Smith & Brown*

A case study for use in teaching in Engineering Ethics

Abstract

This scenario examines issues around the intellectual property of a joint project and subsequent research.

Teaching Format

1 hour session, small group discussions

Practicalities

This case study is aimed at students who have not studied ethics before.

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Relevant Ethical Concepts & Issues

- Professionalism
- Intellectual Property
- Employer-Employee Relations

More information about these concepts and issues can be found in the 'Glossary for Engineers' document

* The scenario for this case study was originally part of the course "The Professional Responsibility of Engineers", developed and taught by Professor Ian Howard in department of Mechanical Engineering, University of Sheffield 1999 – 2005. Dr Heather Fotheringham is author of the tutor notes.

Partners in producing this resource

CETL
The Higher Education Academy Engineering Subject Centre

Smith & Brown

Professor Brown is a very experienced academic engineer whose research speciality is the fracture of metals. He obtains a grant from the UK Engineering Research Council for a research programme on how to predict the fracture toughness of a range of engineering metals from data on composition and basic mechanical properties. He uses this to employ a researcher, Dr Smith, to work full-time on the project, using Brown's ideas and under Brown's supervision.

The research is successful and they publish the results in a series of papers in academic journals. These papers contain, in one way or another, all the material data that has emerged during the research.

At the end of the project, Smith takes a post with Reliasys, an engineering software company. She, working with Reliasys colleagues, develops software that rapidly provides the value of fracture toughness, with estimates of reliability on those values, according to the amount and quality of the data input by the user. To make the software commercially effective, Reliasys has had to generate a significant database of new material information. This database, enlarged with the results of the Brown-Smith published research, is embedded in the software. The software satisfies a world-wide need, and is a considerable commercial success.

Questions

(i) What intellectual property (IP) is involved here?

(ii) Have Reliasys infringed any of Brown's rights? Give reasons.

(iii) What is Smith's role in IP transfer?

(iv) Has Smith acted wrongly? Has she acted unprofessionally?

Tutor Notes

The tutor's role is as a facilitator of discussion. This means that if discussion is measured, intelligent and relevant then you may have to do nothing while the groups discuss the case (However, this rarely happens!). Your main role is to ensure that people are talking. If they are not, you can prompt them with leading questions ("What do you think IP is?" etc.) or simply get them to be clear about what they are saying ("Summarise your view in no more than one sentence"). If people are talking, but not talking about the right thing, or straying from the point, then you should gently intervene and steer them back to the issue ("You seem to be focussing on … but I think the more relevant issue is …"). Also, keep people to time; move them on if they are taking too long over one particular question. If students fixate on the legal issues surrounding IP then supply them with a copy of the intellectual property handout. This should clarify the legal facts and allow students to concentrate in the ethical dimensions of the case.

To begin the class, give each student a handout and give them time to read the text. **(5 minutes for this section)**

Next, split the students into groups of 4-6 (These are ideal numbers but larger groups are workable. There should really be no more than 5 groups in a class and larger group sizes are preferable to greater numbers of groups so expand group sizes if necessary) and get them to discuss the questions. Encourage students to move chairs or themselves around where possible so that group members can hear each other and so that the different groups are sufficiently distinct from one another. It is often useful to split up groups of friends and put students with people with whom they would not normally converse. While this might make the students awkward to begin with, it helps them to focus on the task and usually ensures that a broad range of opinions are represented within each group, making the discussion livelier and more involved. Tell each group that they are going to have to report back the class; perhaps each group could nominate a 'scribe' at this point to jot down the points each member of the group makes. Get the groups to discuss the questions given after the scenario. Explain that the questions are phrased so that justification for answers must be given and that you will be expecting to hear <u>why</u> groups thought what they did as well as <u>what</u> they thought when they report back. **(20 minutes)**

Bring the students back into a large group, moving chairs where necessary, and ask one member of each group to report back to the class as a whole. Give each spokesperson a few minutes in which to give their report, and move on to the next group when they are finished. There should be no discussion at this point - if any students interrupt tell them to record their thoughts on paper for the time being, and that there will be time to discuss this after each group has presented. Record what each group says on a board or flipchart. (**20 minutes**). Here are the main points that should get covered:

(i) What intellectual property (IP) is involved here?

This question is simply asking students to identify the 'outputs of intellectual activity' that are present in this case. We are **not yet** asking whether anything ethically wrong has occurred.

This may be an appropriate point at which to discuss what students take the term 'intellectual property' to mean. I think it refers to *any* product of intellectual activity, regardless of whether or not it is protected by law but students may disagree.

