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Revision cheats – How to maximise your learning to achieve exam success

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Abstract: Whether you are a student veterinary nurse or a registered veterinary nurse completing advanced qualifications, you need to get the most out of often brief study time between busy shifts in practice. Unfortunately there are no shortcuts to exam success. There are, however, ways to learn more effectively to get the most from your study time, helping you to feel better prepared for exams. Focusing on two key factors will ensure you are maximising your learning: taking control and keeping the learning active!

What is active learning?

As the name suggests, active learning methods involve students being “active” in some way, ideally by thinking critically about the topic. Learning theory has moved on significantly since the days of students being lectured at by teachers, which you may have experienced in your school days. Like many, you may have struggled to recall much of this information as you were not actively involved in collecting it. The development of modern teaching theory suggests that passive methods such as lecturing do not necessarily lead to the most effective student learning. Constructivism is a division of learning theory which has been researched and discussed by many authors for decades. In its modern form it suggests that students learn when they make sense of their own experiences and “construct” their own understanding (Taber, 2011). It has in turn given rise to the concept of active learning – where students engage in activities such as discussion or problem-solving. Essentially, if someone tells you the answer to a question you are unlikely to remember it, because this is a passive action. However, if you try to find that answer yourself by research or discussion with others, you are much more likely to recall it because you became actively engaged in the activity. Your failure or success and experience of trying to find the answer creates emotions which have a significant impact on how you remember (Straker, n.d.).

Participation in the active learning process also promotes the type of “higher-order thinking” described in Bloom’s revised taxonomy. The revised taxonomy sets out a hierarchy of thinking skills in six levels. Students should aim to utilise the “higher-order thinking skills” such as analysis and evaluation to achieve deeper understanding of a topic. Using Bloom’s revised taxonomy can also help students achieve metacognition – a process which can be described as thinking about learning. Essentially, if you employ metacognition to give deeper thought to how you learn as an individual, it is thought you will make better progress (Pritchard, 2014). See **Figure 1** for Bloom’s revised taxonomy and examples of questions students can consider during revision to deepen thinking and encourage metacognition.

Does it really work?

Active learning is not just a theoretical, unproven idea. It has been shown to improve student achievement when the results of a control group are compared with experimental groups, (Petty, 2009). A review of the research on active learning by Prince (2004) also broadly supported many common active learning methods as being effective. If active learning helps to achieve metacognition, and students are able to self-regulate by setting their own goals and evaluating their own academic progress, it is suggested that students will make an average of eight months’ additional progress (Education Endowment Foundation, 2016).

