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Infographics for student assessment: more than meets the eye

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Infographics are attracting attention as a mechanism for conveying health messages to the general population and healthcare professionals.¹ Infographics are also appearing within traditional scientific publications as a form of a 'visual abstract' to summarise findings², or as a stand-alone publication³. This suggests that students as well as professionals¹ should be aware of these forms of visual communication. Therefore, it seems logical to incorporate infographics within academic courses where they could have a range of teaching, learning and assessment roles. Producing an infographic may be an effective way of helping students appreciate their value.

This editorial describes how production of an infographic was used as part of an assessment task on a sport nutrition course delivered to sport and exercise science students, and seeks to raise awareness of their use in academic courses.

Novel assessment

It is important that students in the sport and exercise sciences develop the ability to communicate their knowledge effectively. This includes not only scientific audiences but also athletes and patients as well as the general population. Marco Cardinale (former Head of Sports Science & Research for Team GB) stated in his blog⁴ that infographics may have such a communication and educative role within the sport and exercise environment for coaches and in particular young athletes.

We created an assessment task in which students produced a literature review of current thinking in performance nutrition for a sport of their choice; they then repackaged this as an infographic suitable for a sporting, non-scientific audience. Both components received an equal share of marks. Educationally, such a task required students to engage in higher order thinking, a form of 'metacognition'⁵ as they considered how others would view and interpret the infographic they created.

As the students attended a Scottish University the learning outcomes for the course were informed by the Scottish Credit and Qualifications Framework (SCQF)⁶ which outlines five broad categories for learning outcomes (indicated in italics below). Our assessment represented a rich task drawing on all categories and is well suited to honours level study (SCQF Level 10). Students had *autonomy* to select a sport and demonstrate the subject-specific *knowledge* about the topic, the ability to use *cognitive skills* to make judgements about what material to present and how to

present it. They also required *communication (including, numeracy and IT skills)* during the process of creating the infographic. Overall the task required use of *applied knowledge and understanding*.

All students were instructed on how to use of one (<http://www.easel.ly/>) of the many free tools available online⁷. Some students went on to explore, use and combine other tools to generate their infographics.

We gave minimal guidance;

- (a) Avoid elements present only as visual embellishment; every element should actively 'do something',
- (b) If the text were removed the infographic should still 'say something'
- (c) Infographics should pass the 'blink test' i.e. a rapid connection with the topic.

After one introductory session and minimal guidance the work students independently produced was generally of a high standard, informative, well thought out and visually appealing (for example Figure 1).

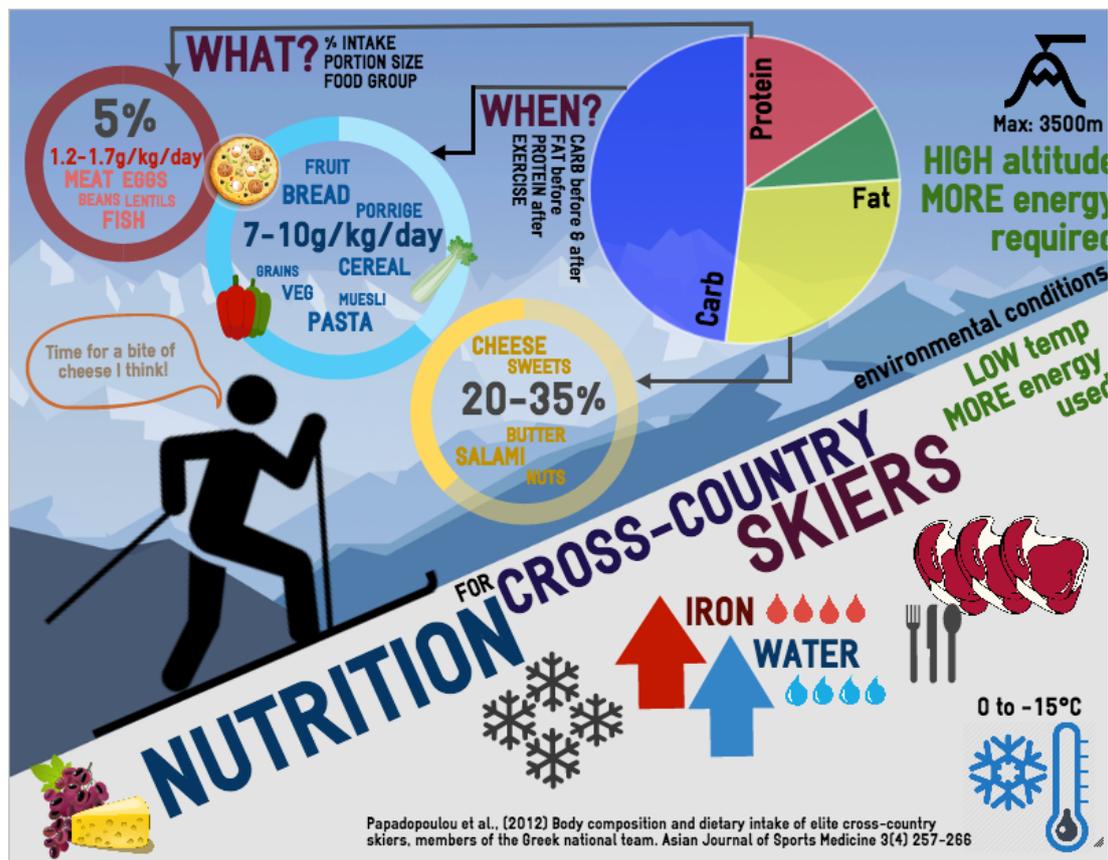


Figure 1. Infographic of nutrition for cross-country skiers (courtesy Kate Ashwell).

