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## **VetSet2Go: a collaborative outcomes and assessment framework building employability, resilience and veterinary graduate success**

**Final report, 2019**

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## List of acronyms used

AAVMC	Association of American Veterinary Medical Colleges
AMEE	Association for Medical Education in Europe
AVA	Australian Veterinary Association
AVBC	Australasian Veterinary Boards Council
AVE	Assessment of Veterinary Employability
CBVE	Competency-based Veterinary Education
CIVME	[AAVMC] Council for International Veterinary Medical Education
HERDSA	Higher Education Research and Development Society of Australasia
NAVMEC	North American Veterinary Medical Education Consortium
RCVS	Royal College of Veterinary Surgeons (UK)
VSANZ	Veterinary Schools of Australia and New Zealand
VSB	Veterinary Surgeons' Board
WIL	work-integrated learning

# Executive summary

## Context

This three-year project, from September 2015 through to August 2018, set out to make a distinctive contribution to the rapidly evolving field of employability, hitherto ignored in the veterinary context. The main drivers for this project were:

- emerging employment and workforce concerns for veterinary graduates
- serious mental health concerns in both students and early graduates, partly potentiated by lack of preparedness for transition to practice
- the failure of prevailing competency frameworks to usefully align with graduate-relevant outcomes predictive of professional success
- the universally acknowledged challenge of developing and assessing the ‘soft’ skills and personal capabilities known to be critical for employability and graduate success.

## Aims and outcomes

The aims of the VetSet2Go project were to (1) explore what employability means in the veterinary context, (2) develop an evidence-based, multi-stakeholder framework of the capabilities most important for employability and success in the veterinary profession, and (3) create aligned assessment tools and resources to build these capabilities, in order to improve veterinary graduate employability, resilience in transition to practice, and professional satisfaction and success.

The project had the following intended outcomes:

- Provide enhanced clarity and evidence around the veterinary graduate capabilities that most strongly influence employability and professional success (to guide students, educators and accreditors).
- Provide aligned open-access resources supporting development and formative, multisource assessment of these capabilities (for use by students, educators and work-integrated learning (WIL) supervisors).
- Enhance engagement of veterinary employers and WIL supervisors in undergraduate development, through clearer alignment of outcomes and assessment with stakeholder needs and expectations.

## Approach

The approach was to use the employability construct as a lens to provide greater clarity around the veterinary graduate capabilities that most influence professional success and satisfaction, and as the basis for an aligned learning and assessment framework for building these capabilities. The project initiated a significant body of new research from multiple stakeholder perspectives, which was distilled to inform an evidence-based framework (i.e. the VetSet2Go framework).

**Phase 1 (Sept. 2015 – Nov. 2017)** involved discovery and synthesis of key evidence. In this evidence-gathering phase the project team addressed two key research questions through stakeholder-based projects:

- *How should the broad construct of employability be interpreted and defined in the veterinary context?*
- *What are the capabilities most important to veterinary graduate employability and successful transition to practice?*

This phase built on scoping reviews that identified several critical gaps in current knowledge within the discipline, each addressed through targeted research by the project team as five subprojects:

- employer/employee perceptions of success in career transitions (lead: Murdoch University)
- employer expectations for graduate recruitment (lead: The University of Queensland)
- client expectations (lead: The University of Edinburgh)
- stakeholder perceptions survey (Lead: Murdoch University)
- veterinary resilience (leads: The University of Adelaide/Washington State University).

These scoping reviews and research subprojects converged to inform a Delphi consensus process and an inaugural Veterinary Employability Forum (February 2017), enabling synthesis of a veterinary employability framework (the VetSet2Go framework) solidly grounded in both evidence and multi-stakeholder consensus.

**Phase 2 (Apr. 2017 – Aug. 2018)** involved validation and application of the framework, development of aligned open-access learning and teaching resources, and final dissemination of the project outputs. The resilience subproject included a long-term longitudinal study of early career veterinarians, which continues beyond the term of the VetSet2Go project.

## Outputs and impact

The outputs of this project were built around development and application of a framework comprising a model and a core set of veterinary employability capabilities:

- VetSet2Go Veterinary Employability Framework and four-page learner mini-guide
- Assessment of Veterinary Employability (AVE) online self-evaluation tool, and short form rubric (Short Assessment of Veterinary Employability) for multisource feedback
- learner resource cards (18 capabilities)
- quote bank and other educator resources
- VetSet2Go Veterinary Client Expectations Survey report
- VetSet2Go Stakeholder Perceptions Survey report
- *Guide for veterinary educators*, which is a user-facing complement to this project report.

The project achieved significant national and international impact for veterinary educators, students, professional bodies and other stakeholders. The VetSet2Go framework and tools have been strongly endorsed, and are being adopted into teaching activities, curriculum, and further research activities in partner and non-partner schools. Research from the project has made a major contribution to the understanding and profile of employability within the discipline and more broadly, and will extend into ongoing research. Strong engagement with other veterinary outcomes working groups will extend the project's impact.

## Key conclusions and recommendations

- Employability can be defined in the veterinary context as 'a set of adaptive personal and professional capabilities that enable a veterinarian to gain and sustain employment, contribute meaningfully to the profession and develop a professional pathway that achieves satisfaction and success'.
- The VetSet2Go framework consists of 18 capabilities within five broad, overlapping domains: psychological resources (for the self), effective relationships (for others), veterinary capabilities (for the task), professional commitment (for the mission) and self-awareness (for the central process).
- Employability should neither replace nor be subsumed into existing competency and professionalism frameworks. Rather, competency, professionalism and employability are better conceptualised as distinct dimensions (or learner 'lenses') of the successful veterinary professional.
- Employability pedagogy requires 'slow' learning approaches, best integrated across the whole program through multiple reflection cycles.



- Assessment of employability is challenging. Rather than summative, criterion-driven assessment, employability development is better targeted formatively through guided reflection, experiential learning, mentoring and rich, multisource feedback.
- Reflection, self-awareness and identity formation should form the core of employability learning, raising awareness of employability strengths as well as areas for development, and exploring 'job fit'.
- The high extramural and clinical experience requirement in veterinary courses creates valuable opportunities for employability learning.
- Employability offers a solid shared framework for engagement of external partners and mentors in veterinary education.

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# Chapter 1. Context

## 1.1 Key drivers

The key drivers for the VetSet2Go project were:

- emerging employment and workforce concerns for veterinary graduates
- serious mental health concerns in both students and early graduates, partly potentiated by lack of preparedness for transition to practice
- the failure of prevailing competency frameworks to usefully align with graduate-relevant outcomes predictive of success in practice
- the universally acknowledged challenge of assessing the ‘soft’ skills and personal capabilities known to be critical in employability and graduate success.

## 1.2 Background

Prior to the VetSet2Go project, the specific construct of employability had not been explicitly explored in veterinary education. Nevertheless, veterinary education arguably has a rich history of employability pedagogy, including extensive contact time devoted to authentic professional contexts and work-integrated learning (WIL), and competency frameworks focused on ‘work readiness’, as is explicit in the title of the Royal College of Veterinary Surgeons’ (RCVS 2001, 2014) Day One Competences. However, these efforts have lacked a shared definition, discourse and educational framework around employability.

A scoping review for the project found that little has been published on employability in other health professions, as also noted by Sisodia and Agarwal (2017). Williamson (2015) explored employability from the perspective of employers of radiographers, but also articulated the significant challenges for integrating employability in healthcare education:

- very full curricula largely prescribed by competency frameworks and professional standards
- largely ‘self-contained’, practice-based programs unlikely to integrate with broader institutional strategies for employability
- integral alignment to professions with high initial employment prospects, causing employability to be dismissed as unnecessary.

Some health professions have explored aspects of employability under different guises. For example, Gardner et al. (2007) explored the attributes underpinning ‘capability’ in nurse practitioners, defined as a holistic attribute making a person more likely to deal effectively with the challenges of turbulent clinical environments. In medical education, the shift towards competency-based medical education and entrustable professional activities (EPAs)

is being accompanied by calls to foster a holistic professionalism, in particular through professional identity formation (Frenk et al. 2010). It is increasingly accepted that the transition of becoming a professional involves more than the acquisition of explicit skills, expertise and behaviours; it also demands transformative development of a professional identity – to ‘think, act, and feel’ like a professional (Cruess et al. 2014). This presents the challenge of how to foster professional identity formation in healthcare education, since it dynamically involves many uniquely personal and often intangible factors such as reflection, self-awareness, self-beliefs, core values, motivation and commitment, resiliency and psychosocial identity.

As in medical education, there have been recent calls in veterinary education to provide clarity around what it means to be an effective veterinary professional (Armitage-Chan et al. 2016; Mossop 2012). Armitage-Chan et al. (2016) formulated a contemporary, practitioner-led view of veterinary professional identity as:

*... an interprofessional team member, who makes clinical decisions in the face of competing stakeholder needs and works in a complex environment comprising multiple and diverse challenges.*

This view of balancing multiple stakeholder needs in the face of dynamic complexity brings professional identity formation rather close to employability development, and provided important guidance for the multi-stakeholder approach of the VetSet2Go project.

### **1.3 Veterinary-specific issues and drivers**

Various ‘state of the profession’ reports have raised concerns about oversupply of workforce capacity or new graduates in Australia (Australian Veterinary Association 2013) and the UK (Buzzeo et al. 2014). In the US, where the workforce may also be currently oversupplied (Dall et al. 2013), it has been suggested that while broader societal needs for veterinary services are potentially expanding, these may go unmet because the scope of veterinary training has instead been narrowing (National Research Council 2011). In the UK, the Vet Futures (2015) report has raised concerns about the number of veterinarians, particularly recent graduates, dissatisfied with their career and opportunities for progression. The report sets a strategic goal to promote ‘diverse and rewarding careers’ in which graduates ‘emerge equipped with a breadth of skills that enable them to pursue any number of exciting career paths’, and flags ‘a need to review the extent to which veterinary education currently prepares students for the workplace, and also what the workplace provides’.

These reports build on earlier economic studies in the US (Brown & Silverman 1999, Cron et al. 2000) warning that major economic and societal changes have created a mismatch between the skillset of veterinarians and those required for career and economic success. The ‘Roadmap’ report (2011) of the North American Veterinary Medical Education Consortium (NAVMEC) subsequently promoted the need to address these challenges by VetSet2Go: a collaborative outcomes and assessment framework building employability, resilience and veterinary graduate success

graduating ‘career-ready veterinarians’ with ‘skills that are highly valued by employers and by society in general’, with particular emphasis on professional competencies.

This framing around ‘professional competences’ or ‘non-technical skills’ parallels a shift in veterinary education – again mirroring medical education frameworks – from input-based to outcome-based quality assurance processes. This has placed much emphasis on the definition of competencies – the knowledge, skills and attributes underpinning the ability to perform complex professional tasks. The RCVS’ Day One Competences (2001, 2014) and Association of American Veterinary Medical Colleges’ (2018) Competency-Based Veterinary Education (CBVE) framework mark major milestones in these efforts in the UK and US respectively. However while it is universally accepted that a clinician must be competent, the dominance of the ‘competency’ paradigm in healthcare education has periodically been criticised, for example that the normative reference to a minimum threshold discourages excellence and reflective practice, that the atomistic/reductionist approach ignores the complexity of healthcare contexts and that it generally fails to capture the most important things that distinguish a ‘good doctor’ from a merely competent one (Brightwell & Grant 2013; Brooks 2009; Talbot 2004). Because of these constraints, the dominant healthcare paradigm of competency-based education may not naturally encourage a comprehensive and holistic employability approach.

## **1.4 Veterinarian resilience and wellbeing**

Dacre Pool and Sewell (2007) formulated a widely cited definition of employability as ‘having a set of skills, knowledge, understandings and personal attributes that make a person more likely to choose and secure occupations in which they can be satisfied and successful’. In a conceptual review completed for the VetSet2Go project, Bell et al. (2018) note that it is particularly this inclusion of ‘the practitioner’s own needs’ to be ‘satisfied and successful’ in their work that sets employability apart from the educational paradigms of competency and professionalism. This aligns with increasingly prominent concerns around the mental health and wellbeing of veterinarians. There is consistent evidence that veterinarians suffer elevated risk of burnout, mental distress and suicide (e.g. Hatch et al. 2011), with a proportional mortality for suicide up to four times that of general population estimates (Bartram et al. 2009; Jones-Fairnie et al. 2008). Some evidence suggests that elevated mental health risk is already present in veterinary undergraduates, particularly females (and is thus compounded by progressive feminisation of the profession) (Cardwell et al. 2013; Hafen et al. 2008; Strand et al. 2005). The period of transition to practice is known to be particularly stressful for new graduates, with elevated mental health risk (Bartram et al. 2009; Gardner & Hini 2006; Hatch et al. 2011; Mellanby & Herrtage 2004).

This transition overlaps what in medicine has been termed ‘the professional formation’, a crucial and vulnerable period of concurrent personal, moral and professional maturation (Rabow et al. 2010). Stress, burnout and professional attrition in this ‘make-or-break’ period has been partly attributed to inadequate preparation for the realities of practice, in

particular the prevailing educational emphasis on disciplinary knowledge and technical skills, rather than the personal, interpersonal and life skills that are crucial to professional success (Gilling & Parkinson 2009), including many of those consistently identified as key employability capabilities.

## **1.5 Defining employability in the veterinary context**

Given these issues, it is clear that a greater focus on employability has the potential to address many contemporary challenges for veterinary education and the profession:

- clearly flagging the capabilities most important to future success and satisfaction
- better preparing graduates for the ‘make-or-break’ period of transition to practice
- supporting wellbeing and resilience, in the face of known mental health risks
- balancing the needs and expectations of all stakeholders, including employers, clients and the graduate/employee themselves
- broadening and diversifying career opportunities through transferable skills
- engaging students in professional learning through self-awareness, personal growth and professional identity formation
- balancing the summative approach encouraged by competency-based education with a more holistic, formative approach based in experiential learning, guided reflection and feedback.

Taking into account these disciplinary drivers as well as the broader employability literature (e.g. Dacre Pool & Sewell 2007; Holmes 2013; Knight & Yorke 2003; van der Klink et al. 2016), the VetSet2Go project identified that a full account of employability in the veterinary context should include:

- outcomes of satisfaction and success (Dacre Pool & Sewell 2007) in meaningful employment, in addition to ‘getting a job’ or ‘work-readiness’
- success factors spanning the work lifecycle (in gaining initial employment, transition to employment and ongoing career pathways).
- more than just knowledge and ‘key skills’, and extend to diverse aspects such as life and workplace experience, career management, emotional intelligence, psychological capital, self-beliefs and reflective self-awareness
- dynamic social processes such as identity formation (Holmes 2013), as well as more innate ‘attributes’ or ‘qualities’
- factors that mutually benefit both the employer and employee (or balance all stakeholder expectations) to ensure sustainability (van der Klink et al. 2016)
- factors that ensure wellbeing and satisfaction (in life and work) as well as productivity.



Drawing on definitions and models in the literature (e.g. Dacre Pool & Sewell 2007; Yorke & Knight 2003) the VetSet2Go project adopted the following working definition of veterinary employability to guide development of an employability framework suitable for use in veterinary education:

*A set of adaptive personal and professional capabilities that enable a veterinarian to gain and sustain employment, contribute meaningfully to the profession and develop a professional pathway that achieves satisfaction and success.*

## Chapter 2. Activities

### 2.1 Aims

The aims of the VetSet2Go project were to explore what employability means in the veterinary context, define the capabilities most important for employability and success in the veterinary profession, and create assessment tools and resources to build these capabilities.

### 2.2 Approach

The project was a multi-national collaboration between 14 academics across veterinary schools in Australia (Perth, Queensland, Sydney, Adelaide), the UK (Edinburgh, Nottingham) and the US (Washington State). As well as veterinary academics, the multidisciplinary project team included a teacher educator and a clinical psychologist. Additional perspectives, including those of employers, practitioners, professional bodies and interdisciplinary experts, were gathered through consultation, advisory groups, a world-first Veterinary Employability Forum (48 delegates, February 2017) and an expert Delphi consensus process.

