

Sasakawa Nursing Fellow 2023 Progress Report

Iori Yamasaki

Department of Population Health Sciences

School of Medicine

Duke University

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Introduction

I am currently in my second year of a master's program in Population Health Sciences at Duke University. The curriculum in the first year was composed entirely of required courses, whereas the second year allowed students to select courses based on their interests. This report will introduce the classes I chose in my second year, discuss my learnings, and provide an overview of my master's thesis research worked throughout the year.

Introduction to Selected Courses

In the first semester, I enrolled in "Demographic Measures/Concepts" and "Global Mental Health". In "Demographic Measures/Concepts", I learned how to analyze demographic data, predict population trends, and project age distributions. This included mastering standardization methods to compare different populations with varying age structures. "Global Mental Health" provided insights into the underestimation of mental health issues, the scarcity of resources in the field, and the impact of societal stigma. It was intriguing to discover that treatments effective in Western contexts might not be equally successful in other cultural settings, highlighting the complexity of mental health treatment.

The second semester included "Innovation and Entrepreneurship Practicum in Global Health" and "Introduction to East Asian Cultural Studies". The "Innovation and Entrepreneurship Practicum in Global Health" involved collaborating with a company that, with funding from the Bill & Melinda Gates Foundation, is expanding a business using smartphones to enhance tuberculosis treatment adherence in Africa and Southeast Asia. Our group was responsible for data analysis and visualization. "Introduction to East Asian Cultural Studies" focused on East Asian perspectives in cultural studies and the interdisciplinary exploration of culture, examining global issues like modernity, colonialism, and neoliberalism through the lens of East Asia, and analyzing cultural theories.

Additionally, throughout the year, I had the opportunity to attend "Analytic Methods", a course primarily designed for doctoral students. This experience deepened my understanding of causal inference, especially in non-randomized settings.

Key Takeaways from My Year of Study

This year, my exploration of global mental health and East Asian cultures has been incredibly enlightening. It has deepened my understanding of how mental health disorders are significantly influenced by societal factors, such as culture and economy. This insight has led me to recognize that social influences not only play a crucial role in the onset of mental health disorders but are also indispensable considerations in their treatment. The widespread dependence on evidence from Western contexts has led me to reconsider if the Western ideals of progress, civilization, scientific advancement, and modernity might not be universally applicable to non-Western environments.

My decision to specialize in East Asian cultural studies in the second semester stemmed from a realization that a broader perspective is crucial when considering mental health and global development assistance including global health initiatives. During East Asian cultural class, I learned that Yukichi Fukuzawa once compared civilization coming from the West to measles – not something to be openly celebrated but an unavoidable, spreading event. The rapid advancement of civilization following the Industrial Revolution has accelerated the dismantling of social class barriers and roles at an unprecedented pace, suggesting newfound freedom. However, this progress has shifted the emphasis from the cooperation and empathy necessary for communal living to the productivity required by the economy, leading to the disintegration of families and communities. Consequently, communities and families that once provided shelter have been dismantled, leaving individuals in a society filled with precarity under the guise of personal responsibility. This phenomenon is not unique to Japan but is evident in many developed countries.

Reflecting on my year of study, understanding global mental health—and health in general—requires a deep societal comprehension. This exploration has prompted me to critically examine the rapid pace of technological and scientific advances that are readily incorporated into global health initiatives. In many cases, these advances are pursued without adequate consideration of the social consequences of the unstoppable progress of civilization and science, such as the current state of insecurity and the breakdown of families and communities. It underscores the necessity of integrating these advancements with a respectful consideration of local cultures and values. By valuing and respecting the diversity of cultures, we can foster more meaningful and sustainable progress that truly benefits everyone.

Master's Thesis Overview

My master's thesis, titled "Predictive Modeling of Cognitive Decline Using Health and Retirement Study (HRS) Data," focused on developing a model to predict cognitive decline over a two-year period using machine learning techniques. Utilizing data from HRS, which surveys over 20,000 Americans aged 50 and older every two years on their health, economic status, and lifestyle, I employed 130 variables related to cognitive decline and explored four machine learning models: logistic regression, LASSO, Random Forest, and XGBoost, to determine which model yields the best

predictive results and to identify which variables have a significant impact on the prediction.

Conclusion

Reflecting on the breadth of experiences and learnings this semester, I am deeply thankful for the scholarship that made it possible. Venturing into the humanities has enriched my academic journey, teaching me the critical importance of complexity and the value of skepticism towards the evident. Moreover, while my master's thesis embraced the cutting-edge technology of machine learning, this academic endeavor also illuminated a crucial dichotomy. As science and technology advance rapidly, I cannot help feeling that cultural and philosophical elements are being left behind. This juxtaposition between the latest technological methodologies and the slower pace of philosophical reflection has been a profound aspect of my studies in this year. It underscores the necessity of integrating these seemingly disparate elements to foster a more holistic understanding of our world and its myriad complexities. As I move forward, I carry with me the conviction that true progress is not solely about technological innovation but also involves a deep engagement with the philosophical and cultural narratives that define our humanity. This balanced approach will guide my future academic pursuits and my broader outlook on life.

I am deeply grateful to the Sasakawa Health Foundation for their substantial support. This scholarship has not only enabled my academic progress but has also immensely enriched my perspectives.