

# Re-shaping veterinary business curricula to improve graduates' business skills: *a shared resource for educators*

Final Report

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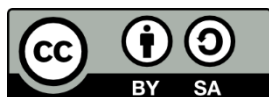
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The University of Adelaide veterinary students completed project surveys and provided valuable feedback on the workshops.

This project was only possible with the assistance of this large group of dedicated people. Thank you.

## List of acronyms used

AVA	Australian Veterinary Association
AVAPM	Australian Veterinary Association Practice Management
AVBA	Australian Veterinary Business Association
CSU	Charles Sturt University
DVM	Doctor of Veterinary Medicine
NMIT	Northern Melbourne Institute of TAFE
OLT	Office for Learning and Teaching
SAVS	School of Animal and Veterinary Sciences
UofA	The University of Adelaide
VIBE	Veterinary Introduction to Business and Entrepreneurship

## Executive summary

This seed project, 'Re-shaping veterinary business curricula to improve graduates' business skills: a shared resource for educators', responded to the veterinary profession's call for greater attention to business skills in veterinary curricula, in order to better prepare graduates for the business aspects of their profession. Thus, the aim of the project was to increase the perceived importance of business skills, and improve business skill acquisition, amongst veterinary students. To this end, the project team developed a teaching package comprising a website and associated resources that are freely and openly available to veterinary students and educators.

The teaching package developed uses case studies to engage students in learning business skills. The case studies are accompanied by short films, topic notes for students, quiz banks, Articulate Storyline modules and educator resources including teaching notes, lesson plans and assessment guidelines. Formative student feedback and peer evaluation informed the development and improvement of the teaching package, with early to mid-evaluation being of particular value.

The project has delivered valuable resources for business skills acquisition amongst veterinary students. These resources are:

- An openly available website named VIBE ([Veterinary Introduction to Business and Entrepreneurship](#)) that incorporates the teaching and learning resources developed during this project (Feakes et al. 2014)
- Four different workshops each covering a pertinent topic in veterinary practice business management
- Two case study practice scenarios
- Nine short films
- Topic notes, or learning guides, to accompany the workshops
- A quiz bank to accompany each workshop topic
- PowerPoint presentations aligned with workshops for educator only access
- Teaching plans and summaries for educator only access
- Assessment items for educator use

This seed project piloted the teaching package developed to determine its usefulness in re-shaping business curricula of Australian veterinary programs. To this end, the project has been successful. Student engagement with the teaching package has been positive and summative evaluation demonstrated that student learning, and business knowledge, improved following exposure to the VIBE teaching package. Thus, the project team recommend building on this seed project in the future. Furthermore, there is scope for the [VIBE](#) teaching package to be modified to meet the teaching needs of other health professions such as medicine, dentistry and physiotherapy.

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# Chapter 1: Introduction

The project team developed a complete case-based teaching package, including short films and flexible teaching resources, as a pilot to test the efficacy of using case study based scenarios and flexible learning tools to increase the willingness of veterinary students to engage with business curricula (Cake *et al.*, 2014).

The impetus for this seed project was veterinary profession requests for greater attention to business skills in veterinary curricula due to graduates being ill-prepared for the business aspects of their profession (Bachynsky *et al.*, 2014), and a recognition that current university curricula were not adequately providing business skills education. It has been noted that acquisition of business skills is an important component in reducing the likelihood of financial difficulties amongst veterinarians as financial stressors are recognised as a significant contributor to anxiety and a possible contributor to the higher than average suicide rate noted amongst veterinarians. However, the fact that veterinary students do not value business skills (Cake *et al.*, 2014) affects the quality of learning in this area. This project aimed to increase the value that veterinary students place on business skills by developing a case study based teaching package with associated films and other flexible teaching resources. The teaching package promoted and engaged a deeper learning in students to increase the perceived value of business skills and enhance acquisition of these skills by veterinary students.

The website developed is titled VIBE: Veterinary Introduction to Business and Enterprise. The website has been designed so that educators can utilise the entire package, adopt components of the teaching package that they find useful, or adapt components to suit their teaching requirements. The website went live on Monday 24<sup>th</sup> February, 2014 and from this date internal and external reviewers were able to access the website (with username and password entry) and provide feedback. The University of Adelaide (UofA) students were the first students to use the website as a learning resource via links provided in the Blackboard Learning Management System used at UofA (called MyUni at that institution) during Semester 1, 2014. Following feedback from reviewers and students, the website and learning materials were adjusted accordingly and student resource components of the website became available for public access in May 2014.