The project approach was to use the employability construct as a lens to provide greater clarity around the veterinary graduate capabilities that most influence professional success and satisfaction, and as the basis for an aligned learning and assessment framework to build these capabilities. The project initiated a significant body of new research from multiple stakeholder perspectives, which was distilled to inform an evidence-based framework. This mirrors the stepwise approach to employability development advocated by Oliver (2010) of determining 'capabilities that count', supporting their achievement through work-integrated experiences, followed by self- and peer-assessment.

The project was designed in two phases (Figure 1):

**Phase 1 (Sept. 2015 – Nov. 2017)** involved discovery and synthesis of key evidence.

In this evidence-gathering phase the project team addressed two key research questions through stakeholder-based projects:

- *How should the broad construct of employability be interpreted and defined in the veterinary context?*
- *What are the capabilities most important to veterinary graduate employability and successful transition to practice?*

This phase built on scoping studies, including a recent Best Evidence Medical Education systematic review (Cake et al. 2016) and a scoping literature review of employability frameworks in other contexts, including allied health disciplines. These reviews identified several critical gaps in current knowledge within the discipline, each addressed by targeted research by the project team through five subprojects:

- employer expectations for graduate recruitment (lead: The University of Queensland)
- employer/employee perceptions (lead: Murdoch University)
- client expectations (lead: The University of Edinburgh)
- stakeholder perceptions survey (lead: Murdoch University)
- veterinary resilience (lead: The University of Adelaide/Washington State University).

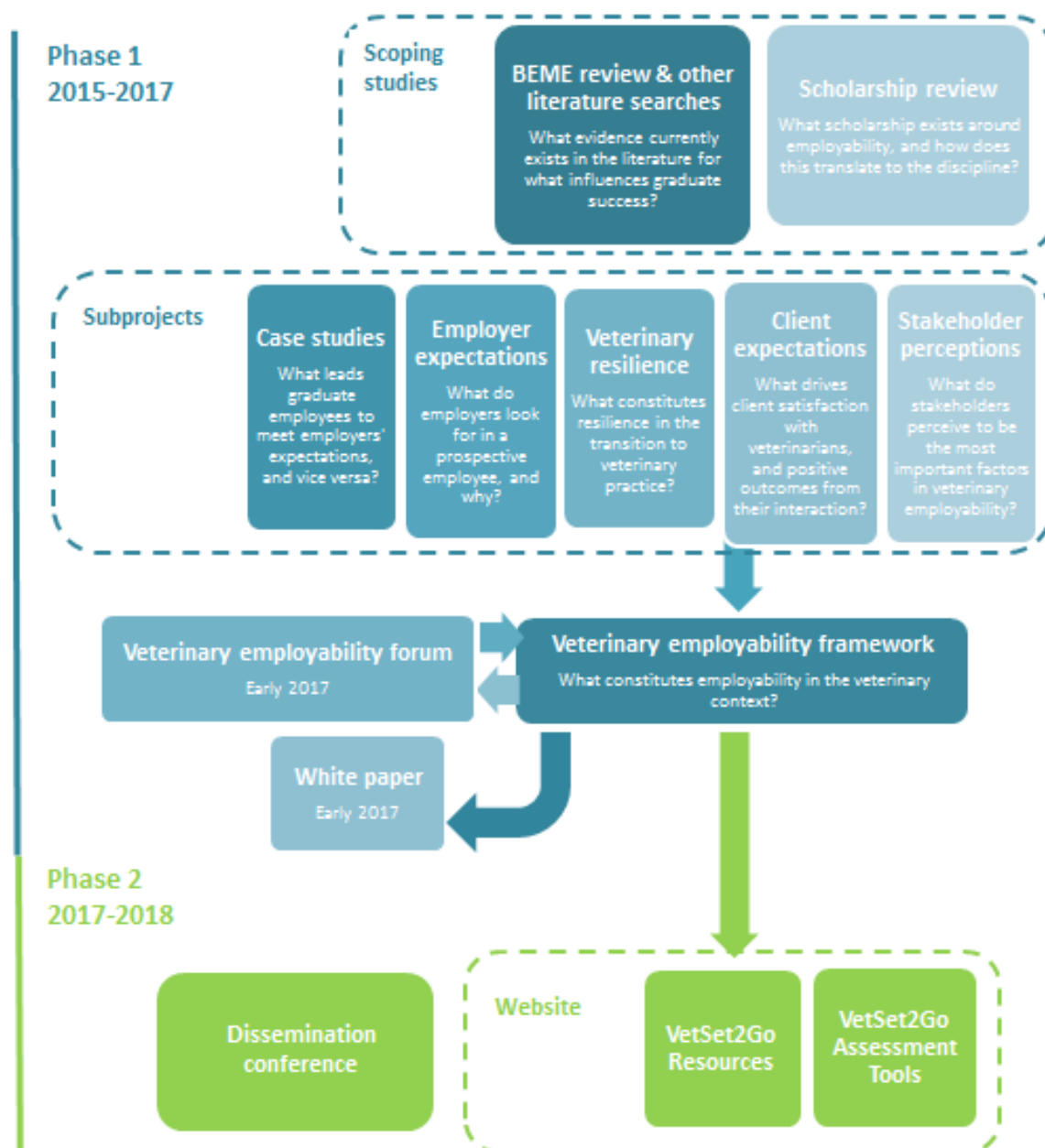
These reviews and research subprojects converged to inform a Delphi consensus process and an inaugural Veterinary Employability Forum (February 2017), which in turn informed development of a veterinary employability framework (the VetSet2Go framework) solidly grounded in both evidence and multi-stakeholder consensus.

**Phase 2 (April 2017 – May 2018)** involved validation and application of the framework, development of aligned open-access learning and teaching resources, and final dissemination of the project outputs. These resources will be implemented and fully validated in an extension phase (phase 3) beyond the funding period for the project.

### **2.2.1 Systematic review**

The VetSet2Go project built directly on a major systematic review (Cake et al. 2016) completed by three members of the project team for the Best Evidence in Medical Education (BEME) consortium, which addressed a closely related research question: ‘Which professional (non-technical) competencies are most important to the success of graduate veterinarians?’ The review found that the only competency to be strongly supported by current evidence from competency frameworks, stakeholder perceptions and empirical evidence is communication skills, although some empirical evidence also supports the importance of empathy, relationship-centred care, self-efficacy and business skills. However, the point highlighted most strongly in this review was the relative deficiency of evidence regarding the importance of professional competencies, which might be expected to comprise many of the competencies influencing employability.

The review established a small but consistent body of published evidence for the capabilities most important to veterinary success. Key studies in the literature include surveys of Australian employers (Heath & Mills 2000; Schull et al. 2012), and UK clients (Mellanby et al. 2011) and recent graduates (Bristol 2002; Riggs et al. 2001; Rhind et al. 2011).



**Figure 1: Flowchart of project activities.**

## 2.2.2 Employers – graduate selection (Schull, King, Hamood & Feakes)

The qualitative study of Schull et al. (submitted for publication) explored, through semi-structured interviews, the conceptions of and rationale and criteria used by employers in relation to selecting new graduate veterinarians for employment. Data from 18 Australian employers were analysed using thematic analysis, within the context of a social constructivist lens.

Selection factors were grouped into 20 themes, within four broader categories:

- *personal attributes (or intrapersonal characteristics)* – those factors linked to the personality and character of the candidate, as viewed and appraised through the employer's lens
- *interpersonal skills* – those factors associated with the way candidates interacted with others
- *veterinary capabilities* – reflecting the candidate's vocational-specific knowledge and skills including those related to animal handling and problem-solving
- *job match* – highlighting the interaction between the candidate's personal attributes, interpersonal skills and veterinary capabilities and the specific job requirements, workplace characteristics and employer needs/priorities.

Findings from this subproject emphasised the role of employer circumstances and needs in the selection of new graduate veterinarians, and the influence of perceptions of candidate job suitability, and employee–workplace match. The findings highlight a role for higher education in helping students to develop self-awareness (awareness of their own personal and professional skill set including strengths and potential deficits, and how they may be viewed/appraised by others, including potential employers; an awareness of the vocational, workplace attributes they seek for their first job following graduation and possibly some broader or more long term career goals; and an ability to effectively appraise the needs of a specific job, employer and workplace to determine if the union is likely to be suitable for all parties involved.

### **2.2.3 Client expectations (*Hughes et al.*)**

The aim of the VetSet2Go subproject reported by Hughes et al. 2018 was to identify factors that contribute to client satisfaction around their interactions with vets, with a focus on underpinning capabilities. This study consisted of three phases, each informing the next, in a mixed-methods approach: (1) a literature review informing key themes around client satisfaction, (2) thematic analysis of client focus groups and interviews (with 46 UK clients) to establish key capabilities and indicators and (3) an international online client survey (1275 completed surveys from 1599 respondents; 46% from Australia and 50% from UK) to validate the framework.

This process established and validated a client expectations capability framework, with all of the six capabilities rated as very important overall. When asked to choose up to three that they most valued, respondents rated 'commitment to animal welfare', 'commitment to quality and the profession' and 'client relationships' most highly. The data suggested a client 'hierarchy of needs' akin to Maslow's pyramid, which emphasises the fundamental importance of commitment to animal welfare and veterinary capabilities to the client experience.

Qualitative comments from the client survey and focus groups reveal nuances to these expectations, for example:

- the importance of mutual trust
- that competence and professionalism should be balanced with humanity and empathy
- the need to tailor for client differences, for example in balancing consultation with decisiveness
- honesty about limitations can be valued when addressed through follow-up learning or referral.

#### **2.2.4 Matched employer–employee interviews (*Bell et al.*)**

The study of Bell et al. (accepted for publication) investigated the factors contributing to success in the transition from veterinary student to practising veterinarian, from the perspectives of recent Australian graduates and their employers (nine pairs). The semi-structured interviews focused upon three distinct phases: the initial ‘getting a job’, transition to practice (first two years), and longevity in the profession. Two focus groups (employers and employees) supplemented the data.

Employers and employees largely shared similar views on a majority of the themes associated with success for that graduate. The importance of themes changed with the phase of employment. In particular, those themes associated with long-term success in the profession were very different to those contributing to success in getting a job and transition to practice, confirming that sustainability is supported by work–life balance and continual learning.

#### **2.2.5 Stakeholder perceptions survey (*Bell, Cake, King & Mansfield*)**

This study by Bell et al. (in preparation) involved a large online survey to explore stakeholder perceptions of key veterinary employability capabilities, using survey items created from preliminary data collected from interviews and focus groups within other subprojects. The survey was distributed electronically through various agencies in Australia, New Zealand, the UK and parts of the US and Canada, in addition to the VetSet2Go website. Respondents were asked to align to a stakeholder group (recent graduate employee veterinarian, employee veterinarian, veterinary employer, non-veterinary employer, team member (nurse, support staff), veterinary academic or member of a professional organisation, and non-veterinary member of a professional organisation).

Responses were received from 1413 people, with 1094 completing the survey. An open statement component yielded 5455 statements briefly describing what employability means to the respondent. In the quantitative part of the survey, respondents first rated the relative importance of 67 items from 11 capability themes, then broadly ranked these 11 themes.

The results broadly show that communication (clients and colleagues), teamwork and working behaviour (e.g. honesty, ethics, hard work, reliability) are the themes perceived to be most important to employability in the veterinary context. Other individual capabilities rated as particularly important included knowing when to ask for help and willingness to learn. Few differences were noted between stakeholder groups, or between geographical locations of respondents.

Business skills were generally rated lower by respondents, suggesting they are not perceived to be as important to veterinary employability. While some aspects of veterinary business were rated as important (discussing financial aspects, charging appropriately), abilities that aligned more to 'practice management' were rated as less important (e.g. managing staff, managing stock, financial planning).

## **2.2.6 Veterinary resilience subproject (McArthur, Matthew, Zaki, Cake, Mansfield)**

The VetSet2Go project included a major subproject investigating the nature of resilience in the veterinary context, particularly for early-career veterinarians. This multi-faceted study initiated a number of research projects around veterinarian resilience, some of which will extend beyond the period of the parent VetSet2Go project.

The subproject was guided by a complex conception of resilience as simultaneously a capacity, a process and an outcome; that is, a dynamic and multi-faceted *process* in which individuals draw on personal and contextual *resources*, and utilise specific *strategies* to navigate challenges and work toward adaptive *outcomes* (after Mansfield et al. 2016). This conception makes it clear that resilience is not a trait-like ability of a person, nor is it the sole responsibility of an individual; nevertheless, it is a capability that can be strengthened through development of resources (e.g. motivation, social support) and a toolkit of active strategies (e.g. life balance, mindfulness, reflection).

### **2.2.6.1 Resilience literature review (Cake et al.)**

A scoping literature review by Cake et al. (2017) aimed to appraise how resilience is portrayed in the contemporary (1995–2016) research and education literature around veterinary mental health (59 sources). The review found that a predominant emphasis on mental health problems, particularly stress and suicide, may be obscuring an equivalent understanding of thriving and wellness in veterinary work. The construct of resilience was shown to be underdeveloped in veterinary mental health and education research, despite being identified as a key capability in several competency frameworks (e.g. NAVMEC 2011; RCVS 2014) and its potential to positively reframe and balance approaches to wellbeing in the discipline. The review provided a preliminary synthesis of the key themes around resilience factors mentioned in the veterinary literature: emotional competence, motivation, personal resources, social support, organisational culture, life balance and wellbeing strategies.

#### **2.2.6.2 Veterinary career motivations (*Cake et al.*)**

These studies explored the motivations for pursuing a veterinary career, which are not well studied in the literature. An initial exploratory study (Cake et al., in press) qualitatively analysed the responses of 43 Australian graduates to a Ten Statements Test, as well as follow-up interviews of a subset of 10 graduates. Results showed that while animal-related motivations are important, many non-animal themes also emerged, including both intrinsic motivations (e.g. love of learning, challenge and problem-solving, variety, social relatedness) and extrinsic motivations (e.g. helping people, social contribution, career opportunity). Interviews revealed that some graduates struggled to articulate their career motivations, while for others these evolved after graduation.

These findings informed development of a six-factor Veterinary Career Motivations questionnaire (Cake et al., submitted for publication), which was validated in samples of early career (53) and experienced (1056) veterinarians. Together, these studies suggest the motivations underpinning veterinary work are varied, and span a mix of intrinsic and extrinsic motivations including (in approximate order of importance):

- animal orientation (e.g. love of animals; wanting to help animals)
- challenge and learning (e.g. love of learning and problem-solving; variety)
- vocational identity (e.g. childhood dream)
- social purpose (e.g. wanting to make a difference to society)
- people orientation (e.g. client interactions; wanting to help people)
- career affordances (e.g. decent income; status and respect; career opportunities).

#### **2.2.6.3 Resilience in veterinary students (*McArthur et al.*)**

This study by McArthur et al. (2017) examined some capacities known to be related to resilience in Australian veterinary students who had completed at least two weeks of extramural studies or worked in a veterinary clinic. Using a cross-sectional online survey method with validated psychometric measures such as the Brief Resilience Scale, the Five-Facet Mindfulness Questionnaire and the Self-Compassion Scale. Results suggested that 34% of students reported low resilience and only 6% of respondents reached the 'highly resilient' threshold. Non-judgemental and non-reactive mindfulness and self-compassion were predictive of resilience. Both mindfulness and self-compassion can be viewed as both personal resources and strategies to enhance resilience, and thus are capacities that can be learned by veterinary students to support their resilience.



