

## **Ephedrine Case Study**

### **Stage 1: The “one with the drugs in it” seminar**

Tutors should be working with students in a computer lab, preferably one where there are white boards for posting information as it is found out, and (ideally) a computer projector to allow the whole class to see some of the results. The tutor should set the scenario by asking students to imagine themselves to be parents of a teenage child. This child, who is a keen sports enthusiast, has come home from school talking about a drug called Ephedrine, which a friend tells them will help them make the sports team. Being a concerned parent, each student should use their favourite search engines to find out answers to the following 5 questions:

- 1 What are the positive effects, if any, particularly related to sports?
- 2 What are the negative effects, if any?
- 3 What dosage information is available?
- 4 What is the cheapest price?
- 5 What is the history of the drug? e.g. Origins, fatalities related, current usage and brand names, etc.

As information is gained, which will often be contradictory from different sources, it should be posted up on the white board, and/or interesting sites pulled up by the tutor. A range of answers to the questions above should be achieved; e.g. it is possible to get free samples! Safe dosage information ranges from mgs per day to grams every few hours! Several web sites claim no side effects, while others describe deaths!

After satisfying all these questions – 20 –40 minutes for a class – the students should be asked:

Would you let your child take the drug? Ask for hands up for the following options:

Yes/No/I would give them the information and let them decide

Most people say no, then change their minds when presented with the final option, which is the best approach as recommended by relevant drug charities!

There should be a debrief session, relating the following points:

1. The Internet is an excellent source of information, but it is often contradictory, so students should look at the source and the age of the information
2. It should be recognised that providers of information often have their own agenda e.g. Someone selling the drug may say that there are no side-effects...
3. Almost everyone has taken ephedrine as it is in many cold/flu remedies, asthma inhalers and even Starbucks coffee! It is a common bronchodilator and easily available as a medicine. The issue with side effects is, like with many other drugs, one of dosage and usage.
4. Students who wish to discuss issues that arise as a result of this tutorial should be reminded that student services is available (NOTE: The developer of this activity once had an ephedrine user in a tutorial, who was surprised by some of the information uncovered.)

## **Stage 2: The Sneaky Bit**

Now, the students should be asked to construct an essay, built solely from internet-based references about the topic of “Ephedrine Use in Sports”. The first stage is to construct and submit a ‘web scrapbook’ by cutting and pasting sections from the original web pages, with the source URLs present. This is for later comparison and verification by the tutor. In addition to this scrapbook, where the sources are still included, there should be a version where references to the original web sites have been removed. Students should submit this as an assignment report without citation of any kind. Tutors might wish to advise that submissions should be subject to the institution’s guidelines – such as anonymous submission, plagiarism declaration, etc. – to reinforce the normal submissions procedure. However, if this is done, it should be emphasised that this is for completeness, as the submission is an exercise only!

Students are encouraged to reorder sentences, paraphrase, use selective elements from a range of web sites, etc., in order to better disguise the essay. A feedback form would determine which, if any of these techniques had been used, as well as a rough idea of the time taken on the exercise. The aim is to try to give a good idea of how long was taken to cover tracks as a comparison with the time estimated for a legitimate essay. For example, legitimate essays often involve collecting a range of quotes and arguments from source documents; this is called ‘patch writing’. Part of a good essay will be the ordering and relevance of these sources, and when quotations are more effective than paraphrasing, or summarising the arguments that a source has made. The distinction here is that nothing other than direct quotes, even if slightly modified, will have been used, and there will be no ‘original’ opinion or writing in the essay.

