INTRODUCTION

Regenerative medicine is the new frontier of biomedical engineering. The ability to regrow something that is as complex and intricate as human tissues and organs is the result of years of research. One area of regenerative medicine that has promising potential is recovering and regrowing spinal cord function that is lost in spinal cord injuries.

The challenge of continually improving regenerative medicine is that the ‘products’ are supposed to interact with the human body. Human test trials are extremely risky due to their nature of testing a new treatment with potential negative effects. Animal trials are extremely telling, but they do not directly predict how the treatment will act in a human body. Another challenge of regenerative medicine is that everyone’s body acts and reacts differently to treatments. There is no way to predict whether a body will reject a new substance which increases patient’s hesitation to new trials.

Ethical issues arise from both the core of regenerative engineering: stem cells and also from the unpredictability of the human body. Regenerative medicine is the ability to manipulate cells to replace damaged cells. Stem cells are the cells that have the most potential with regenerative medicine, but ethical issues come about when dealing with how the stem cells are retrieved. Also, with regenerative medicine, animal testing trials could be extremely successful, yet when the treatment is administered to humans something can unexpectedly go wrong. When negative effects come from a trial that was intended to improve health someone has to be responsible or at least able to explain what went wrong. Ethical issues can incorporate everyday work circumstances including lying, plagiarizing, cheating and many more typical circumstances.

Ethical issues are complicated because there is not one clear, correct answer. By consulting history, case studies and referencing our resources we can make the most educated decision.

SCENERIO

Company X is a research company studying cell-therapy theories to help victims of spinal cord injuries recover. There are many theories circulating the biomedical engineering world as to what specific cells recover most efficiently and successfully. No one theory has made significant strides toward full recovery which is why Company X has different research groups concentrating on the different cell types and their unique benefits.

My research team has been assigned to focus on the induced pluripotent stem cells (iPSC). These cells are generated from adult cells which allows for the treatment to be an exact match to the patient. iPSCs increase the number of axons that regrow to full operation. The challenge is to pin point the amount of iPSCs that need to be injected and at what intervals for optimal regrowth.

Recently, my research team has developed a promising hypothesis which stemmed from research conducted by the Principal Research Associate (PRA) of Company X, for the use of iPSCs to treat spinal cord injuries. Our team conducted animal test trials which were successful which our team lead published. As we continued our research. My assignment was to gather more information on the effects of iPSCs in the body. While researching, I was reviewing an article written by the PRA which was a detailed report on the effects of neural stem cells on the body which we referenced in my team’s research hypothesis. While continuing my research I uncovered another article by an author also on the effects of neural stem cells that was eerily similar to the other article. When I looked into the similarities, I discovered that the articles were exactly the identical information and wording with differing format.

ETHICAL ISSUE

In my scenario, my issue is whether or not to report my findings. If I do report the plagiarism and it turns out that the PRA is the one who plagiarized than his work will be discredited and all of the work the my research team conducted could be discredited due to the fact that my team used information from the article in our initial hypothesis. But, on the other hand, if it turns out that the other author stole the PRA’s work than he should be discredited for the research that he did not conduct. The decision is whether or not the consequences of reporting the plagiarism outweigh attaining proper accreditation.

CODE OF ETHICS

Either the head of Company X or the other author plagiarized the other, but either way, someone plagiarized which is against the Biomedical Engineering Society Code of Ethics as well as National Society of Professional Engineers Code of Ethics. Plagiarism is defined as taking
someone else’s work and taking credit for the work. In this situation one of the authors is taking credit for research they did not conduct. The National Society of Professional Engineers Code of Ethics states that “Engineers shall give credit for engineering work to those to whom credit is due.” [1] This code clearly was ignored in this situation which defines this issue as a violation of the code of ethics due to the lack of credit. Similarly, the Biomedical Engineering Society Code of Ethics protects against plagiarism by instructing engineers to “Publish and/or present properly credited results of research accurately and clearly.” [2] Both Codes of Ethics protect against plagiarism because to not give proper credit is to take one’s work away.