More than meets the eye

Creating an effective infographic was far more valuable than just 'drawing a few pictures'; it required judgments about concepts to focus on. A good understanding of the evidence seemed a vital precursor for producing good infographics; the majority (75%) of marks awarded for the infographic did not exceed the mark for the written essay (Figure 2). Furthermore, only 1 of the 28 infographics was awarded a mark in a higher grade band ('A', 'B', 'C') than the corresponding written essay. Therefore, it seemed artwork cannot offset a lack of underpinning knowledge.

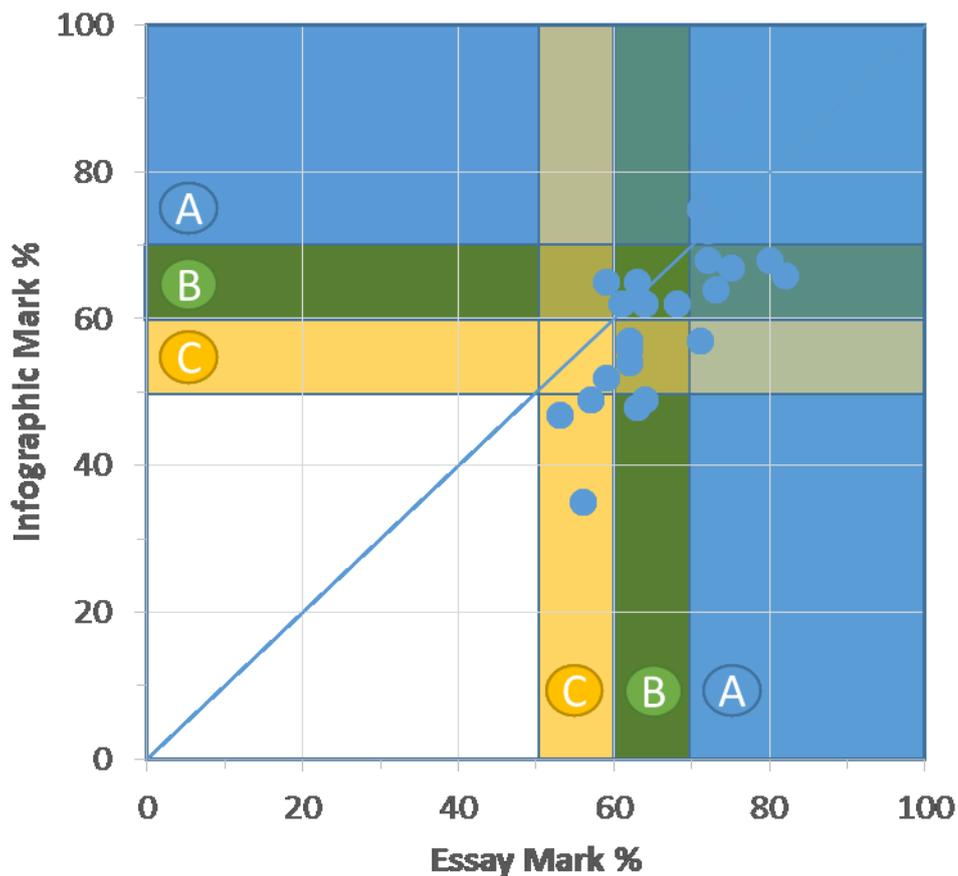


Figure 2. Relationship between marks (%) and grade band ('A', 'B', 'C') awarded for a sport nutrition essay and corresponding infographic (n=28).

This assessment task was viewed positively by students, markers and the external examiner. However, questions remain about how to objectively assess infographics. Awarding a mark undoubtedly involves some aesthetic element which is unfamiliar territory for academics in the sport and exercise sciences. Thankfully, recent evidence-based guidance for the production of health-related infographics⁸ could help students formulate their infographics and provide a framework to assist those involved in assessing student infographics. As infographics become a more common feature of academic communication and publication the guidance could also inform the peer review process.

Summary

Infographics do have potential within teaching, learning and assessment. However it is essential that students fully understand and critique research and publications; science cannot be captured or understood through 'key concepts' alone. Producing infographics is engaging for students, requires considerable thought and it forces the author to think about their audience and how best to communicate key issues. As the great scientific communicator Albert Einstein said "If you can't explain it simply, you don't understand it well enough".

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