#### **2.2.6.4 Longitudinal study of resilience in early-career veterinarians (*Matthew, McArthur, Zaki, Cake, Mansfield*)**

This long-term study recruited participants at the point of graduation from Australian veterinary schools into a mixed-methods longitudinal study of their resilience in the early years of their veterinary career. Data was gathered via a quantitative survey at the point of graduation, six months, 18 months and will be collected at three years post-graduation. Several validated psychometric measures were utilised at each time point including the Brief Resilience Scale, the Veterinarian Resilience Scale (Matthew et al., submitted for publication), the Brief COPE, The General Self-Efficacy Scale and the Veterinary Career Motivations scale (see 2.2.6.2). Semi-structured interviews were conducted at all time points, aside from the point of graduation. The full outcomes from this longitudinal study will be delivered outside the funding period of the parent VetSet2Go project; preliminary findings include:

- a theme of self-criticism with learned self-compassion in the face of adversity
- challenges with goal-setting following graduation from veterinary school
- strategies to develop resilience such as social networks, self-care in the form of exercising, ensuring healthy eating habits and quarantining time for meal breaks
- that communication in the workplace was both a contextual resource for building resilience and at the same time, hindered resilience
- that resilience is both the responsibility of the individual and those within the context, in this case the veterinarian's workplace.

#### **2.2.7 Modified Delphi process (*Bell, Cake, Mansfield & L King*)**

In order to refine and balance the evidence from different stakeholder perspectives, this project by Bell et al. (in preparation) coordinated a modified Delphi process with a panel of 32 experts in veterinary education, employment and policy. This process used a round-by-round voting process to reach consensus on the capabilities considered most important to veterinary employability. Panel members were supplied with an information package consisting of definitions and models of employability, a relevant literature review (Cake et al. 2016) and data from the five VetSet2Go subprojects. A short list of 47 capabilities was resolved from the above data and panellists were asked to choose 25 to 35 of the most important capabilities for veterinary employability in three rounds of voting over a three-month period. In a qualitative component of the process, panellists were invited to comment on the process, add capabilities, or clarify or change the wording of items.

A consensus level of >85% agreement was eventually reached on 21 capabilities important to veterinary employability:

- accepts responsibility
- adaptability
- animal-handling skills
- awareness of limitations
- commitment to animal welfare
- diligence and high standard of care
- effective communication – clients (including reflective listening)
- effective communication – colleagues (including reflective listening)
- emotional intelligence
- empathy and compassion
- keen to learn, teachable (including open-mindedness)
- proactive, uses initiative
- problem-solving
- professional standards of behaviour
- professional values (honesty, integrity, ethics, etc.)
- reflective, open to feedback
- resilience and wellbeing (including self-compassion, self-care, perseverance and personal support networks)
- self-awareness
- teamwork (including assertiveness and negotiation skills)
- technical knowledge and skills
- workflow management (including time management, organisation, attention to detail).

**Table 1: Summary of stakeholder-led evidence generated by the project**

<b>VetSet2Go evidence</b>	<b>What's important for employability and success</b>
<b>Systematic review</b> <ul style="list-style-type: none"> <li>• 32 included sources</li> <li>• 10 consensus frameworks</li> </ul>	<ul style="list-style-type: none"> <li>• Effective communication, empathy, relationship-centred care, awareness of limitations, professional values, problem-solving, teamwork, resilience, confidence, business skills</li> </ul>
<b>Case studies</b> <ul style="list-style-type: none"> <li>• 9 semi-structured interviews of Australian employer–employee pairs</li> </ul>	<ul style="list-style-type: none"> <li>• Self-confidence, communication, teamwork, emotional intelligence, ‘interpersonal skills’, resilience and work–life balance, keenness to learn</li> </ul>
<b>Employers – recruitment</b> <ul style="list-style-type: none"> <li>• 18 semi-structured interviews of Australian employers</li> </ul>	<ul style="list-style-type: none"> <li>• Personal attributes (responsible, agreeable, confident, independent, proactive, organised, diligent, resilient, self-aware, teachable, work ethic)</li> <li>• Interpersonal skills (teamwork, communication, leadership, manners, professional image, client relations)</li> <li>• Veterinary capabilities (animal handling, business sensibilities, veterinary knowledge and skills, physical capability, problem-solving)</li> <li>• Job match (career goals, cultural fit, retention likelihood, realistic expectations)</li> </ul>
<b>Resilience</b> <ul style="list-style-type: none"> <li>• Literature review</li> <li>• 340 survey respondents – veterinarians</li> <li>• ≥110 surveys – recent graduates (ongoing)</li> <li>• ≥15 interviews of graduates (ongoing)</li> </ul>	<ul style="list-style-type: none"> <li>• Emotional competence, motivation, personal resources (self-efficacy, optimism, reflection), social support, organisational culture, life balance, wellbeing strategies</li> <li>• Self-compassion, mindfulness, social support</li> </ul>
<b>Client expectations</b> <ul style="list-style-type: none"> <li>• 1599 survey responses</li> <li>• 8 focus groups</li> <li>• 6 interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Commitment to quality care and animal welfare, decision making and problem-solving, commitment to quality and the profession, professionalism, communication skills</li> </ul>
<b>Stakeholder survey</b> <ul style="list-style-type: none"> <li>• 1519 survey responses from stakeholders (recent graduates, employed veterinarians, vet and non-vet employers, allied staff, academics and policy makers)</li> </ul>	<ul style="list-style-type: none"> <li>• Communication skills (clients and colleagues), teamwork, working behaviour (work ethic, honesty, integrity), technical competence, psychological capital (motivation, resilience, personal efficacy)</li> </ul>
<b>Delphi panel</b> <ul style="list-style-type: none"> <li>• 32 international experts, representatives, practitioners</li> <li>• 3 rounds of consensus voting</li> </ul>	<ul style="list-style-type: none"> <li>• Communication (clients and colleagues), teamwork, reflection, professionalism, keen to learn, resilience, adaptability, knowledge and skills, proactive, problem-solving, workflow management, diligence, responsibility</li> </ul>

## Chapter 3. Outputs and activities

### 3.1 The VetSet2Go website

The [project website](http://www.vetset2go.ac.uk) (mirrored at [www.vetset2go.ac.uk](http://www.vetset2go.ac.uk)) gives access to the Veterinary Employability Framework, resources and assessment tools via stakeholder portals for learners, educators and employers), provides information about the project and links for download of project reports.



*Figure 2: Screenshot from the VetSet2Go project website.*

### 3.2 Survey reports

The complete results of two major surveys completed for the VetSet2Go project, the Veterinary Client Survey (1507 respondents, November–December 2016) and the Stakeholder Perceptions Survey (1519 respondents, September–November 2016) are openly available as reports from the project website. The client survey has been published by Hughes et al. (2018).

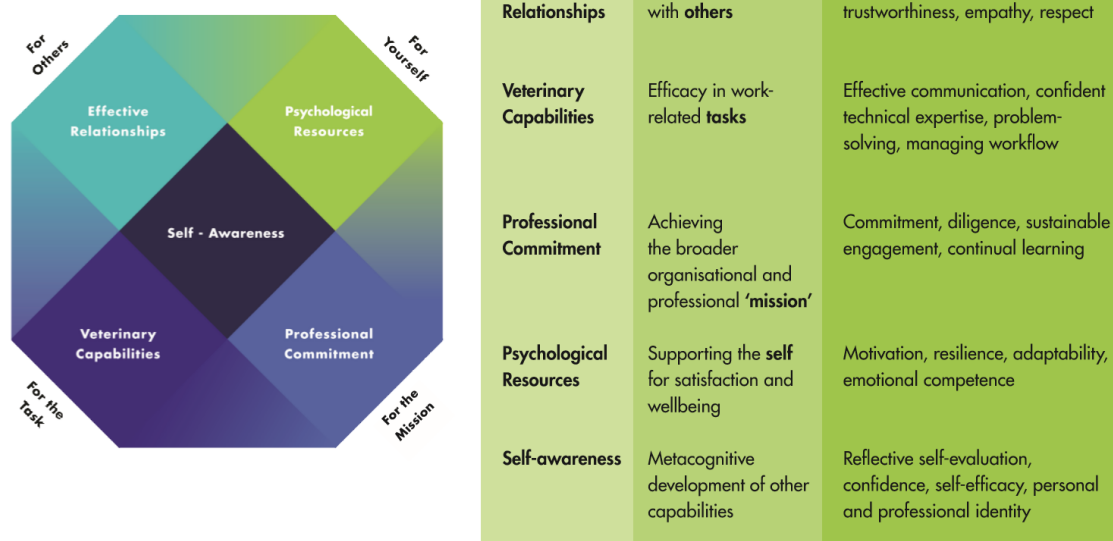
### 3.3 Veterinary Employability Forum

This dedicated forum in February 2017, the first such event addressing employability in the discipline, was attended by 48 delegates (see Acknowledgements) and provided important engagement with veterinary schools not represented in the project, a large corporate employer (Greencross Ltd.; four delegates), private practitioners (seven delegates), the Australian Veterinary Association (two delegates), and an Innovative Research Universities Fellowship project (Professor Jessica Vanderlelie). The forum showcased the evidence from

the VetSet2Go subprojects as well as other research, and initiated rich discussion around the issue of veterinary employability, both of which help to refine the VetSet2Go framework. Delegates were invited to participate in a simultaneous Delphi process (see 2.2.7).

### **3.4 Veterinary Employability Framework**

A major aim of the project was to develop a framework for veterinary employability defining the capabilities most important for employability and success in the veterinary profession. This process was guided by a conception (after Armitage-Chan et al. 2016) of the successful veterinary professional as one capable of navigating and balancing the (sometimes competing) needs and expectations of multiple stakeholders – employers, colleagues, clients, patients, the broader profession – and, importantly, the veterinarian themselves. From numerous threads of evidence around the expectations of key stakeholder groups (i.e. VetSet2Go subprojects, literature reviews, forum discussions, Delphi process) the VetSet2Go project team identified 18 key capabilities that are consistently important to employability in veterinary contexts. The term *capabilities* was used in preference to alternatives (e.g. skills, attributes) to signal their potential, contextually interpreted nature. These were synthesised into a novel employability model (Figure 3) of five broad, overlapping domains defined by their outcome orientation: psychological resources (for the self), effective relationships (for others), veterinary capabilities (for the task), and professional commitment (for the mission), all activated by a central element of self-awareness (for the process). The framework is summarised in a four page mini-guide for learners (available on the project website), and is outlined in detail in Guide for Educators (see 3.6).



**Figure 3: VetSet2Go model and capability domains.**

The five-domain VetSet2Go model provides a conceptually simple but holistically balanced employability model that may be useful for other disciplines, particularly other healthcare contexts. The model balances success criteria framed partly around the expectations of others (for competency and efficacy), and partly around the expectations of self (for sustainable satisfaction). This matches a conception emerging through the project of veterinary professional success as ‘being good at what you, and enjoying doing it’. The model further balances psychosocial ‘human’ aspects including psychological needs, as well as task-oriented work outcomes. The identified capabilities included multiple examples that are not abilities or ‘competences’ in the conventional sense, but rather indicate internal attitudes, mindsets and self-beliefs. These included attitudes to self (e.g. confidence) and attitudes to work, in the sense of both the immediate task and the broader professional ‘mission’ (e.g. commitment). Finally, the model not only includes qualities or ‘assets’ (i.e. Holmes’ (2013) ‘employability as possession’), but also the dynamic process by which they are developed and activated. The VetSet2Go project identified several processes as central to veterinary employability: reflective awareness of self (i.e. strengths, vulnerabilities, values, ideals, goals), and finding ‘fit’ or congruence between self and work opportunity, and thus between personal and professional identity.

### 3.5 Assessment of Veterinary Employability tool and other student resources

Given the central importance of reflective self-awareness, a major student-facing output of the VetSet2Go project was an online tool for self-evaluation against the framework: the Assessment of Veterinary Employability (AVE) tool. The open-access tool scaffolds reflection against the framework’s five domains and 18 capabilities as either an employability strength

or area for development, each of which is targeted for development through a personal action plan. The tool generates a pdf report for download, as well as allowing storage of time-stamped reflections to track development. The AVE tool has been piloted at each of the VetSet2Go partner schools as well as externally at University of Glasgow (Stalin 2018). Student and faculty feedback provides strong support for the efficacy and face validity of the tool and framework. Further research underway at several partner schools aims to compare student self-assessment with multisource feedback from faculty, extramural (WIL) supervisors, and peers using a single-page, short-form evaluation against the same framework.

The AVE tool and the project website direct learners to resource cards created for each of the 18 capabilities in the framework, based on the findings and interviews of the project. Each resource card provides a definition and rationale for each capability in the context of veterinary employability, illustrative quotes and possible strategies for their development.

## How do you rate yourself in each capability?

You now have the opportunity to rate yourself against each of the 18 capabilities, yet the order in which you work through each domain is up to you. Please click on a domain to get started!

Once you have rated all of the capabilities with a domain, you will return to this screen to choose the next domain.

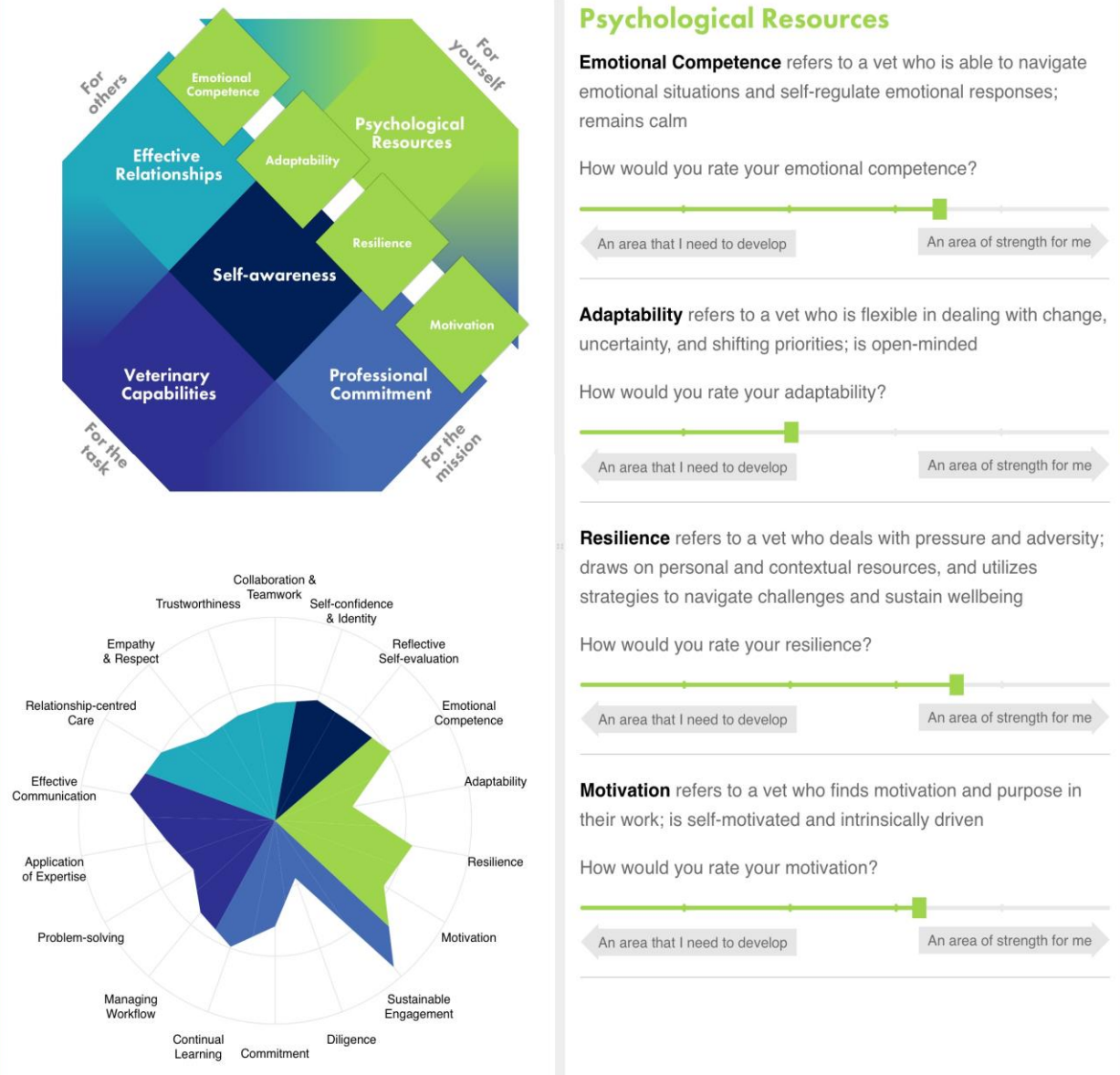


Figure 4: Screenshot of the Assessment of Veterinary Employability tool.



