Research Methods and Professional Practice: Seminars

Seminar #2

Familiarise yourself with the purpose, problem, objective or research question of each paper. Are they in line with your experience or thoughts on the topic, contributing to the collective body of knowledge in this area?

Nelson et al. (2020) conducted a qualitative study on the applications of artificial intelligence in cancer screening. On the other hand, Chen et al. (2018) conducted a quantitative study on the applications of artificial intelligence in electronic health records. Their objectives, purpose, and research problem are consistent with my experience and thoughts on the topic. For example, they reinforce my opinion that AI applications in health records increase the accuracy of clinical decisions. Similarly, they reinforce my belief that AI tools can classify skin lesions and increase the accuracy of screening.

Is the research methodology utilized in each paper appropriate for the stated purpose or question?

The qualitative method applied by Nelson et al. (2020) is appropriate because the grounded theory approach and the interviews allow them to interact with the patients and gather their perspectives on the use of AI tools in cancer screening to increase the scope of their research. Similarly, the quantitative method applied by Chen et al. (2018) aligns with the purpose because it allows them to compare how AI tools have been used in electronic records by statistically comparing research articles published between 2008 and 2017 from WoS and PubMed databases.

In terms of data collection and analysis, is this also appropriate for the stated purpose or question? (We will discuss this further in upcoming units.)

The interview data collection method used by Nelson et al. (2020) is appropriate because it allows them to gather the perspectives of patients on AI applications in cancer screening directly from them. The coded interview analysis method is also appropriate because it allows them to categorize the responses of the patients to make conclusive inferences. Furthermore, the use of WoS and PubMed databases was an appropriate data collection because it allowed Chen et al. (2018) to compare published research findings and determine how AI tools have been used in electronic health records.

Does each paper support its claims and conclusions with explicit arguments or evidence?

The papers also provide explicit arguments and evidence to support their claims and conclusions. For instance, Nelson et al. (2020) utilize percentages to demonstrate the numbers of patients that perceive the utilization of AI tools in skin cancer screening as beneficial and those that perceive it as harmful. They also integrate evidence from published literature to demonstrate the accuracy of AI tools in classifying skin lesions and the accuracy of skin cancer screening. On the other hand, Chen et al. (2018) compare publications on AI utilization in health records to outline the AI tools' effectiveness and shortcomings based on the similarities and differences in the compared publications.

How would you enhance the work/paper?

I can improve Nelson et al. (2020)'s paper by increasing the sample because the researchers' sample of 48 patients was too small to generate reliable findings. I can also improve their research by interviewing individuals with knowledge of the research

topic to increase the accuracy of the results. On the other hand, I would improve Chen et al. (2018)'s study by conducting a qualitative analysis of AI tools' application in healthcare records across four continents instead of focusing on China and the U.S. to increase the generalizability of the findings.

<div align="center">Seminar #3</div>

If Ricardo is not responsible for determining allowable access, should he release the names and addresses?

Ricardo should not release the names and addresses because it would constitute a violation of the privacy of the individuals (Tapuria*et al.*, 2020 p.195). He is not authorized to grant access, which means that he cannot distribute any information related to the stakeholders without their consent or permission from the management team.

Suppose Ricardo was responsible for determining allowable access to the files. What ethical issues would be involved in his deciding whether to grant access to Beth?

If Ricardo was responsible for determining allowable access to the files, the ethical issues involved in deciding whether to grant Beth access would be accessibility and privacy concerns. Firstly, Beth was granted limited access, which means that Ricardo should determine whether granting her access to the whole system violates accessibility requirements. Similarly, he should consider whether granting Beth access violates the privacy of the individuals she seeks to contact upon obtaining their names and addresses(Tapuria*et al.*, 2020 p.195).

Should Beth be allowed to contact the individuals involved? That is, should the Records department release individuals' names to a researcher? What are the ethical issues for the records department to consider?

The department has an ethical obligation to prevent access to the sensitive information of individuals. As such, Beth should not be allowed to contact the individuals involved because it violates the ethical responsibility that the department has to them and can increase the department's liability for lawsuits. A Records department should not release individuals' names to a researcher because they are expected to protect the confidentiality of the records they store (Layman, 2020 p.151). The ethical issues for the records department are security breaches, privacy, and confidentiality. This implies that allowing the researcher access to individuals' names and addresses can constitute a breach of sensitive data as well as a violation of the privacy and confidentiality of the individuals.

