

James Brewer  
Educational Philosophy and Instructional Approach

### Overview

After a long and fruitful career in management consulting and systems architecture, I decided to work more closely with the people who will define the future of our society: our children, and those who educate them. Through decades of work in Canada, Europe, India, and the United States, I have developed capabilities in leadership, technology development, strategic thinking, and program management. As a prospective educator in the sciences, technology, engineering, and mathematics (STEM) disciplines, I believe these capabilities are particularly well suited as a STEM teacher and as an educational researcher, in service to my students and to the profession of education as a whole. In fact, I am already engaged in teaching adults in technology (particularly computer science), management science, and finance.

By sharing my practical expertise in leadership and management of complex technical initiatives with the classroom, I will offer my experiences in working with diverse enterprises from all over the world, and the results of cultivating lasting and meaningful relationships with the individuals involved. In this way, I will contribute to the overall culture of the academic environment in an interesting and novel manner. Students, especially adults and high school students, are constantly seeking connections between their learning experiences and the challenges of an uncertain and increasingly complex future. In my role as an educator, I can mentor and guide students toward thinking outside their academic pursuits, and toward their own role as STEM professionals, in an integrated global economy.

In support of these points, I have earned a Master of Science degree at the University of Iowa College of Education, specializing in STEM education and learning sciences. This academic foundation augments my classroom experiences and allows me to bring some of the most recent methods, research, and practices to educating students in the STEM disciplines.

### Educational Philosophy and Psychology

Philosophically, I am a pragmatist. For me, this means that I don't adhere to an absolute separation of knowledge and the environment through which one acquires knowledge; I see them as inextricably linked and mutually supportive. As a graduate of the Lab School at the University of Northern Iowa, the writings of John Dewey inspired my thinking about society generally and education more specifically. In my graduate studies at the University of Iowa, I was strongly influenced by the constructivist thinking of Jean Piaget and especially Lev Vygotsky. Consequently, I apply both cognitive constructivism and social constructivism frameworks to inform my instructional approach.

Every student enters a classroom with varying degrees of knowledge, conceptual capabilities, and collaborative and social skills. Since one of the primary goals of STEM education is to provide interdisciplinary experience along with the promotion of collaborative solutioning, I tend toward social constructivism in my teaching, striving to understand each student's "zone of proximal development" – the level of understanding each student brings to the subject. Acting as a benevolent "more knowledgeable other," I offer both my expertise and experience and also furnish "scaffolding" to enrich and accelerate the learning process, on an individual basis as much as possible.

### Approach to Instruction

I think of my role as an educator as a commitment to service - to my students and to my fellow educators - where all of us are joined together in the spirit of learning. My view is that to create a positive and inclusive atmosphere, I must understand my students and appreciate the unique preferences toward learning. Some students are visual learners; some learn best tactilely or orally. Some learn best by observing an educator guiding the way, while others prefer to reflect and assimilate information more independently. Moreover, the means by which they communicate provide me further insight. I teach in several institutions where the proportion of English language learners (ELLs) is very high. Many of my students collaborate with others who share their primary language, and so I support this by arranging the design of the classroom so that they can do so with ease.

For each subject that I teach, I begin by thinking of the learning objectives for the course. By leveraging my understanding of my students, not merely as learners but as part of a community, I can better engage my students to bring to bear their experiences, knowledge, and insight into the curriculum. I utilize the principles of Universal Design for Learning to accommodate each student's preferences by fostering engagement, representing instructional materials through various forms of narrative and multimedia, and mentoring students to express their ideas through small group discussions and by framing independent investigations. I want to enable the students to demonstrate, in their own ways, their mastery of the lessons in a manner that minimizes stress and anxiety. For example, I frequently ask individual students to present findings from their small group sessions in front of the classroom. Even though they may feel some anxiety because they perceive their English language skills as works in progress, my objective is to establish a safe

environment both to lessen their anxiety and to attain greater English language mastery.

Another benefit of this approach is heightening each students' awareness of the diversity of culture in our classroom community and the importance of tolerance, understanding, and respect for our differences.

Just as I strive to know my students at the outset of the course, I am equally concerned with their progress throughout the course. Not only do I track their understanding of the material through formative assessments (i.e., quizzes, exams, projects, papers, etc.), but, more importantly, I constantly seek opportunities for each student to engage with the lessons, integrating their existing knowledge with new insights and new information. If I detect that some students are falling behind, I like to set up mini lessons for them and, when possible, bring in a student who has attained mastery to work with them. Another technique I use to foster engagement and collaboration involves "mind maps," wherein each student can create conceptual maps that illustrate the connections among earlier ideas and new ones. A stimulating extension of this idea is to organize the entire class in creating a mind map that extends across an entire wall – a great way to express both individual and community achievement!

### Summary

In my experience as a practitioner and as a student, I discovered that the experiential learning and reflective practices described above are effective in demonstrating the cognitive aspects of what has been learned and that collaboration and negotiation with fellow classmates cultivates the social aspects of learning as well.

A career in education is exactly what I seek: a way to offer my life lessons, technical expertise, and global business experiences toward the education of our children and adults. I believe that there is no more lasting and impactful pathway toward the betterment of society than this.