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Real-Life Applications of the Scientific Attitude

In *The Scientific Attitude* by Lee McIntyre, the author describes how the process of the scientific attitude is applied to the research of Dr. Ignaz Semmelweis, who was a doctor in the largest maternity ward in Vienna. He was attempting to decrease postpartum deaths. He was one of the first scientists to use the principles of *The Scientific Attitude*. The principles include showing great care for empirical evidence, and being willing to change theories based on the light of new evidence. The importance of those is that many scientists have been conducting their experiments through the processes that actively support their theories while the scientific attitude states as scientists we must consider all evidence which may impact our findings regardless of personal bias. The Scientific Attitude is effective because the most accurate theories can be made. There is evidence of this through the historical context of his discovery, his application of the Scientific Attitude, and the specific scientific details of his findings that show the effectiveness of the method.

He was so interested in these statistics due to him being a physician in a maternity clinic at the largest hospital in Vienna where many of his highly educated peers believed childbed fever was unpreventable (<https://www.britannica.com/biography/Ignaz-Semmelweis>). The mortality rate of women who were having children born in the maternity ward was so high, that he sought to discover what could possibly be killing them. To begin his experiment he started with the hypothesis that it was due to the overcrowding of the ward. “After [counting] the patients, however, he noted that the overcrowding was much worse in Ward 2.” (pg 53: *The Scientific Attitude*, Lee McIntyre) The next hypothesis that Semmelweis concocted was that it was the priest passing through the wards to perform last rites for the dying mothers. However, after conducting an experiment with the priest, having him take a silent route suggested no change in mortality rates. Still not giving up, he offered a new hypothesis that it was the medical students who performed birthing the children, possibly being too rough or technical, as compared to the midwives who were more gentle and caring. Semmelweis offered to swap the places of the midwives and the medical students and with this switch, the deaths followed the students. This prompted him to take a much needed vacation, but returned due to the death of his colleague. His colleague, a pathologist, died due to a puncture of his skin during the autopsy of a woman who had contracted the disease, which led to him contracting the disease. It led him to once again hypothesize that the disease was transferable from human to human, indicating the possibility of the medical students passing it on when they performed autopsies and births one after the other. Once implementing antiseptic hand washing, the mortality rates plummeted.

The Scientific Attitude was applied correctly throughout Semmelweis’ experiments and hypothesis due to his willingness to “change [his] theories in light of new evidence.” (Pg 48) He embraced *The Scientific Attitude* as a challenge to evolve his ideas and seek new knowledge. For example, his constantly evolving theories were something not common in medicine or science at the time as he would test every hypothesis he had until the evidence disproved his theory and then would move on to new theories with his acquired knowledge. This is especially important due to the period in which his experiments were performed due to doctors considering him crazy for challenging the idea of the four humors. The four humors, an idea that dated back to the middle ages stated that throughout the four seasons, four areas of the body would be the causes

for health issues in that

season(<https://schoolshistory.org.uk/topics/medicine-through-time/medicine-in-ancient-greece/theory-of-the-four-humours/>)

Despite being publicly disowned and shunned away from medical and scientific practice he stuck true to his telos of being a doctor and scientist searching for a cure. Even in a time where he might not have had all the information needed, he stuck true to the application of The Scientific Attitude. He went as far as to risk his livelihood in the pursuit of his theory which helped trailblaze a path for a new method of science.

His findings ended up forever changed the way hypotheses were to be tested and experiments were to be run. He was able to discover that it was not only the cadaveric matter on your hands that could pass on infectious diseases but also putrid living tissue such as your hands, mouth, and other body parts that could potentially spread diseases. The lack of care for cleanliness was the direct cause of the childbed fever rampage. His findings were contested in the community of science which is a huge deal considering how important antiseptic handwashing and the germ theory are in a world where COVID-19 exists. If he had not discovered the lack of cleanliness could spread diseases, from body to body then the idea of spreading germs through contact with inanimate objects, or even through the air would be seen as crazy. Considering the pandemics that have happened since then such as The Spanish Flu, Swine Flu, and COVID-19, without Dr. Ignaz's initial findings our protection against these contact based diseases would be largely impacted. The impact of his scientific discovery, although it was disregarded at the time, proved to hold strong over time and when antiseptic surgery was implemented in 1867 (The Scientific Attitude, Lee McIntyre) it allowed for a new era of medicine.

Semmelweis shows that in the historical context, the application of the Scientific Attitude, and the specific scientific details of his research he was able to shape and change the way medicine and science was practiced. Which hugely contributes to current events as well as, changing your hypothesis could be looked at allowing for advancements of new and old ideas alike. Through the process and application of The Scientific Attitude Dr. Semmelweis was able to forever engrave himself as a pioneer for modern science and medicine despite the fact that he was unfortunately cut short of the accolades for his accomplishments during his lifetime.