## **Stage 3: The Nasty Bit**

Students will receive 1-3 anonymised essays from the tutor, randomly chosen from those submitted by other students. NOTE: It is often useful to construct a properly written essay on the topic to provide a good contrast, and to provide a ‘test’ essay, where there are no obvious web sources. Students are asked to check potential sources and determine whether the reports would be provably plagiarised, suspected but not proven, or apparently legitimate. This decision would be supported by a prior tutorial, which covers examples that distinguish between clear cases of plagiarism and bad academic practice. Several good exercises on this topic exist, such as that in Willmott & Harrison (2003) (See figure 1). Others are available from the JISC PAS Web site <http://www.jiscpas.ac.uk/>

In addition, each essay can be put through JISC PAS by the tutor – where this is both appropriate and allowed by regulations of the individual institution – in order to compare results of manual searches with the additional reference sheet provided to the student. NOTE: As this exercise is likely to be performed in numerous institutions, there might be an increasing number of cross-links. Therefore, unless the tutor specifically wants to explore and emphasise this aspect of the detection software, this feature should be disabled by choosing the internet only option for searches. Alternatively, a default can be set for this exercise whereby the ‘essays’ are not submitted to the final database. For details on these options, please see the TurnitinUK help pages on the Submit web site <http://www.submit.ac.uk/>

## What exactly is plagiarism?

Taking someone else's words or ideas and presenting them as your own work is known as plagiarism. But how much do you need to change something before it becomes a legitimate re-working? The paragraph below is taken from Pharmacology (4th edition, 1999) by Rang, Dale and Ritter. Study the essay extracts in the table and decide whether or not you consider the author of the work to be guilty of plagiarism – some may be more obvious than others!

During the last 60 years the development of effective and safe drugs to deal with bacterial infections has revolutionised medical treatment, and the morbidity and mortality from microbial disease have been dramatically reduced.

Essay extract	Plagiarism? ( <input type="checkbox"/> or <input type="checkbox"/> )
1. During the last 60 years the development of effective and safe drugs to deal with bacterial infections has revolutionised medical treatment, and the morbidity and mortality from microbial disease have been dramatically reduced.	
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3. 'During the last 60 years the development of effective and safe drugs to deal with bacterial infections has revolutionised medical treatment, and the morbidity and mortality from microbial disease have been dramatically reduced.' (Rang et al., 1999)	
4. In the 4th edition of their textbook Pharmacology (1999), Rang, Dale and Ritter state that: 'During the last 60 years the development of effective and safe drugs to deal with bacterial infections has revolutionised medical treatment, and the morbidity and mortality from microbial disease have been dramatically reduced.' Such a bold assertion understates the ongoing threat posed by microbial infection. It is estimated, for example, that worldwide there were over 8 million cases of tuberculosis in 1998 (WHO, 2000).	
5. The development of safe and effective drugs to deal with bacterial infections has dramatically reduced the death rate arising from microbial diseases.	
6. During the post-war years, the development of effective and safe drugs to deal with bacterial infections has transformed medical treatment, and death and illness resulting from microbial disease has been dramatically reduced.	
7. The availability of antimicrobial compounds has transformed healthcare in the period since the second world war. People are far less likely to die or even be seriously ill than they had been prior to the introduction of these drugs.	

**Figure 1 Student worksheet for plagiarism exercise.**

C.J.R. Willmott & T.M. Harrison (2003), "An exercise to teach bioscience students about plagiarism" *Journal of Biological Education* (2003) 37(3) pp139-140

#### ***Stage 4: The Nice Bit***

Finally, all the students should be led in a facilitated workshop on how the essays could have crossed the line into legitimacy. Selected examples of both manually and automatically detected cases of copying. Where the detection software was used, these reports might be made available to both the original student, and the marking colleagues, for comparison with their own efforts at detection, where appropriate. It might, in some circumstances, be useful to show that automatic detection is not foolproof; the alternative of students finding this out for themselves is potentially more damaging than an apparent loss of the deterrent factor. Furthermore, the ethical, technological and practical issues of the distinction between copying, research and plagiarism should be discussed. The important part of this exercise is to have a guilt free activity that teaches the value of research and citation, and the fine distinction between the sheer effort required in “hiding” plagiarism and the minimal extra effort needed to correctly cite research sources. The original discussion of the value of knowing where information has come from is an important point to reiterate.