

Teaching Through Challenges that Matter to Students

One of the most fruitful places for learning is in the middle of struggle, in fact **brain research** supports the claim that we need struggle in order to learn. There is a strong precedence for humans and the human race growing and developing in times of challenge and uncertainty. This is true in the classroom, as well. When I am able to engage students in the challenges that face our community, nations, and globe, their learning takes on more rigor and relevance. This also applies to teachers; I have discovered some of my greatest professional learning as I have struggled through the process of developing and revising engaging learning opportunities for my students. It is in these challenging moments that new discoveries about my students and myself are made.

For years I have sought out and used local, national, and global challenges to guide the project based learning experiences that I provide for my students. Centering units and topics around those challenges builds student awareness, engages them in societal factors, and provides a means for students to influence those factors. These challenges also, in my experience, increase student engagement and learning. And they do the same for me.

Local

One local example of this type of challenge is my town council's decision to cull the large deer population within city limits. In this rural setting, deer are prominent "members" of the community. When I first moved to this community, the town council enacted an ordinance to prevent the feeding of deer by citizens in order to receive authorization from the Wyoming Fish and Game Department to cull members of the deer population. At that time, the in-town deer population was prominent and large groups of deer could regularly be seen walking through town.

All of this took place on the backdrop of declining mule deer populations across the west. In this challenging situation, my students were tasked with conducting a deer population study, researching the issues surrounding mule deer in the west, and surveying community feelings toward the culling of deer in the town. Based on these sources, students developed their personal claim as to whether or not the town should continue the practice of culling deer. Students were also responsible for presenting their results and evidence to the town council at a public meeting.

This challenge required students to confront the difficulty of decision making restricted by laws and opinions, and contrasted with environmental needs and issues. From this greater challenge, students were faced with both greater rigor and relevance in their learning. They also gained a deeper perspective of their community and the societal issues surrounding many issues. One student stated, "Learning about local wildlife and how we're affecting it is different from global challenges, because you know what is being affected. You see it on a regular basis. Researching the effects of its disappearances is more relatable because we live there. As opposed to all the affected/disappearing species on the other side of the planet."

National

A national challenge students were presented with involved the issues of decreasing biodiversity and limitations on the resources available and means whereby we can influence many of the natural systems that impact ecosystem and species biodiversity. My students confronted the challenge of deciding how to invest limited resources of time and money in order to help preserve species that are experiencing threats while balancing societal opinions at divergent ends of the spectrum.

Students were tasked with identifying how to utilize limited time and financial resources in an effort to preserve one species when many were experiencing issues and threats. Students were able to build understanding through visits to the Yellowstone Greater Ecosystem, communication and visits with National Park representatives, discussions with experts on nearly each species, and significant amounts of research on public opinion, current and historical preservation efforts, and ongoing studies on the impacts of each species on the ecosystem. They had to select among grizzly bears, Yellowstone cutthroat trout, whitebark pine, and grey wolves, each with their own needs and threats with various intertwined interactions. Students developed proposals for which species to support based on impact to biodiversity in the ecosystem.

This challenge, in particular, presented a truthful look at the difficulties that come from confronting the challenges faced at all levels in our society. Through this challenge students gained deeper insight into the range of opinions, ideas, and options; they formed their own opinions and were tasked with supporting them with scientific data and evidence. As one student stated "Going to Yellowstone to

see the effects first-hand just made the impact more personal.”

Global

A final example of a global (or possible species-level) challenge that my students and I have confronted is the possibility of other life in the universe and the challenge of finding an alternate location or planet that could support humans or other life. This is a hot topic in current science with many scientists, satellites, and organizations investigating the possibility of life outside of Earth and our solar system and then trying to devise ways to reach locations that are suitable for life.

Through this challenge students must develop an understanding of what characteristics and situations are necessary to support life as we know it, how the Earth is (or isn't) unique for providing that support, and what current possibilities are believed to be available. This includes a deep study of concepts such as the search for planets in the Goldilocks Zone or Circumstellar Habitable Zone of stars, possibilities of life in our solar system (leading candidates include moons of Jupiter and Saturn, Europa and Enceladus, respectively, and, of course, Mars), and the search and evaluation of exoplanets—planets outside of our solar system.

This scenario engages students in challenging social factors that face our world today and always brings up topics such as how long can our Earth support the human race, how long would it take to reach another planet or star, and how should we decide what scientific efforts are worth the time and money they require. Each of these ideas or questions are challenging areas for the entire human race.

These practices of seeking out and deliberately teaching the local, national, and global societal challenges and factors as part of my teaching have forced me to improve the way that I teach. Students must be able to seek out information based on the issues, not on a textbook or prescribed curriculum. My role as a teacher also changes, I must become a resource to students in the process of investigating and learning along with them. The nature of these challenges is such that they are always changing. This is the main impetus to the transition of my role to a guide and resource for my students and it stems from the fact that there are not discrete, concrete answers to any of these challenges or issues. This shift stems from it being impossible for me to provide students with “the answer,”

because there isn't one. This natural ambiguity comes as a major challenge for many students; as a guide and resource, I can support students as they determine how to confront these challenges.

This issue and challenge focussed learning environment confronts students with decision making scenarios similar to those they have to face in their lives; weighing impacts and evaluating alternatives. One student put it this way, "For me, forcing it to be a life-applicable and realistic situation, as opposed to a simulation, makes learning the material more necessary... Experiential learning aids me in understanding content because it's usually... my most comfortable learning environment."

By connecting the learning to actual societal challenges students learn both about the difficulties of confronting these societal issues and the specific content related to them. This deepens the learning for students, builds student awareness, and provides students opportunities to impact their society. This is very fertile ground for learning and student growth and has also been very fruitful ground for my professional growth and personal learning; it has forced me to learn new skills to support students, approach my planning for instruction in new ways, and consistently look for new challenges that I can use as a context for student learning. These challenges that face our community, nation, and globe are the most engaging way to bring more rigor and relevance to student learning.

*Each week, beginning on September 12, members of the KSTF community will be **writing about one of the characteristic actions of teachers acting as primary agents of educational improvement**. This week, we're writing about teachers acting as primary agents of educational improvement when they recognize that local, national and global societal factors have an impact on the education system and consider these factors in improvement efforts.*