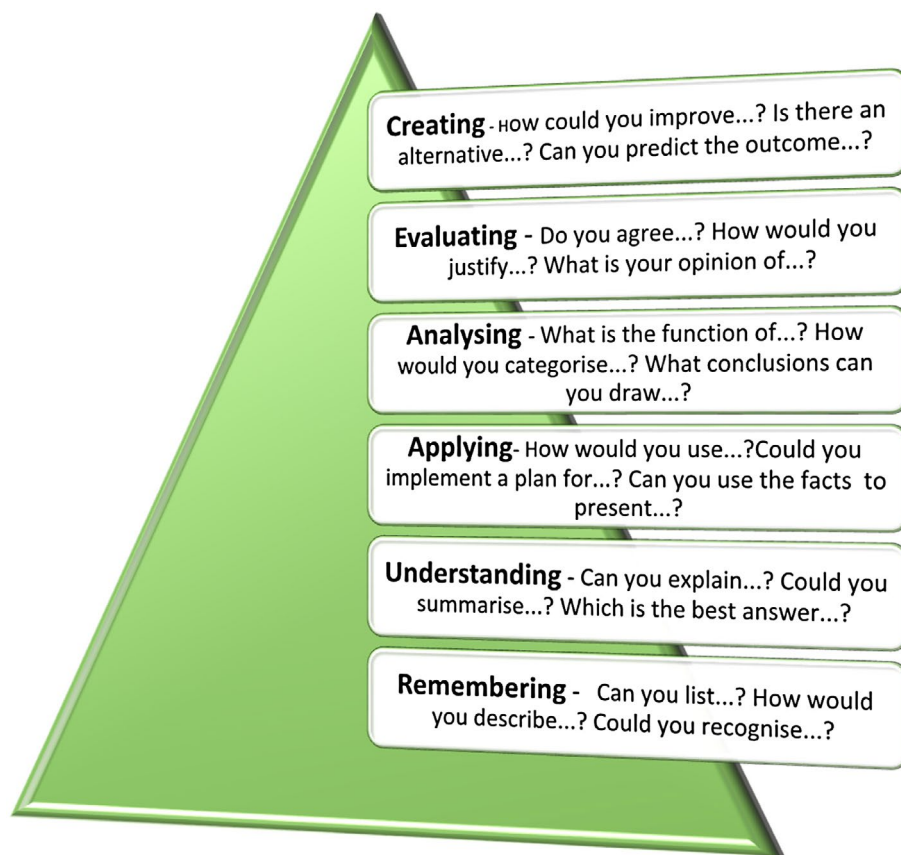


Figure 1. Bloom's Revised Taxonomy and example self-assessment questions for each level of learning (Carrington, 2012; Costello, n.d.; Ferlazzo, 2009)

Active learning methods

So how can students start learning more actively? The first step, as mentioned earlier, is to take responsibility or ownership of your own learning to achieve self-regulation. Hattie (2009), an author whose research was based on millions of students over many years, concluded that the greatest impact on student learning occurred when students

developed the ability to become their own teacher, self-monitoring and self-assessing their learning progress. With this evidence base in mind, it is critical to your learning that you are organised; know exactly what will be examined, and make an honest and realistic assessment of your knowledge and understanding in relation to this. You can then set yourself goals, perhaps weekly revision targets, taking into consideration time

constraints such as shifts at work. Perhaps you could plan revision around cases you have been involved with at work that week to help link underpinning knowledge, practical skills and reflective practice. Try to avoid focusing too heavily on topics you understand relatively well and instead give priority to any areas of weakness that may have been identified in the self-assessment.

Table 1. Learning styles and suggested active learning techniques (VARK Learn Limited, 2016; Hawk & Shah, 2007)

Learning Style	Key characteristics of style	Suggested active learning techniques
Visual	Preference for symbolism, varying formats and colour – not simply watching	<ul style="list-style-type: none"> • Use pre-printed animal templates to draw colour-coded diagrams of anatomical features • Create colour-coded mind maps on topic areas linking ideas together • Create flash cards using pictures/diagrams – avoid borrowing or buying them, as the learning is in the making • Try using multimedia applications online which allow you to present information using video, text and diagrams all in one place
Auditory	Preference for spoken or heard information and questioning	<ul style="list-style-type: none"> • Make recordings of summarised notes on smartphone or mobile device • Try playing low-level background music in your study space • Use discussion with others as much as possible – form that study group • Read notes / OSCE steps aloud
Kinaesthetic	Preference for experiences and things which are real life	<ul style="list-style-type: none"> • Use real examples in notes, reflect on cases you have been involved in and ask how improvements could be made • Take real photos and add notes rather than using diagrams • Discuss cases with colleagues • Use real 3D models/skeletons to label anatomical landmarks

Table 2. Dos and don'ts of revision

Dos	Don'ts
<ul style="list-style-type: none"> • Start early – months, not weeks, before exam 	<ul style="list-style-type: none"> • Cram – its unnecessarily stressful
<ul style="list-style-type: none"> • Get organised by creating a realistic revision timetable that takes into account your working pattern and social time 	<ul style="list-style-type: none"> • Spend all your time rearranging notes and procrastinating, just get on with it
<ul style="list-style-type: none"> • Exercise! Many links are now being made between physical activity and ability to concentrate 	<ul style="list-style-type: none"> • Spend all your time revising, time away socialising is healthy and achievable if you start early enough
<ul style="list-style-type: none"> • Take regular breaks to maintain focus 	<ul style="list-style-type: none"> • Avoid topics you struggle with and leave them until the day before the exam
<ul style="list-style-type: none"> • Used varied active learning methods 	<ul style="list-style-type: none"> • Obsess over one topic area to the detriment of others
<ul style="list-style-type: none"> • Form a study group with fellow students or colleagues 	<ul style="list-style-type: none"> • Focus all revision on past papers – this doesn't promote deep thinking
<ul style="list-style-type: none"> • Find a good environment, some like quiet while others prefer some background noise 	<ul style="list-style-type: none"> • Don't just read and make notes – think more actively
<ul style="list-style-type: none"> • Use colour and repetition 	
<ul style="list-style-type: none"> • Practice mindfulness at work 	
<ul style="list-style-type: none"> • Test yourself or get others to test you 	

