

Library Research Award

To the Reviewers

In winter 2017 I was assigned a research paper for ME 315, an Engineering Materials lecture. The assignment was to write a research paper about something that interests you and that relates to the topics covered over the course of the lecture. I chose to research materials used for prosthetic limbs. I learned that there are prosthetics made for almost every single body part and plenty of materials used to create those pieces. Therefore I narrowed it down to those materials used for arms and legs only. Even so, I came across a variety of materials based on different designs and their varying components. In my paper I focused on the main categories of materials used for load bearing, or those materials commonly used to replace the tibia, fibula, radius and ulna. I did not research materials used for joining the device or for attaching it to the body.

The first step I took in writing this paper was outlining. Once I knew what I wanted to write about then it would make doing the research go a lot smoother. My outline went as follows: Abstract, History, Evolution, Current Materials, Future Areas of Research and Conclusion.

My next step was to check what resources were posted to the Blackboard for the class. As it turned out there was a link to a Library Lib Guide for Materials Engineering. Typing "materials for prosthetics" into some of these databases is when I realized that my search topic was very broad. I got a massive amount of results, none of which gave me information that I was looking for. This is when I narrowed my topic down from all prosthetic types to only limbs. I also realized that I was going to have to be very creative with my search terms in order to eliminate those articles written for the medical field.

My next step was to make an appointment with Paul Hottinger, the engineering librarian. When the appointment was made I briefed him on my topic and the types of material I was looking for along with the problems I was running into. I was looking for articles that named specific materials and explained why that material was chosen for the design. I could then refer to my textbook or other sources to further discuss the properties that contribute to the desired characteristics. I was also having trouble with eliminating medical papers and articles that were not about limbs. His advice to me was to focus on the database *Compendex* and to not focus so much on the headlines or titles of the articles. To skim through them and look for the section where the materials were discussed.

After that I turned my focus to the history of prosthetics. This was not going to be a super technical part of the paper. I just wanted my reader to have some insights on where this technology came from and to discuss the materials used. For this I used OneSearch and found exactly what I needed. I needed to request some from Document Delivery and others I was able to download right away.

Also using OneSearch I found an article that would fit perfectly into my conclusion. However this article also needed to be ordered through Document Delivery.

Now that the “easy stuff” was taken care of I focused on the body of the paper, which was about current materials and the properties about them that make them a good choice for prosthetic limbs. I played around with synonyms such as "prosthetic, artificial and mechanical" as well as "limb, arm, and leg." When I started to read through some of the articles I saw the jargon that was being used I was able to use that to develop better key words and find hits that were more geared towards what I was looking for. With the help of Paul Hottinger, I was able to find enough articles to formulate my research paper and thoroughly cover my topic.

Being my first upper division research paper I was overwhelmed at first. One thing I will do again next time and even advise others to do is make an appointment with the subject librarian. This was helpful in using the best databases and navigating through those said databases. One thing I would improve on is getting my research done well in advance. Being that I utilized Document Delivery for most of final sources, and being that Document Delivery can be unpredictable regarding arrival time, I would do my research and requesting early so I am not stressing about when everything will arrive and making sure I have enough time to read through it and annotate it.

Overall I had a good experience in writing this paper, and received a good final grade for this assignment. None of which would have been possible without the library's subscription to engineering databases or without the help of backup and subject librarians.

Thank you for your time,
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