

Patent Issues: A look at the industrial-academic interface

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Objectives:

- ✚ To expose students to the process of patenting in the biomedical field
- ✚ To introduce students to an aspect of academic research that many might not have known about—the business aspect
- ✚ To introduce students to ethical issues facing academic R&D in modern times
- ✚ To get students to struggle with knowledge vs. profit ethical issues, realizing the advantages and disadvantages of both sides
- ✚ To expose students to a part of the legal and biology fields that can provide possible job options for them

Parts:

- 1) Should we patent?
- 2) The debate escalates
- 3) The final decision

Estimated class time necessary for completion: 2 periods

Additional Resources for Students and Teachers:

- ✚ Your own university's patent office website/policy handbook
- ✚ Online articles and websites such as (but not limited to):
 - www.brynmawr.edu/sandt/2002_april/
 - http://www-personal.umich.edu/~nsteneck/papers/research_ethics/TT_98.html
 - www.the-scientist.com/yr2003/aug/prof1_030825.html (requires free registration to view)
 - <http://www.sahealthinfo.org/ethics/book2genehuman.htm>
 - <http://ori.dhhs.gov/multimedia/acrobat/papers/jones.pdf>
 - <http://www.nature.com/cgitaf/DynaPage.taf?file=/neuro/journal/v5/n11s/full/nn932.html>
 - <http://www.sciencemag.org/cgi/content/full/305/5687/1110>
 - http://www.autm.net/index_n4.html
- ✚ US Patent Office: <http://www.uspto.gov/>
- ✚ About patents: <http://www.intelproplaw.com/Patent/>
<http://www.research.ucla.edu/oipa/guides/patentapp.htm>
- ✚ Additional ethics PBL resources for teachers:
 - <http://onlineethics.org/index.html>
 - <https://www.mis4.udel.edu/Pbl/>

Part 1: Should we patent?

Dr. Green and his collaborator, Dr. Thoreau, have recently developed a new technology while conducting research at their University, XSU. This being his first experience in developing a novel technology in academia, Dr. Green is immediately interested in patenting his discovery. He approaches Dr. Thoreau to discuss the possibility of filing a patent.

“Dr. Thoreau, what are your thoughts about patenting our new method for creating transgenic animals? Our method will be absolutely revolutionary for biotech research today and I think it would be valuable for us to look into patenting it,” he begins.

After giving him a shocked look, Dr. Thoreau replies in a disappointed voice, “You of all people I would have thought would not be tempted to capitalize our scientific discoveries. Didn’t you leave industry because you wanted to experience science for a greater goal than to make a profit? We’re academic scientists. Our duty and goal is to further knowledge, not profit from discovering the knowledge first. If you wanted to do that, you could have stayed in industry instead.”

Questions:

- 1) What are the advantages and disadvantages that might arise from patenting technologies developed in academic research?
- 2) If you had developed a new method, would you patent your inventions? Why or why not? Discuss your reasoning among the group.

Part 2: The debate escalates

Taken aback by Dr. Thoreau's harsh words, Dr. Green stammers, "I-I-I don't understand. I thought it was common enough practice to patent new technologies and development of materials for research? Certainly many of the products that were developed in my time in the biotech industry were licensed to us by universities."

"It is a common enough occurrence alright. But that does not mean that it helps the scientific community. First of all, there is the issue of holding back data from publication and presentation until the application for patenting has been OK'd. You are disrupting one of the pillars of the scientific world: free exchange of knowledge! Secondly, once you want to patent, you hand over legal rights to the University and whichever company agrees to license our patent. Can you be sure that they will make decisions that benefit the scientific community and your targeted consumers? When you have the intention of trying to patent your technology, your priority becomes your patent and not your science."

Dr. Green argues back, "But our technology is beyond the financial capabilities of a normal laboratory group to utilize practically! And we've only had enough funds to create a rudimentary protocol. With a large funding source to help develop the process, we can make the technology more affordable and available for the scientists who will benefit from it. If we want our work to have practical implications, we can speed up the process by presenting it to companies by way of a patent. Otherwise, companies are hesitant to develop something that is just thrown into the literature and they don't know which other companies might have picked it up, so in the end no one does! We're furthering science by making a new technology available, not staunching it."