The IP present in this case is:

- Smith & Brown's data
- Smith & Brown's published papers
- Reliasys' data
- Reliasys' software

(ii) Have Reliasys infringed any of Brown's rights? Give reasons.

Reliasys have embedded the data generated by Smith & Brown into their database. However, this data was in the public domain (via journal articles) and moreover, data is not protected by law. No legal rights have been infringed.

Have Reliasys infringed any of Brown's moral rights? This is up for discussion, but probably not. The data generated by Brown was in the public domain and it only formed part of the data set that Reliasys used. Reliasys themselves generated a 'significant' amount of new information in order to create their database, which presumably meant conducting a large number of experiments. In light of this, it doesn't appear as if Reliasys were trying to produce their software 'on the cheap' by using other people's data. It could be argued that Reliasys' software would have been almost as accurate even without the Smith-Brown data.

(iii) What was Smith's role in IP transfer?

All of Brown & Smith's prior work is in the public domain so, in principle, Reliasys could have developed the software, even without Smith. In practice, however, Smith has a lot of know-how derived from her experience with Brown. This would include things like knowledge of how experiments and tests were run etc. Taking this on board, in practice Reliasys could not have developed the software without her.

(iv) Has Smith acted wrongly? Has she acted unprofessionally?

Has Smith acted wrongly? Smith may well have used her know-how to help Reliasys develop their software but has she done anything wrong? She has not done anything illegal: know-how is not covered by intellectual property law and so Smith has not stolen any information from Brown. It is not clear that Smith has done anything morally wrong either. Smith's know-how has been derived from being trained by Brown, and surely knowledge gained through training is given freely by the trainer, and hence legitimately belongs to the recipient of that training.

Moreover, it could be argued that the reason public money is used to fund projects like Brown's is so that young engineers like Smith are properly trained and in the long run create new wealth for the economy: well-trained engineers enter the commercial arena and develop successful products. Brown has trained Smith and Smith has gone on to create commercial success and this ultimately vindicates the awarding of public money to Brown's project.

Smith also completed the project with Brown before joining Reliasys, so there is no conflict of interest in the sense that her joining Reliasys did not put Brown's project in jeopardy, or compromise it in any other way. Although Smith's experience would have helped her to get the job, there is no information to suggest that the only reason that she was employed by Reliasys was because she could give them 'inside information' on her work with Brown.

Has she acted unprofessionally? This is a *bit* of a trick question in the sense that it really depends upon what you mean by "acting professionally/unprofessionally". Hopefully, students will begin to discuss what 'acting professionally' consists of - encourage them to do this.

Usually 'the professions' are those which fulfil three criteria:

- They require a high degree of knowledge/expertise- they are not 'mechanical' tasks
- They work for the public good
- They are self-regulating and bound by a code of conduct

These three criteria then place responsibilities upon members of the profession to behave in a particular way: To keep their knowledge and expertise up to date, to work for the public good and to adhere to their code of conduct. To act 'unprofessionally' therefore usually means to fail to fulfil one of these three responsibilities.

In this case, if Smith has acted unprofessionally in any way then this must be because she has broken the code of conduct in some way (she has not neglected her responsibility to keep her knowledge current or to work for the public good). If the group have already argued (above) that Smith has acted wrongly (by stealing the work of someone else) then this wrong act can easily be seen as breaking the code of conduct. If the group has argued (above) that Smith has **not** acted wrongly but still want to say that she has acted unprofessionally then they must argue that she has done

something to break the code which is nevertheless not morally wrong. This is to say that the code contains precepts that are not moral precepts; perhaps Smith can be regarded as having breached professional etiquette or having failed to follow some procedure properly.

However, it is relevant in this case to say that even if Smith has not acted wrongly or unprofessionally, she must nevertheless be **seen** to do the right thing. Gossip is very damaging to the reputations of businesses and women in engineering may be in a weak position in that they are more susceptible to being the focus of gossip (as a minority of the workforce). It would be prudent on the part of Reliasys and Smith to be open about how they developed their software. Smith should also contact Brown to explain how she is using their data. People may want to discuss at this point whether or not businesses have a responsibility to be seen to do the right thing - the public trust them as professionals, and so the business should repay this trust by being utterly scrupulous in all of their dealings.

Reliasys may want to offer Brown a small contract for appearance's sake, to show that Brown is being rewarded. I think that this would be a very cynical act on Reliasys' behalf - only 'doing the right thing' to save their own skins, but this would be a prudential business move to make.

Student Handout- Intellectual Property

WHAT IS IT?

