



Learning for Professional Practice

Using flashcards to support your learning

The idea that if you listen to a lecture and make notes by some mysterious process you will have learnt all that the lecturer has covered is a myth. Unfortunately the lecture is just the start. The best way to learn is by doing, this can be by being given tasks to do in practicals, by reading and creating your own notes, listening again to parts or the whole of a lecture via a screencast or using diagrams and illustrations that you annotate. Similarly creating your own learning materials can be useful as actually putting questions and answers together helps you to learn.

One of the many ways to support your learning especially for difficult topics like anatomy and physiology, learning about bones, medical terminology or indeed any subject where there are a lot of new words and terms to learn is making use of an old technique brought up to date with new technologies called “flashcards”.

Traditional flashcards

The conventional way of working with flashcards is using cards for example, index cards or those designed as flash cards, see Figure 1, where you write a question on one side and the answer on the other. Once you have done this for a number of cards you then use them to test your memory of the words and their meaning. You can do this by looking at the question and answering it, or the other way round by looking at the answer and working out the question.



Figure 1 Traditional flashcard stationery.

For example if you were learning medical terminology one side of the card might read 'appendicitis' and the other side 'inflammation of the appendix', alternatively you could have a photograph of a bone on one side and its name on the other. You can make these kind of cards for yourself which is best as this becomes part of the learning process or you can download ready made sets to print out, for example Netter's Anatomy Flash Cards¹, Gray's Anatomy Flashcards² or Mosby's Flashcards for medical terminology³ which are more sophisticated in their content e.g. illustration of a skull with numbers from 1-10 then on the other side details about the bones and anatomy of the skull.

The cards can also be used simply or in more sophisticated ways that mean the words you find more difficult and rate as such appear more often whereas those you know and rate as easy will appear less frequently. This way of working is how flash cards should be used and was first described by Leitner in 1972, see the paper by Mubarak et al 2008⁴. The idea is that content that can be recalled is promoted so not looked at as often whilst content that is not recalled is demoted and looked at more often.

Desktop and mobile programmes

The alternative to actual cards is to use some of the technologies that are available either through desktop programmes like Anki (<http://ankisrs.net/>) or Memorylifter (<http://www.memorylifter.com/>), websites such as Quizlet (<http://quizlet.com/>) and Study-Blue (<http://www.studyblue.com/>) or Davis's suggestions of mobile applications for iPad, iPhone or Android devices⁵. These applications allow you to create your own flashcards, import word lists from files, use other people's flashcards, export or print-out flash cards

and more usefully several of the sites can automatically create multiple choice style quizzes from your cards. One example of the flexibility of online systems is to be able to view the cards in different ways Term and Definition, Term only or Definition only, see Figure 2.

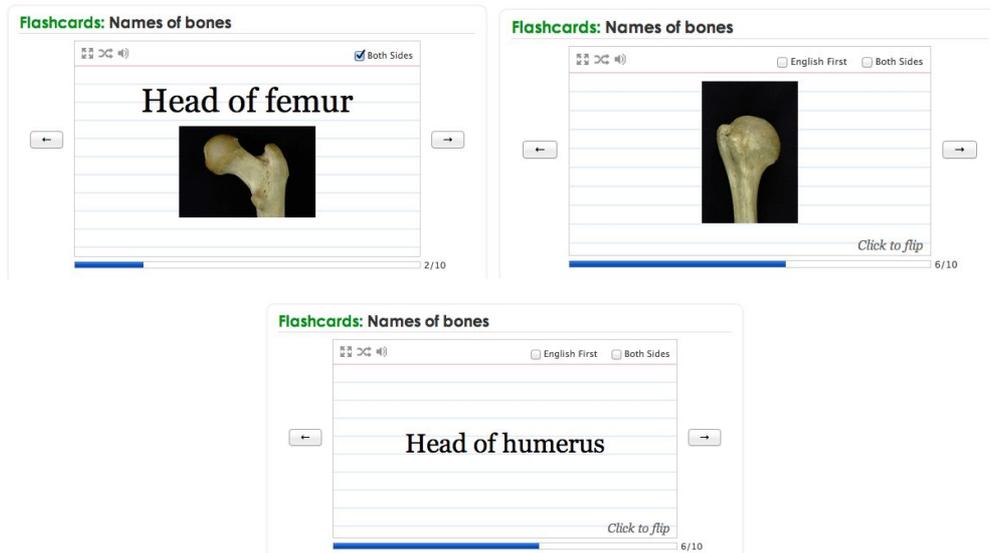


Figure 2. Quizlet (a) showing picture with name (b) picture or term (c) definition, in this case the name of the part of the bone.

StudyBlue <http://www.studyblue.com/>

StudyBlue uses a system that allows you to confirm you know what the answer is or not similar to Leitner's system with a visual 'Thumbs up' those you know or 'Thumbs down' those you don't know, see Figure 3a. This is then translated into a graphical and numerical representation to show your level of mastery of the set providing you with feedback, see Figure 3b. StudyBlue is available as a web based system but also has an iPhone⁶ and Android⁷ app.