### **3.6 Guide for educators**

A comprehensive report for veterinary educators and accreditors, *Interpreting employability in the veterinary context: A guide and framework for veterinary educators*, was produced by the project as a user-facing complement to this final report. The report is intended to provide guidance on how to interpret and apply the construct of employability in the context of veterinary education and policy, to assist veterinary schools in developing evidence-based employability approaches with an authentic veterinary ‘flavour’. The guide will be disseminated widely in electronic and hardcopy format to veterinary schools, accrediting bodies and other stakeholders.

## Chapter 4. Impact and evaluation

### 4.1 Impact

The project achieved significant national and international impact for veterinary educators, current and future students, professional bodies and other stakeholders. The VetSet2Go framework and tools have been strongly endorsed, and are being adopted into teaching activities, curriculum and further research activities in partner and non-partner schools. Research from the project has made a major contribution to the understanding and profile of employability within the discipline and will extend into ongoing research, particularly for the veterinary resilience subproject, which will continue as a major project in its own right. The project's extensive dissemination and engagement activities succeeded in placing veterinary employability firmly 'on the agenda' within veterinary schools in the UK and Australia (including the Dean's leadership body, Veterinary Schools of Australia and New Zealand) and national professional bodies. Australian Veterinary Association (AVA) President Dr Paula Parker stated that 'the AVA was proud to support VetSet2Go and excited to see the release of the veterinary employability framework' (Berenger 2018). Perhaps most importantly, the project influenced the composition of two internationally important veterinary outcomes frameworks, the AAVMC Working Group's (2018) Competency-based Veterinary Education framework, and the RCVS Outcomes Working Group, which is actively revising the influential Day One Competences (RCVS 2014) framework.

An IMPEL matrix of the project's impact is provided in Appendix B.

### 4.2 Research publications

The project made a major contribution to the veterinary and interdisciplinary literature on employability (eight papers published, three submitted, five further papers planned). Publications from the project are listed in Appendix C. Two papers from the resilience subproject are currently listed in the top five 'most read' articles from the *Journal of Veterinary Medical Education*.

### 4.3 Engagement and dissemination

The project generated extensive dissemination and engagement activities, including more than 30 presentations at national and international conferences spanning veterinary and medical education, communication, positive psychology and wellbeing, and higher education. Conference papers from the project are listed in Appendix C. The project's Veterinary Employability Forum (see 3.3) was the first such event to be held worldwide.

The final phases of dissemination included showcase workshops across Australian veterinary schools, and workshops and presentations within an inaugural Australasian Veterinary Educators Symposium or 'VetEd Down Under' conference (University of Adelaide, February 2018, 83 delegates from 5 countries and 13 universities). This event, planned to continue as

a biennial event (next in Gatton, Queensland, February 2020), solidified a grassroots community of veterinary educators that will have a lasting impact on veterinary education in Australasia.

#### **4.4 External evaluation**

Dr Jennifer Mills was the external evaluator for this project, and provided a final evaluation report (Appendix D) confirming that the project's aims and major intended outcomes were achieved. Her involvement as an embedded evaluator (attending project meetings and events) provided valuable insight, and formed an important link to a previous Australian Learning and Teaching Council project *enhancing communication and life skills in veterinary students* (Mills et al. 2009).

## Chapter 5. Conclusions and key recommendations

### 5.1 Defining veterinary employability

The VetSet2Go project defined employability in the veterinary context as:

*A set of adaptive personal and professional capabilities that enable a veterinarian to gain and sustain employment, contribute meaningfully to the profession and develop a professional pathway that achieves satisfaction and success.*

An alternative definition emerging from the multi-stakeholder perspective of the project was ‘the capacity of a person to sustainably satisfy the optimal balance of all stakeholder needs and expectations in a work context, including their own’.

### 5.2 Framing employability for the veterinary education context

The project found that careful attention to defining, positioning and framing employability in the veterinary context is an important consideration for teaching. Issues around employability as a construct as well as discipline-specific veterinary concerns raise the following considerations for framing employability in veterinary education:

- **Success and satisfaction:** The project adopted a broad, personally oriented definition of employability based around *satisfaction* and *success* in meaningful employment (after Dacre Pool & Sewell 2007).
- **More than ‘key skills’:** Like many authors, the project team concluded that employability should not be reduced to employer-defined lists of ‘key skills’ or skill ‘gaps’, and noted that while the phrase *employability skills* is frequently encountered, this should be regarded as short-hand for a more complex set of learning outcomes including behaviours, beliefs, values and qualities. The project team preferred the term *capabilities*.
- **More than getting a first job:** As distinct from Day One competencies (RCVS 2001, 2014), employability can be applied to a whole career. While the focus for undergraduates may be on getting a desired job and successful transition in early employment, employability also describes long-term sustainability.
- **Process as well as possession:** Employability may be best portrayed as both a learning and growth process (self-awareness, reflection on experience, identity formation), and a possessed set of capabilities that can be discovered, developed and refined (Holmes 2013).
- **Contextual but transferable:** While undergraduate attention will likely be on preparing for clinical practice, the transferable nature of many employability attributes means that many will remain assets for non-clinical or non-veterinary

employment. Importantly, employability should be framed so as to broaden, not narrow, career opportunities through the development of transferable skills.

- **Balancing stakeholder expectations:** Employability should be considered from the perspectives of all the stakeholders, including employers, clients, team and the employee/self. This parallels the veterinary professional identity elicited by Armitage-Chan et al. (2016) of balancing multiple stakeholder needs in the face of challenging complexity.
- **Sustainability:** Employability comprises factors that mutually benefit both the employer and employee (or all stakeholders) to ensure sustainability of work.
- **Finding 'fit':** Employability is contextual and differs between work situations and roles. Awareness of self and career opportunity allows graduates to find 'job fit' in an employment context that values their capabilities.
- **Employability versus competency versus professionalism:** Bell et al. (2018) contrasted these educational objectives and noted distinctions in their purpose, emphasis, endpoint and evaluation. Because professionalism is fundamentally concerned with accountability to a social contract with others (clients, patients, society) it potentially emphasises the capacity to recognise personal and professional limitations, in contrast to employability, which is more oriented to recognition of personal and professional strengths, and must also capture the needs of the veterinarian themselves. Bell et al. (2018) suggested that employability should neither replace nor be subsumed by existing competency and professionalism frameworks. Rather, competency, professionalism and employability are better conceptualised as distinct dimensions of the successful veterinary professional; each can be harnessed as a distinct 'lens' to explore the distinct capabilities required in each context.

### 5.3 Recommendations for pedagogy

The project found that a greater focus on employability has the potential to address many contemporary challenges for veterinary education, and strongly recommends the adoption of employability-based approaches, such as the VetSet2Go framework (see 3.4) and tools (see 3.5), in veterinary education. These challenges and recommendations are detailed in an open-access Guide for Educators (see 3.6).

The project made the following recommendations for employability pedagogy in the veterinary education context:

- **Whole of course, embedded approach:** Veterinary employability will likely be best approached through pedagogy that engages students early in the course; spans the whole of program; accommodates 'slow learning' across units or modules; is vertically integrated; is regularly revisited through multiple reflection cycles; is fully

embedded in curricula, rather than ‘bolt-on’ modules; is framed and delivered in a veterinary rather than generic context; is supported, and at least partly delivered, by veterinary faculty and mentors rather than central university experts; is clearly scaffolded to course-level (degree-level) learning outcomes; and has an overarching philosophy and rationale.

- **Self-awareness:** The project concluded that self-awareness, reflection and identity formation should form the core of employability development, driving the central learning process as well as developing specific capabilities that are valuable in their own right (e.g. capacity for reflection, ability to articulate achievements). Self-awareness builds and activates employability ‘assets’ through knowledge of employability strengths as well as areas for development, drives personal learning and agency and enables exploration of identity ‘job fit’. Rust & Froud (2011) describe this critical self-awareness or ‘personal literacy’ – the ability to read one’s self – as the vital graduate attribute (the core of ‘graduate-ness’) and as the overarching ‘master key’ of employability. Critical self-reflection is a central element of major employability models including Dacre Pool and Sewell’s (2007) CareerEDGE model and Knight and Yorke’s (2003) USEM model. Self-awareness enables personalisation of employability learning, which is important given the endpoints of ‘success’ and ‘satisfaction’ must be uniquely defined by individuals. This recalls Viner’s (2010) premise that long-term satisfaction in veterinary practice is only likely when one’s professional objectives (i.e. provision of high-quality care) are in balance with core personal values and goals. Such congruence is important to motivation and engagement, and to workplace wellbeing.
- **Job fit:** Notions of ‘job fit’, ‘finding fit’ or ‘job matching’ were consistently encountered in project data from employers and employees, as were the related ideas of ‘fitting in’ or ‘team fit’. The outcome of ‘fit’ was implied to be mutual, suggesting that employers seek to recruit employees with particular qualities (skillset, attitudes, disposition, etc.) into specific roles and a broader workplace culture in which they believe they will succeed, to the mutual success of both parties. Similar representations of ‘fit’ are becoming prevalent in the broader employability literature (Williams et al. 2016).
- **Self as focus:** The project found that reframing the map of stakeholders with the graduate ‘self’ at the centre of the employability ‘pearlshell’ (Bell et al. 2018) is a powerful educational device emphasising the personal and mutual aspects of professional success. While employability is partly defined by the capacity to satisfy the expectations of others, it is also realised when a graduate fulfils their own potential and self-defined goals. It is thus individually and contextually diverse, and not amenable to normatively defined thresholds.

- **Professional identity formation:** Veterinary employability learning should be aligned and integrated with professional identity formation, which requires support for a similar process of identifying the gap between current capabilities and those of the professional (Armitage-Chan 2016).
- **Complex learning outcomes:** The project found that only a minority of the key employability capabilities could readily be described as ‘competencies’ in the applied sense (i.e. observable abilities underpinning specific professional tasks). Many relate more to internal self-beliefs, attitudes, values and metacognitive processes, and can only be interpolated, rather than measured, from complex behaviours.
- **Formative not summative assessment:** Employability development requires a primary focus on supporting learning, rather than summative judgement. Assessing employability may require a cultural shift to accept formative assessment methods normally dismissed as having low reliability.
- **Multiple assessment methods:** Assessment of employability is best designed to be multidimensional, with multiple time points, methods, purposes, assessors, presentation modes, tasks and contextual scaffolding (Knight & Yorke 2003). Examples of suitable assessment methods for employability include reflective writing, creative writing, logs and journals from relevant experience, contributions to group or online discussions, portfolios and eportfolios, self-assessment questionnaires and tools, direct observation in suitable (workplace) contexts, work-integrated learning assessment rubrics and peer assessment (Knight & Yorke 2003, Pegg et al. 2012). The project concluded that the most feasible and fruitful assessment approach for veterinary employability is likely to be multiple forms of guided reflection triangulated by rich, multisource feedback.
- **Guided reflection:** Guided and scaffolded self-evaluation and reflection is a core process in employability, which drives growth and development of capabilities as well as developing key metacognitive processes (see Moon 2004 for review). Reflection is a ‘master key’, with many central roles in employability learning.
- **Rich, multisource feedback:** Because the ability to self-assess is inherently limited, external feedback is essential to triangulate and calibrate self-assessment through comparing self-perceptions against the perceptions of others. The powerful effect of rich formative feedback on learning is well known (e.g. Biggs & Tang 2011), as are the systematic barriers inhibiting it. This is particularly true for complex veterinary clinical learning environments such as teaching hospitals and work placements, which offer rich opportunity for authentic and valuable feedback, but also present challenges in capturing it (Magnier & Peard 2017). The complex nature of employability capabilities dictates that tightly defining explicit learning objectives is difficult, and that the perceptions of assessors can be particularly subjective. This subjectivity can potentially be moderated by the use of multisource feedback, in

which multiple ‘low-stakes’ assessments from multiple sources (including clinical supervisors, workplace supervisors, peers) are aggregated into a combined report. Multisource feedback has been shown in other contexts (e.g. professionalism) to achieve high validity and reliability, through the use of ‘triangulated’ multiple data points to overcome random bias in subjective and expert evaluation (Archer et al. 2008; Donnon et al. 2014; van der Vleuten et al. 2012).

- **Assessment of work-integrated learning:** Because of these challenges of efficiently gathering high-quality feedback in clinical workplace environments, the WIL opportunities provided by the extensive veterinary requirement for extramural and clinical experience often remain untapped. WIL provides great potential for valid and authentic assessment, because it is based on direct observation of performance in unpredictable real-world situations over extended periods. Because they are typically also employers, WIL supervisors are uniquely qualified to assess employability and provide particularly valid feedback in the employability context.
- **Mentoring:** Mentoring by appropriate role models, mentors and peers can provide powerful learning opportunities for employability, and can help to correct the ‘hidden curriculum’ through which student calibrate ‘what’s really important’.
- **Program outcomes:** If employability is to be fully embedded in veterinary curricula, it should be also be embedded in quality assurance and quality enhancement mechanisms (Cole & Tibby 2013). This requires veterinary schools to seek feedback and track outcomes about the employability of their graduates, as well as their competency.

## 5.4 Lessons learned

Success factors for this project included its international spread, its interdisciplinarity team (including a clinical psychologist and a teacher educator), its opportunistic links to other active working groups (AAVMC Competencies Working Group, RCVS Outcomes Working Group, AVA National Mentor Scheme), its broad stakeholder consultation (including a local advisory group, critical friends, a dedicated forum, and a Delphi panel), and meticulously efficient project management by Dr Laura King.

Challenges for the project included its wide international spread (also a strength), and the somewhat fuzzy nature of employability itself. As the first project to grapple with this slippery construct in the veterinary context (and indeed one of the first to translate employability for any specific disciplinary/professional context), considerable effort and care were taken to distil an evidence-based framework, conceptual model and pedagogical philosophy that strongly underpinned the project’s outputs. This evidence-gathering and intellectual work took longer than expected, which delayed phase 2 and limited the extent of validation of outputs that could be completed within the project timeframe; this activity



will continue as phase 3 of the project in action research by partner schools and other adoptees.

The need to provide clear direction in the face of complex, 'fuzzy', contextual learning outcomes is a recognised challenge for employability pedagogy. The same complexity of learning outcomes is likely to provide a barrier for easy integration of employability within the dominant paradigm of summative, competency-based assessment processes. An employability approach must expect and tolerate some ambiguity or 'blurriness' around the capabilities required, in contrast to the more precisely defined and measured competencies. The difficulty of providing usefully defined rubrics for employability learning outcomes without reducing their complexity was a major challenge in the VetSet2Go project. Nevertheless, articulating a shared set of learning outcomes such as the VetSet2Go framework is a crucial step for scaffolding engagement, learning, and formative assessment and feedback for building veterinary employability.

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# Appendix A

## Certification by Pro Vice-Chancellor

I certify that all parts of the final report for this Department of Education and Training Project provide an accurate representation of the implementation, impact and findings of the project, and that the report is of publishable quality.

