

Work History

Most of my professional life has been spent as an educator: first in industry, at Boeing and Microsoft, and more recently in academia. Also, a good deal of my volunteering has also been within the general realm of teaching, both in religious education and English as a Second Language / US Naturalization preparation, working with diverse populations ranging from preschoolers to low-income seniors. With a Master of Science in Computer Science, my professional work has centered in teaching computer-related topics, primarily programming and software development.

While at Boeing, my primary job was in course development and delivery in the in-house education and training organization for Boeing Defense and Space Group. While at Microsoft, most of my time was in support of education regarding programming tools. Initially, I was hired as a senior subject-matter expert at Microsoft University (MSU), the educational “arm” of Microsoft which was formed to teach others how to write programs for Windows. With my educational background from Boeing, I also served as an instructional designer in MSU. From there, I moved to the user education (documentation) group for the primary programming tool, Visual Studio. While I was at Boeing, I was also a regular speaker at regional and national symposia for Digital Equipment Computer User Society offering eight-hour-long seminars. During my tenure at Microsoft, I frequently presented / represented the programming products at trade-shows and conferences, both national and international. In these presentations, the goal was to take some body of technical information and present it in an engaging, memorable, and compelling way. Since the dot-com melt-down in 2000/2001, I have been teaching in academia, primarily at North Seattle Community College (NSCC).

A Research Question

The programming students I teach are generally highly interested and motivated in the topic, since their future, either employment or admittance into their chosen academic program, depends on their success in these classes. Even with this relatively high degree of buy-in, student performance varies all over the board. I haven’t noticed any clear pattern to explain this variation in student achievement, but there does seem to be a “something” that enables some students to address programming problems more successfully than others. As intriguing as this is, I could see no structured means of exploring what the nature of that “something” might be, let alone how it might be taught or fostered.

The issue of the process of problem solving in computer programming appeared in a new form recently, because I have been very actively involved in the application process for NSCC to offer a four-year Bachelor in Applied Science degree in Application Development, particularly in terms of the proposed curriculum.

Graduate Studies

At the same time, as a state employee, I have taken advantage of the tuition-exemption program to pursue a long-standing interest of mine, Linguistics. In the process, I have found that I am an *amateur* linguist in the classic sense of the term: a lover of the field, but without the drive or desire to make it my profession. However, my studies in linguistics did open my eyes to the ongoing research in the area of language acquisition. This dovetails very nicely with my personal leanings in academic inquiry: more toward the application of science in everyday life, rather than the pursuit of truth as an end unto itself. In fact, second language acquisition was such a good fit for me that I have started the Master of Arts in Teaching (English to Speakers of Other Languages) (MATESOL) program here at UW.

Qualitative Research

I had a transformative educational experience last spring, when I started working on the MATESOL degree, taking one of the core classes, ENGL 574, Research Methods in Second Language Acquisition. The primary thrust of this course is an examination of qualitative research methods within the context of language acquisition. These qualitative research methods and the related post-positivist points of view open avenues to research that which is essentially opaque to classic quantitative methods. Now, at last, I had a means to research the “something” that had long fascinated me.

Learning Science

As it turns out, I had happened upon the Learning Science webpage just over a year ago and was very intrigued by what I found there. The content of the former website seemed to be describing my interests to a tee. However, at that time, I could see no way to research the “something” that led to programming success. Now, my recent exposure to qualitative methods has changed my perception about how reasonable and tractable this research area could be. This was further confirmed by my first CoE class, in autumn 2013, EDPSY 501. So, I’m applying for the PhD program in Learning Sciences to pursue this question that has captivated my attention for so long.

Potential Research

To summarize, my primary research interest revolves around the process of problem solving used in creating computer programs. And, as my work history might suggest, that interest centers on adult learners and how they might acquire that process. A preliminary review shows relatively little literature about adult learners in STEM fields, which is promising, at one level. There is a significant body of literature regarding school-age students and the importance of metacognitive process for their success in STEM areas. Also, the second-language acquisition literature suggests marked differences in learning process between in adult and youth learners, with adults taking advantage of their cognitive skills in learning language where children seem to acquire language more implicitly. So, the proposed research may well merge these two research threads.

Even though I anticipate continuing to teach at NSCC while pursuing this doctoral work in education, I think the research work may target engineering students here at UW, for example, students of AMATH 301, Beginning Scientific Computing, which is essentially a programming class using MATLAB to perform applied numerical analysis. The population from which to draw is significantly larger than what would be available to me at NSCC, over 1,000 students a year. Moreover, the IRB may more readily approve the research since I would no formal academic relationship with (over) the potential subjects.

I have spoken briefly about this research possibility with Dr. Kara Johnson, who seems to be a very likely potential advisor for this work. Unfortunately, I have not yet been able to talk about it with Dr. Philip Bell, who is another likely potential advisor.

Closing Thoughts

I am excited by the possibility to explore metacognition and its relation to problem solving in adult learners, particularly in the realm of programming. Also, I believe that my varied background will help me contribute to the learning experience of the other students in the program, as well as grow personally and professionally through my interactions and research in the College of Education.

Thank you for the attention to this application. Please do not hesitate to contact me if I can provide any additional information that may help you in coming to a decision.

Respectfully yours,

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