Research Design and Methodology II

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Assignment

**Assignment #2 – Developmental Readings**

1. Create Developmental Readings from seminal sources and scholarly peer-reviewed

journal articles. Review instructions for Assignment #3, the course essential elements, and course readings to identify selections of books and journals to create entries.

1. Refer to the "Student Guide to Developmental Readings" in the General Helps folder for updated information on sample comments, the grading rubric, and key definitions related to developmental readings.

**Source One:** Smith, D. J., Mizelle, E., Leslie, S. L., Li, G. X., Stone, S., Stauffer, P., Smith, A., Lewis, G., Rodden, E. L., McDermott-Levy, R., & Thompson, L. M. (2023). Intervention Studies to Reduce the Impact of Climate Change on Health in Rural Communities in the United States: A Systematic Review. *Environmental Research: Health*, *1*(3), 032001. <https://doi.org/10.1088/2752-5309/acbbe6>

**Comment 1:**

**Quote/Paraphrase:** “The research questions that guided this review and our discussion are as follows: (a) what interventions have been developed to decrease the impact of climate change on rural health and to improve these health outcomes (either at a population level or individual level) within the States? (b) Are these interventions effective at reducing negative health outcomes related to climate change?” (Smith, 2023, p. 2)

**Essential Element:** Hypothesis Formulation

**Additive/Variant Analysis:** The concept of research questions conforming to become a hypothesis is additive to my understanding.

**Contextualization:**  In this research, they are seeking to know how interventions in rural communities could improve health outcomes. This becomes the research question, which is then translated into a hypothesis statement such as the null hypothesis that there is no difference in rural health outcomes whether or not interventions are made, and an alternative hypothesis or research hypothesis, that there is a statistical significance difference when interventions are made. This is similar to program outcome analysis, where an organization analyzes to see if a program they have implemented makes a difference in the intended outcome.

**Source Two:** Langer, C. E., Armitage, T. L., Beckman, S., Tancredi, D. J., Mitchell, D. C., & Schenker, M. B. (2023). How Does Environmental Temperature Affect Farmworkers’ Work Rates in the California Heat Illness Prevention Study? *Journal of Occupational & Environmental Medicine*, *65*(7), e458–e464. <https://doi.org/10.1097/JOM.0000000000002853>

**Comment 2:**

**Quote/Paraphrase:** “Results of the repeated-measures analysis are shown in Table 4. As hypothesized, as temperatures measured as the 15-minute interval average WGBT increased, the average accelerometer cpm (work rate) in the next 15-minute interval decreased (estimate, −4.34, P = 0.002).” (Langer et al., 2023, p. 460)

**Essential Element:** Hypothesis Formulation

**Additive/Variant Analysis:** The hypothesis that will be tested, namely in the form of the null and alternative hypotheses, is additive to my understanding.

**Contextualization:** In this research, the alternative hypothesis was assumed to be that temperature decreases the work rate; thus, the null hypothesis was that there would be no difference between the temperature and the work rate. This is an interesting study evaluating the impact of increased temperatures on the work rate of seasonal and migrant farmworkers. Not only does the increase in summer temperatures increase heat-related illnesses, but it also has an impact on the work rate of seasonal and migrant farmworkers, which adds to the economic cost of farmers, hence a possible motivation to bring about changes to reduce the impact of heat on seasonal and migrant farmworkers. Research and hypothesis testing is the only logical way of uncovering these findings.

**Source Three:** Bloss, J. E., LePrevost, C. E., Zahra, A. G., Firnhaber, G. C., Cofie, L. E., Zepeda, R., & Lee, J. G. L. (2022). Advancing the Health of Migrant and Seasonal Farmworkers in the United States: Identifying Gaps in the Existing Literature, 2021. *Health Promotion Practice*, *23*(3), 432–444. <https://doi.org/10.1177/15248399211033308>

**Comment 3:**

**Quote/Paraphrase:** “Regarding our second research aim to inform understanding of gaps in the existing literature, we first present the state of the literature regarding specific populations of farmworkers. We then present results regarding interventions and use of technology followed by information about CHWs.” (Bloss et al., 2022, p.437)

**Essential Element:** Literature Review Structure

**Additive/Variant Analysis:** The importance and reason of connecting literature review to gain knowledge around the topic and to find gap in literature/research is additive to my understanding.