'Intellectual property' generally refers to any output of intellectual activity which legitimately belongs to some individual, group of individuals or organisation. However, 'intellectual property' is sometimes used to refer only to those outputs of intellectual activity that are protected by law. (Legal) Intellectual property is divided into four main types, based on the kind of material covered; these are given in the table below. Some of these kinds of intellectual property are automatically protected under by the law whereas others need to be registered to acquire protection. Those which need to be registered will have to satisfy some kind of registration requirement; usually that the intellectual property in question is 'new' or 'original' in some way.

IP TYPE	MATERIAL COVERED	KIND OF PROTECTION
Copyright	Literature, art, music, sound recordings, films, broadcasts, drawings, original text, photographs	Automatic
Trade Mark	Signs & logos that distinguish the goods & services of one trader from those of another	Registered
Designs	Visual appearance or 'eye appeal' of products	Copyright- Automatic Design right- Automatic Registered Design- registered
Patent	Technical & functional aspects of products & processes	Registered

WHAT IS THE LAW?

COPYRIGHT

Copyright is the exclusive right given by law for a certain number of years to an author, composer, designer etc. (or assignee) to print, publish and sell copies of his/her original work. This covers works of the kind listed above but does not cover facts, data or ideas.
Lengths of copyright differ according to the kind of work in question (70 years from death of author/artist for literary and artistic works, 50 years from time of recording for sound recordings). There are some exemptions to copyright. The principle of fair dealing allows people to copy a small amount of copyright material without permission (extracts of 400 words). People are allowed to make temporary copies of works, read out the works of others in public, or photograph works of art that are on public display, for example. Some institutions have special licenses allowing them to copy material without seeking the author's permission (libraries, educational establishments, copying for use in legal proceedings).

TRADE MARKS

A trade mark protects any sign or symbol that allows customers to tell businesses apart from their competitors. Names, logos, slogans, domain names, shapes, colours and sounds can be registered.

To be registered, a trade mark must be:

- distinctive for the goods and services applied for
- not similar or identical to any earlier marks for the same or similar goods and services
- not deceptive, or contrary to law or morality.

Once a trademark has been registered, it is against the law to reproduce this trademark without the owner's permission.

DESIGNS

Design protection covers the outward appearance of a product, including decoration, lines, contours, colours, shape, texture and materials. Because the term 'design' refers to the diagrams used to depict the design as well as the 'look' of the product in question, designs can be protected in three ways:

Copyright: As an artistic product, diagrams, plans and drawings of a product are automatically protected under copyright laws.

Design Right: Design right gives a creator automatic protection for the internal or external shape or configuration of an original design. This stops anyone from copying the shape or configuration of the product, but does not protect against any of the two-dimensional aspects such as patterns. Two-dimensional designs can be protected using copyright or registered designs. Design right lasts either 10 years or 15 years. For the first 5 years no one can copy the design. For the rest of the time the design is subject to a license of right. This means that anyone is entitled to a licence to make and sell products copying the design. Design right only gives protection in the United Kingdom.

Registered Design: A registered design gives the creator a monopoly right for the look of a product, protecting both the shape and the pattern or decoration. A registered design will cover the lines, contours, colours, shape, texture and materials of the product or its ornamentation. This right must be applied for and approved before protection of this kind under the law is given. To be registered, a design must:

- be new
- have individual character; it should not remind an informed person of an existing design.

PATENTS

A patent protects new inventions and covers how things work, what they do, how they do it, what they are made of and how they are made. It gives the owner the right to prevent others from making, using, importing or selling the invention without permission. Patents must be applied for and approved before any protection under the law is given. To qualify for a patent an invention must:

- be new
- have an inventive step that is not obvious to someone with knowledge and experience in the subject
- be capable of being made or used in some kind of industry
- **not** be:
    - a scientific or mathematical discovery, theory or method
    - a literary, dramatic, musical or artistic work
    - a way of performing a mental act, playing a game or doing business
    - the presentation of information, or some computer programs
    - an animal or plant variety
    - a method of medical treatment or diagnosis
    - against public policy or morality

WHO OWNS IT?

It depends on the type, circumstances and prior contractual agreements. However, the general rules (and exceptions to them) are given below.

IP TYPE	GENERAL RULE	EXCEPTION
Copyright	Author	Joint Ownership, Employees
Trade Mark	Registered Proprietor	Copyright owner
Design Right	Designer	Employees, Commissioned work
Registered Design	Registered Proprietor	Employees, Commissioned work
Patent	Inventor	Employees, Assignees

Further Reading

Professionalism

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- Scrag, B. (2001) 'The Moral Significance of Employee Loyalty', *Business Ethics Quarterly* **11(1)**: 41-66
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