Professor Kylie Readman

Pro Vice-Chancellor (Education), Murdoch University

Signature: 

Date: 30.10.18

# Appendix B

## Impact Management Planning and Evaluation (IMPEL) model

	@Completion	@6 months	@12 months	@24 months
Team members	Improved employability teaching via curricula newly aligned to framework. Improved capability and track record in education research, particularly qualitative research. Productive national/international collaboration and exchange.	Continuing research output strengthening profile of employability and enhancing national/international reputation of team (2 papers submitted for publication and 7 more planned for 2018-19).	Further research by project team and new collaborators, including ongoing (Phase 3) research to validate the framework and the AVE self-evaluation tool. Resilience subproject includes a significant longitudinal study of graduates that will continue to 2019. Project publications will form the basis for a doctoral thesis by one team member (M Bell).	
Immediate students	Greater contextual clarity of employability learning outcomes (the Framework); open access self-assessment tool and learner resources (e.g., the AVE tool)	Improved employability feedback and development; improved engagement and learning during WiL. Active engagement with the framework.	Greater employability capabilities at graduation; higher initial employment and smoother transition to work.	Improved medium-term employment and career success outcomes (including resilience/wellbeing/burnout in transition).
Spreading the word	7 publications in prominent disciplinary journals. Showcased at 30+ national and international conferences including AMEE, AAVMC. Media coverage of outputs. Sustained website traffic (1600 users in last 6 months). Inaugural Veterinary Employability Forum (Feb 2017) and VetEd Down Under (Feb 2018)	9+ further publications in preparation, including in interdisciplinary journals. Further national/international conference presentations (AVA, HERDSA, AAVMC, AMEE).	Citation of publications by others, proving stimulus of 'a conversation'. Invited conference presentations. Growing website usage. Publication of Phase 3 research. Stimulus of 'spin-off' research and publications.  VetEd Down Under event to recur Feb 2020 (Gatton, Qld) and biennially thereafter.	
Narrow opportunistic adoption	Pilot adoption of framework and tools in partner schools, and some non-partner schools (e.g. Glasgow, Melbourne)	Adoption of framework and tools by other faculty from other sections, e.g. in clinical rotations.	Adoption of framework and tools by individual faculty in other disciplines	



Broad systemic adoption	Broad opportunistic adoption	Narrow systemic adoption	Partial curriculum adoption in partner schools. Raised awareness of employability agenda with faculty and leadership in partner schools.	Extensive curriculum adoption (course-level outcomes & assessment) to be progressed in some partner schools, <i>e.g.</i> via curriculum committees. Some partner schools to assess/benchmark employability as a course outcome.	Framework to form basis for a mentoring project (Murdoch 2019). Interest in adoption by external mentoring programs ( <i>e.g.</i> AVA, GreenCross).
			Raised awareness of employability, and endorsement and opportunistic adoption of framework and tools by various educators, employers,	Non-partner schools utilise tools to assess/benchmark employability outcomes.	Adoption of framework and tools by veterinary schools in other countries.
Broad systemic adoption	Broad opportunistic adoption		Nationally raised awareness of employability with AVA, local accrediting bodies (AVBC and VSBs), Australasian veterinary deans (VSANZ briefing). Internationally raised awareness with employers, international accrediting bodies (AAVMC, CIVME, RCVS). VetSet2Go framework informed AAVMC's CBVE framework (AAVMC 2018).	VetSet2Go framework is informing RCVS Outcomes Working Group, which is likely to inform AVBC policy.	Adaptation of framework to non-disciplinary context for broader higher education use, <i>e.g.</i> for institutional strategy.
					Adoption or adaptation by other disciplines.

# Appendix C

## Project publications and dissemination

### C-1 Journal papers

- Cake, M., Bell, M., Williams, J.C., Brown, F.J.L., Dozier, M., Rhind S., & Baillie, S. (2016). [Which professional \(non-technical\) competencies are most important to the success of graduate veterinarians?](#) A Best Evidence Medical Education systematic review: BEME Guide No. 38. *Medical Teacher* 38(6): 550-563.
- Cake, M., McArthur, M., Matthew, S.M., & Mansfield, C. (2017). [Finding the balance: uncovering resilience in the veterinary literature](#). *Journal of Veterinary Medical Education* 44(1): 95-105.
- McArthur, M., Mansfield, C., Matthew, S.M., Zaki, S., Brand, C., Andrews, J., & Hazel, S. (2017). [Resilience in veterinary students and the predictive role of mindfulness and self-compassion](#). *Journal of Veterinary Medical Education* 44(1): 106-115.
- Bell, M., Cake, M., & Mansfield, C. (2018). [Beyond competence: Why we should talk about employability in veterinary education](#). *Journal of Veterinary Medical Education* 45(1):27-37.
- Bell, M.A., & Cake, M. (2018). [Who are you, and why are you here?](#) *Veterinary Record* 183(2): 65-66.
- Hughes, K., Rhind, R., Mossop, E., Cobb, K., Rowett, E., Kerrin, M., Morton, C., & Cake, M. ['Care about my animal, know your stuff and take me seriously' - UK and Australian clients' views on the capabilities most important in their veterinarians](#). *Veterinary Record* (early online), 4 September 2018. doi: 10.1136/vr.104987
- Cake, M.A., Mansfield, C.F., McArthur, M.L., Zaki, S., & Matthew, S.M. An exploration of the career motivations stated by early career veterinarians in Australia. *Journal of Veterinary Medical Education* (accepted for publication).
- Bell, M., Cake, M., & Mansfield, C. Success in career transitions in veterinary practice: perspectives of employers and employees. *Veterinary Record* (accepted for publication).

### C-2 Journal papers – submitted for publication

- Schull, D., et al. Exploring employability through our lens. Factors considered when selecting new graduate veterinarians for employment: An analysis of semi-structured employer interviews. *Higher Education Research & Development* (submitted for publication).
- Cake, M.A., McArthur, M.L., Mansfield, C.F., Zaki, S., Carbonneau, K., & Matthew S.M. Challenging identity: Development of a measure of veterinary career motivations. *Veterinary Record* (submitted for publication).

Matthew S.M., Carbonneau, K., Mansfield, C.F., Zaki, S., Cake, M.A., & McArthur, M.L. A contextualised measure of resilience in veterinary practice: the Veterinary Resilience Scale–Personal Resources (VRS–PR). *Veterinary Record* (submitted for publication).

### C-3 Conference papers and posters

Cake, M., et al. (2016). VetSetGO: defining ‘employability’ in the veterinary context.

Australian Veterinary Association (AVA) conference, Adelaide, 22-27 May 2016.

Matthew, S.M., Cake, M.A., McArthur, M.M., & Mansfield, C.F. (2016). [Resilience in the veterinary profession](#). Veterinary Education Symposium, Glasgow, UK, 7-8 July 2016.

Cake, M., Bell, M., Williams, J.C., Rhind, S., & Baillie, S. (2016). Which professional (non-technical) competencies are most important to the success of graduate veterinarians? Findings of a BEME Review. Association for Medical Education in Europe ([AMEE](#)) Conference, Barcelona, Spain, 27-31 August 2016.

McArthur, M., et al. (2016). Resilience in veterinary students and the predictive role of mindfulness and self-compassion. 5th Australian Positive Psychology and Wellbeing Conference, Adelaide, 22-24 September 2016.

Cake, M., Bell, M., King, L., Mansfield, C., Schull, D., King, E., McArthur, M., Hamood, W., Feakes, A., Zaki, S., Matthew, S., Mossop, L., & Rhind, S. (2016). [VetSet2Go – Building veterinary employability](#). Australian Collaborative Education Network (ACEN) Conference, Sydney, 28-30 September 2016.

Matthew, S.M., Zaki, S., Mansfield, C.M., Brand, C., Andrews, J., Hazel, S., & McArthur, M.M. (2016). Resilience in veterinary students and the predictive role of mindfulness and self-compassion. American Association of Veterinary Medical Colleges (AAVMC) Veterinary Health and Wellness Summit, Fort Collins, USA, 4-6 November 2016.

Cake, M., Bell, M., & Mansfield C. (2016). Higher-order objectives in authentic assessment: competency versus employability. Melbourne Academy for Veterinary and Agricultural Learning and Teaching ([MAVALT](#)) Veterinary Symposium, The University of Melbourne, 29-30 November 2016.

Matthew, S., McArthur, M., Mansfield, C., Zaki, S., & Cake, M. (2017). Motivations for becoming a veterinarian. American Association of Veterinary Medical Colleges (AAVMC) Annual Conference. Washington, USA, 10 March 2017.

Feakes, A., Hyams, J., Pollard-Williams, S., Cake, M., Palmer, E., & Lindsay, N. Gender differences in entrepreneurial types graduating into veterinary and other disciplines: Implications and comparisons. Australian Veterinary Association (AVA) conference, Melbourne, 4-9 June 2017.

Feakes, A., Palmer, E., Pollard-Williams, S., Cake, M., & Lindsay, N. (2017). Professional altruism attitudes: are vets different to others? Australian Veterinary Association (AVA) conference, Melbourne, 4-9 June 2017.

- Matthew, S.M., McArthur, M.M., Cake, M.A., Mansfield, C.F., & Zaki S. Resilience in the transition to practice. Australian Veterinary Association ([AVA](#)) annual conference, Adelaide, 4-9 June 2017.
- Rhind, S. (2017). Building veterinary employability: VetSet2Go! 3<sup>rd</sup> International Enhancement in Higher Education Conference: Inspiring excellence – transforming the student experience, Glasgow, UK, 6-8 June 2017.
- Rhind, S., Mossop, L., Hughes, K., Cobb, K., & Cake, M. Client expectations of veterinary surgeons. Veterinary Education (VetEd) Symposium, Liverpool UK, 5-7 July 2017.
- Matthew, S. (2017). Resilience in veterinary students and new graduates. University of Calgary, Frontiers in Veterinary Medicine series, 16 Nov 2017.
- Cake, M., & Bell, M. (2018). VetSet2Go: Balancing expectations through a focus on employability and resilience. Centre for Advanced Veterinary Education (CAVE) Mental Health Symposium, Murdoch University, 15 June 2018.
- Cake, M. (2018). VetSet2Go: A stakeholder-led approach to employability in a health profession. WA Teaching & Learning Forum, Notre Dame University, Fremantle, 2 Feb 2018.
- Matthew, S. & Cake, M. (2018). The other side of the mental health coin: Motivation, wellbeing and resilience in veterinary practice. American Association of Veterinary Medical Colleges (AAVMC) Annual Conference, Washington, 2-4 March 2018.
- Matthew, S.M., Cake, M., Zaki, S., Mansfield, C., & McArthur, M.M. (2018). The impact of workplace communication on resilience in new graduate veterinarians. International Conference on Communication in Veterinary Medicine (ICCVm), Ontario, Canada, 22-25 March 2018.
- Bell, M. (2018). Defining veterinary employability: Stakeholder evidence reiterates the importance of communication skills in employability. International Conference on Communication in Veterinary Medicine (ICCVm), Ontario, Canada, 22-25 March 2018.
- McArthur, M., Cake, M., Zaki, S., Mansfield, C., & Matthew, S.M. (2018). The impact of workplace communication on resilience in new graduate veterinarians. 16<sup>th</sup> International Conference on Communication in Healthcare, Porto, Portugal, 1-4 Sept 2018.

#### **C-4 Conference workshops**

- Rhind, S., Hughes, K., Morton, C., Mossop, L., Cobb, K., Matthew, S.M., & Cake, M. (2016). Unpacking Employability: VetSet2Go! (workshop). Veterinary Education (VetEd) Symposium, Glasgow, UK, 7-8 July 2016.
- Rhind, S., Mossop, Cobb, K., Tegzes, J., Cake, M. (2016). Going beyond veterinary professional skills: the question of employability. Vets in Education Worldwide (ViEW) pre-conference workshop, Association for Medical Education in Europe ([AMEE](#)) Conference, Barcelona, Spain, 27-31 August 2016.

- McArthur, M.M., & Matthew, S.M. (2016). Building resilience in veterinary practice: Supporting the next generation (workshop). Australian Veterinary Business Association (AVBA) Mental Health Forum, Melbourne, 7 October 2016.
- [Veterinary Employability Forum](#), Kingscliff NSW, 8-9 February 2017 (special two day workshop).
- Matthew, S.M., & McArthur, M.M. (2017). Enhancing resilience in clinical education (workshop). AAVMC Primary Care Veterinary Educators International Symposium, Columbia, USA, 29 October 2017.
- Cake M., et al. What does employability mean for veterinarians? The VetSet2Go Project (preconference workshop). [VetEd Down Under](#) Symposium, University of Adelaide, 13-14 February 2018.
- Matthew, S.M., Cake, M.A., Mansfield C.F., Zaki, S., & McArthur, M.M. (2018). Enhancing resilience in veterinary education: Resources and strategies (workshop). VetEd 2018 Symposium, Utrecht University, Netherlands, 5-6 July 2018.
- Cake, M., Mossop, L., Rhind, S., Cobb, K., & Matthew S (2018). VetSet2Go: Resources for building veterinary employability (workshop). VetEd 2018 Symposium, Utrecht University, Netherlands, 5-6 July 2018.

## **C-5 Local seminars and conferences**

- West Australian Network for Dissemination ([WAND](#)) seminar, University of Western Australia, 6 November 2015.
- Local showcase ('5th Annual School of Veterinary Science Teaching Innovation Forum'), University of Queensland, Gatton campus, 3 February 2016.
- Networks Enhancing the Scholarship of Teaching ([NEST](#)) seminar, Murdoch University, 30 March 2016.
- Australian Veterinary Association ([AVA](#)) conference in Adelaide, 24 May 2016.
- West Australian Network for Dissemination ([WAND](#)) Sharing Day, Murdoch University, 10 November 2016.
- Local showcase ('6th Annual School of Veterinary Science Teaching Innovation Forum'), University of Queensland, Gatton campus, 30 January 2017;
- Learning & Teaching Forum: Career Learning for Employability, Murdoch University, 21-22 June 2017.
- Local showcase ('7th Annual School of Veterinary Science Teaching Innovation Forum'), University of Queensland, Gatton campus, 29 Jan 2018.
- University of Edinburgh Learning and Teaching Conference, Edinburgh, 20 June 2018.

## **C-6 News articles**

- Anon. (2015). New guidance for vet graduates. *Vet Practice*, 15 April 2015.
- <https://vetpracticemag.com.au/guidance-young-vets-graduates/>

- Woodmansey, D. (2016). Blueprint to tackle graduate retention. *Vet Times*, 29 April 2016.
- McArthur, M., & Matthew, S. Resilience in the veterinary profession. *Australian Veterinary Journal* 96, January/February 2018: N16
- Conroy, S. (2016). Ready, vet, go! *Vet Practice*, July 2016: 10-12.
- Berenger, M. (2018). [Key ingredients for success in the veterinary profession](#). *Australian Veterinary Journal* 96(6), June 2018: N12-13.

# Appendix D

## External Evaluator's report

Department of Education and Training (DET)  
ID15-4930 'VetSet2Go'

Veterinary Employability Project

Final Summative Evaluation      May 2018

Evaluator: JN Mills BVSc MSc, Dip Clin Path, Dip Ed (Adult & Tertiary), PhD

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## Executive Summary

The collaborative VetSet2Go Project <https://www.vetset2go.edu.au> involves 14 academics from veterinary schools in Australia (Murdoch University, The University of Adelaide, The University of Queensland and The University of Sydney), the United Kingdom (The University of Edinburgh, The University of Nottingham) and The United States of America (Washington State University).

The international team, led by Associate Professor Martin Cake of Murdoch University, has undertaken extensive research to create a solid, **evidence-based** Veterinary Employability Framework along with assessment tools and resources for veterinary students to achieve graduate satisfaction and success. Importantly, the framework encompasses the expectations and needs of the veterinarians themselves, as well as the clients, animals, community and profession they serve. This new work supports the need for broader, transferable professional skills for veterinary graduates, with an outcome aimed at easing the transition to the workplace, rather than just finding a job.

