. Moodle has been recently introduced and is used primarily as a repository for paper-based documents. There is a lack of consistency in approach or use with varying levels of uptake. Support for teachers to further improve is currently limited.
 - » Communities of Practice for online learning could boost VET practitioner confidence and create efficiencies. Gotafe records monthly online meetings to increase accessibility to shared information.

Destination: St Anna Advies

Location: Nijmegen, Netherlands

Contacts: Roeland Wessels – business principle.

Jolanda Jansen – communications consultant



St Anna Advies home webpage

The Fellow found the philosophy behind St Anna Advies' approach to improving business outcomes extremely inspiring. St Anna Advies is a private consultancy that links happy animals to healthy people and healthy business. The consultancy is proving its worth in communication expertise as their courses have now been embedded into Veterinary Science degrees in the Netherlands. The Fellow was impressed with this mind-shift toward the inclusion of interpersonal skills within tertiary education.

The Fellow was privileged to meet with business owner Roeland Wessels – a

veterinarian and communication strategist who has recognised that communication is the key to a well-rounded vet and healthy animals. In contrast to older generations of vets who were seen as fonts of all knowledge, modern vets work collaboratively with clients to prevent recurring illnesses. Substitute vet for doctor, VET practitioner, coach etc. - the importance of collaboration and communication apply to many aspects of our lives and Dairy Australia's People in Dairy initiative is based on a similar premise.

Following introductory discussions, overview of the business objectives, resources and opportunities, the Fellow worked through a day's presentation on Communication with Jolanda Jansen. The vibrant presentation, applied knowledge and passion demonstrated were infectious. Interestingly, the business appears to be developing rapidly with the publication of several worthy texts:

1. Communication in Practice – designed for vets, key topics include client friendly communication, resetting mindset and handling difficult conversations
2. Vet Coach – a compilation of career reflections of veterinary professionals from around the world, it is designed to motivate and inspire others by giving broad insight to career opportunities
3. Mastitis and farmer mindset – explores the notion that influencing farmer mindset is more effective than simply issuing medical advice and drugs.

Whilst these were focused on dairy scenarios (including mastitis), the premises could be applied to a broader range of life aspects and were well worth considering for embedding in other training areas.

Anna St Advies have also begun development of an online education program around animal care. The four module topics are a) interpersonal skills, b) communication strategies, c) client communications and d) internal communications (veterinary practices). Aside from the content, it was interesting to see the integration of short videos as training materials.

Key Learnings:

1. Enthusiasm and passion are vital for success. Happy people translate to happy animals and healthier businesses.
 - » This premise applies equally to successful training - enthusiastic VET practitioners inspire students to become lifelong learners. Positive learning experiences promote student retention and contributes to Principle 4 & 5 of the Skills First Quality Charter.
2. Looking at the bigger picture helps to present approaches for overcoming seemingly insurmountable issues (e.g. controlling mastitis). Thinking outside the square inspires new thinking. Pioneering computer scientist Grace Hooper recognised the danger of never changing (reference cover photo).
 - » St Anna Advies has effectively researched and demonstrated an innovative approach to veterinary practice, which emphasises the role of communication. All training could benefit with a focus on communication and change management.
3. Working collaboratively to problem solve is more effective than simply providing answers (e.g. exploring how to stop the problem reoccurring rather than prescribing drugs).
 - » Utilising the features of online LMS such as Forums, Peer Assessment and Groups should be encouraged.
4. Mindset is more effective in changing behaviours than threat (e.g. understanding what motivates people to change; risk of fines or social pressure).
 - » Routinely considering a student's viewpoint of 'what's in it for me' should result in more industry relevant and authentic assessments. The Victorian State Government's 'Skills First Quality Charter' promotes this outcome.
5. Research findings by Wessels, Lam and Jansen apply equally to vocational

practitioners:

DO	DON'T
❖ Be involved	❖ Preach
❖ Ask questions	❖ Get defensive
❖ Listen and respond	❖ Be anonymous
❖ Be genuine	❖ Think 'it's all about me'
❖ Build trust	❖ Treat others condescendingly
❖ Be consistent, honest and respectful	❖ Swear
❖ React professionally	

Excerpt 'Communication in Practice'

Destination: Wageningen University and Research Centre

Location: Wageningen, Netherlands.

