

This unit consisted primarily of learning how to conduct research, utilizing different methods of collecting data, and how to present data collected. These research methods include qualitative, quantitative and a mix of both, and the research design consists of exploratory and conclusive research, while the presentation methods consisted of the literature review and research proposal for presenting data. While all of this information is important, it is equally as imperative to know what the research question you are asking is because this will influence what type of research design, data collection and presentation method will be utilized.

During this module there was an emphasis on research as it is only as good as the raw data that is collected and analyzed, however an important part of this is to collect data in an ethical manner, and there has been an increased number of data collection occurring that do not abide by the ethical practices set out for research for medical reviews (Moreno et al, 2013). The fundamental advantage of utilizing social media in order to collect raw data is its disadvantage; the large sample size which is available, creates difficulty in requesting permission from each person to inform of what their data is going to be used for (Schneble et al, 2018). Upon completion of the data analysis, a more informed decision can be made, or in the case of exploratory research, there will be a better understanding of the topic under review.

To emphasize the importance of ethics in research and data collection, there were two case studies which presented a real situation and a hypothetical situation. Both of these cases represented breaches in individuals' privacy as there was neither consent given nor awareness as to what their data would be utilized for which are both requirements under

the GDPR (Hoofnagle et al, 2019). While the data collected and utilized were anonymized and scrubbed of any personal details, there were still data that could be utilized to identify users if someone was so inclined. In the issue of Cambridge Analytica, the silence of their partner, whether it was willing or not, was also a breach of confidentiality as they did not inform their users of this occurrence (ACM, N.D.).

For all of the assignments undertaken, there was no necessity for primary research to be conducted, and as a result of this secondary research was utilized for both the literature review and research project proposal. The literature review focused on the use of artificial intelligence in public transportation in New Orleans which had research consisting of the efficiency and satisfaction levels of different forms of public transportation, the financial benefits of upgrading and the potential carbon dioxide emission reduction to list a few. The research proposal presentation consisted of data from aviation scientific journals and comparisons of models and designs to measure efficiencies in drag coefficients.

Following the data collection stage, statistical analysis was introduced next utilizing hypothesis testing via one-tailed and two-tailed testing, with both f and t-tests. These tests are important in analyzing the data collected so it can be presented as information, there were worksheets presented with raw data which required the calculation of the mean, mode, median, standard deviation, upper and lower quartiles as well as stating the hypothesis and what the findings implied. This was challenging to accomplish due to the repetitive nature of the worksheets in the folders and instructions which contained errors regarding which files to use. Thankfully, the data annex file was of great use due to the data sets being given and I was able to narrow it down. The statistical breakdown was further

supplemented by the use of visualizations, specifically bar charts, which is of great use as it can give numerical representations at a glance without being cumbersome. The resulting submission was deemed as being completed to an “excellent standard” following the tutor’s review which was relieving considering the confusing file names.

Finally, the data presentation stage concludes data research and it is important to present all of the facts and making a final decision on the topic under review, and during this unit I was required to present both a literature review and research presentation. Both of these items had shortcomings; in my literature review there were inadequate citations and this was improved upon in my research proposal presentation. However, in my research proposal there was a lack of research prior to the chosen topic which resulted in limited information being available for my specific region and the audio cut out during the presentation. As a result of this issue, my grade was affected which was avoidable, had I reviewed each slide to ensure that the audio was present. In addition to these unique issues, both assignments suffered from a similar trait and that was the lack of planning and time utilization which I will definitely have to improve on as this also affected my grade.

A recurring theme throughout this course was the importance of research, not just for educational purposes, but for professional and personal growth. The importance of comparisons and representation of both sides of the topic being researched was also emphasized in both assignments’ feedback to ensure that there is a fair representation occurring. One of the most important things that I will have to focus on is how to critically evaluate any literature which I am including in future research as this will enable my work to be of a higher standard, and allow for individuals who are reading my work to be confident

of what I am saying. Research and how it is presented is a critical part in all aspects of life whether it be in preparing for a business meeting, classroom presentation, journal submission or debate.

## References:

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