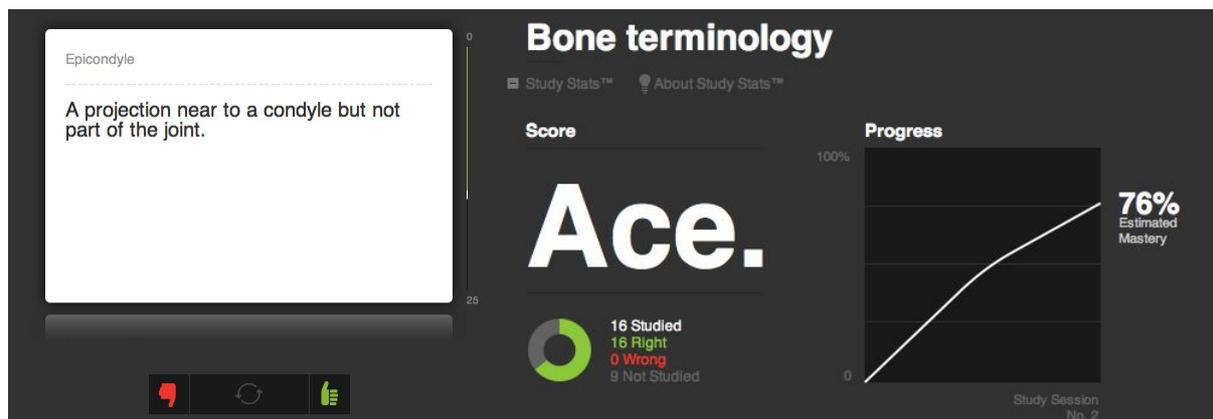


Figure 3. StudyBlue (a) Card showing red thumbs down and green thumbs up if you don't know or do know the answer (b) Screen showing how well you are doing with a set of flashcards.



Figure 4. Example results page from multiple choice quiz <http://quizlet.com>.

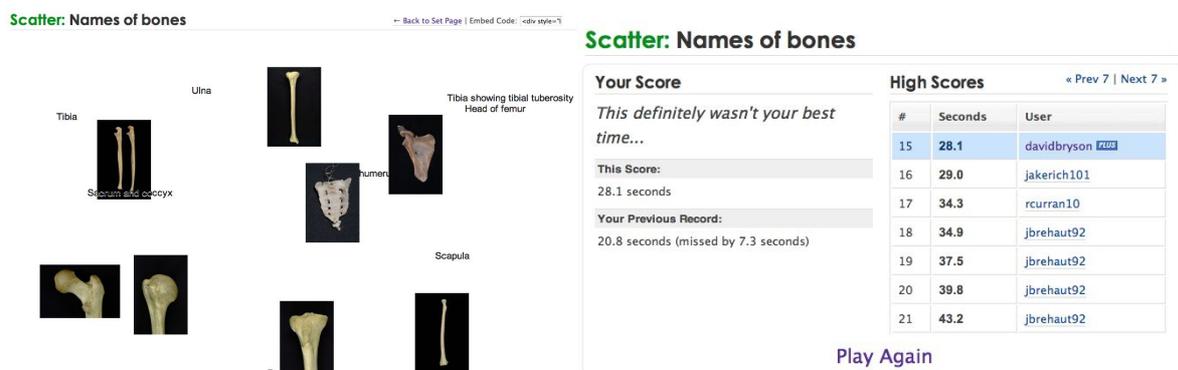


Figure 5. (a) Scatter with drag and drop (b) Results screen <http://quizlet.com>.

Quizlet <http://quizlet.com/>

Quizlet, along with other programmes, have extra features that may be helpful with learning including automatically creating multiple choice quizzes which then feedback to you on which you have got right and which wrong, see Figure 4. There are several other types of test using the information you have entered or from other people's flashcard sets including drag and drop over the matching term and definition or, as in Figure 5a, the matching picture and definition with a speed score at the end. Flashcard sets can easily be shared with friends on the same course or in the same department with some tests giving you feedback on your speed so learning can even become competitive, see Figure 5b. For apps: search for 'quizlet' in iTunes or the Android Marketplace

[\(https://market.android.com/\)](https://market.android.com/).

How to get started

There are plenty of flashcard sets other people have created. To start you off I have loaded some cards onto both of the above sites but don't forget actually creating your own can be part of your learning.

StudyBlue <http://s.tudy.it/twa798> join with this link to get access to StudyBlue+ for a month.

Names of bones <http://www.studyblue.com/#folder/1918681>

Bone terminology <http://www.studyblue.com/#folder/1585393>

Quizlet <http://quizlet.com>

Names of bones <http://quizlet.com/6550710/names-of-bones-flash-cards/>

¹ Hansen, J.T. (2010) Netter's Anatomy Flash Cards: with Online Student Consult Access. London: Saunders, 3rd ed.

² Drake, R. Vogl, A.W. Mitchell, A.W.M. (2009) Gray's Anatomy for Students Flash Cards. London: Churchill Livingstone, 2nd ed.

³ Mosby (2010) Mosby's Medical Terminology Flash Cards. London: Mosby, 2nd ed.

⁴ Mubarak, R. & Smith, D.C. (2008) Spacing effect and mnemonic strategies: a theory-based approach to e-learning. [URI

http://multivu.prnewswire.com/mnr/learnlift/36230/docs/36230-Spacing_Effect_and_Mnemonic_Strategies_color.pdf accessed December 11th 2011]

⁵ Davis, E.B. (2011) Ten flashcard apps for Tuesday. The power of educational technology. Blog. [URI <http://edtechpower.blogspot.com/2011/01/ten-flashcard-apps-for-tuesday.html> accessed December 11th 2011]

⁶ StudyBlue iPhone application <http://itunes.apple.com/ie/app/studyblue/id323887414>

⁷ Study Blue Android Marketplace https://market.android.com/details?id=com.studyblue&feature=search_result

Reference: Bryson, D. (2012) Using flashcards for learning. Journal of Visual Communication in Medicine 35(1): 25-29.