Suppose Beth contacts the individuals to ask their permission, and one-third of them respond by giving permission, one-third respond by denying permission, and one-third do not respond. Beth claims that at least one-half of the individuals are needed to make a valid study. What options are available to Beth?

Suppose that only a third of the contacted individuals consent to the study, Beth has two options. Firstly, she can complete the research based on the individuals that have been granted access to their records. Pursuing this option can result in ethical violations if she accesses files that she has not been granted access to by the records department (Mello and Wang, 2020 p.952). Secondly, she can abandon the research because her target population has not been achieved.

Seminar #4: Measures and Hypothesis Testing Worksheets

Based on the results from the Diet B and Diet A worksheets, the higher mean

scores of diet A depict that it is an appropriate weight loss diet for the individuals

participating in it. Diet B has a mean of 3.710 while Diet A has a mean score of 5.341,

which means that it is more effective than Diet B. A higher mean score means that one

approach is more effective than the other. However, the standard deviation values

suggest that Diet B contributes to weight loss at a faster rate than Diet A. The

effectiveness of the diets was determined based on the ability of the diets to support

weight loss by at least two kilograms. As such, Diet A reduced weight by 2.536 kg while

Diet B supported weight reduction by 2.769kg. These figures demonstrate that diets are

effective weight loss strategies and can be used as substitutes to support the weight

reduction goals of individuals. As such, the results demonstrate that Diet B is more

effective than Diet A because it supports weight reduction to a larger degree. For

example, Diet B is effective by (2.769 – 2.536 = 0.233).

Seminar #5: Charts Worksheet and Analysis

Based on the brand preference frequency distribution, the results demonstrate

that brand A is the least preferred brand followed by Brand B in both the demographics

in area one and area two. However, the other brand has a higher preference across all

the two demographic areas but the preference for the other brand is higher in area 1

compared to area 2.

Based on the Heather Species frequency distribution table, the species are more

absent in location B than in location A. for instance, the Heather species are absent in

location B by 45.5% while they are only absent in Location A by 14.3%. Thus, the

results indicate that the Heather Species is more prevalent in location A than in location B.

Based on Diet A and Diet B worksheets, the results demonstrate that Diet A is more effective than diet B because of its higher frequency distributions. For example, the relative frequency of Diet A is 0.30 while the relative frequency of Diet B is 0.237, which means that Diet A is more effective for weight loss.

Module Title	Learning Outcomes	E-portfolio Requirements
Charts Worksheet and Analysis	1. Use an Excel workbook to create bar charts depicting the frequency percentages of software development project success. 2. Design and develop histograms for software development projects. 3. Create charts using LibreOffice.	• Collaborative discussion between students and their peers or between students and the instructor. • A reflective paper detailing what was learned from the module and its impact on students' knowledge base and future actions. • Summary of the seminar

		- Feedback from peers and instructors. - Identification of professional skills developed.

Seminar #6: Preparation

Insert items you feel should be included in the list (some of these might even be based on personal accomplishments or related to your current employment).

- How to conduct research in practical settings

- Philosophical foundations of ethics, legal frameworks, and professional codes.

- Emerging issues in research methods and professional practice.

Reviewing your degree program as a whole, reflect on one module in particular that has impacted/will impact your professional practice.

The ethics of computing is one of the modules from this course that will impact my professional practice. For example, it has provided insights into how to maintain privacy and protect the interests of different computer users (Gordon *et al.*, 2021). I have realized that determining accessibility requirements and ethical issues associated with granting access to unauthorized personnel ensures that one fulfills his obligation to different stakeholders and supports one's professional growth (Potter, 2020 p.64). The ethics of computing has increased my awareness of the privacy and confidentiality principles and consent requirements to ensure that I only grant access when

appropriate while fulfilling my professional obligations to others. Thus, I seek to leverage insights from computing ethics to ensure that I honor the code of conduct that guides my profession and prevent data leakages or security breakages resulting from granting access to unauthorized individuals.

Learning Outcomes for Seminar #6

Module Title	Learning Outcomes	E-portfolio Requirements
Professional Skills Matrix Review	- Compare content from the course modules, including how they relate to professional skills. - Propose items that should be included in the professional skills matrix and the course modules. - Gather evidence from all modules to identify how to substantiate professional skills. - Complete a SWOT analysis and action plan.	- Collaborative discussion to increase student engagement. - A reflective piece on the course area that has impacted professional practice. - Summary of the module - Feedback from peers and instructors. - Identification of professional skills developed.

Reference

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