Contact 1: Laurens Klerkx - Associate professor at the Knowledge, Technology and Innovation Group.



de Leeuwenborch
Building

The Fellow was fortunate to have secured a meeting with Laurens Klerkx, Associate Professor of the Knowledge, Technology and Innovation Group at Wageningen University and Research Centre. Whilst research into collaborative approaches to extension management is Klerkx key focus, he was also able to provide insight to his role as an educator and connect the Fellow with other colleagues at the university, which was greatly appreciated.

Interestingly, Klerkx's students were required to conduct academic consultancy practices for six weeks – this emphasis on authentic training and assessment strategies struck a chord with the Fellow's own studies. Based on real-life experiences, a primary goal was to coach students in conflict management and facilitation skills to complement their research skills.

The Fellow was interested to learn that the university was implementing the use of assessment rubrics to guide students and assessors in meeting requirements and standards. This practice is becoming more commonplace in the Australian VET sector and provides greater transparency and guidance for both assessors and students.



Leafy campus of Wageningen University

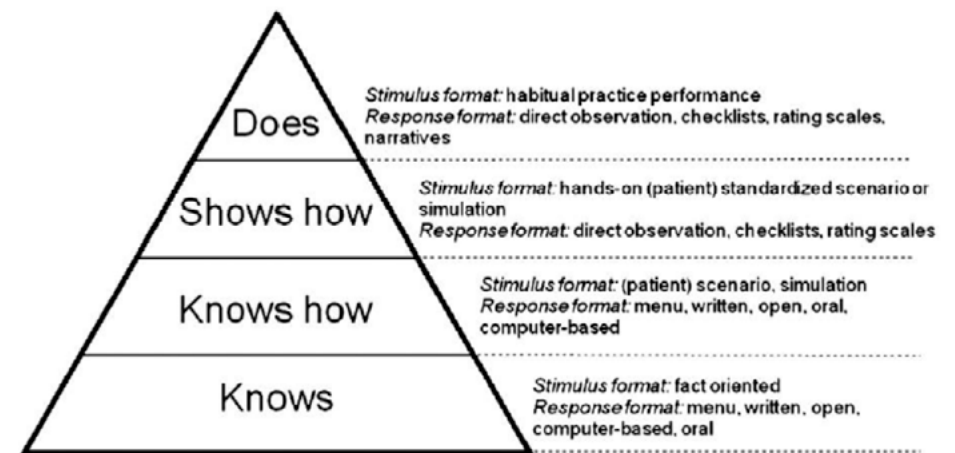
Contact 2: Judith Gulikers - Assistant Professor – Education and competence group.

Regrettably Assistant Professor Judith Gulikers was unavailable during this Fellow's visit to Wageningen University but via email correspondence the Professor generously shared a number of informative articles. Research revealed an interesting observation in common with the Australian TAFE sector - five tensions identified in the struggle of Dutch VET assessments. These were:

- a. new goals require new assessment methods
- b. assessment as a one-shot measurement versus a coherent programme appraisal
- c. the increased involvement of the labour market in VET
- d. securing a balance between governmental control and VET institutions' responsibility in developing and quality assuring assessments
- e. realising the balance between the formative and summative functions of assessment.

One of Gulikers key papers observes that 'VET institutions mainly used written tests, irrespective of their teaching approaches and use of on-the-job and off-the-job training'.⁶ Practical assessments were less commonly used as teachers lacked experience in developing rigorous criteria and reliable standards. In general, there remains the perception that alternative assessment practices did not fit the well-known psychometric quality criteria for testing and reliability. It was definitely easier to stick with tried and tested written assessments with clearly recognised standards.

Guliker's materials also introduced the Fellow to Miller's pyramid of assessment, which she believes to be worth sharing with other TAFEs as they grapple with the challenges of creating authentic assessments. The base or novice level of assessing competence is linked with tasks that establish what a student Knows, progressing to more complex and authentic assessments at the pyramid's apex where a student performs or 'Does' tasks with a degree of expertise and understanding.



