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## Gathering STEAM in Health Care: A Student History

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### Abstract

In this reflection, I demonstrate STEAM in health care by outlining my 15 years as a university student engaged in formal education, extracurricular learning, research, and employment.

### Keywords

STEAM, education, health, pharmacy, statistics, arts, humanities

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## **Gathering STEAM in Health Care: A Student History**

*Michael J. Leach*

I am an Australian biostatistician, health researcher, and artist who firmly believes in STEAM. In much the same way as other STEAM advocates, I have learned the value of wearing multiple hats.

I originally trained in pharmacy. While undertaking my Bachelor of Pharmacy in the early 2000s, I developed strong interests in communication, philosophy/ethics, history, and mathematics – areas that many deem peripheral or unnecessary in science-based health curricula. In Australia, the arts and mathematics have been incorporated sparingly into most health degrees. I recall reading up on arts topics and mathematical concepts that were mentioned only briefly in pharmacy lectures. As a student pharmacist, I endeavored to act ethically at all times and to see patients as holistic individuals with diseases (e.g. people with diabetes) rather than people defined by their diseases (e.g. diabetics). I also sought to understand the statistics underpinning two important ethical processes: evidence-based practice and rigorous research design.

After graduating in 2006, I studied a Graduate Certificate in Applied Statistics and a Master of Biostatistics. These courses combined theoretical statistics with hands-on statistical computing. I came to perceive statistics as the “science of science” in that it tests the hypotheses that underlie research conducted across all scientific fields. As part of the biostatistics course, I was fortunate to work in transdisciplinary teams on workplace projects concerning pharmacokinetics and post-stroke quality of life.

My positive research experiences led me to commence a PhD in Pharmacy in 2011. In my doctoral research, I conducted pharmacoepidemiological studies into the use of multiple medications and the risk of hip fracture among older people. When not conducting my

research, I worked in research and editing roles, studied humanities, dabbled in photography, and wrote poems about patient experiences. I found it enlightening to empathize with patients through the production of creative pieces. I became a published researcher, writer, poet, and photographer who believes that science and the arts are interdependent. In the words of novelist Raymond Chandler, "the truth of art keeps science from becoming inhuman, and the truth of science keeps art from becoming ridiculous" (Chandler, 1938)

As I had never previously studied a tertiary-level arts subject, I recently decided to undertake free Open Yale arts courses (<http://oyc.yale.edu/>). Thus far, I have studied "Epidemics in Western Society Since 1600", "Modern Poetry", "Milton", and "Philosophy and the Science of Human Nature". These online courses provide an illuminating, affordable, and convenient avenue for people with backgrounds in STEM to explore the exciting world of STEAM. The courses have inspired me to consider enrolling in a Master of Bioethics one day.

This year, I passed my PhD and commenced working as a biostatistician in a hospital setting. In my current role, I use data to drive quality improvement in cancer services (e.g. chemotherapy and supportive care) across rural areas. On a typical day, I find myself considering clinical matters, ethics, patient journeys, communication, and data from a joint scientific, technological, artistic, and mathematical perspective. My biostatistics work is interesting and rewarding – ideal for a STEAM advocate.