## Chapter 2: Project outcomes

The Office for Learning and Teaching (OLT) funded the development of a case-based business skill teaching package as a pilot project with a future goal of re-shaping delivery of business curricula of Australian veterinary programs.

### The teaching package

The teaching package uses topics and case studies to engage students in learning business skills and is delivered on-line via the open access website, VIBE. The case studies and topics are accompanied by short films, topic notes for students, quiz banks, Articulate Storyline modules and educator resources including teaching notes, lesson plans and assessment guidelines. Four workshops were developed, each focusing on a different aspect of veterinary business management. The four workshops are: Cash flow budgeting (Workshop A), Charging and fee setting (Workshop B1), Pricing animal health items (Workshop B2), and Key performance indicators (Workshop C). Components of the teaching package are discussed below:

*Case studies* – Two case study veterinary practice scenarios are available on the VIBE website. One practice scenario focuses on a large mixed animal practice in a rural area, while the other describes a small animal practice in a low income area of a large city. Each scenario presents students with the opportunity to apply business knowledge gained in workshops to improve business management of the case study veterinary practices.

*Short films* – Nine short films can be accessed on the VIBE website. The films present veterinary business topics through an interview with a young veterinarian and some films include footage of veterinary activities.

*Topic notes* – Student learning guides accompany each workshop topic. The learning guides are accessible online in an accordion document format, to reduce the need for scrolling, and are downloadable and printable in pdf format.

*Quiz banks* – Each workshop topic has an associated set of quiz questions. The quiz questions are diagnostic business knowledge and basic application questions for use prior to, during (for warm-up activity or readiness assessment) and after the workshops. Question quality has been evaluated by statistically analysing correct/incorrect answer patterns using point biserial and KR20 statistics. We will make our results publicly available on the VIBE website in due course.

*PowerPoint presentations* – Downloadable PowerPoint presentations, aligned to workshop topics, are available on the VIBE website in the educator resources section for educator only access.

*Articulate Storyline modules* – Two Articulate Storyline modules have been developed as online learning tools for students to utilise as preliminary activities for the associated workshops.

*Teaching plans and summaries* – Lesson plans and teaching notes aligned to workshop topics are available in the educator resources section of the VIBE website. Lesson plans incorporate team-based learning and flipped classroom features. Lesson plans and teaching notes are available in downloadable word documents for educators to adapt for their own use.

*Assessment items* – Individual and group assessment tasks for Workshop A, and a combined assessment task for Workshops B and C, have been developed. Assessment tasks include a group wiki-based assignment with individual peer assessment for group function. Reflective practice is also included in both assignments for team function. Assessment rubrics are based on the Research Skill Development conceptual framework (Willison and O’Regan, 2007).

## The VIBE website

The VIBE website went live for UofA students in February 2014. Following educator and student review, the VIBE website became publicly available in May 2014. Data was collected regarding website hits. Figure 1, below, shows website page views spiked during April and May 2014, and again during early August, 2014. Spikes in website access are consistent with delivery of the VIBE teaching package to UofA students and Charles Sturt University (CSU) students.