Miller's Pyramid 1990

Papers provided by Gulikers also prompted the Fellow to reconsider the question: what conceptions do VET practitioners have about the purpose of assessments and how does this influence their design and administration of assessment tasks? Guliker et al observed that teachers typically conceive the role of assessment as school accountability or student accountability, while the new assessment paradigm would require a conception of assessment as 'for improving teaching and learning'.⁷

6 Baartman & Gulikers, 2017

7 Gulikers, Biemans, Wessellink, & van der Wel, 2013

Key Learnings:

- » As assessors, VET practitioners need to carefully consider and plan the design of assessments and not lose sight of what they are measuring.
- » Looking beyond meeting compliance, assessment should be linked to job outcomes and reflect industry requirements and workplace settings
- » VET practitioners could benefit from training in assessment design with students and the workplace to benefit.
- » The compulsory TAE update provides an excellent opportunity to fulfil this recommendation, provided the TAEASS502 unit includes a focus on using technology to gather authentic evidence of competency and currency.

Contact 3: Renate Wesselink - Assistant professor – Education and competence group.

An impromptu meeting with Assistant Professor Wesselink provided the Fellow with a different perspective; with discussion of current academic research. The Fellow found it fascinating to learn that much of Wesselink's work focussed on the VET sector and included a thesis on competence-based vocational education.⁸ A 'light' reading for the long journey home, the thesis helped to reiterate a number of key beliefs that this Fellowship research was founded upon. These included:

- » Traditional or conventional educational programmes are typically designed to transfer comparatively isolated knowledge and skills, from one person to another, without a strong relationship to practical contexts.
- » A main aim is to prepare students for future employment and to assure their performance as participants in society as a whole.
- » When students perceive an assessment as resembling their future professional practice (i.e. as authentic), they are more motivated to apply themselves to the task and in doing so develop more generic competencies (employability skills).

- » When coached by teachers, Electronic learning environments enable students to work together and allows teachers to closely follow the student's learning process.
- » Students respond better when the learning environment corresponds to their future work environment.
- » Authentic conditions stimulate the development of an active and entrepreneurial attitude.

Key Learnings:

- » Employers will find learners more 'job-ready' if assessments relate to the workplace. Assessments designed to simulate workplace scenarios should be a priority.
- » Again, the compulsory TAE update provides an excellent opportunity to fulfil this recommendation, provided the TAEASS502 unit includes a focus on using technology to gather authentic evidence of competency and currency.
- » Professional development opportunities to promote successful assessments should be encouraged. Various options include online communities of practice as previously mentioned, workshops and presentations.

Destination: Scotland's Rural Campus - Barony Campus

Location: Dumfries, Scotland

Contacts: Adam Wardrop – Team Leader for Agriculture

Alastair Hastie – e-learning Developer

Donald Brown – Lecturer/Moodle Champion



Barony Campus, Scotland



Accommodation in the manor house at Barony

Visiting Barony Campus was a highlight of the Fellow's experience abroad. Representatives from Barony had visited Gotafe in 2007 so it was a welcome opportunity to be updated on the Scottish campus' progress in the interim. In 2012, Barony joined with three other schools to become Scotland's Rural College – SRUC. The Fellow sensed the campus was still adjusting to this transition. Apart from agriculture, Barony Campus delivers training in animal care, veterinary nursing,

equine, land-based engineering, forestry and arboriculture. The Fellow found the physical resources required to provide this amount of hands on training in stark contrast to the Gotafe model, where students rely on workplace experiences and class visits for practical learning.

Team leader for Agriculture, Adam Wardrop facilitated a presentation by Alastair Hastie – online technologist, of their award winning Practical Contract Management module. This program won the 2016 award for Most Creative Employability Provider for its initiative in developing an authentic learning program that utilised digital evidence captured via drone and GoPro footage. Evidence was stored and shared in Moodle and Mahara portfolios, and as recently as April 2017 has been showcased at the MoodleMoot UK & Ireland conference. This course provides an excellent model for collaboration between digital technicians, content and content delivery experts.

Examples from the equine division at Barony showcased the value of digital evidence with some detailed, annotated videos and images uploaded by students. This provided authentic evidence of their ability to perform skills, analyse and reflect on tasks for assessment. An element of peer review was also integrated, further developing the employability skills of the participants. The Fellow was impressed with this innovation in training and found the award well deserved.