An initial literature review (Cake et al 2016) revealed a scarcity of hard evidence to define the capabilities most important for employability, success and satisfaction in the veterinary profession. And a further review of resilience in the veterinary literature (Cake et al 2017) highlighted an emphasis on stress and mental health problems, and the need for a balanced re-direction of research and education focused on resilience and well-being. To harvest evidence, five sub-projects were developed to fully explore perspectives of the wide range of stakeholders, including recent veterinary graduates. The sub-projects were:

Case Studies (9 Matched Employer/New Graduate Employee pairs interviewed)

Employer Expectations (18 employers interviewed)

Client Expectations (qualitative & quantitative study; 1443–1275 owners responded)

Veterinary Resilience (3 major qualitative & quantitative studies)

Stakeholder Perceptions (based on the above findings; 1493 –1094 responses online)

Sub-project findings were presented at an inaugural Veterinary Employability Forum (Kingscliff, Feb 2017, 48 delegates); and results were also forwarded to a panel of 32 experts involved a modified Delphi Process to achieve consensus on key capabilities. Following three

rounds of voting, a list of desired capabilities and behaviours was agreed; and the final framework evolved, consisting of 18 capabilities within five overlapping domains with self-awareness as a central component, hence placing the student in a position of control. The framework, tools and resources have been trialled by many student groups and it is anticipated employability will be embedded into the curriculum at most collaborating veterinary schools next year. Consequently, future research is planned to fully validate and evaluate the assessment tools and resource materials as 'Phase 3' of the project, in both Australian and UK veterinary schools.

Dissemination. Wide consultation with veterinary practitioners, professional bodies and interdisciplinary experts was achieved thorough a large local advisory group, online critical friends and a website expression of interest group throughout the term of the project. The consultation process not only ensured professional relevance but assisted dissemination. To date six team publications have appeared in reputable scientific journals (appendix 1), with many more papers in preparation (appendix 2). Two team publications are currently listed in the top 10 'most read' articles for the Journal of Veterinary Medical Education. There has been further extensive dissemination through many conference presentations, workshops and posters (appendix 3), the Veterinary Employability Forum, the inaugural VetEd Down Under Conference (Adelaide, Feb 2018), local showcase workshops, press releases, publicity reports and social media. Inclusion of a **plenary** session by Associate Professors Cake and Matthew at the Association of American Veterinary Medical Colleges (AAVMC) annual conference (Washington 2018) on veterinary resilience, is clearly an endorsement for the work of the project team in the United States and reflects the importance of this topic to the veterinary profession. Further conference presentations nationally and internationally, and roadshows for most Australian veterinary schools are planned for 2018.

Impact. Achievement of the project's stated international impact objectives has commenced as described below.

Two overseas accrediting bodies are including the VetSet2Go framework in their current competency reviews. UK collaborators have shared VetSet2Go findings with the Royal College of Veterinary Surgeons (RCVS) graduate outcomes working group (including UK practitioners) in a project to review the RCVS Day One Competences. In an email statement (14/4/2018) regarding the RCVS project, the President of RCVS, Professor Stephen May, said the VetSet2Go project will be considered in that review alongside the various capabilities/competencies frameworks that have been developed in veterinary medicine and medicine. The report of RCVS Day One Competences is due UK summer 2019.

In the United States, a co-chair for the working group for Competency Based Veterinary Education (CBVE) within the Association of American Veterinary Medical Colleges (AAVMC) advises the group has been informed by the work of VetSet2Go.

The Australasian Veterinary Boards Council Inc. (AVBC) has provided supportive comment on the project (appendix 4), noting alignment of employability with outcomes sought by veterinary educators and accreditation bodies. And the Australasian Veterinary Deans group (VSANZ) recently requested a private VetSet2Go showcase presentation in May this year at the Australian Veterinary Association (AVA) annual conference. This request bodes well for potential support from Australasian Deans. In fact, the outgoing Dean at Sydney University has recently requested permission of the project leader to present findings from the VetSet2Go project at the World Veterinary Association congress in Barcelona in May.

The President of the AVA, Dr Paula Parker, advises that the VetSet2Go project aligns with their goals to support new graduates to transition into the profession and thrive, and the framework guidelines will be published in a forthcoming issue of the Australian Veterinary Journal (appendix 5). Mentors involved the new AVA graduate mentor support scheme have indicated the work could assist in discussions with new graduates and inform mentor training.

The VetSet2Go project has introduced the concept of graduate *capabilities* to sit alongside technical *competencies*, as being important in an individual's professional satisfaction and success. Provision of formative multisource feedback of fundamental capabilities potentially enhances accuracy in their assessment. Student self-assessment is achieved through secure website access, and both students and practitioners indicate they would welcome the use of the assessment of veterinary employability (AVE) short-form tool by peers and work-integrated learning (WiL) supervisors with opportunity to discuss important factors which are not often discussed.

Both undergraduate and postgraduate veterinary research have been broadened through the VetSet2Go project by the introduction of qualitative research methodologies into a traditionally quantitative research-focused veterinary scene. Collaborators have expressed professional research benefits with further scholarly work in related projects being currently planned for additional postgraduate students, as well as projects for Australian undergraduate Doctor of Veterinary Medicine (DVM) students.

The resilience team initiated longitudinal studies which will extend beyond the life of this project, continuing to contribute valuable information to the profession. In addition, this sub-group has recently commenced a new collaboration with the University of Sydney and the South Australian Health and Medical Research Institute to extend their research from recent graduates to mid and late-career veterinarians.

Involvement in the VetSet2Go project has been mentioned in successful promotion applications of two senior UK collaborators, and participants say they have benefitted from the international network which invariably generates ideas for future collaboration.

Comments from two senior curriculum policy advisors indicate that the VetSet2Go framework contains core elements which are inherent in all workplaces, and suggest the work provides a robust and challenging starting point for conversations about employability across disciplines.

In conclusion, the VetSet2Go project is progressing to achieve impact in all seven steps in the Impact Management Planning Ladder (IMPEL) model from team members to potential systemic changes beyond participating institutions and possibly accrediting bodies.

## Introduction

This document provides the final summative external evaluation of the Office for Learning and Teaching (now Department of Education and Training, DET) funded project 'VetSet2Go: a collaborative outcomes and assessment framework aimed at building employability, resilience and veterinary graduate success' conducted by an international team led by Associate Professor Martin Cake at Murdoch University.

Definition. Employability in the veterinary context was first defined by the project team as... **'A set of adaptive personal and professional capabilities that enable a veterinarian to gain employment, contribute meaningfully to the profession and develop a career pathway that achieves satisfaction and success.'**

Employability was further clarified to be also dependent on dynamic contextual social processes that foster the *productive employment of one's abilities*.

It was also noted that development of employability capabilities as personal assets continues through an ongoing process of **career engagement**, and is further enhanced by life and work experience, social and cultural capital and career alignment with personal ethical values. Consequently, the employability framework extends beyond initial employment and would be considered applicable throughout the entire course of one's professional career, demonstrating the importance of these broader professional skills for success and satisfaction in one's chosen occupation.

## Project Aims

The project aimed to build:

- a) a framework of key employability capabilities for veterinary graduates, along with
- b) appropriate pedagogy, including website resources, multisource formative assessment and self-reflection.

The stated project aims have been achieved.

The overall educational objective is to improve graduate employability, resilience in transition to practice and professional satisfaction and success. And importantly, the framework includes the expectations and needs of the veterinarians themselves, as well as the clients, animals, community and profession they serve. Given the acknowledged concerns within the veterinary profession regarding resilience and challenges in transition to practice, these underlying key project values are likely to be welcomed by the profession and educational institutions, helping students to 'bridge the gap' between life at university and the workplace. Future research is required to determine if these longer term desired outcomes will be achieved.

## **Evaluation Study Methodology**

As external evaluator I was involved in discussions and continuous assessment of project information and documentation provided by the project leader, project manager and research team throughout the term of the project. I also collected data through reviews of website material including trialling the interactive employability framework, resources and assessment formats; I reviewed reports, working papers, project news items, press releases and feedback from the critical friends group, stakeholder input on project design decisions and the employability forum. In my role as evaluator I acted as a 'critical friend' to the project leader and was involved as a 'participant/observer' in project meetings.

I attended many group meetings, presentations and workshops over 2.5 years since the commencement of the VetSet2Go project in August 2015; these included many monthly Skype meetings of the research team in Australia and some with the UK team. I received minutes of all meetings, project Gantt charts to track progress, attended the two local advisory group meetings, the inaugural Veterinary Employability Forum (Kingscliff), the inaugural VetEd Down Under conference (Adelaide) and a local showcase where the project findings were presented and discussed. By participating in a number of employability and project workshops I had further opportunity to speak with other professionals in related areas. I attended a 2-day employability forum in June 2017, organised by Murdoch University with a range of national and international speakers, which reflected timely institutional interest in exploring and possibly embedding employability skills.

Evaluation data was also collected through direct email questions and/or interviews of a selection of stakeholders (project team members, reference group, employability researchers, individuals involved in education policy, students, work-integrated learning [WiL] supervisors/employers), as well as seeking comment from key individuals of two

international accreditation bodies, also the executive director of the Australasian Veterinary Boards Council (AVBC) and the president of the Australian Veterinary Association (AVA).

Five key evaluation questions were designed at the start of the project to meet DET's expectations of evaluations. These are described below.

### Key evaluation questions

1. To what extent have the intended project **aims** been achieved (to develop an evidence-based framework of key employability capabilities, and supportive pedagogy and resources)?
2. To what extent have the intended **outcomes** been achieved (clarity and evidence of critical capabilities; provision of aligned processes for assessment, online resources; engagement of employers and WiL supervisors)?
3. What are the project's operational **strengths** and **weaknesses**, in direction, management and leadership?
4. To what extent have the project **deliverables** met needs of stakeholders (as detailed in the project application) and been conducted to appropriate academic standards?
5. To what extent will the project achieve its projected **impact**, compared to the *Impact Management Planning and Evaluation Ladder* (IMPEL) matrix, to maintain the project's focus and outcomes? (in particular – impact on team members, immediate students, spreading the word, adoption of framework and tools by partners, other disciplines nationally, internationally and accrediting bodies.)

Criteria for judgement of the key evaluation questions are described in the table below.

Key Evaluation Question	Criteria for Judgement
1.To what extent have the intended project <b>aims</b> been achieved?	<u>Evidence</u> of achievement of aims; i.e. matrix framework of employability capabilities; employability tools (multiple assessment criteria and resources).
2. To what extent have the intended <b>outcomes</b> been achieved?	<u>Evidence</u> of achievement of outcomes; i.e. a) clarity on employment capabilities of new graduates; ‘white paper’; b) evidence of use of resources by students, staff and employers; and c) greater engagement of WiL supervisors & employers with assessment of student employability capabilities (evidenced by richer feedback on evaluation forms from WiL supervisors, discussions/interviews with selected WiL supervisors & employers).
3. What are the project’s operational <b>strengths</b> and <b>weaknesses</b> ?	Subjective and objective opinion based on observations and information gathered. This question to be evaluated continuously throughout the duration of the project, with comments to be made to the project leader as appropriate.
4. To what extent have project <b>deliverables</b> met needs of stakeholders & been conducted to appropriate academic standards?	Subjective and objective opinion; review & publication of papers, evaluation of workshops & employability tools; (evaluation of materials by students).
5. To what extent will the project achieve its projected <b>impact</b> compared to the IMPEL matrix?	Evidence from data provided by leader and team members & community of practice participants (need to request team members advise of promotions, awards, embedding in curriculum, number (%) of students & practitioners engaged in activity, recent-graduate feedback – including resilience in transition to practice, undergraduate feedback/evaluations, citations of publications, etc.) Adoption of ‘white paper’ recommendations, framework & tools by other universities nationally & internationally, other disciplines and veterinary accrediting bodies.



Impact was assessed using the Impact Management Planning and Evaluation Ladder (IMPEL) model <https://docs.education.gov.au> to document the extent of change or influence arising from the project. An IMPEL-style matrix with project-focused impact questions was designed to distribute to team members at the end of the project, as shown below.

Team members	<p>Outline changes made (or planned) to your teaching, curriculum/assessment etc resulting from the capabilities framework.</p> <p>Comment on any professional benefits arising from your involvement in the project (e.g. awards, promotion, citations, collaborations, etc)</p> <p>Please list any project publications in preparation, or not listed in the attached document (A1)</p> <p>Please advise of any other presentations or publicity resulting from your project work (see A1 &amp; A2)</p>
Immediate students	<p>Are students using (or prepared to use) the framework, tools &amp; resources? If so, how many? And what student evaluation is available?</p> <p>Are students offering peer feedback? What is their opinion of this format?</p>
Faculty use	<p>To what extent are faculty colleagues using the AVE short-form feedback? Their informal opinion?</p>
WiL practitioners, supervisors	<p>To what extent are WiL supervisors using the AVE short-form feedback? Their opinion?</p> <p>Please provide WiL supervisor email contact if they are willing to offer independent opinion.</p>
Other faculties, universities, professional bodies	<p>What other disciplines, universities or professional bodies are interested in using/adapting the VS2G competencies framework?</p>
Other comments?	<p>Free response column on any other area of impact. Future?</p> <p>6mth, 12 mth, 24 mth?</p>

Two formative evaluation reports were produced; at 6 months, preparation phase and at 1.5 years, end of Phase 1 completion of sub-project studies. Delivery of final reports at the end of Phase 2 has been extended three months with approval of DET to permit trial of additional iterations of the VetSet2Go website resources and tools into the new teaching year and further dissemination of findings.

## Project Outcomes

Major intended outcomes of the project have been achieved; some supportive evidence is currently nearing completion.

Outcomes achieved are:

- a) clarity on key capabilities of new veterinary graduates which influence employability and professional success; *evidenced by an agreed stakeholder-informed employment capabilities framework and 'white paper'*. The 'white paper' is now more appropriately titled "*Interpreting employability in the veterinary context: A guide and framework for veterinary educators.*"
- b) provision of aligned open-access resources and processes for formative assessment of the capabilities by veterinary students and educators; *evidenced by use of validated employability tools*. Resources and self-assessment are being used by students online, and further use and validation of the multisource assessment is planned as a 'Phase 3' study, with staff from five universities expressing interest in collaboration.
- c) enhanced engagement of employers and WiL supervisors with assessment of student employment capabilities, through clearer alignment of outcomes and assessment with stakeholders needs and expectations. WiL supervisors consulted during the project are supportive of the resources developed and their engagement with assessment is anticipated as the employability program becomes formally embedded.

## **Summary of Project Research Findings**

### **Matched Employer-New Graduate Employee Sub-Project (Bell, Cake, Mansfield)**

Following initial focus group discussions with employers, recent graduate employees and academics, semi-structured interviews of nine employer-employee matched pairs from a variety of veterinary industries were conducted to explore capabilities contributing to successful employability in new and recent graduates (<3 yrs graduated). The phases of career engagement explored were initial employment, transition to practice and career longevity and success. Thematic analysis of the conversations revealed that while employers and employees emphasised different capabilities as important at different stages of career, personal attributes, communication, client relations, teamwork and prior experience of the graduate ranked very highly for initial employment. New graduates and their employers considered support, confidence and communication important capabilities contributing to success in transition to practice, and employers also emphasised the role that resilience and perseverance played in this. Continual learning, enthusiasm, passion and work-life balance were considered important for career longevity.

Interestingly, 'job fit' or 'practice and team fit' was mentioned as important by both employers and employees during each employment phase and supports a key finding of the Employer's sub-project by Schull et al (described below).

This sub-project is in preparation for publication.

### **Employers Sub-Project (Schull, King E, Mahood, Feakes)**

Eighteen veterinary employers from a range of business types across Australia participated in semi-structured interviews to explore employer selection criteria of new veterinary graduates. Motivations for employing new graduates and the nature of support offered were also explored. Thematic analysis of the transcripts highlighted the importance of a range of personal attributes, interpersonal skills and veterinary capabilities for selection. 'Job match' in relation to both workplace/employer and graduate needs, was also an important consideration. It was noted that 'job match' required employee self-awareness (and employer astuteness) to ensure successful employment. Discussions also provided rich information on methods used by employers to determine the qualities required for their workplace. Awareness of such selection processes will be valuable to prospective applicants. Additionally, knowledge of the range of support offered to new graduates may be helpful in contract negotiations and is of value in the work-transition phase. Findings compliment and extend on previous quantitative studies.

This work has been prepared for publication.

### **Client Sub-Project** (Rhind, Mossop, Cobb, Hughes, Cake)

This sub-project was informed by scoping studies and literature reviews.

The initial qualitative phase consisted of a series of client interviews and focus group discussions to determine clients' perspectives of the skills and behaviours of veterinarians that contributed to a positive experience in the consultation. Independent template analysis of the coded data identified themes, veterinary capabilities and behaviours which reflected client satisfaction.