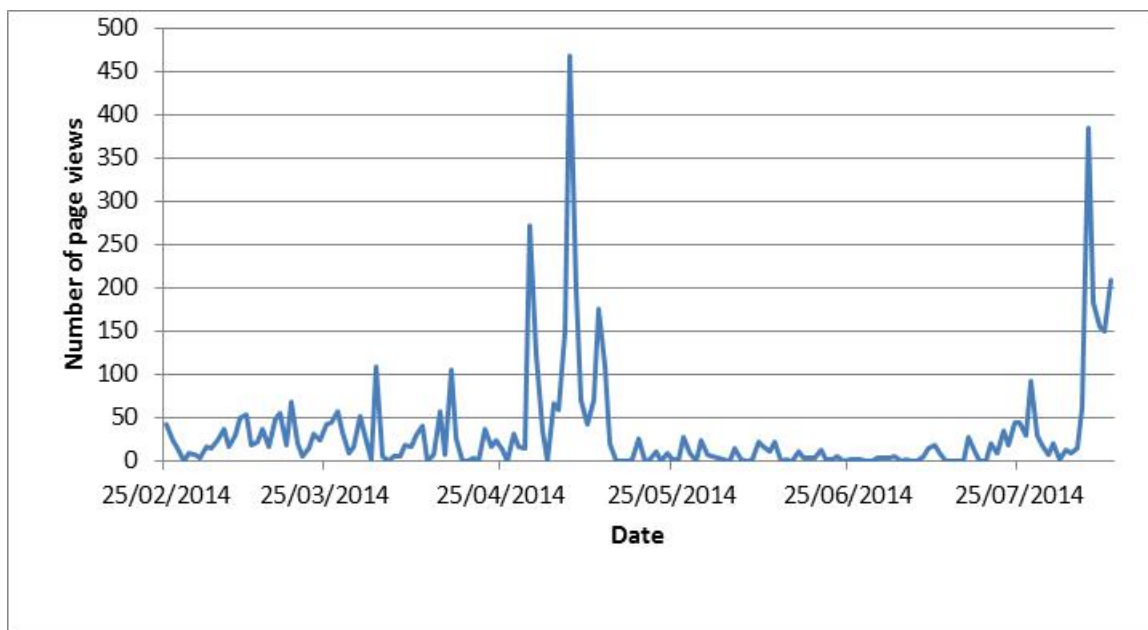


Figure 1. VIBE website page views between February, 2014 and August, 2014

Our analysis of website hits shows that activity has been mainly from Adelaide with about 10 percent of all activity from other areas, including Sydney. Activity on the web page has consistently focused on student and educator resources, as expected. Student resources and the home page currently account for over 83 percent of all page views. Visitors spend significant time on these pages with some users spending an average of 11 minutes on one webpage. The case studies are a popular feature of the VIBE website, with page access

times averaging five and a half minutes. The bounce rate from the home page is low, at 11 percent, indicating that visitors are seeing what they need when they first arrive at the website.

## Features of the VIBE website and teaching package

This seed project has delivered a teaching package that is low cost, adaptable and incorporates innovation from a number of disciplines. Educators have the opportunity to utilise particular components of the teaching package, or the entire package. For example, educators from CSU opted to deliver Workshop A and associated films, learning guide, pre-quizz and workshop activities. CSU may utilise more components of the VIBE teaching package next year. The University of Queensland educators are delivering Workshop A and associated learning materials in September, 2014 and have adapted the format of the assignment to suit their needs.

Development of the VIBE teaching package involved significant input of innovation and resources from a number of disciplines, as shown in Table 1, below.

Table 1. Disciplines and relevant innovation and resources

<b>Discipline</b>	<b>Innovation and Resources</b>
eLearning	Website design
Multi media	Short film production
Economics	Learning guides and glossary
Accounting	Learning guides and glossary
Business management	Learning guides and case studies
Education	Workshop design and short films
Entrepreneurship	Learning guides and workshops

The VIBE teaching package is available free to veterinary educators. Indeed, all content is publicly available other than educator resources which are password protected. Educators can access the teaching resources simply by requesting access to the restricted content. Furthermore, the VIBE teaching package is designed to utilise team-based learning techniques, a strategy which assists in cost minimisation for educators.

# Chapter 3: Evaluation

## Formative evaluation

Early to mid-evaluation included formative feedback from reference group members which was used to improve the case study documents. Also, one of The University of Melbourne veterinary student was involved in early evaluation of the case studies and website providing valuable feedback from a student perspective.

Evaluation of components of the teaching package occurred after delivery of Workshop A to 64 year three Veterinary Bioscience students in September, 2013. Student feedback was sought using a survey where students were asked to state whether the workshop and/or short films helped them to develop an understanding of the importance of business skills. Students had the opportunity to provide comments about all aspects of the workshop. Student evaluation and feedback helped the project team to revise Workshop A to improve student engagement and learning outcomes, and this feedback was also utilised in the development of other workshop topics. The new version of Workshop A, now a combination of two lectures, two tutorials and a final workshop, still with aspects of the flipped classroom, is currently available on the VIBE website. This new version of Workshop A is currently being delivered to veterinary students at Roseworthy and student feedback has been positive to date.

As teaching materials were developed, the project team, evaluators and collaborators provided editorial comment and feedback to the authors. As a result, teaching materials on the VIBE website have been consistently reviewed and revised. Once the VIBE website was live, formative evaluation was obtained from reference group members via participation in a survey (see results in Table 2). This multi-level feedback loop regarding the VIBE website and student and educator materials allowed the project team to revise and improve content to develop a valuable teaching resource.