Donald Brown – trainer of agriculture and self-directed e-learning Champion was also present and provided useful insight from his perspective. It was powerful to see an experienced educator 'learning new tricks' and adopting digital technology so enthusiastically.

Samples of digital evidence are included in Appendix 1

Key Learnings

- » The purpose of assessment should serve more than to demonstrate competency. Practitioners and learners should be encouraged to recognise the potential to

re-purpose online evidence as a digital portfolio.

- » Exposure to successful examples of technology adoption may benefit new adopters of similar online resources. Age should not be a barrier when adopting new technologies in learning. Like students, passionate and curious teachers can benefit from the learning experiences offered by new and emerging technologies.
 - » *Providing access to mentors who are passionate about digital technology will help inspire others to adopt new technologies.*
- » A collaborative approach to the development of online courses leads to better outcomes – no one person can do the best job.
 - » *A team approach to design and development should be mandatory with input from instructional designers and subject matter experts.*
- » Developing new content is time consuming and not always easy but well worth the effort for further re-use and adaptation.
 - » *Feedback from learners and practitioners should be routinely gathered, appreciated and reviewed with a positive view to improving training and assessment. Gathering this valuable information online could be expedient and facilitate analysis and storage of data.*

5. Considerations and Recommendations

Skills Enhancement Area 1: Use technology to enhance assessment strategies which capture authentic competency and currency

The recent introduction of a new training package for Agriculture, Horticulture and Conservation and Land Management is an opportune time for TAFE providers to review training and assessment strategies. It is recommended that learning management systems such as Moodle be used for more than the repository of existing written materials. Practitioners are encouraged to work with e-learning teams to use a broader range of tools provided by Moodle – particularly those with interactive features. This includes the use of forums, group settings, peer review, and image and video sharing.

It is recommended that assessments have more purpose beyond meeting assessment and audit requirements. In addition, assessments which document and demonstrate a student's skills and experiences could form part of an e-portfolio. These could be shared with potential employers and also form the basis of assessments for other units of competency.

It is suggested that the development of suitable farmer verification tools be further explored. These may include 'real-time' evidence such as video footage of a student completing tasks. This would save valuable time and resources for TAFEs. Smoothly integrated tasks and a flexible time period for gathering evidence would appeal to farmers and learners, having less impact on daily operations. The employer's direct involvement in the learning experience would also enhance the learning relationship.

In line with ASQA recommendations, industry consultation via Dairy Australia and the VFF will help to ensure that current industry products, technologies and performance are represented.⁹ This is topical given the increased uptake of technology on farms including robotics, drones and GPS.

Skills Enhancement Area 2: Explore the value of a collaborative approach to assessment design

There is much to be learned from others and time-poor practitioners need not reinvent the wheel when it comes to harnessing technology for assessment design. However, instead of substituting a traditional paper-based worksheet with its digital equivalent, practitioners should embrace technology in order to reap the benefits from a more engaged level of participation.

There is no doubt that Barony Campus' award winning training success has been enhanced by the input of the e-development team. Opportunities to share the possibilities of integrating learning technologies are invaluable to all stakeholders. Shared wisdom and experiences may help to avoid lost time due to errors, and streamline time and focus more efficiently. It is recommended that TAFEs establish communities of practice to facilitate sharing of knowledge and experience.

It is highly recommended that online courses are developed by a team which comprises experts in instructional design, content and training. The role of an e-development team should extend beyond the development stage to include in-class support for students and teachers making the transition to new technologies.

It is highly recommended that collaborations with other TAFE institutes also be encouraged. Key industry bodies such as Dairy Australia with their national DairyLearn model for education, is encouraged to showcase exemplar models of training and assessment during their annual conference which includes representatives from all parts of Australian dairying regions. In addition, these exemplars could be made available remotely via Dairy Australia's Moodle platform.

Skills Enhancement Area 3: Developing 21st century skills of TAFE learners – how?

The Foundation for Young Australians has identified digital literacy, communication and teamwork¹⁰ amongst the essential skills for the future. These skills areas can readily be enhanced through the introduction of online assessments which focus on authentic projects.

Key examples include video evidence captured on a learner's phone which should be valued by TAFEs and industry for its authenticity and currency. Opportunities to work collaboratively on assessments will improve communication and teamwork skills – particularly if peer review and feedback is practised. Options for implementation of this include the use of forums and group tasks in learning management systems such as Moodle.