Research engineers spend their careers conducting research with the goal of producing valuable, important results. These results and conclusions are their product of time, work, resources, and knowledge and the engineer deserves to be credited. This is not to say that one engineer may not use or build off of another’s work, but that there needs to be proper credit. In my scenario, one of the authors failed to apply credit which is clearly against both codes of ethics. This direct violation of ethics is a reason that I should report this finding, but there could also be significant consequences, and what if I am wrong or misinformed in the situation and I, one researcher in this big company, cause a bad reputation or at least an investigation.

WHO WILL BE AFFECTED?

Plagiarism can affect, not only the person who plagiarized and the person whose work was plagiarized, but also anyone who learns from or uses one’s research. Research is conducted so that society may continue improving. Any use of plagiarized work is subject to questioning which causes a headache for anyone who used the research and to track down the citations would be a struggle. In my situation, not only would my team’s research and findings be potentially discredited along with a bad reputation for Company X and/or the reputation of the other author. I found a case study which outlines a similar situation. A student is looking for an article and stumbles upon two identical articles. She is put in an ethical situation of whether or not to bring the plagiarism to her professor’s attention. She weighs the consequences which are damaging the reputation of the author as well as possibly the reputation of the university against the benefits which is correcting a wrong accreditation. She is aware the federal law of anything posted on a webpage is protected by US copyright which makes the situation more serious. [3] The student has the same choice I have: The choice to report what she believes as plagiarism which will result in consequences or to ignore what she found which is ethically wrong unless she is misdirected and there is no plagiarism.

The case study caused me to lean more towards reporting the plagiarism due to the fact that there are federal laws broken which is bigger than any reputations that could be damaged.

LEGALITY OF THE ISSUE

Legality is a serious issue in plagiarism especially when this is potentially the worst type of plagiarism possible. I found an article that expands on the challenges of unclear accreditation and unclear accreditation can lead to misconstrued cases of plagiarizing. Ludo Visser comments on the fact that plagiarism of any degree has potentially ethical and legal consequences along with being a breach of professional conduct nonspecific to engineering. [4] This article highlights the degrees of plagiarism which helped me understand that direct copying without any citation is the worst type of plagiarism.

Along with the morality of plagiarizing, there are legal consequences depending on the severity of the plagiarizing. In my situation, the fact that the entire article is the same, but different authors leads one to conclude that one of the authors directly copied the original author. Gunner Lose details the actions that may be taken if plagiarism is caught. One action is that the author may be barred from submitting or publishing their results of any future studies for a period from 2 years to life. [5] The severity of this action should be a deterrent for researchers. A researcher’s goal is to publish their findings, and in my situation, the PRA and the other author published in order to raise their credibility and share their findings, yet the other stole information and potentially could not publish any future significant findings. These articles support my stand that I need to report this copying and after familiarizing myself with the degrees and legalities of plagiarizing, I feel more confident in my decision.

ACCESS TO THE ARTICLE

Another thing that I am considering as I decide what action to take is to determine, not only the consequences of the authors and companies, but how the information was received by the plagiarizing author. If the PRA did steal someone else’s work than the question of whether he has stolen more information and plagiarized before has to raised. Reporting this could be extremely damaging to the head of the company who has worked hard to get to the top. On the other hand, if the other author stole the research that the head of the company did, than how did he get the information? The article that I accessed that was written by the PRA is located in Company X’s secure database which means that either the other author somehow has access to our database or we have a hole in security. Both options need to be addressed because both have negative effects on our company.
I referenced a case study which helped me clarify the extent of the complications when dealing with separate authority. The case study outlined one publisher’s hesitation to allow investigator, who was contributing to the data, have access to the unpublished work. The worker is stuck in a situation because if he lets the investigator have access to the unpublished data, he has no control over who the investigator shares the data with. He also is aware that if he does allow the investigator to access the unpublished work, he would have to contact everyone else who contributed to the data and get their consent. [6] This wide range of complications that would arise if the worker does disclose the data helped me realize that if someone accessed our database, the research can be shared and can spiral out of control. Although this case study did not help me come to a decision about whether or not to report my findings, it did help me to realize the bigger picture and exponential consequences of this issue. These realizations helped me realize that reporting this plagiarism could stop so many other issues.