Table 2. Early to mid-evaluation survey – reference group and internal UofA evaluation of student resources

Statement	No response	Broad Disagreement	Broad Agreement
Resources are of a high quality			100%
Resources were engaging			100%
Resources are at the appropriate level for students			100%
I was able to access the resources easily			100%
Web site was engaging		11%	89%
It was easy to find the things I wanted from the website		11%	89%
I would like to contribute to creating more resources for the web site		89%	11%
The resources address a significant gap in student education regarding business skills			100%

Responses n = 9

## Summative evaluation

External reference group members and invited evaluators provided summative evaluation on the VIBE teaching package at the end of the project. Respondents were not identified to the project team to ensure open, unbiased feedback. Summative evaluation of this project also involved analysis of student pre- and post-workshop test results and surveys conducted pre- and post-exposure to the VIBE learning package. These summative evaluation processes show that student engagement and learning increased following exposure to the VIBE teaching package.

In order to determine the level of student engagement with the learning package and learning outcomes, students completed pre- and post-package tests and responded to an online survey of business aptitude. Pre- and post-package tests involved students completing the same test prior to and after delivery of each workshop. The first workshop was delivered in Semester 2, 2013, and the next three were delivered in Semester 1, 2014 to students in years three and four of the six year UofA veterinary program. Figure 2, below, shows student results for the business knowledge test undertaken pre- and post-exposure to the VIBE teaching package. For pre workshop questions, the mean student score was 18.3 (n=62; standard error = 0.7), while post workshop scores were significantly higher with a mean score of 27.9 (n = 53; standard error = 0.7). Mean test scores are shown in Figure 3. There is a difference in means of 9.7 using a paired t-test. This is significant with a p value <0.001 and t = 11.3. Thus, we can conclude that there is a difference between pre- and post-tests that is both statistically and educationally significant.

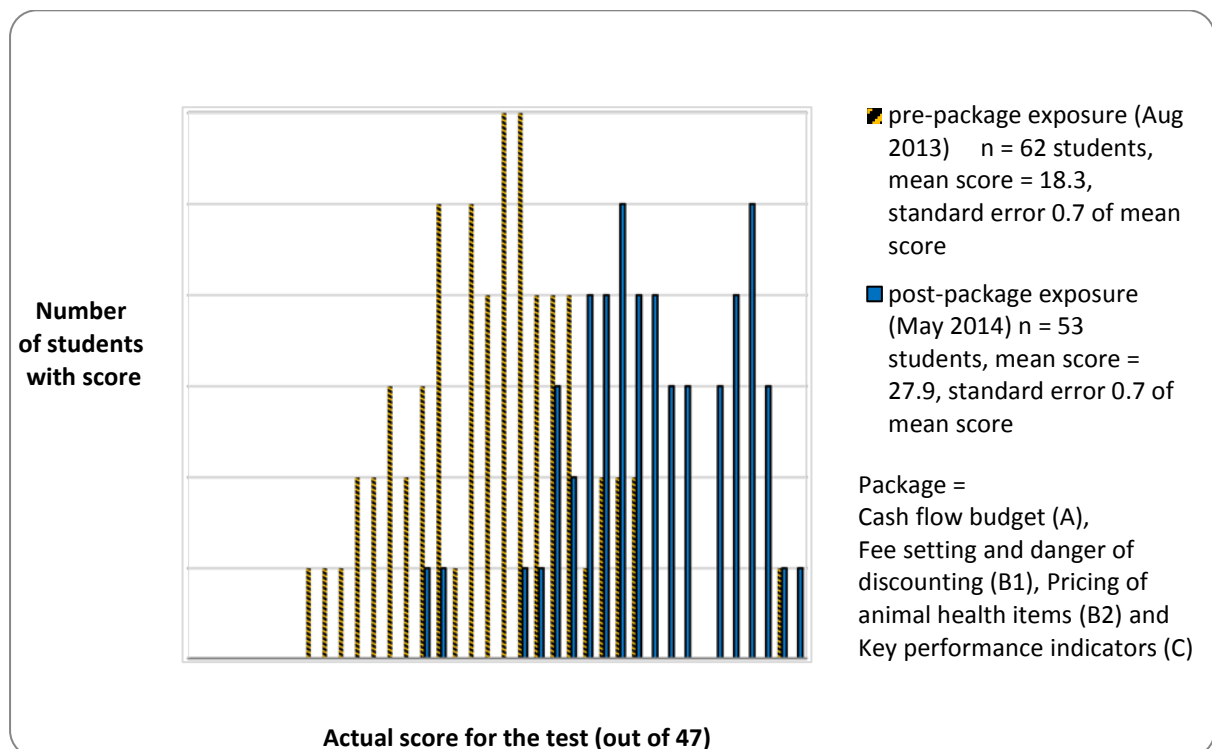


Figure 2. Student scores in business knowledge test pre- and post-exposure to VIBE teaching package