Six major capabilities were identified, each with several statements describing behaviour; 41 behavioural statements/indicators in total were carefully worded to be suitable globally. A quantitative survey using these findings was then created, initially piloted, further refined, validated and finally applied internationally online. Online responders were asked to rate the importance of each behavioural statement and finally identify three capabilities they considered most important in providing client satisfaction. Responses from 1275 to 1443 animal owners were received; only 1275 completed all behavioural statements.

Capabilities receiving the highest satisfaction score were 'Commitment to Animal Welfare', 'Decision Making and Problem Solving' and 'Commitment to Quality and the Profession'.

This study has been submitted for publication to *Veterinary Record*.

### **Resilience Sub-Project** (McArthur, Matthew, Zaki, Cake, Mansfield)

The study was informed by resilience research in early career teachers (Mansfield et al 2014; Mansfield et al 2016 a & b) as little has been available in the veterinary field. Qualitative analysis of relevant veterinary literature by Cake et al (2017) revealed a dominant emphasis on mental health problems and stress within the profession, thereby highlighting the need for a balanced re-direction of research and education focused on resilience and well-being. Other themes arising from the literature and in need of further research included motivation, social support, organisational culture and life balance.

The group initiated longitudinal qualitative and quantitative studies to investigate resilience in veterinary students and early career veterinarians which will continue beyond the term of this VetSet2Go project, (i.e. intervals of 6 months, 18 months, 3 years, 5 years post-graduation), and early findings are in preparation for publication.

A cross-sectional online study of resilience in Australian veterinary students by team members (McArthur et al, 2017) was the first to report levels of general resilience in veterinary students. The study found that 60 percent of the students reported average resilience scores, with approximately a third being classified as having low resilience and only 6 percent reaching the threshold for high resilience. Significant early predictors of

resilience were found to include non-judgemental, non-reactive mindfulness and self-compassion, thereby suggesting that incorporating these resources and interventions into the curriculum is likely to help build capacity for resilience in students.

The team publication on career motivations by early career veterinarians is in press.

### **Stakeholders Survey of Veterinary Employability: Large-Scale Survey** (Bell, Cake, King L, Mansfield)

A large online multinational survey was conducted to explore stakeholder opinion on key veterinary employability capabilities using survey items created from preliminary data collected from three sub-projects (employer expectations, matched employer-employee interviews and client focus groups). Stakeholder responses were received from veterinary employees, employers, academics and clinical staff involved in a range of veterinary enterprises. An open statement component yielded 5455 statements from 1413 respondents briefly describing what employability means to them. In the quantitative component 1094 respondents rated the relative importance of 67 items from 11 capability themes, then ranked the 11 capability themes. The three top themes were communicating with clients, communicating with colleagues and teamwork. While business skills consistently retained lowest ranking, the ability to effectively discuss costs of veterinary care and charge appropriately were items considered most important within this capability theme. Further studies would be required to investigate slight differences in the priority of themes between Asian and Western veterinary practices suspected from the data.

### **Delphi Process - Modified** (Bell, Cake, Mansfield, King L)

A modified Delphi Process was used to reach consensus on the capabilities considered most important for veterinary employability by a team of 32 experts involved in veterinary education, employment or policy. Participants were supplied with an information package consisting of definitions and models of employability, a relevant literature review (Associate Professor Cake's 2016 BEME review of professional competencies) and data from the 5 extensive sub-projects. A list of 47 capabilities was resolved from the above data and panellists were asked to choose 25 to 35 of the most important capabilities in three rounds of voting over a 3-month period. A qualitative component was included with panellists invited to comment, add capabilities or change wording. An 85 percent consensus was finally reached on 21 capabilities (70-80 percent being considered satisfactory by Hsu & Sandford 2007).

These 21 capabilities were skilfully refined by the research team and incorporated into the final list of 18 key capabilities by using carefully constructed, evidence-based behaviour descriptors for each capability. Several of the final capabilities, such as trustworthiness, respect, sustainable engagement and motivation, while not included in the 21 agreed by the Delphi panel, were pivotal findings in evidence involving vet-client relationship and resilience. Production of the final list also required the capacity to balance the capabilities from various perspectives of the many stakeholder groups, especially including that of the individual veterinary professional. Earlier research by one team member (Mossop 2012) demonstrated the veterinarian's need to juggle multiple, sometimes competing demands. A positive, supportive approach for the student or new graduate is apparent in the resolution process: for example, the Delphi-agreed capability 'aware of limitations' was included in the capability 'reflective self-evaluation' and was combined with the descriptor 'is aware of their own strengths and limitations'; and similarly, 'open to feedback' could be interpreted to be included in the descriptor 'respects diversity of opinion and world views'. The model was further resolved into a comprehensive framework involving 5 overlapping domains, with Self-Awareness as a central element, thereby clearly putting the individual in control.

The last two studies outlined above are currently in preparation for publication.

## **Project Strengths and Weaknesses (in direction, management and leadership)**

*Strengths:* A clear vision by the project leader, outstanding project management by Dr Laura King, rich interdisciplinary team collaboration and international engagement are some of the project's greatest strengths. Some team members have influential positions, such as on educational working parties, helpful in facilitating change, and the extension of the project's collaborative agreement to an American university, was an unexpected bonus in the capacity to further 'spread the word' internationally. Consequently, an international community of research practice in employability has now developed and is planned to continue online.

Associate Professor Cake generated an enthusiastic, supportive research environment for the team connected through monthly Skype meetings, and he is an excellent role model in research publication. The creative acronym 'VetSet2Go' is also powerful and likely to inspire students to engage in the employability educational process.

*Weaknesses:* Reduction in institutional administrative support for federally-funded projects at the lead university initially put pressure on the project manager, who also undertook the role of research assistant; however, project funds were sufficient to hire a web designer when needed. And despite additional teaching loads (e.g. double cohort) for some collaborators without additional institutional teaching support, the employability resources and tools have been developed to a level suitable for use.

## **Project Deliverables and Dissemination**

Through the exemplary leadership, efficient management and collaborative teamwork, planned key deliverables of model employability pedagogy and aligned online resources have been achieved. To date, the VetSet2Go website has 256 tool users. Both AVE (Assessment of Veterinary Employability) formative self-assessment tools with self-reflection and short-form assessment for use by academics and WiL supervisors are closely aligned with the framework. While the project allowed modification of the assessment tools in a second iteration and pilot validation, further validation and full evaluation of the tools are appropriate as an additional 'Phase 3' study once employability assessment is embedded in curricula.

Currently, the 'white paper', now more appropriately entitled 'Interpreting employability in the veterinary context: a guide and framework for veterinary educators', is nearing completion. The final project report is also nearing completion.

Wide consultation with veterinary practitioners, professional bodies and interdisciplinary experts was achieved thorough a local advisory group (17 individuals), online critical friends (15) and a website expression of interest group (139) throughout the term of the project. The consultation process not only ensured professional relevance but assisted dissemination. Social media has also attracted interest (59 Twitter followers).

Successful completion of the inaugural Veterinary Employability Forum (Kingscliff, Feb 2017, 48 delegates from 4 countries, 12 universities) facilitated the launch of a community of practice of veterinarians, educators and private and corporate employers in support of veterinary employability. The inaugural VetEd Down Under conference (Adelaide, Feb 2018; 83 delegates from 5 countries, 13 universities) featured employability and resilience workshops, project speakers and posters to launch the veterinary employability educational framework and resources in Australia, and further extended the community of practice.

Further dissemination has been achieved through publication of six research articles (appendix 1) in reputable journals (Journal of Veterinary Medical Education [JVME] and Medical Teacher). All articles are well written, well referenced and informative, further supporting awareness of the multifaceted concepts of veterinary employability. Two of these publications are listed in the top 10 most read articles on the JVME website <https://jvme.utpjournals.press/action/showMostReadArticles?journalCode=jvme> (accessed 8<sup>th</sup> May 2018) which is supportive of possible future influence. A commissioned employability review by Associate Professor Cake is proposed for a 2019 issue of JVME. A list of publications in preparation is shown in appendix 2.

The team has been involved in many notable conference presentations and workshops (appendix 3). Inclusion of a **plenary** session by Associate Professors Cake and Matthew at the AAVMC annual conference (Washington 2018) on veterinary resilience, reflects the importance of this topic to the wider veterinary profession and is clearly an endorsement for the work of the project team in USA. Further conference presentations, and roadshows for most Australian veterinary schools and at the UK VetEd Symposium are planned for 2018. Champions at each university have been identified to follow-up roadshow presentations. A continuing veterinary education symposium on mental health at Murdoch University, planned for June 2018, will include details of the VetSet2Go framework.

Many publicity reports in veterinary journals also promoted work of the research team (see project website). Most noteworthy was an AVA news item ***‘Resilience in the veterinary profession’*** by M McArthur and S Matthew published in the Australian Veterinary Journal (AVJ, [volume 96 \[1&2\] N16, 2018](#)), which summarised research findings by the resilience sub-group, commented on their interactive workshop presented at an AAVMC Primary Care Educators Symposium and drew attention to a need for a focus on well-being and a cultural change to strengthen resilience across the veterinary profession. Another AVA News item, on what employability means for veterinarians (entitled ***‘Key ingredients for success in the veterinary profession’***), has been requested recently of Professor Cake and is anticipated to be released in the June issue of AVJ.

## **Impact: success of dissemination strategies and outputs**

The project outputs (of core employability capabilities, resources and assessment tools) were designed to achieve international disciplinary impact through enhanced constructive alignment, student and WiL supervisor engagement, transition to practice and graduate



resilience. These stated international impact objectives appear to have commenced, as described below.

### **Impact on Veterinary Education (students, further scholarly work, international)**

Australia. Pilot trials of the employability framework, tools and resources were undertaken in late 2017 and early 2018 by student groups at all collaborating Australian and UK universities, thereby providing helpful feedback to inform further refinement of the tools.

Murdoch University staff again offered the employability self-assessment tool to students in the Veterinary Professional Life course in 2018 and staff were impressed that students spent up to 20 mins writing their 'action plans' to enhance their employability capabilities. It is planned to embed the framework in the Murdoch veterinary curriculum in 2019, to formally encourage students to re-visit the self-assessment component at three points throughout course, in second year, mid-course and in final year, and to link this with electronic portfolios.

Students said they liked the online use of the tools with the potential to check their progress. One student commented - *'I also use it to boost my confidence when I am feeling overwhelmed – looking back at what I have learned helps bring back focus!'*

Students responded positively to the prospect of peer feedback on their capabilities, and the use of the AVE (Assessment of Veterinary Employability) short-form feedback by staff is planned in selected senior rotations and by WiL supervisors.

The University of Adelaide incorporated the VetSet2Go framework and tools into the Transition to Veterinary Profession course to all 59 final year students in early 2018 and their response is being evaluated. It is planned to embed the framework and self-assessment tools in years 4 and 6 of the course and to rebadge the Professional Skills course using the employability theme. Use of the AVE short-form feedback is to be promoted with extramural supervisors; and the Adelaide group also recommended working towards standardising the WiL supervisor feedback form for use throughout Australia. This suggestion has merit and could be explored for wider application.

Further scholarly work is planned to fully validate and evaluate the AVE assessment tools and resources as the employability framework becomes embedded into curricula. Expressions of interest in collaboration in this

'Phase 3' study have been received from project champions at the Universities of Adelaide, Nottingham, Sydney, Melbourne and James Cook University.

Broader **qualitative research opportunities** have become available, some for the first time in a veterinary context, to both **undergraduate and postgraduate veterinary students** as a result of VetSet2Go collaborators involvement in this project. Several team members will be supervising interested additional postgraduate students undertaking research in related areas or in extensions of the original project. (e.g. at Washington State University, Murdoch University and The University of Edinburgh), while others are supervising undergraduate Doctor of Veterinary Medicine (DVM) qualitative research projects (at the Universities of Queensland, Adelaide and Murdoch University). Examples of DVM projects planned involve comparing student and employer perspectives of teamwork and confidence.

The Australasian Veterinary Deans group (VSANZ) recently requested a private VetSet2Go showcase at the Australian Veterinary Association (AVA) annual conference in May this year. This request augurs well for potential support from Australasian Deans. In fact, the outgoing Dean at Sydney University has recently requested permission of the project leader to present VetSet2Go findings at the 2018 World Veterinary Association congress in Barcelona. In addition, the Australasian Veterinary Boards Council Inc. (AVBC) has reviewed the VetSet2Go website and provided supportive comment, stating.. ***'employability aligns with and indeed enhances outcomes sought by veterinary educators and accreditation bodies'*** (appendix 4).

UK. VetSet2Go collaborators, Professors Susan Rhind and Liz Mossop, are members of the Royal College of Veterinary Surgeons (RCVS) graduate outcomes working group (GOWG) which is currently reviewing the RCVS Day One Competences framework. In sharing the VetSet2Go framework, assessment tools and resources with the working group at a meeting in London (23/1/2018) at a pivotal point in the brainstorming process, this has ensured that the outputs have been fully discussed and considered. Although the GOWG is yet to produce its final recommendations, it is likely that the final model will be heavily informed by the VetSet2Go employability framework and align strongly with it. In another email comment (15/4/2018) of the review of RCVS Day One Competences the President of RCVS, Professor Stephen May, confirmed that .. ***'the VetSet2Go project will be considered in that revision as well as the recent AAVMC CBVE (Competency Based Veterinary Education) project.'*** The report of RCVS Day One Competences is due UK summer 2019.

Professor Rhind at The University of Edinburgh, writes... *'Our professional skills curriculum team are planning on building activities relating to the (employability) framework into our new curriculum.'* And faculty staff with whom she shared the AVE short-form tool say they really like the simplicity of it and they report back that it seems to be authentic and have high face validity.

Regarding WiL supervisors using the AVE short-form feedback, Professor Rhind says... *'Again, work in progress however I did share with some practitioners through the RCVS graduate outcomes working group and I paste this feedback: 'We really liked this and felt it captures a lot in just a few questions, I especially like the wording, more of a coaching like language.'*

*The directional arrows also give a clear path for where the student is on the scale and what needs to be worked on. We felt this would be really useful to provide constructive advice where improvement is needed. I like the ability to recognise pre-existing strengths and encourage further development of them.*

*I also like the inclusion of the psychological resources which will stimulate a conversation between assessor and student about these important factors that often are not discussed but are obviously hugely important.'*

These comments are encouraging and suggest potential to actively engage WiL supervisors internationally in the use of the AVE short-form feedback, to support development of employability capabilities in veterinary students.

Professor Mossop at The University of Nottingham reports they are currently reviewing their personal and professional skills teaching in light of the VetSet2Go framework and resources and will pilot the resources with 160 first year students in Sept/Oct 2018 and some year 5 students.

USA. An indication of the depth of interest in the project by the veterinary profession in USA was evident by the request to present a 35-minute **plenary** at the 2018 AAVMC annual conference. The topic "The Other Side of the Mental Health Coin: Motivation, Well-being and Resilience" was presented by Associate Professors Martin Cake and Susan Matthew and was attended by 240 people. The presenters received many positive comments and expressions of interest.

Dr Laura Molgaard, from the University of Minnesota and co-chair of the current working group for Competency Based Veterinary Education (CBVE) within the AAVMC, has provided this quote by email (20/3/2018). *‘Our working group did an extensive review of many published and unpublished resources from various projects, including VetSet2Go. As you can see from the resulting Domains of Competence and EPAs (Entrustable Professional Activities), there is considerable overlap between the VetSet2Go Employability Framework and the CBVE Framework. In addition to Susan’s (Dr Susan Matthew) joint collaboration, Jennie Hodgson and I have **kept abreast of the VetSet2Go progress and have been informed by this work**, as well as other projects from the past (e.g.NAVMEC) which articulated the importance of such domains as communication and collaboration as well as concepts such as relation-centered care.’*

Part One of the AAVMC CBVE Framework has been published (2018); further milestones and assessment criteria are yet to be added.