THE USE OF INFORMATION IN THE ARTICLE

As I continued weighing the benefits and consequences of reporting this plagiarism, I researched more case studies and found one that brought a new point of view to the table. This case study describes a situation when a company was asked to submit a proposal and cost estimate for a developer. The developer showed their proposal and price to a competing company who then agreed to do the project for less. The original company not only did not get the business from that project, but also they did the hard, tedious work of creating the proposal and calculating the cost, yet the competing company benefited from their work without the original company’s consent. [7]

Due to the nature of the plagiarized information, one party did the same thing as the original company and did the tedious research while the other party used the research to benefit. The goal of research is to discover something and make progress in some field and to continue improving which is why research findings are published and accessible to other researchers. Using someone else’s research findings is encouraged in the engineering field due to the possible benefits, but as stated in the code of ethics, proper credit must be given. This case study allowed me to put my situation in perspective. The stealing of one’s research is stealing and cheating and if the article was copied than I have an obligation to report my findings.

REFERENCING THE BIBLE

While I was trying to look at the situation from a moral standpoint, I consulted the Bible. As a Catholic, I trust the Bible to help me make the right decision. As expected, the Bible has passages that classify plagiarism as a sin and stealing is one of the Ten Commandments which proves the moral severity of stealing something as serious as someone’s work. [8] Morally I should bring my findings to my authority’s attention, in order to have this issue be dealt with and for the plagiarizer to stop stealing work and face the consequences even if the consequences are severe.

Plagiarizing is not just copying someone’s work, but more than that plagiarizing involves selfish motives. People who plagiarize do so for their own benefit whether it be a good grade, or to get out of doing work, or possibly in this case to add credibility to their name. The beneficial reasons to plagiarize do not outweigh the possibly detrimental consequences. Referencing the Bible allowed me to look at the situation from a moral standpoint and realize that morally I need to report my findings because plagiarizing is morally wrong and should not be tolerated.

REFERENCING MY DAD ON PLAGERIZING

After researching and referencing case studies, articles, and the Bible, I decided to ask for advice from the person who has never steered me wrong: my dad. After hearing about my situation, my dad told me just to step back and look at this situation from an objective standpoint, from the PRA’s standpoint, and from the other author’s standpoint. [9] I previously looked at the situation objectively and through the case studies and I came to the conclusion that the plagiarism needs to be reported and something needs to happen because there are potentially extreme consequences not just for the authors, but for my company and other, yet I had not looked at the situation from the author’s views.

Looking at it from the PRA’s view allowed me to try and justify his actions if he was the one who did steal the work. My company has been under stress to produce some concrete progress. There may have been a time where the head of the company was feeling so much pressure to discover something through the research that upon finding the article realized that the findings in the article could stratify people and allow his stress level to decrease temporarily. Although this by no means justifies the act of plagiarizing. If the head of the company was the original author of the work, then he will want justice for the other author so he gets the credit he deserves.

Likewise, this other author might have been put in a similar situation of trying to produce research discoveries due to pressure from an outside source. And if the other author is the original writer of the article then they should receive proper credit. Looking at the situation from both sides has shown me that, there may have been reasons to plagiarize, but that does not make them legitimate or justifiable. Not matter what reason, the plagiarizer needs to be aware that laws and codes or ethics were broken.
My dad’s advice helped me analyze the situation from another viewpoint which lead me to the same conclusion of realizing that the plagiarism needs to be brought to attention.

CONCLUSION

Plagiarism by definition is a corrupt action, but to copy an entire article detailing important significant research is unethical. As I debated whether or not to report my findings, I gained knowledge on the subject of plagiarism which confirmed my initial thought that I should bring my discovery of duplicate articles to my authority. The extent and seriousness of the issue cannot be overlooked just to avoid reputation damages. After consulting case studies, articles, the Bible, and my dad, I can confidently say that the proper action that I need to take in this situation is to report the plagiarism. My advice is to other engineers dealing ethical issues to educate themselves. The more one knows about the ethics behind the issues, the more confident one can be in their decision. By researching previous case studies and referencing available sources, such as trusted family or friends or credible writings, one can not only make a confident decision, but also the most educational decision possible. The work that engineers deal with is new, innovative and has not been dealt with previously which also entails new aspects of ethical issues that have been untouched, but by referencing history, ethical codes, and peers one can make the best ethical decision possible.

REFERENCES


ADDITIONAL SOURCES


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