**Contextualization:** This research informs us of the usefulness and intent of the literature review to find gaps in the research literature, which identifies what concepts may not have been researched. This provides researchers within a focus area with a to-do list of conducting research. Often in the conclusion section of research articles the researchers make a point to call out that more research is needed to further address the research question, these are also areas of future research for other researchers to follow. Along with finding gaps in the research literature review, it serves as a historical and holistic understanding of the research area.

**Source Four:** Shearer, J. E. (2017). A Critical Caring Theory of Protection for Migrants and Seasonal Farmworkers. *Public Health Nursing*, *34*(4), 370–379. <https://doi.org/10.1111/phn.12304>

**Comment 4:**

**Quote/Paraphrase:** “Concern identified in the health protection domain adds caring to the conceptualization of protection and differentiates this theory from FalkRafael’s critical caring model...” (Shearer, 2017, p. 378)

**Essential Element:** Hypothesis Formulation

**Additive/Variant Analysis:** The concept of theory guiding our research and hypothesis is additive to my understanding of the role of theory in research.

**Contextualization:** Our research is informed by theories and given the theory that guides our context of research. This article used the critical caring model to provide a perspective on the healthcare of seasonal and migrant farmworkers, which was taken from the critical theory sociological perspective. Using theory provides us with a context in which our research subjects experience the social world and a context of our research findings. Research also helps inform us of new theories or fine-tuning previous theories.

**Source Five:** El Khayat, M., Halwani, D. A., Hneiny, L., Alameddine, I., Haidar, M. A., & Habib, R. R. (2022). Impacts of Climate Change and Heat Stress on Farmworkers’ Health: A Scoping Review. *Frontiers in Public Health*, *10*, 782811. <https://doi.org/10.3389/fpubh.2022.782811>

**Comment 5:**

**Quote/Paraphrase:** “In addition, the literature identified several work-related factors that exacerbate the risk of heat stress among agriculture workers, which include (1) performance of intensive manual labor, (2) piece-rate payment that encourages agricultural laborers to work beyond their physical limits and avoid taking breaks to rest or hydrate, and (3) the lack of control over workplace health and safety practices and adequate access to water, shade, or rest breaks.” (El Khayat et al., 2022, p. 2)

**Essential Element:** Literature Review Structure

**Additive/Variant Analysis:** The role of literature review in research is additive to my understanding of research.

**Contextualization:** The above quote informs us of another purpose of literature review to gain understanding and knowledge of what research has been done surrounding our research question. We need to gain a greater understanding of the social phenomena we are interested in researching and thus could use the research done prior inform us of the previous research findings. Then use these in supporting references to our current research. Literature review is the best way to to gain a greater understanding of the concepts, context and what research has been done prior.

. **Source Five:** Curl, C. L., Meierotto, L., & Som Castellano, R. L. (2020). Understanding Challenges to Well-Being among Latina Farmworkers in Rural Idaho Using an Interdisciplinary, Mixed-Methods Approach. *International Journal of Environmental Research and Public Health*, *18*(1), 169. <https://doi.org/10.3390/ijerph18010169>

**Comment 6:**

**Quote/Paraphrase:** “The survey included six domains of inquiry: sociodemographics; food security and food access; housing conditions; social isolation; access to medical care; and occupational hazards. Survey items were based on several previously validated instruments, including the National Agricultural Workplace Survey.” (Curl et al., 2020, p. 3)

**Essential Element:** Valid Instruments

**Additive/Variant Analysis:** The concept of using validated survey instruments to capture what is sought to be measured is additive to my knowledge.

**Contextualization:**  This research used a validated survey instrument that included several social factors related to seasonal and migrant farm workers. The survey was based on a validated survey instrument from the National Agricultural Workplace Survey. The intent of validated survey instruments is to utilize sets of survey questions that address what is being sought to capture. They have previously been tested for the validity consistency, thus will serve us well in our research studies.