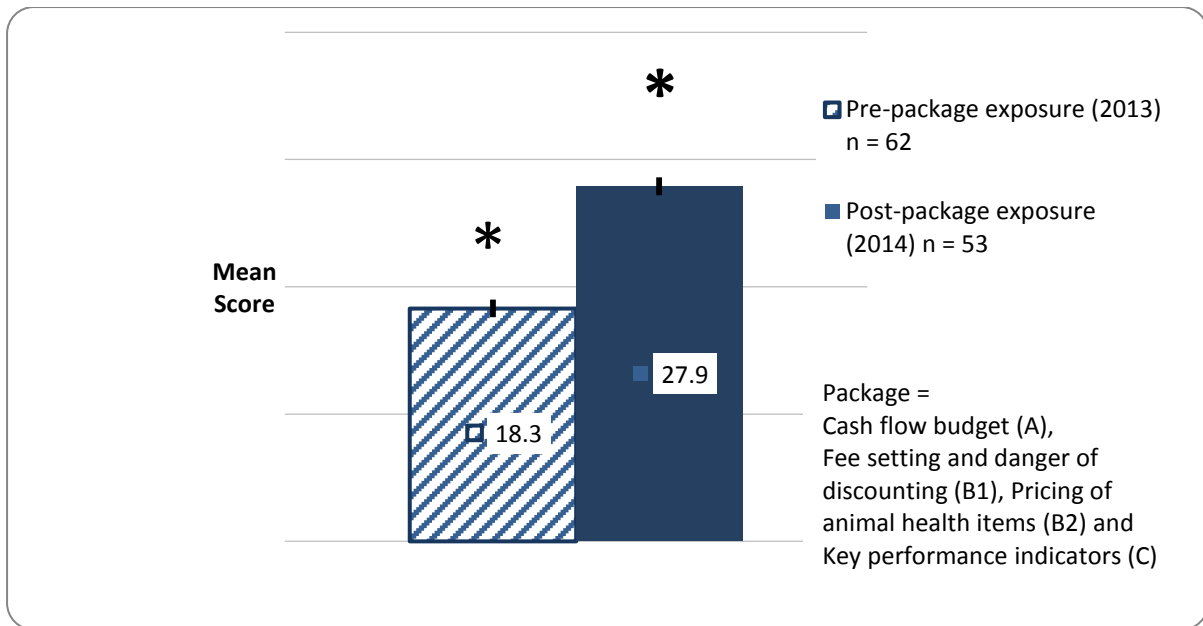


Figure 3. Mean business knowledge test scores pre- and post-exposure to VIBE teaching package

In order to determine whether exposure to the VIBE teaching package resulted in an attitude shift towards learning business skills, UoA veterinary students completed a survey that measured interest in, and aptitude for, business and entrepreneurship prior to and post-delivery of the VIBE teaching package. Analysis of student responses suggests that more value was placed on the relevance and importance of business skills following exposure to the VIBE teaching package. Survey questions related to student attitudes towards business skills (or business sense) were grouped together and analysed. Our results show that prior to exposure to the teaching package the student mean score for business sense was 63, but post exposure this score increased to a mean of 69 (Figure 4). These results suggest a positive shift in student attitudes regarding the acquisition of business skills following engagement with the teaching package. Thus, it is reasonable to suggest that the teaching package increased student engagement in the topic of veterinary business skills and improved student learning.