Once you have defined your goal, you then need to ensure you are using active methods of learning. Remember that reading is a relatively passive action unless you pause to do something with the information, which is why students commonly report reaching the end of a page or chapter and being unable to recall anything. Passive activities such as reading or watching videos can be made more active, and so more effective, by making notes or discussing the content with others. The aim is to continually challenge yourself during revision and promote thinking during the learning activity. To achieve this, try making notes or discussing without referring back to the book or video. Once complete, you can then refer back to the original source and evaluate your understanding, adding any new thoughts. In this way you are building upon your knowledge or “constructing” your own understanding of the topic in addition to using Bloom’s higher-order thinking. It allows you to organise your thoughts and “file” them away in your brain’s filing system and like any good filing system; the more organised those thoughts are in the system, the more likely they will be found and recalled easily in an exam. A good example of active learning applies to OSCE preparation. Reading and memorising task steps is a relatively passive technique. Try instead to actively carry out the steps, talking through your actions as you do. Try watching or “examining” others complete the steps, evaluate their success and give feedback to help deepen your own understanding.

This type of collaboration, or group work, is also known to be effective in improving learning (Prince, 2004), so rather than working alone making notes, try studying with others and forming a study group, discussing your understanding instead

of writing it down. Take opportunities to discuss topics with work colleagues, particularly your clinical coach, and keep questioning and reflecting on your actions. See **Table 1** for examples of active learning methods.

Mix things up

In short, one active learning method is not enough. Ideally, students should vary their learning methods as much as possible, as different methods stimulate different neural pathways to create memory links. For example, information which is read will stimulate visual pathways, while listening to a voice recording will stimulate auditory pathways. Watching and listening to a video will stimulate both visual and auditory pathways. The more pathways which are involved in creating a memory, again the more chance there is of it being recalled effectively. Students should aim to stimulate several pathways with the same piece of information to maximise the chance of it being recalled. For example, when trying to learn radiography positions, watch others position animals to stimulate visual pathways, make a voice recording of the anatomical landmarks to playback and stimulate the auditory pathways, and finally, practice physically positioning animals to stimulate muscle pathways. I think of this technique like saving a really important document in various places to ensure it doesn't become lost, e.g. save to desktop, save to USB and save a copy in email just for good measure! See **Table 2** for more dos and don'ts of revision.

Learning styles

Learning styles or preferences give an indication of a student's preferred learning

method and are often assessed via questionnaire at the beginning of a course. The idea is based on research which suggests humans vary in how they receive stimuli, and so while one student may take information in easily via a particular medium, another may struggle (Pritchard, 2014). This has led to the development of defined categories of learning style such as visual, auditory or kinaesthetic, although other categories exist. It is worth investigating your preferred learning style so you can focus more heavily on active learning methods which better suit your learning preference, while remembering to continue to vary the learning methods used. Questionnaires can be easily accessed online and often provide suggestions for suitable learning methods.

Conclusion

Whether you are a student veterinary nurse about to start a college course, or just looking to maximise the impact of your continuing professional development, increasing your use of active learning is essential to keep pace with the continually developing veterinary industry. Making links between your theoretical knowledge and practical application is of paramount importance to our patients and so every-day nursing activities should not be overlooked as key learning opportunities. Veterinary nurses tend to be “hands-on”, practical people, which is why we are initially attracted to the role, and often report they learn best by doing. So, if you do nothing else after reading this, try and actively learn more in the everyday activities at work – state anatomical landmarks out loud while clipping a patient for surgery, calculate a drug dose from scratch rather than relying on the wallchart, or simply consider the

proverb often attributed to the Chinese teacher Confucius

“I hear and I forget. I see and I remember. I do and I understand” (Straker, n.d.)

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For further information and to access an online learning styles questionnaire, visit <http://vark-learn.com/the-vark-questionnaire/>


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Do's and Don'ts

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


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