It is recommended that TAFEs collaborate to establish acceptable guidelines for use of video or photographs to meet audit requirements for assessments.

It is recommended that the current requirement to update training and assessment qualifications include a component focussed on online assessments and digital technologies.

In contrast to encouraging silos of information, cross sector communities which showcase best practice examples could save practitioners time and also inspire

their creativity. Modelling imaginative and innovative examples which also satisfy audit and training requirements, will encourage others to follow. As with the example of Barony Campus, their successful project in arboriculture has now been adapted for use by the Veterinary Nursing cohort.

Skills Enhancement Area 4: Professional development for VET practitioners

It is likely that the interactive features of learning management systems such as Moodle will remain underutilised unless adequate training and support is provided to practitioners. If the current practice of merely uploading documents, weblinks and powerpoints continues, learner engagement will not flourish.

The Fellow noted a recurring theme of change arising throughout her research – remodelling approaches to improve engagement, collaboration and outcomes. TAFE workplaces should actively strive to promote a culture where change and innovation is welcomed and encouraged.

Recommendations for improving digital capacity of VET practitioners include:

- » Providing mentoring opportunities to work with experienced Moodle users – either in person or via Skype or similar platforms.
- » RTOs could plan to include development of online assessments as part of TAE upgrades.
- » Annual PD with a compulsory component on blended learning – as a minimum to broaden awareness of the possibilities and also to inspire greater uptake and initiative.
- » Identifying 'champions' in each workplace with dedicated time to support colleagues.

- » Establishing minimum industry release to ensure current competency of agricultural teaching staff. Focus on providing the opportunity to use and understand workplace technology such as GPS farming, robotic milking, and drones so they may be integrated into assessment where suitable.

6. Knowledge Transfer, Application and Dissemination

In the months following her return from overseas, the Fellow has shared her experiences and findings with colleagues from Dairy Australia, Gotafe and the South Gippsland Bass Coast LLEN. Typically, these have been informal occasions but opportunistically, aligned to current discussions around learning program design. A pleasing outcome perhaps, has been the opportunity to recognise and further encourage the good work already underway in Gotafe. In particular, the 'highly interactive digital education model' for Certificate II in Agriculture students; a product of the Back to Work Dairy Project.

The Back to Work Dairy Project concluded in 2017, meeting its aims of creating training products for new skills required for future dairy, including new technologies; boosting pathways into employment and career/education progression; and developing digital education models.

Contemporary digital instructional design together with passionate training has resulted in a highly interactive digital education model for the Certificate II in Agriculture course for VET in Schools students. This combines structured online learning in Moodle based upon a 'virtual farm' narrative incorporated into the learnings and assessment tasks; online group work through discussion forums and Zoom webinars; timetabled Polycom videoconferencing classes to schools across Victoria; mobile device video recorded assessment evidence; utilisation of the students' OneDrive storage; as well as practical skills training days and applied learning on farms during work-placements. This blended online model allows small numbers of students from multiple geographically dispersed schools to study agriculture and dairy as a larger group, which is an opportunity their schools could not previously offer.

With Federation Training now providing agricultural training in Gippsland, the Fellow has contributed to program design and delivery discussions by sharing her findings.

Working for the South Gippsland Bass Coast LLEN, the Fellow has contributed to strategies which improve teacher and student capability around the use of digital technologies. An online sharing platform has been created specifically for teachers across the regions, to upload tips and suggestions for integrating technology in teaching and learning. The flexibility of accessing valuable resources online is highly valued by time poor staff when meeting face to face is difficult.

The Fellow has also had the opportunity to closely encourage and mentor two others who are interested in applying for an International Specialised Skills Fellowship.