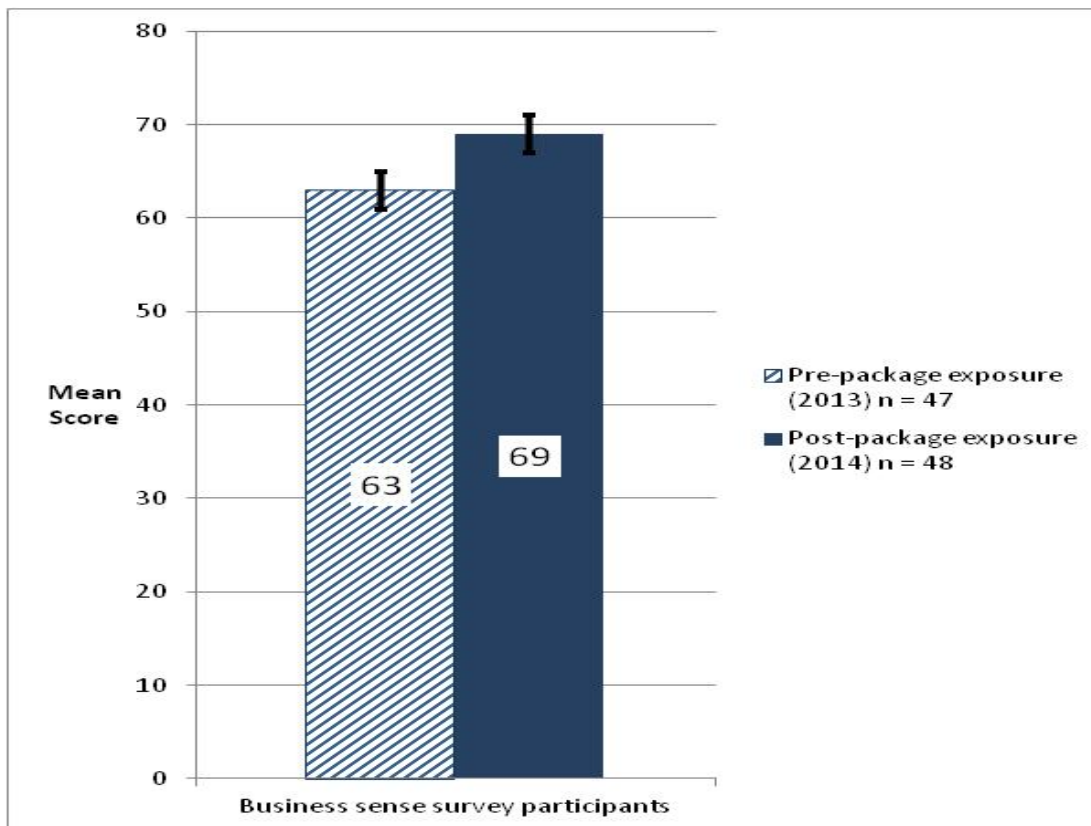


Figure 4. Student scores on survey questions related to business sense pre- and post-exposure to the VIBE teaching package

Following each VIBE workshop, students, as a team, were asked to provide feedback on the workshop via a feedback form. This feedback was both summative and formative, in that student feedback can be considered a measure of the effectiveness of the VIBE teaching package, and can be used to improve the teaching package in the future. Student feedback from UoA's students and CSU's students was collected following workshop participation and analysed. In total, 42 group feedback sheets were analysed. The most common student comments on feedback forms are listed below (Table 3) with the corresponding number of comments received. Table 3 shows that the interactive nature of the workshops is very popular amongst students with 15 of 42 groups stating that what they liked most about the workshop was that it was interactive. Other positive aspects of the workshops reported include group learning, student engagement with learning materials and relevance to different learning styles. Also, our analysis of student feedback shows that the workshops can be improved by providing clearer instructions for activities.

Table 3. Most common student responses on workshop feedback forms n = 42

<b>What is the best aspect of the workshop?</b>	
Interactive	15
Group learning	7
Engaging	6
Relevant to different learning styles	5
Appropriate length	4
Informative	3
Lego blocks	3
<b>What could be improved about the workshop?</b>	
Clearer instructions	4
More abbreviated lecture material	3
More detailed lecture material	3

The end of project evaluation involved members of the original reference group and additional invited educators from other institutions including a veterinary nurse educator. The survey gave respondents the option to provide anonymous responses. Feedback regarding the overall quality and content of the VIBE teaching package was positive (see Table 4). Comments regarding the positive aspects of the teaching package, and areas for improvement, have been analysed and a summary is provided in Table 5. For a complete list of educator extended responses refer to Appendix A.

Table 4. End of project evaluation of all resources – by reference group and invited educators n = 9

<b>Statement</b>	<b>No response</b>	<b>Broad Disagreement</b>	<b>Broad Agreement</b>
Resources are of a high quality			100%
Resources were engaging			100%
Resources are at the appropriate level for students			100%
I was able to access the resources easily			100%
Web site was engaging		11%	89%
It was easy to find the things I wanted from the website			100%
I would like to contribute to creating more resources for the website		23%	67%
The resources address a significant gap in student education regarding business skills			100%

Responses n = 9



Table 5. Most common reference group and invited educator responses for end of project evaluation n = 9