**Source Six:** Hyland, C., Flores, D., Augusto, G., Ruiz, I., Vega, M., & Wood, R. (2024). “No matter how hot it is, you just have to do the work”: Examining Farmworkers’ Experiences with Heat and Climate Change in Idaho. *The Journal of Climate Change and Health*, *16*, 100300. <https://doi.org/10.1016/j.joclim.2024.100300>

**Comment 7:**

**Quote/Paraphrase:** “However, it is important to note that the primary intention of this work was to conduct a digital storytelling project to humanize this essential population and not to conduct an extensive qualitative analysis. Future work should consider examining farmworkers’ suggestions for improving climate resiliency and adaptation, including policy changes and interventions.” (Hyland et al., 2024, p. 5)

**Essential Element:** Design Differentiation

**Additive/Variant Analysis:** This quote informs the research design is qualitative is in support of the research design differentiation is additive to my understanding.

**Contextualization:** This research is a qualitative design to uncover insights directly from seasonal and migrant farm workers and to provide a means of documenting the life stories of seasonal migrant farmworkers. There are three basic research methods, qualitative (narrative based), quantitative (numerical based) and mixed methods (the combination of both qualitative and quantitative). Each has its benefits and shortcomings; one of the benefits of the qualitative method is that the research could come to find the ‘why’ of social phenomenon.

**Source Seven:** Terrell, S. R. (2021). *Statistics Translated: A Step-by-Step Guide to Analyzing and Interpreting Data*. Guilford Publications.

**Comment 8:**

**Quote/Paraphrase:** “After identifying the problem you want to investigate; you must state the relationship you predict will emerge. The prediction is based on either your observation of past performance or on other sources, such as literature you have read. When you have determined the prediction you want to make, you need to state it as both a null hypothesis and a research hypothesis. The research hypothesis will be either directional or nondirectional, depending on what the literature or your experience tells you.” (Terrell, 2021, p. 28)

**Essential Element:** Hypothesis Formulation

**Additive/Variant Analysis:** This quote on the process of the development of a null hypothesis and research hypothesis is additive to my understanding.

**Contextualization:** The author presents the process of developing a research question from the problem statement and then the hypothesis from the research question. The research question is guided by theory and previous research. As mentioned in this quote, the research hypothesis can be stated in a non-directional manner or a directional for instance, it is hypothesized that there is a greater difference between group a compared to group b.

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**Source Eight:** Walshe, C., & Brearley, S. (Eds.). (2020). *Handbook of Theory and Methods in Applied Health Research: Questions, Methods and Choices*. Edward Elgar Publishing.

**Comment 9:**

**Quote/Paraphrase:** “A research question is a focused question which expresses the research intention (the action) about the research focus (the phenomenon of interest) to address the research problem. The question should be able to be answered through the analysis and interpretation of data.” (Walshe & Brearley, 2020, p. 48).

**Essential Element:** Design Differentiation

**Additive/Variant Analysis:** This quote regarding the development of the research question is additive to my understanding.

**Contextualization:** The author makes a very good point about the intent of the research question to reflect the intended goal that is to be answered by data analysis. The research question is developed out of the problem statement to keep alignment through the problem statement, purpose statement, research questions, and hypotheses. I understand the need to think through this alignment when developing a good research question that could be tested through hypotheses testing given the availability of the research design.

**Comment 10:**

**Quote/Paraphrase:** “Developing high-quality research questions is a creative endeavor, which recognizes the importance of capturing the problem rather than focusing from the outset on the solution.” (Walshe & Brearley, 2020, p. 39).

**Essential Element:** Design Differentiation

**Additive/Variant Analysis:** This insight about developing a research question is additive to my knowledge.

**Contextualization:** I see how developing a research question is a creative endeavor to think through the research alignment and the vision of carrying out the research process. Reflecting on the research question I developed regarding seasonal and migrant farmworkers and heat-related illnesses, I needed to think through it more from the perspective of the alignment process and the research design.

**Source Nine:** Mukherjee, S. P., Sinha, B. K., & Chattopadhyay, A. K. (2018). *Statistical Methods in Social Science Research*. Springer Singapore.

**Comment 11:**

**Quote/Paraphrase:** “The choice and use of an appropriate sampling design to suit the purpose of a sample survey throwing up adequate evidence of reasonable quality to make valid inferences is a bad necessity. And the inference are to be valid in respect of a certain ‘population’ in which the investigator is interested and from which the sample has to be drawn.” (Mukherjee, et al, 2018, p.3).