7. References

- Baartman, L., & Gulikers, J. (2017). Assessment in Dutch vocational education: Overview and tensions of the past 15 years. In Enhancing teaching and learning in the Dutch vocational education system: Reforms enacted. (pp. 245-266). Dordrecht, Netherlands: Springer.
- Bass Coast Shire Council. (2014). Bass Coast Shire Council Education Plan 2013 - 2017. Wonthaggi: Bass Coast Shire Council.
- Dairy Australia. (2016). Strategic Plan 2016/17 to 2018/19. Melbourne: Dairy Australia.
- Department of Agriculture, Food and the Marine. (n.d.). Knowledge Transfer Dairy Programme. Retrieved November 1st, 2017, from <https://www.agriculture.gov.ie/media/migration/farmingschemesandpayments/knowledgetransfer/DairyInformationLeaflet240616.pdf>
- Department of Education and Training. (2018, September 9). Standards for Registered Training Organisations (RTOs) 2015. Retrieved from Federal Register of Legislation: <https://www.legislation.gov.au/Details/F2017C00663/Download>
- Gulikers, J., Biemans, H., Wesselink, R., & van der Wel, M. (2013). Aligning formative and summative assessments: A collaborative action research. *Studies in Educational Evaluation*, 39, 116-124.
- Skills First Quality Charter. (2018, September 5). VET funding contracts . Retrieved from Victorian Department Education and Training: <https://www.education.vic.gov.au/training/providers/rto/Pages/serviceagree.aspx>
- State Government of Victoria. (2017). Skills First. Retrieved June 25/6/17, 2017, from <http://www.education.vic.gov.au/skillsfirst/Pages/about.aspx>
- Wesselink, R. (2010). Comprehensive competence-based vocational education. Wageningen: Wageningen University.

8. Acknowledgements

The Fellow would like to thank the following individuals and organisations who generously gave their time and their expertise to assist, advise and guide him throughout her HESG Fellowship.

International Support:

- » Paul Hennessy – Principal, Kildalton College. Ireland
- » James Ryan – Lecturer and Dairy Operations Manager, Kildalton College. Ireland
- » Dr Marion Beecher – Programme Coordinator – Teagasc – Animal & Grassland Research and Innovation Centre, Moorepark – Ireland
- » Roeland Wessels – Business Principal, St Anna Advies, Nijmegen - Netherlands
- » Jolanda Jansen – Communications Consultant, St Anna Advies, Nijmegen – Netherlands
- » Laurens Klerkx – Associate Professor of the Knowledge, Technology and Innovation group. Wageningen University and Research Centre, Netherlands
- » Judith Gulikers – Assistant Professor Education and Competence Group, Wageningen University and Research Centre, Netherlands
- » Renate Wesselink – Associate Professor – Education and Competence Group, Wageningen University and Research Centre, Netherlands
- » Adam Wardrop – Team Leader for Agriculture. Scotland's Rural College – Barony Campus. Dumfries, Scotland
- » Alastair Hastie – e-learning Developer. Scotland's Rural College – Barony Campus. Dumfries, Scotland

- » Donald Brown – Lecturer. Scotland's Rural College – Barony Campus. Dumfries, Scotland

Employer Support:

Gotafe has strongly encouraged the Fellow from the initial application stage to allowing time to travel and complete the report. The Fellow particularly acknowledges:

- » Luke Prime – Commercial Manager Gippsland Gotafe
- » Neil Aird – recent Commercial Manager Northern Victoria Gotafe
- » Peter Carkeek – Gotafe
- » Sylvia Vagg – Gotafe
- » Lynda Southgate – Learning and Development Coordinator, Gotafe

Industry Support:

- » Shane Hellwege – Dairy Australia
- » John Verstaden – Dairy Australia People Council President
- » Adam Jenkins – Victorian Farmers Federation

Community:

- » Wendy Major – CEO Bass Coast South Gippsland Local Learning Employment Network

Awarding Body – International Specialised Skills Institute (ISS Institute)

The ISS Institute exists to foster an aspirational, skilled and smart Australia by cultivating the mastery and knowledge of talented Australians through international research Fellowships.

The International Specialised Skills Institute (ISS Institute) is proud of its heritage. The organisation was founded over 25 years ago by Sir James Gobbo AC CVO QC, former Governor of Victoria, to encourage investment in the development of Australia's specialised skills. Its international Fellowship program supports many Australians and international leaders across a broad cross-section of industries to undertake applied research that will benefit economic development through vocational training, industry innovation and advancement. To date, over 350 Australian and international Fellows have undertaken Fellowships facilitated through ISS Institute. The program encourages mutual and shared learning, leadership and communities of practice.