<b>What did you like about the VIBE teaching package?</b>	
Excellent suite of resources, high quality, up to date references	6
Resources logical, support educators, parallel to student resources	6
Comprehensive, challenging, engaging, modern media, link section	6
Usable, adaptable and good explanations	5
Overall fantastic	5
Vet relevant, promotes employer-employee relationship, human and real	4
Fills gap in curriculum and student knowledge	3
Clear have been trialled, reflected on and refined, has feedback section	1
<b>What could be improved?</b>	
More content – human resources, communications, scenarios, pricing high end equipment, customer service	6
Typos and non-functional spots and fixes, complexity in some areas, minor fixes	4
Refinements – student resources: embed key concepts points into learning guides, an introduction to walk students through use of site, intro short film plays when open the site	4
Refinements – educator resources: some repetition in workshop notes, review and rate MCQ	2
Better platform, host externally	1
Unsure	1

## Chapter 4: Dissemination

Dissemination was an integral component of this project. Dissemination of information about the teaching package occurred in several ways:

1. Australian Veterinary Business Association (AVBA) conference: Focus group
2. Festival of Learning and Teaching, Adelaide: Poster presentation
3. Veterinarians in Education, Research and Academia: Magazine article
4. Reference group evaluation: Mid project
5. Australian Veterinary Association (AVA) national conference: Poster and presentation
6. Reference group and invited educators evaluation: End of project.

Early dissemination processes aimed to create awareness of the project and engage veterinary educators as evaluators of the VIBE teaching package. Project leader, Adele Feakes, conducted a focus group at the AVBA conference in Melbourne on 12 September 2013. Adele presented focus group participants with the question: What knowledge, skills and attributes do graduating veterinarians require? The results of the focus group discussion helped the project team to shape the VIBE teaching package and created interest in the project amongst members of the AVBA.

Information about the project was further disseminated at the Festival of Learning and Teaching held in Adelaide on 4 November 2013. The project leader presented a poster which served as an early opportunity to communicate the intended project outcomes to academic peers from multiple disciplines and representatives of the Office for Learning and Teaching.

The value of dissemination via face to face interaction was realised when the project leader presented information about the VIBE project to veterinary educators at the AVA conference in Perth (May 2014) and was subsequently invited to present a workshop as part of a new business subject in the veterinary program at The University of Queensland (scheduled for 8 September 2014).

Engaging internal and external reference groups aided dissemination. At the stage of mid project evaluation a reference group member provided a recommendation to a colleague about the VIBE project that resulted in the project leader, being invited to present Workshop A to veterinary students at CSU. The project leader took the opportunity to transfer skills to CSU veterinary educators by presenting VIBE Workshop A and mini-lecture to 60 students (in two half classes) at CSU on 29 July 2014. Student and educator feedback regarding the workshop was positive (see Chapter 3).

Significant dissemination resulted from the learning package evaluation process where many veterinary business educators across Australia were involved in accessing, and providing feedback on, the website and teaching package prior to roll out of the completed package in July 2014. This process resulted in a number of evaluators becoming adopters and adapters of the VIBE teaching package.

## Chapter 5: The future of VIBE

The project team have successfully developed a pilot website that improves the business skill learning experience of veterinary students. The experiential learning activities of the VIBE teaching package have been demonstrated to provide pedagogical and industry relevant resources that build the essential attributes of veterinary graduates. The success of the VIBE teaching package, measured by change in student aptitude for, and attitude towards, business skills and knowledge, strongly indicates the value of building on this seed project.

The project team have a vision for the future of VIBE. Our commitment to continuous improvement through monitoring and evaluation will ensure that the VIBE website is maintained and improved over time. However, in order for the VIBE project to significantly transform the way that business skills are taught in veterinary programs there is a need to secure future funding to expand the VIBE teaching package to include the following features:

- Acted out scenarios, or vignettes, filmed using semi professional actors and animals
- More workshop and learning guide topics, including Activity based pricing; Market based pricing; Marketing your business and yourself; Mapping your career; Financial planning for the veterinary graduate; Business communication skills; Human resource management; Pricing high end equipment; Customer service
- More Articulate Storyline modules for on-line interactivity with in-built quizzes
- More case studies or scenarios to reflect the variety of veterinary businesses (not only practices) that students may work in as veterinarians
- Increased interactivity with a student/lecturer forum platform
- Hosting of the website external to The University of Adelaide utilising specialist support for website design and development

There is significant scope for the VIBE teaching package to be modified to meet the teaching needs of other professions such as medicine and dentistry. The project team see great value in building on this seed project to the long-term benefit of Australian veterinary students, the veterinary profession and potentially other professions.

