

**Testimony before the Ohio Senate Workforce and Higher Education Committee  
Wednesday, May 26, 2021**

**Relevant to Senate Bill 135, especially section 3333.0418**

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Honorable Senator Johnson and other members of the Committee:

I thank you for time to speak in opposition to the parts of Senate Bill 135 that require university programs to align with currently in-demand jobs.

First, a bit about my credentials. I hold a Bachelor in Science Education from Kent State University in 1972, a Masters in Science Teaching from John Carroll University in 1979, and a Doctor of Philosophy in Educational Foundations from Kent State University in 1994, with a focus on philosophy of science. I have taught high school science in two districts in Ohio for 35 years, and have taught Physics at Kent State University for 42 years. That would make me about 100 years old, except that those two overlapped for quite a few years. Suffice it so say that I have seen public high schools and a major university both from the practical, daily level to the broad understanding of educational theory.

Although I have many concerns with Senate Bill 135, I wish to focus on the section that requires university programs to align with jobs that are currently in high demand. We shortchange students by limiting their education to specific job training. How are any of you able to predict what jobs will be available in a student's work life, when it is estimated that half the jobs in the future have not yet even been invented? With any luck at all, students today will live long and healthy lives far into the future, and if we only equip them with skills for in-demand jobs today, what happens when those jobs are replaced by newer ones? We need to give students tools to think and to adapt, to solve problems and to innovate, and those are broader and deeper skills than to merely be prepared for current in-demand jobs.

When I taught at Roosevelt High School in Kent, my classroom was at one end of a hallway and the rest rooms were at the other. A couple of times a day as I walked to the rest room and back, I passed a display case in the Family and Consumer Sciences, the former Home Economics area. One time as students were planning for their courses for the next year, a banner in that display case proudly said, “We’re never asked, ‘Why do we need this stuff?’ because we only TEACH what you NEED.” What an insult to students, I thought – who are those teachers to know what students will need in a whole lifetime of learning and problem solving? No, what we must do as teachers is give all students as extensive and broad and deep a background as we can, because we can never know what students will need to know, but we can equip them for a long future as best we can.

The fact is that all knowledge and understanding are built, constructed in the mind of the learner. What good teachers do is to strew the students’ interior landscapes with as many bits, pieces, and partial understandings – about all fields – so that they can build their own comprehensive structures of ideas and insights. Think of a giant kit of Legos, with all kinds of cool special blocks, so rich and varied that students can make literally anything from them. You are asking us to provide them only a limited, stripped down set, a simple, basic set, that will let them build understandings for current in-demand jobs only. This bill would give students tunnel vision for a particular career, but no peripheral vision to feed creativity and innovation. In other words, you will make sure that they work and stay in the box, but prevent them from thinking outside the box. Or in still other words, you are closing doors that may lead to wonderful serendipitous discoveries.

As just one example, the daughter of the former dean of the Honors College at Kent State was my student in high school. She trained at Kent State to become an architect – which she did – but because she also cultured an interest in photography at the university, she has become a premier photographer of architectural projects, for journals and books.

Or for a more personal example, during my time as an undergraduate student at Kent State, I took a required Art Survey course and loved it so much that I took the entire Art History sequence as electives. Now in the unit I teach in my college course called Physics

in Entertainment and the Arts, I can show students examples of how artists over the centuries used light in their paintings – and I know what I am talking about – to enrich students' experience in my course.

As a teacher in the Physics Department, I understand the concerns that students and their parents have about employment after graduation. If students major in Education, or Nursing, or Engineering, or Architecture, then they know that if they pursue the path, they will be prepared for a career in teaching, or nursing, or engineering, or architecture. If they choose to major in Physics, then they become, what – physicists? Fewer than ten percent of Physics majors become professional physicists, but because the field provides a broad base of understanding and sharp problem solving skills, Physics graduates prosper well in engineering, mathematics, science writing, education, business, and even medicine and law. You would be surprised to know, I am sure, that typically the second highest scores on the MCAT and LSAT, the entry tests for medicine and law, are from Physics majors, higher than graduates from pre-medicine or pre-law curricula.

After all these years of teaching at Kent State University, my favorite course, taught hundreds of times, is called Seven Ideas that Shook the Universe. When I say that, people usually ask, seven ideas – what are they? So, quickly, 1 - that we are not the center of the universe, 2 - that the universe runs on just a few basic laws, 3 - that energy is required to make it all go, but 4 - each time we use energy, it becomes less useful, the idea of increasing entropy, 5 - that Einstein's two theories of relativity show us that what we thought were separate categories, such as time and space, or matter and energy, are actually connected, 6 - that quantum theory makes atoms, molecules, and life itself possible, along with granting us free will, and 7 - that only four forces acting on four basic particles make everything.

While there are definite ties to practical aspects of our lives, we can get along in daily enterprises quite well without knowing those seven ideas. But that would not explain why that course is among the most popular on campus.

In a recent student survey, Seven Ideas that Shook the Universe was rated higher than both wine tasting and human sexuality. Yes, we beat both alcohol and sex! And why? Because all of us spend quite a lot of time thinking about what's out there, where we came from, and what it's all about. I joke with students that I get paid to help them think more deeply about what they already think about, often, and none of it directly related to any job training.

Let me conclude with a story about a young farmer who really loved working the land. His father and his father before him had run a successful farm, and the young man had watched and learned and knew just about everything about being a great farmer – but he still wanted to go to college. His family kept challenging him, why do you want to do that, why spend the time and money for college when you already know all about farming? He finally had an answer for them – “I want to go to college to have interesting things to think about while I hoe the corn and slop the hogs.”

Senators, every career, and after reading the complexities of SB 135 I know that it applies to yours as well, every career provides many periods of the equivalent of corn-hoeing and hog-slopping. We all need interesting things to think about to develop our interior life, and to make our travel through this time on Earth more meaningful. Please let colleges and universities continue not merely helping students to make a living, but to make a life – a whole, deep, well-rounded intellectual life that will sustain them all the way along.

I thank you for attention.