

My Earth science educator story – Don Duggan-Haas

What I did, why I did it and what happened



In the Canadian Rockies, working on a Virtual Fieldwork Experience. (Photo credit: Don Duggan-Haas).

I've never liked school. In spite of that, or maybe because of it, I don't believe a semester has gone by since I started kindergarten in 1968 without my spending time in a classroom, as teacher or student, teacher educator or some combination (with parenting thrown into the mix as well). I write this in at the close of my 30th year as a professional educator. Yet I am totally serious in my claim that I don't like school. Part of the issue may be that I'm either a glutton for punishment or an addict, but it's more complicated than that. I have an attraction to dysfunctional systems, and, if you believe as I do that the purpose of education is to prepare individuals for the duties of citizenship, then it's hard to argue that schools are functioning as they should. Perhaps Exhibit A is the 2016 presidential election in the USA - no matter where you stand, you are likely to be disgusted with a large portion of the electorate's ability to reason. And, while I've perhaps broken myself of the delusion that I can fix this dysfunction, I hold onto the dream that I can make the educational system better in some meaningful way, and perhaps that I already have.

I graduated from the State University of New York at Geneseo in the December of 1985 and started teaching on January 2, 1986. It's challenging to choose key experiences and ideas from all those years, so I'll focus on one important experience from my history and one key idea. The important experience was an epic continental wander that took me across North America. The key idea is that the structure of schooling is fundamentally at odds with effective education.

I began college planning to be an engineer and left college with a physics degree and a teaching certificate. Education courses seemed easier than physics courses while playing with toys in front of an audience was fun – and I didn't want to be either an engineer or a defense contractor. Student teaching was more challenging and more rewarding. There were days when I felt born to teach. I'd get that special spine-tingling rush when a student seemed to "get it." That sensation would emerge often enough throughout my career to keep me going (and perhaps keep me deluded) for the next two decades, and it's a part of what keeps me in education today. My first teaching job, as the third teacher of the year, was painfully educative for me, and my students may have learned a little. I left that job at the end of the school year, unsure if teaching was for me.¹

I flailed about and remembered enjoying student teaching and the satisfaction that came from a good day in the classroom, and then, again at mid-year, landed a position teaching Earth science and physics in Norwich, New York. In that little town, I fell in love with teaching. After a year or two, I'd found my stride and got that rush from sensing student connection

¹ This story draws somewhat from "The Nail in the Coffin: How Returning to the Classroom Killed My Belief in Schooling (But Not in Public Education),"

Duggan-Haas (2013). That chapter goes into more detail about both my professional experience, and the shifting goals of my work.

in fairly regular doses, though I also began to recognize that that rush was provided by a minority of my students, and that many still struggled to understand what I wished that they would. The nature of what I wanted them to understand was changing too. Initially I wanted them to pass the New York State Regents Examination in Earth Science. I was successful enough at that, but sensed that they weren't really gaining understandings about how the world worked, and, if they were gaining such understandings they weren't spilling over into how they lived their lives. It also didn't seem like connections were made between ideas, and the understandings weren't durable.

As these ideas about the nature and success of my teaching were changing, I took a life-changing trip - 61 days on the road across much of North America; 22 national parks between the US, Mexico, and Canada. As 2016 marked my 30th year of teaching, it also marked the 25th anniversary of this trip. It was catalyzed by the opportunity to see the total solar eclipse from the southern tip of Mexico's Baja Peninsula, by my high school buddy, Andy Frank, and by the fact that I'd finished my master's degree and had the summer free. The curriculum I'd been teaching for five years came to life for me in ways I'd not come close to in my life before that.

As an undergraduate, I'd majored in physics, and my Masters' degree in Earth science education was done while I was teaching full time at an institution that did its field camp in May, precluding my participation. My greatest field camp experience was guided by Andy and me. That experience affirmed for me the incredible value of learning about the natural world by being out in it; by getting face-to-face with the science you want to understand. It ranks as perhaps the most important step in breaking my mental mold of schooling; breaking the box of the classroom. I don't know that I recognized that at the time, and no single step in the process alone broke the mold.



Andy Frank and Don Duggan-Haas at Glacier National Park, 1991. This was one of 22 national parks visited on a 61-day trek across North America.



The route for the 1991 trek began and ended in New York State, went as far south as the southern tip of Mexico's Baja Peninsula, as far west as the west coast, and as far north as the Canadian Rockies. Stops included 22 national parks within the US, Mexico, and Canada, and several state and local parks. (Image credit: Google Earth illustration by Don Duggan-Haas).

The mental processing of that trip, along with seeing first year teachers in tears each of my years in the classroom so far, led me to pursue a PhD and the professoriate. My graduate study might reasonably be described as a continuation of rubbing my nose in the structure of formal educational system. That sentence makes it sound fairly miserable, but the experience of that nose-rubbing was totally absorbing, and Michigan State's College of Education PhD program in Curriculum, Teaching, and Educational Policy was a simply wonderful experience for me. I went from grad school to temporary science education positions at Kalamazoo College and Cornell University. Both of these institutions shuttered their teacher education programs shortly after my departures.

I went on to a tenure-track position in Colgate's Education Department, where I spent four years before quitting, disgusted with the broad dysfunction in teacher education programs. I returned to the high school classroom, teaching in a start-up charter high school, where I taught for a year before joining the Paleontological Research Institution (PRI) in June, 2007.

For most of the first two decades of my career, I worked to improve schools. My "return" to the high school classroom wasn't to be a return, not a going back but rather a venture into something new – joining a team who were working not to make schools better, but to make better schools by starting from scratch. That work brought me to the realization that, if we are to make substantial improvements to educational outcomes, we must do more than make schools better or even make better schools. We need to make something better than schools. That's a trick I'm still working on.

As PRI's Director of Teacher Programs, I continue to work to make schools better, but my work is also done with attention to serving educational environments other than schools, and, especially, that something better that might come along to replace schools. That's generally done with a place-based and technology-rich approach to the study of the Earth system. It's also driven by a commitment to get learners outside, and to learn science in the context of the duties of citizenship. I've wandered broadly, both across North America, in the study of the Earth sciences, and across the educational

system, teaching from grade school to grad school, and working in informal settings as well. All of this wandering was at least partially in service to inquiry, to better understanding our world and to helping others to better understand it. My strongest suggestions to educators are to wander, to wander in wonder, and to do so with your students.



The Regional and Local (Real) Project Teacher Professional Development, Devil's Lake Cohort, at Ableman's Gorge, Devil's Lake, Wisconsin, July 2011. Ripple marks that are 1.7 billion years old are clearly visible in the nearly vertical Baraboo Quartzite behind the group. Much of this rock face has since fallen. (*Image credit: Richard Kissel*).

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Reference

Duggan-Hass, D. (2013) The Nail in the Coffin: How Returning to the Classroom Killed My Belief in Schooling (But Not in Public Education) in, Brantley-Dias, L., Dias, M. & Eick, C. J. Eds. *Science Teacher Educators as K-12 teachers*, New York: Springer.