**Essential Element:** Design Differentiation

**Additive/Variant Analysis:** This comment about sampling design is additive to my understanding of sampling.

**Contextualization:** The author points out the importance of sampling design as a key factor in making valid inferences about the larger population. This is part of the thought process of research design. If the intention is to infer to the larger population, then it is necessary to ensure the sampling design will fit the needs of the research goal. Random sampling of the population and having a sufficient enough sample size is part of the sample design. This, along with testing the assumptions, is part of being able to make inferences to the population.

**Comment 12:**

**Quote/Paraphrase:** “Statistics- meaning both statistical data as also statistical reasoning – are becoming active partners in the world of social science research, promoting and supporting, using and questioning ongoing theoretical studies. Statistics not only provides valuable empirical evidence against which theoretical constructs can be tested, but also throws up theoretical frameworks putting them to the test of the measurement process.” (Mukherjee, et al, 2018, p.7).

**Essential Element:** Design Differentiation

**Additive/Variant Analysis:** This concept of statistics as a means of logic in evaluating theory is additive to my understanding of the interaction between theory and statistics.

**Contextualization:** The author points out the connection between theory, research, and statistics as a language of empirical evidence. Our research utilizes theory to provide a context to our research, and our research goes to support theory, critique theory, and develop new theories.

**Works Cited**

Bloss, J. E., LePrevost, C. E., Zahra, A. G., Firnhaber, G. C., Cofie, L. E., Zepeda, R., & Lee, J. G. L. (2022). Advancing the Health of Migrant and Seasonal Farmworkers in the United States: Identifying Gaps in the Existing Literature, 2021. *Health Promotion Practice*, *23*(3), 432–444. <https://doi.org/10.1177/15248399211033308>

Curl, C. L., Meierotto, L., & Som Castellano, R. L. (2020). Understanding Challenges to Well-Being among Latina Farmworkers in Rural Idaho Using an Interdisciplinary, Mixed-Methods Approach. *International Journal of Environmental Research and Public Health*, *18*(1), 169. <https://doi.org/10.3390/ijerph18010169>

El Khayat, M., Halwani, D. A., Hneiny, L., Alameddine, I., Haidar, M. A., & Habib, R. R. (2022). Impacts of Climate Change and Heat Stress on Farmworkers’ Health: A Scoping Review. *Frontiers in Public Health*, *10*, 782811. <https://doi.org/10.3389/fpubh.2022.782811>

Hyland, C., Flores, D., Augusto, G., Ruiz, I., Vega, M., & Wood, R. (2024). “No matter how hot it is, you just have to do the work”: Examining Farmworkers’ Experiences with Heat and Climate Change in Idaho. *The Journal of Climate Change and Health*, *16*, 100300. https://doi.org/10.1016/j.joclim.2024.100300

Langer, C. E., Armitage, T. L., Beckman, S., Tancredi, D. J., Mitchell, D. C., & Schenker, M. B. (2023). How Does Environmental Temperature Affect Farmworkers’ Work Rates in the California Heat Illness Prevention Study? *Journal of Occupational & Environmental Medicine*, *65*(7), e458–e464. <https://doi.org/10.1097/JOM.0000000000002853>

Mukherjee, S. P., Sinha, B. K., & Chattopadhyay, A. K. (2018). *Statistical Methods in Social Science Research*. Springer Singapore

Shearer, J. E. (2017). A Critical Caring Theory of Protection for Migrants and Seasonal Farmworkers. *Public Health Nursing*, *34*(4), 370–379. <https://doi.org/10.1111/phn.12304>

Smith, D. J., Mizelle, E., Leslie, S. L., Li, G. X., Stone, S., Stauffer, P., Smith, A., Lewis, G., Rodden, E. L., McDermott-Levy, R., & Thompson, L. M. (2023). Intervention Studies to Reduce the Impact of Climate Change on Health in Rural Communities in the United States: A Systematic Review. *Environmental Research: Health*, *1*(3), 032001. <https://doi.org/10.1088/2752-5309/acbbe6>

Terrell, S. R. (2021). *Statistics Translated: A Step-by-Step Guide to Analyzing and Interpreting Data*. Guilford Publications.

Walshe, C., & Brearley, S. (Eds.). (2020). *Handbook of Theory and Methods in Applied Health Research: Questions, Methods and Choices*. Edward Elgar Publishing.