## Potential Impact for Veterinary Graduates

The AVA National President, Dr Paula Parker, has provided a supportive statement indicating that the VetSet2Go project.. ***‘aligns with our goals to provide support for new graduates to transition into the profession with ease and to thrive in their chosen career’*** (appendix 5).

An experienced veterinarian involved in the Western Australian AVA graduate support scheme recently said the employability framework would assist **mentors** in their discussions with students and new graduates; the transition to practice being recognised as an exceptionally challenging time. Discussions may help meet mentee’s goals in career management and in considering changes in career paths. Mentors have become aware of cultural sensitivities involved in interpersonal discussions and have found ways of dealing with this challenge. Further in support of new veterinary graduates is the recent national AVA graduate mentor support scheme; the employability framework could inform mentor training in this scheme. Mentor programs in other countries may also be interested in this application.

It is also possible that, as a result of this project, greater awareness within the profession of the range of contextual factors affecting resilience and well-being may foster a positive cultural change in the workplace to build and strengthen resilience, thereby **potentially assisting working conditions for new graduates**. Examples of this publicity were the AAVMC plenary session in Washington and the associated news item reported in the AVA journal 2018, issue 1&2 (mentioned above). And, as stated by Dr Parker, the VetSet2Go

framework guidelines are planned to be published in a forthcoming AVJ news item (appendix 5).

## Impact for Team Members

Academics involved in the project have expressed a range of personal and professional benefits in this international collaboration: i.e. the enthusiasm generated through sharing ideas on educational research; connection to an active community of practice (Schull; Matthew; Zaki; King E); introduction to qualitative research (Zaki); triggering further collaborative research (McArthur, Cake); and leverage for further research funding applications (McArthur). The resilience sub-group initiated a longitudinal study which will extend beyond the terms of this project. Furthermore, this sub-group has recently commenced an **additional collaboration** with the University of Sydney and the South Australian Health and Medical Research Institute to extend their research to mid and late-career veterinarians.

This project has also been the first interdisciplinary project where findings from teacher resilience research, by team member Associate Professor Caroline Mansfield of the School of Education at Murdoch University, have been used to inform resilience research in another discipline.

The current project is a major part of a doctoral thesis for one team member (Bell), a component for another (Feakes) and source of inspiration for additional post-graduate student research (Matthew, Cake) as well as undergraduate research.

Collaborators have stated that their involvement in this international project has been cited in awards, national teaching fellowship application, promotion for two UK team members and experience with the topic of employability was used in discussions to appointment of deputy vice-chancellor for one team member.

The community of practice is planned to continue online to foster communication amongst employability educators. The VetSet2Go team may use this forum to work towards standardising the WiL supervisors feedback form for use within Australia and beyond.

## Potential Impact on Other Disciplines

Both local and overseas educators are exploring the potential application of the VetSet2Go framework and tools to other disciplines; the project leader has received expressions of interest from staff at two local universities. Opinion was sought of educators from other disciplines; their response clearly suggested the employability framework will have application to other disciplines and will require discipline-specific behaviour descriptions for the technical aspects of each profession.

Mr Paul Comisky, Director Academic Policy, Curriculum Policy and Management at Murdoch University writes... *'The VetSet2Go Project makes an important contribution to the conversation about employability which is both informative and relevant across disciplines. While the particular capabilities identified may vary in application to other disciplines, the approach in applying the framework through guided self-assessment and action planning provides a useful model with student well-being and outcomes at its core. The framework provides a robust and challenging starting point for conversations about employability across disciplines.'* (P Comisky, email 30/4/2018)

Mrs Sonia Ferns, Senior Curriculum Advisor at Curtin University writes... *'Social interactions; active learner engagement and ownership; and personal capabilities such as agility, motivation and resilience; are at the core of The Framework for Veterinary Employability. The focus on these fundamental capabilities augur the framework well for transferability to other discipline contexts. The acquisition of these attributes is inherent in all workplaces regardless of job titles, specific tasks or expected outcomes.'* (S Ferns, email 3/4/2018)

Professor Rhind at The University of Edinburgh writes... *'I am also exploring with colleagues in other disciplines in my own University how much of the framework would actually apply to other higher education disciplines. I currently chair a short life 'Careers, Employability and Graduate Attributes Task Group' at the University of Edinburgh so am currently seeking input from that group on the potential utility of this beyond veterinary medicine.'*

## **Impact Conclusion**

In conclusion, based on the IMPEL model, the VetSet2Go project is progressing to achieve impact in all seven steps in the model, from changes for project team members, changes for students, wide dissemination of ideas and findings, planned uptake by participating institutions, to potential systemic changes beyond participating institutions. The interest evident from practitioners' comments, educational working groups in UK (with link to Day One Competences) and in USA, as well as support from the Australasian Veterinary Boards Council, bode well for the wider dissemination of the online VetSet2Go educational framework and tools, and possible development of sustainable change to support veterinary students and new graduates. I believe these projected outcomes justify the funding of this project as a sound investment in veterinary education. The research team is to be warmly congratulated on their excellent work.

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## Appendix 1 VetSet2Go Publications

Journal rankings and citations for the articles listed below were taken from Scopus database in April 2018; journal rankings are provided in the table immediately below. Two articles asterisked are listed in the top 10 most read articles on the JVME website

<https://jvme.utpjournals.press/action/showMostReadArticles?journalCode=jvme> (accessed 8<sup>th</sup> May 2018) which is supportive of possible future influence. Team members names are highlighted.

Journal	Cite Score	SJR	SNIP
Journal of Veterinary Medical Education (JVME)	0.49	0.314	0.409
Medical Teacher	1.69	1.545	1.671

**Cake M, Bell M**, Bickley N, Bartram *The Life of Meaning: a model of the positive contributions to well-being from veterinary work*. JVME 42(3) 184-193, 2015. Citations **12**

**Cake M, Bell M**, Williams J, Brown F, Dozier M, **Rhind S** & Baillie S *Which professional (non-technical) competencies are most important to the success of graduate veterinarians?* Medical Teacher. Best Evidence Medical Education (BEME) systematic review. Guide No 38(6) 550-563, 2016. Citations **5**

**Cake M, McArthur M, Matthew S, Mansfield C** *Finding the balance: uncovering resilience in the veterinary literature*. JVME 44(1) 95-105, 2017. Citations **3** \*(in top 10)

**McArthur M, Mansfield C, Matthew S, Zaki S**, Brand C, Andrews J, Hazel S *Resilience in veterinary students and the predictive role of mindfulness and self-compassion*. JVME 44(1) 106-115, 2017. \*(in top 10)

**Bell M, Cake M, Mansfield C** *Beyond competence: why we should talk about employability in veterinary education*. JVME 45(1):27-37, 2018.

**Cake M, Mansfield C, McArthur M, Zaki S & Matthew S** *An exploration of the career motivations stated by early career veterinarians in Australia*. JVME (in press)

## **Appendix 2 VetSet2Go Publications in Preparation or Submitted**

**Hughes K, Rhind S, Mossop L, Cobb K, Morton C, Rowett E, Kerrin M & Cake M** *Be kind to my animal, know your stuff and take me seriously: UK and Australian clients' views on what they most want from their vets.* (submitted to Veterinary Record).

**Schull D, et al** *Filter in and filter out factors when selecting new graduate veterinarians for employment. An analysis of semi-structured employer interviews.* (in preparation).

**Matthew S et al** *Developing a contextualized measure of resilience in veterinarians.* (in preparation).

**Bell M et al** *Success in career transitions in veterinary practice: perspectives of employers and employees.* (in preparation)

**Bell M et al** *What does veterinary employability mean? Stakeholder perspectives: a large-scale qualitative and quantitative study.*

**Bell M et al** *Reaching consensus on the capabilities for veterinary employability: a Delphi process.*

**Cake M, Bell M et al** *The veterinary employability framework.*

**Cake M et al** *Challenging identity: a scale exploring veterinary career motivations.* (JVME, Veterinary Record or Journal of Education and Work)

**Cake M et al** *Employability as a balanced transaction of stakeholders' expectations – an account from a health profession.* (Higher Education Research and Development)

JVME editors have also requested a **Review article** by Professors Martin Cake and Liz Mossop on how to integrate employability, professionalism and professional identity (with Professor Liz Armitage-Chan), for a possible theme issue featuring employability.

### Appendix 3 Summary\* of VetSet2Go team<sup>a</sup> conference papers (P), posters (O) and workshops (W)

#### Presentations 2015-2018

WAND (West Australian Network of Dissemination, Perth) <b>Bell</b>	O	6/11/15
Univ Queensland Vet Sci 5 <sup>th</sup> Teaching Innovation Forum (Gatton) <b>Schull et al</b>	P	2/2/16
NEST (Networks Enhancing Scholarship of Teaching, Perth) <b>Cake, Bell</b>	P	30/3/16
AVA conference (Aust Veterinary Assoc, Adelaide) <b>Cake</b> <b>Best Poster Award</b>	O	24/5/16
VetEd Symposium (Glasgow) <b>Rhind et al</b>	W	6/7/16
VetEd Symposium (Glasgow) <b>Matthew, Cake</b>	O	7/7/16
VetEd Symposium (Glasgow) <b>Cake</b>	P	7/7/16
AMEE ViEW Pre-Conference Workshop (Barcelona) <b>Cake</b> <b>KeyNote Speaker</b>	W	28/8/16
AMEE (Assoc. Medical Education in Europe, Barcelona) <b>Cake, Bell</b>	P	29/8/16
ACEN (Aust Collaborative Educ Network, Sydney) <b>Bell, Matthew, Zaki</b>	O	28/9/16
Aust Positive Psychology & Wellbeing conference (Adelaide) <b>McArthur</b>	O	22/9/16
Aust Vet Business Assoc Mental Health Forum (Melb) <b>McArthur, Matthew</b>	W	7/10/16
Beijing Normal University <b>Mansfield</b> <b>Invited Presentation</b>	P	17/10/16
AAMVC Vet Health & Wellness Summit (Colorado) <b>Matthew, Zaki</b>	P	4/11/16
WAND (Perth) <b>Cake</b>	O	10/11/16
MAVALT (Melb Academy Vet & Ag Learning & Teaching) <b>Cake, Bell</b>	P	29/11/16
Univ Queensland Vet Sci 6 <sup>th</sup> Teaching Innovation Forum (Gatton) <b>Schull et al</b>	P	30/1/17
Veterinary Employability Forum (Kingscliff) <b>Cake et al, team</b>	Ws & Ps	8,9/2/17
AAVMC (Assoc. American Vet Medical Colleges) annual conf <b>Matthew</b>	O	10/3/17
AVA conference (Melbourne) <b>Feakes et al</b>	P & O	4-9/6/17
AVA conference (Melbourne) <b>Matthew</b>	P	4-9/6/17
International Enhancement Themes (UK QAA; Glasgow) <b>Rhind et al</b>	P	6/6/17
Learning & Teaching Forum (Perth) <b>Cake, Bell</b>	P	21/6/17
VetEd Symposium 2017 (Liverpool) <b>Rhind et al</b>	P	6/7/17
AAVMC Primary Care Vet Educators Symposium <b>Matthew, McArthur</b>	W	9/10/17
Frontiers in Veterinary Medicine – seminar 3, Univ Calgary <b>Matthew</b>	P	7/11/17
UK RCVS Graduate Outcomes Working Group (London) <b>Rhind, Mossop</b>	O	23/1/18
Univ Queensland Vet Sci 7 <sup>th</sup> Teaching Innovation Forum (Gatton) <b>Schull et al</b>	P	29/1/18
Learning & Teaching Forum (Perth) <b>Cake</b>	P	2/2/18
VetEd Down Under conference (Adelaide) <b>team</b>	Ws, Ps & Os	3,14/2/18
AAVMC conference (Washington) <b>Matthew/Cake/McArthur/team</b> <b>KeyNote</b>	& O	7/2-6/3/18
Murdoch Univ local showcase, internal (Perth) <b>Cake, Bell</b>	P	16/3/18
ICCVm (International Conf Communic in Vet Med, Hockey Valley, Ontario) <b>Bell</b>	P	22-25/3/18
ICCVm (Hockey Valley, Ontario) <b>McArthur</b>	P	2-25/3/18
Murdoch Univ local showcase, internal, external (Perth) <b>Cake, Bell</b>	P	21,28/3/18
Univ Sydney local showcase (Sydney) <b>Zaki</b>	P	26/4/18
Univ Melbourne local showcase (Melbourne) <b>Cake</b>	P	26/4/18
James Cook Univ local showcase (Townsville) <b>Cake</b>	P	27/4/18
AVA conference (Brisbane) <b>Schull et al</b>	P	15/5/18
AVA conference (Brisbane) <b>Mahood</b>	P	15/5/18
Centre for Adv Vet Ed, Mental Health Symposium (Murdoch Univ) <b>Cake, Bell</b>	P	15/6/18
University of Edinburgh Learning and Teaching Conference <b>Rhind et al</b>	P	20/6/18
VetEd Symposium (Utrecht) <b>Cake, Matthew, Mossop, Rhind</b>	Ws & Ps	4-6/7/18
Internat'l Conference on Communication in Healthcare (Port, Portugal) <b>Matthew</b>	P	1-4/9/18

\*Titles of presentations are on VetSet2Go website. <sup>a</sup>Names of attending members are in bold.  
Presentations pending are highlighted.



Dear Dr Mills,

Thank you for the opportunity to comment on the OLT-funded project on Veterinary Employability - VetSet2Go project.

The Australasian Veterinary Boards Council acts on behalf of the veterinary boards of Australia and New Zealand to assure and promote educational standards in the accreditation of veterinary schools, the National Veterinary Examination and specialist accreditation.

The Management Committee of AVBC and the Chair of the Veterinary Schools Accreditation Advisory Committee have reviewed the VetSet2Go website and a recent JVME article which contains more detail of the work of the project team. They noted the definition of employability in the veterinary context as '*A set of adaptive and professional capabilities that enable a veterinarian to gain employment, contribute meaningfully to the profession and develop a career pathway that achieves satisfaction and success*' and that these capabilities are realised through dynamic social processes which provide the capacity for one to employ their abilities.

Employability is indeed a useful guiding objective and is very much aligned and indeed enhances the outcomes being sought by veterinary educators and accreditation bodies. There is no benefit to anyone for a graduate to achieve a set of competences only to fail in life after graduation and it is hoped that we can evolve our abilities as educators and accreditors to improve the lifelong outcomes for veterinarians and the community they serve.

On behalf of the members of the Veterinary Schools Accreditation Advisory Committee and the Council of Australasian Veterinary Boards Council Inc, I wish the VetSet2Go team every success in their future endeavours.

Yours sincerely,

(Dr) Julie Strous BVSc PDM GAICD  
Executive Director  
19 April 2018

Monday, 30 April 2018



Jennifer Mills  
External evaluator - OLT-funded project on Veterinary Employability  
VetSet2Go  
[jennvmills789@gmail.com](mailto:jennvmills789@gmail.com)

Dear Jennifer

Please see below my comment pertaining to your email regarding the VetSet2Go research project.

If you require anything further, please let me know.

AVA comment:

Having the right number of vets, in the right places, with the right skills, to provide the veterinary services of the future in public health and private practice, is a key strategic priority for The Australian Veterinary Association. (AVA)

We have supported the VetSet2Go project since its inception as it aligns with our goals to provide support for new graduates to transition into the profession with ease and to thrive in their chosen career.

AVA representatives, Dr Debbie Neutze (Policy Manager) and Ms Monika Cole (Recent Graduate and Student Program Manager), contributed to the Delphi Process Study - Finding consensus for veterinary employability capabilities. In the initial phase it was quite evident that the project was merited, particularly, to break down the misconceptions and barriers around the needs of new graduates, versus the needs of employers.

The continued sustainability of the profession requires a holistic approach, with all stakeholders engaged and willing to nurture future generations of veterinarians. The Australian Veterinary Association is satisfied with the project outcomes and we will be publishing the framework guidelines in a forthcoming Australian Veterinary Journal issue.

Yours sincerely,

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AVA President

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