## Chapter 6: References

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## Appendix A: End of project evaluator comments

Specific comments regarding the positive aspects of the teaching package, and areas for improvement, are presented below.

Evaluator response to the question: What did you like about the VIBE teaching package?

- They provide everything that you need to facilitate a workshop. They are veterinary related which is very important.
- Resources are packaged so they can be used by different institutions
- Parallel student and teacher resources areas. The use of a range of multimedia types, integrated into a carefully planned and timed approach. The aim to help students to see the relevance of learning about these areas which will hopefully make for a better relationship with employers through better understanding and empathy. The layout is logical
- This resource fills a huge hole in the curriculum and gives veterinary students and educators a huge amount of support in teaching and learning business skills. Although I have not taught a workshop, the activities look really hands on and engaging as well as challenging. The amount of thought and work that has gone into this resource is obvious.
- Use of flipped classroom method with integration of engaging learning resources to support students' learning. An excellent suite of educator resources is provided. Thorough explanations of how to use workshop resources in sections completed so far makes using them well at first attempt seem quite achievable. It is clear that they have been trialled in the classroom, the outcomes reflected on and learnings fed back into the resource design to improve it. Attention to detail in run sheets, assignment instructions etc. High quality, clear, pertinent teaching videos that are likely to resonate with students. Notation of how resources might need to be modified to suit local contexts, e.g. in the quiz for Pricing and Charging Animal Health Items
- It's all great information and the resources are different to any other curriculum, short films etc. Really the end user should have the last say. I feel too close to the topic and could be biased to the content because I had a reasonable amount of input to the Practice scenarios. Well done to all of you.
- It addresses the gap in student knowledge.
- You have a very comprehensive offering here Adele. I particularly liked the short films...gives a human touch and makes it all that bit more REAL. The quizzes are great for reinforcing learning and assessment. Great to have feedback and link section. Can you update link to AVAPM as it links to the defunct site. New link is [www.ava.com.au/practice-management](http://www.ava.com.au/practice-management). Are there plans for an interactive element/forum? Great job overall
- Modern media like youtube and up to date references

Evaluator response to the question: What could be improved?

- Perhaps more on managing staff and more communication resources, for example

more cases on how to speak to your clients about costs and how to sell products.

- Unsure
- There are a number of typos, and non-functional spots - which come up with "Error". Love the Allansville Vet Practice Case Study. In class discussion, what language is that in? Within the educator resources, for each of the different workshops, it gets a bit tedious wading through the repetition of areas between each of the different case studies. Maybe a different font could be used for standard "cut and paste" text that is identical between case studies, and text that is specific to that particular workshop area? The Key Concept PowerPoints - I struggle with just black type on a white background (reading wise). I don't know if this might be the case for some of the students too. Perhaps a softer view with more solid borders?
- I feel it would make the learning guides clearer and more related to the mini-lectures if the key concepts used in the lectures (which, as someone with little experience in this area I found very helpful) were also used in the learning guides. This would enable the learner to find more information on a particular concept very quickly. I have little background in this area so my opinion shouldn't carry too much weight but some areas e.g. returns for different indicators I found very complex. Others were very clear.
- I found some of the MCQs slightly confusing, and would suggest they are reviewed to eliminate double negatives. Some I found a bit easy. I'm not sure if this is intentional, but you might like to review this and confirm that the questions are appropriately challenging. Also, a minor point, the indication of the correct answer for the first question in the Pricing and Charging Animal Health Items needs to be added. Overall though - fantastic! :-)
- It's very busy and there is a large amount of content. I would be interested to know if there is an introduction to students in tutorial style to walk them through it? When you open the site it needs some inviting statement or short film to make you want to engage in the topic? Perhaps a successful practitioner enthusiastically talking about how he started off in a small practice and now look at me....'My passion for business started at Uni..... It would be good to have a set of short films with some business faults in it relating to areas of HR, customer service, purchase of a high end piece of equipment and no real thought gone in to lease or purchase.....and similar scenarios then the student has to fix the problem.
- A better and more approachable website platform is needed. The University of Adelaide one is too busy and unappealing to look at. I still feel the website needs to be professionally designed by a specialist company and hosted externally. Also, not all of the drop down menus are functioning on this page:  
<https://www.adelaide.edu.au/vetsci/vibe/student-resources/learning-guides/personal-budgeting/>
- Interactivity... student/lecturer forum. Overall a fantastic resource from an educational perspective. Great work and congrats to all involved.
- More real life examples