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LD 2182

Senator Rafferty, Representative Brennan and members of the Education and Cultural Affairs Committee. My name is Ken Lanik, and I am a resident of North Yarmouth as well as a science teacher at Windham High School. I have been teaching high school science for 35 years, and I served as science department chair for a number of those years. I have undergraduate degrees in Physics and Anthropology, an MS in Educational Leadership, and a PhD in Public Policy and Educational Leadership

I am submitting this written testimony today (February 7, 2024) in support of LD 2182, Resolve, Regarding Legislative Review of Portions of Chapter 132: Learning Results: Parameters for Essential Instruction, a Major Substantive Rule of the Department of Education.

It is disheartening that our education system has historically been so overtly resistant to cross-disciplinary explorations of the learning targets that guide the work of educators. Science is a human endeavor, and it exists in a cultural context. While a depressingly large number of science teachers continue to approach science as a textbook-defined set of unflinching facts that must forever remain unchanged and unquestioned, the reality (as poignantly outlined in the foundational writings of philosopher Thomas Kuhn) is that science is a product of Western thought; science is a cultural framework that in practice is constantly shaped and defined by the historical and sociopolitical settings that constrain human thought. As a science teacher who has for decades been making efforts to frame my physics and earth science courses within historical and cultural contexts that allow students to make interdisciplinary connections between science and the wider human experience, it frustrates and saddens me that many of my colleagues continue to actively resist efforts to move science teaching out of its comfort zone towards a position in which we share more equitably the “burden” of interdisciplinary learning.

In schools and science departments across the country there exists an unspoken and unchallenged belief that there are “natural” connections guiding interdisciplinary curricular efforts: social studies and language arts go together, while math and science form a different “natural” pair. Like Social Darwinism, this is a lazy and erroneous mindset that consciously (or unconsciously) preserves the status quo by predisposing science educators to not look for historical and cultural connections between science, social studies, language arts, and other disciplines under the guise that there is no “natural” way to pair science with these other subjects. Efforts to engage science teachers in meaningful examinations of these cross-disciplinary curricular possibilities is perpetually undermined and dismissed by supporters of the status quo due to the dominant mindset that science becomes “watered down” if time is “wasted” on topics that exist beyond the bindings of science textbooks.

It is a historical truth that, in the latter half of the 1800’s, Western nations applied concepts of Darwinian evolution to justify brutal colonialist practices and the associated implementation of racist hierarchies and policies. This is not an obscure fact, as every introductory-level anthropology course examines, in depth, the scientific missteps associated with Social Darwinism and eugenics. Opponents of this bill argue that the implementation of these learning standards would be conceptually tenuous in the science classroom, because teachers would be forced to give up “the teaching of valuable science content” in order to address a topic that does not appear (at first) to exist within the realm of science. My response to such criticisms is that one’s ignorance of the significant role of evolutionary theory in perpetuating racist beliefs and practices is not an excuse for teachers to resist educating themselves (and by extension their students) about this ugly chapter of human history, and that allowing students to critically examine the ways in which evolutionary theory was misapplied by social Darwinists would be a great way to help students understand how evolution actually works.

I have read criticisms of LD 2182 that argue that teaching students about this historical misapplication of Darwinian evolution would cast science in a bad light and thereby undermine the teaching of evolution. I fail to understand the distinction between this spurious view and arguments that schools shouldn't teach historically accurate accounts of racism because doing so "makes White kids feel bad about US history". LD 2182 is in no way an attack on science or the theory of Darwinian evolution. Scientific principles were misused to support shameful practices— that is the story here, and it is a story that teachers are well equipped to manage in their lessons.

My experiences teaching science in an interdisciplinary manner have convinced me that students have richer, more engaging experiences in science when they are provided opportunities to examine the historical and cultural factors that both shape, and are shaped by, scientific thought. In the Advanced Placement Physics (with Calculus) course that I taught for many years, I introduced the development of Newton's contributions to Western thought within the historical and philosophical context of the Enlightenment. The result was that, over a year's worth of discussions about the strengths and limitations of the Newtonian framework, students gained the capacity to peer beyond the "matrix", to understand that human thoughts and realities are not universally shared, but are instead products of the cultural "truths" that we are raised with. Together they questioned why quantum mechanics, the scientific foundation of modern technology, is still relegated to Chapters 27-30 in almost every Physics textbook, where the topic is either skipped entirely or quickly glossed over by teachers who are more comfortable with the 300+ year old principles of Newtonian mechanics than they are with the postmodern ideas of the "new" physics.

I believe that the interdisciplinary experiences that my students had are very well aligned with the goals of paradigm-challenging educational policies contained in bills like LD 2182. And bills like LD 2182 must continue to be introduced in order to challenge the status quo in ways that productively and positively shift our educational system closer to the equity goals that the Maine DOE supports. The dissertation that I completed last year examined race in Maine schools. It should surprise no one on this committee that the educational system in our state is struggling to address the needs of non-White community members, which in turn limits our capacity to graduate students who "understand and respect diversity", "display global awareness", and "demonstrate awareness of community health and wellness". Opponents of this bill will argue that the proposed changes cannot be made because science teachers will need more training in order to teach these concepts effectively. They will say that there are already too many standards to address. My response is that we, as a society, need to continually reflect on our values and then modify curricular materials to meet those needs. We, as educators, will always support the status quo by default if we are not pushed out of our comfort zone. LD 2182 is needed. While the contents of the bill might make middle school science teachers uncomfortable, that is not a valid reason to withdraw the bill. Teachers are great at learning and adjusting on the fly. I now teach using a curriculum that is aligned with and informed by the Next Generation Science Standards, even though a decade ago I was forced to modify my teaching approaches to adapt to the standards, and even though neither my colleagues nor I received professional development targeted on the NGSS. Please, to meet the needs of ALL residents of our state, to sustain our DEMOCRACY, and to prepare future citizens for meaningful lives as members of our GLOBAL COMMUNITY, I implore you to move forward with the core tenets of LD 2182.

Thank you for your time and service-

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