At the heart of the ISS Institute are our individual Fellows. Under the International Applied Research Fellowship Program the Fellows travel overseas and upon their return, they are required to pass on what they have learnt by:

- » Preparing a detailed report for distribution to government departments, industry and educational institutions
- » Recommending improvements to accredited educational courses
- » Delivering training activities including workshops, conferences and forums.

The organisation plays a pivotal role in creating value and opportunity, encouraging new thinking and early adoption of ideas and practice. By working with others, ISS Institute invests in individuals who wish to create an aspirational, skilled and smart Australia through innovation, mastery and knowledge cultivation.

For further information on ISS Institute Fellows, refer to www.issinstitute.org.au

Governance and Management

Patron in Chief: Lady Primrose Potter AC

Patrons: Mr Tony Schiavello AO and Mr James MacKenzie

Founder/Board Member: Sir James Gobbo AC, CVO

Board Chair: Professor Amalia Di Iorio

Board Deputy Chair: Katrina Efthim

Board Treasurer: Jack O'Connell AO

Board Secretary: Alisia Romanin

Board Members: John Baker, Bella Irlicht AM, Maria Peters, Camilla Roberts and Mark Kerr.

CEO: Wendy Draayers

Fellowship Sponsor - The Higher Education and Skills Group

The Victorian Government, through the Higher Education and Skills Group (HESG) of the Department of Education and Training, is responsible for the administration and coordination of programs for the provision of training and further education, adult education and employment services in Victoria and is a valued sponsor of the ISS Institute. The Fellow would like to thank them for providing funding for this Fellowship.

9. Appendix


1. Screenshots of digital evidence from Barony Campus Award Winning program


In 2015-16, Advanced Certificate in Arboriculture students from Barony Campus Scotland, took part in a Practical Contract Management project which involved the removal of trees. With the aim of 'developing employable students within an authentic and active learning experience' the program design promoted use of mobile phones, closed groups on Facebook, communication Forums on Moodle, drones and GoPros to capture each stage of the process.

Evidence of participation and competency are demonstrated below:



Example of Student's Forum Posts


Kirkmichael Manse
 by **Derek Jordan** - Monday, 9 May 2016, 7:19 PM
 Had a site visit this morning and it was a really good meeting.
 The only change to the job spec. is they are wanting the ash tree and the two spruce trees felled. The sticks are to be left and the brash to be chipped and left on site. I will need to take you guys over to show you the he ash tree that's to be felled, it will be tricky to get the gub cut in. Also to get your thoughts on access for the tractor and chipper.
 As for the other two jobs the deadwood on the sycamore to s just to be stacked and the two sycamores are to be chipped and if possible cut to managable chunks and left.
 The client was wondering if it was possible to cut them logs so that the kids could use them as seats.
[Edit](#) | [Delete](#) | [Reply](#) | [Export to Mahara](#)


Re: Kirkmichael Manse
 by **Andrew Treadaway** - Monday, 9 May 2016, 9:00 PM
 Sounds good Derek so the remaining standing stem of the Ash they down as well? If I'm not mistaken there is a slight lean to it. Ali has a copy of the drone flight around it. The PCs job of course is only the two sycamores so the other portions of work will only need risk assessments and bill developed but the sycamore requires the whole PCs work through lads.
 Treads
[Show parent](#) | [Edit](#) | [Split](#) | [Delete](#) | [Reply](#) | [Export to Mahara](#)

Sample Forum posts - students discussing job requirements



ISS Institute
Level 1, 189 Faraday Street
Carlton VIC 3053

T 03 9347 4583
E info@issinstitute.org.au
W www.issinstitute.org.au

Published by International Specialised Skills Institute, Melbourne | www.issinstitute.org.au

© Copyright ISS Institute December 2018

This publication is copyright. No part may be reproduced by any process except in accordance with the provisions of the Copyright Act 1968.

Whilst this report has been accepted by ISS Institute, ISS Institute cannot provide expert peer review of the report, and except as may be required by law no responsibility can be accepted by ISS Institute for the content of the report or any links therein, or omissions, typographical, print or photographic errors, or inaccuracies that may occur after publication or otherwise. ISS Institute do not accept responsibility for the consequences of any action taken or omitted to be taken by any person as a consequence of anything contained in, or omitted from, this report.