"With no other competitors, will a company really try to keep prices down? You know the answer to that. No, I'm not budging on this; I will not allow for you to patent this. We're almost ready for publication, and I'm not going to slow it down for a patent," insists Dr. Thoreau, rising from his seat.

Dr. Green explodes, "I can't believe this! Why is it so wrong to work within the system in order to ensure that what we've developed can make a real impact on furthering cutting edge technology? It won't slow down publication. I had a conversation with one of the faculty from the Chemistry Department awhile ago, and he said that our university's patent office is good about streamlining the process or else giving up the venture if it will interfere with normal dissemination of information. Give it a try before you throw an opportunity away!"

"Not a chance!" With a sigh of exasperation, Dr. Thoreau leaves the room.

Questions:

- 1) Who do you agree with at this point? Why? Take a poll around your group and discuss the arguments put forth by both scientists.
- 2) What are Dr. Green's options for courses of action at this point?

Part 3: The final decision

After the spat, Dr. Green decides to contact the patent office at XSU to get information directly about University policies regarding patenting so that he can make his case to Dr. Thoreau. True to what he was told, the office assures him that they hold scientific honesty in high regard and will stop the patenting process if it does not seem that it will be worthwhile for the scientific community or timely for publication/presentation of data.

The office, after finding out that Dr. Green conceived of the technology independently and that Dr. Thoreau was only a collaborator in the project, also offers him a new option. They tell him that in regards to patenting, Dr. Thoreau could legally be left out of the patent because the term “inventors” designates only those who give input into the development of the idea. Even though Dr. Thoreau was a collaborator and worked with him to develop the invention, the legal rights go to Dr. Green. He is sure that if he doesn't bring up the subject of patenting with Dr. Thoreau again, publication will proceed smoothly so he will not have to worry about his co-authorship while filing for the patent.

Questions:

- 1) What are Dr. Green's options now?
- 2) What would you do? Substantiate your choice with your own research. Also, include whether the arguments put forth by both individuals are valid and support your assessment with your research.

Commentary/Notes for Teachers:

This exercise is written for a scientific ethics course, a legal ethics course, or similar courses. I purposely did not go many scientific details in order to let this problem have a wider audience range. The objectives outlined above I hope will be realized as students talk and research for sources to answer the final question.

My inspiration for writing on this topic, academic patenting, came from a seminar and a couple of conversations with professors about this issue. I had known that patenting occurred, but I had little idea what was involved with it and I was surprised when talking to a strong opponent to academic patenting. In my studies for writing this problem, I have found that is a little-publicized but very relevant ethical question, especially with the more specialized issue of patenting DNA and genetically engineered organisms (which I have chosen to not complicate this problem by adding that dimension of the debate).

Students should be broken up into groups of 3-5 for the execution of this exercise. Part 1 is meant to stimulate initial discussion and speculation about the possible advantages and disadvantages that could be coming into play for the two characters. The second question is meant to bring a personal application into the problem immediately as well. Part 1 should be given a good chunk of time, but not too much because it opens discussion that cannot be substantiated yet for students who have little experience in this topic. Fifteen to twenty minutes should be ample, and Part 2 can be handed out immediately following class discussion of Part 1. I would recommend the teacher to bring the class together to compile a class pro/con list and have some volunteers report about how his/her group differed or were in agreement about the second question, all of which can be accomplished in 10 minutes. Part 2 can be started in the same class period and is meant to substantiate arguments for both sides of the issue for students who have not yet had an opportunity to research for themselves. This section was also written to raise tension in the situation and thus spur more discussion for people on opposite sides of the issue. Another 10-15 minutes should suffice. Before the end of the class, Part 3 can be handed out with the assignment for students to prepare decisions with support of outside references. The teacher can accomplish this in several ways. Students can be asked to write a short paper, students can be asked to just be prepared for a class discussion, groups can be asked to prepare an oral presentation, or lastly, groups can be assigned sides of the issue and a formal (or semi-formal) debate can be staged.

As a follow-up activity, teachers can introduce class discussion about related biomedical patenting issues, such as DNA patenting, or flesh out the patenting process in general and discuss other related ethical issues, such as copyright infringement.