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Library Research Award: *Reflective Essay*

Research is a fine art. Just as the creation of artwork is a process, so too is my work as a researcher. While Michelangelo formed his *David* from the marble material of stone, I formed my proposal paper from the research material of scientific literature. I enjoyed taking Dr. Tarleton's Population-Based Research Methods course this past fall in the Department of Health and Human Sciences. The final paper assignment was to write an epidemiological research proposal, 12-15 pages in length. It was as if Dr. Tarleton handed me a marble slab and instructed, "Create a masterpiece – your **own** *David* from the material provided."

I reflected on my personal interest in the relationship between nutrition and health to develop my research *topic*. Since I think more research efforts should be devoted to explore more natural curative and preventative medicine (through diet) rather than to fund synthetic pharmaceuticals (through prescribed pills), I saw my final paper as the perfect opportunity to energize my belief into action. I devised a clinical trial that explores the use of cinnamon (a natural spice) as a prophylaxis for UTI (a medical application). The idea came to mind while reading the "Health" section of the *L.A. Times* online, a leisurely hobby of mine. One article discussed the preventative power of cranberry juice and I wondered what component of this berry provided such protection.

I then devised the following *strategy* to create my research proposal: 1.) Research the scientific explanation for UTI; 2.) Research the current scientific literature on UTI prevention, and 3.) Design my own study in reflection of the knowledge gained and ideas inspired by steps 1 and 2. I soon found fluidity in my plan. Steps 1-3 were not linear but rather performed together in a "dance" through the research process. I realized such journalistic coverage, while useful in the inspiration of my topic, did not hold adequate authority. Therefore, I began my investigative search for credible research studies and articles through preliminary *Google* searches using such keyword phrases as "Cranberry juice UTI prevention." The resulting pages of scientific studies, websites, and articles validated my topic and instilled confidence in my pursuit. Additionally, I utilized the Biology and Health and Human Sciences LibGuides, comparing the search successfulness and effectiveness of these databases. I found *Pubmed.gov* to be exceptionally useful and credible with peer-reviewed articles published in leading scientific journals within the health discipline. Many of these articles referred to cranberry juice as a "prophylaxis," or action taken to prevent disease. I further refined my research, therefore, by incorporating this term in my keyword searches, which brought forth keynote articles.

While reviewing articles, I also paid close attention to publication dates to track the research through time. For example while early studies simply report the effectiveness of cranberry juice, the most recent studies report the specific phytochemical (proanthocyanidins) celebrated for its prophylactic power. I then became a creative scientist and wondered if any other food contains these proanthocyanidins and could therefore prevent UTI with even greater success. To answer my question, I referenced the chart "Concentrations of proanthocyanidins in common foods and estimations of normal consumption" in the *Journal of Nutrition*. I found cinnamon contains even greater amounts of proanthocyanidins than cranberry. Cinnamon, therefore, became my hypothesized prophylaxis for UTI. Navigating through the databases and articles like Michelangelo through his marble, I found that with each keystroke I gained greater precision and clarity of vision for the direction of my masterpiece.

I found people to be some of the greatest *resources*, functioning as masters and mentors in the artwork of research. First, I approached Dr. Almstedt of Health and Human Sciences who has published her own research and teaches nutritional health. She directed me to the *Linus Pauling Institute* website of micronutrient research for optimum health. Second, I sought the library for help in accessing the scientific journals I found on *Google*. I conducted most of my research independently and thought my strategy failed when I could not access the full texts of the articles I found on *Pubmed.gov*. I frantically called the library and asked the answering librarian if the library had any means to help me access such articles. She calmly informed me about my ability to access articles through the library's subscription on *Google Scholar* as a LMU student. She graciously walked me through defining the "Scholar Settings" and "Library links" to access the full texts of database articles. This ten-minute phone call with the librarian, which I am forever grateful for, has proven to be invaluable. It not only opened entire databases full of articles for this paper assignment but has broadened my research frontiers for the future. Such a perceived failure was actually a learning opportunity once I reached out to the library as a resource.

The meta-analysis study by the *Cochrane Database of Systematic Reviews* was especially useful as it compiles the most significant and cited papers related to my topic. I utilized its bibliography, therefore, as a roadmap for my research. As I reviewed these articles, I determined the validity of their etiologic inference according to their study design. For example, randomized clinical trials (RCTs) are ranked highest for their validity and therefore served as a model for my study design. As I reviewed these studies, I critiqued them according to the formal standards for epidemiological literature, as I learned in Dr. Tarleton's class. I evaluated each study for such factors as its hypothesis, definition of terms, study design, reported biases, acknowledgment of possible confounders, presentation of findings, data analysis, and concluding justifications. I also considered whether the data suggested causation or simply association, a significant concern in scientific research, and checked whether the author's conclusions reflected such findings as well. Epidemiological research requires active evaluation of the author's work to check for the biological plausibility, external validity, and limitations of data extrapolation. This helped me determine the credibility of sources. Successfully finding, interpreting, and analyzing these papers inspired my own ideas and prepared me to design these into my own study. I enjoyed reading the literature and devising my own study so much that I went above and beyond the paper assignment by including an appendix. My appendix presents my designed visual representations and proposed forms to be used in my study, as I found these to be extremely useful in the papers I researched. My proposal is supported by my level of academic research and strengthened by my creative work. The product of my paper and growth of my skill distinguishes my work.

My research proposal reflects an artist's creative and skilled process of working with her material. My *David* is the creation and formation of material information in my research proposal. I look to continue developing and refining my research skills both in and outside the classroom as a lifelong artist of research.