

Public Testimony: Reasons for Supporting SB 219

Dear Chairman Brenner, Vice Chair O'Brien, Ranking Member Ingram, and members of the Senate Education Committee,

Thank you allowing public testimony on SB 219. I have taught mathematics for 27 years, hold advanced graduate degrees in pure mathematics and mathematics education, have been a keynote speaker at mathematics and STEM education conferences in multiple countries who perform highly in mathematics, such as Japan. I am also the current president of the Ohio Council of Teachers of Mathematics and a Professor of Teaching Excellence at Bowling Green State University. The opinions expressed here are my own as an expert in the field and not as an employee of BGSU. In my testimony I would like to provide some scientific reasons for supporting SB 219 and return the licensure grade bands to P-5 (comprehensive), 4-9 (two content areas of expertise) and 7-12 (one content area expertise). As I have spent my life considering the teaching and learning of mathematics there are two primary points of concern with the HB 33 legislation that will undermine the learning of mathematics and further set back Ohio's STEM career development.

The first concern has to do with the fact that a pk-8 grade band will exacerbate the teacher crisis with fewer future teachers coming into the profession. When someone decides to be a teacher, the vast majority of them have two important things on their minds: Age and Content. Those who are considering teaching have a specific age of child they are interested in developing which is usually one of these spans of ages: 3-5, 5-7, 8-10, 10-13, 14-18. The second thing on the minds of those considering teaching is the content they want to teach, such as: mathematics, science, social studies, language, physical education, art, music, etc. Future teachers are excited to teach the age and content they love, such as, 4th grade mathematics or 6th grade language arts. On the other hand, they do not get excited about teaching content or ages they dislike, and research shows that the teachers content preferences, even subtle ones, echo in their students and even interfere with achievement gains. Recent research by Kosko et. al. (2024) looked at hopeful future teachers' opinions on entering programs that have pk-8 (all content) licensure. The study found that 23.4% of all future teachers would have chosen not to become a classroom teacher, with attrition being most severe amongst current elementary (33%) and middle grades future teachers (18%). These findings are significant especially with already declining rates of Ohioans who want to become teachers. I realize the idea of moving to a pk-8 licensure was intended to help with the teacher shortage by allowing Superintendents and school principals to move teachers into classrooms with higher needs, however, the evidence points that this move will do the opposite and increase the teacher shortage. I furthermore predict that when teachers are moved into teaching grade levels and/or content they do not prefer, that these actions will further increase the teacher burnout rate, thus making the teacher shortage worse.

The second concern is about mathematics and STEM in Ohio. We have known for a long time, and it was well articulated during the Bush administration (USDOE, 2002) many years ago that the academic achievement of students in mathematics and science is directly related to the amount of content expertise the teachers have in these areas. A pk-8 licensure, coupled with the fact that Ohio wants all students to graduate from college with no more than 120 credit hours, means that we would try to quickly squeeze in all the content knowledge necessary for those who are teaching this vast range of ages in the areas of reading, language arts, mathematics, science, and social studies. For the teaching of mathematics alone, it is recommended that grade 4-8 teachers have *minimally* 24 credit hours of

mathematics. Then, for those teaching grades pk-3, they *minimally* have 9 credit hours of mathematics content learning. Putting these two together would mean 33 credit hours, just for the *minimal* preparation to teach mathematics from grades pk-8. Considering that language arts, science, and social studies all also require course time, it is likely that no program would be able to meet the minimal expectation of content hours while also staying under 120 total credit hours. The 120 hours would also need to include general education courses, including how to support students with disabilities. This means that in the preparation of these pk-8 teachers there would be only enough time for 9 credit hours for each content, which is less than half of the minimal expectation for such a large range of content across children of ages 4-14. This will be devastating to STEM learning of future students, including my future grandchildren, living in Ohio. The most important factor to the children's learning in the classroom is the teacher. A key to ensuring learning in mathematics and science specifically is that the teachers have the content knowledge needed to help the children learn and thrive in those difficult and rigorous courses.

For these reasons, we need to support SB 219, and return the licensure grade bands to P-5 (comprehensive), 4-9 (two content areas of expertise) and 7-12 (one content area expertise). Keeping the current licensure from HB 33 will do the opposite of what we want, which is more teachers who are prepared to teach Ohio's children about rigorous mathematics and science content. The children of Ohio, my children, and grandchildren, deserve to have us work together and find a proper solution. Thank you for your time and consideration of this matter.

Sincerely,

Dr. Gabriel Matney

BGSU Professor of Teaching Excellence (2023-2025)

Director of AEC (<https://www.bgsu.edu/academicenrichmentcamp>)

OCTM President (<https://www.ohioctm.org/>)

DEAP & DEAP CAT – Co-PI

BGCTM – Co-advisor (www.bgsu.edu/BGCTM)

MATH CAMP – Advisor (www.bgsu.edu/mathcamp)

AYA Mathematics Program Coordinator

Subject: Mathematical and Scientific Reasons for Supporting SB 219

Dear Senator _____,

I am writing to you in regard to the most recent changes to the grade band licensure for teachers that have created a new band spanning from pre-Kindergarten all the way to grade 8. As a professor of mathematics education, and more generally, a citizen of Ohio with children and future grandchildren who will live in Ohio, there are two alarming points of concern.

The first concern has to do with the fact that a pk-8 grade band will exacerbate the teacher crisis with fewer future teachers coming into the profession. When someone decides to be a teacher, the vast majority of them have two important things in their minds: Age and Content. Those who are considering teaching have a specific age of child they are interested in developing which is usually one of these spans of ages: 3-5, 5-7, 8-10, 10-13, 14-18. The second thing on the minds of those considering teaching is the content they want to teach, such as: mathematics, science, social studies, language, physical education, art, music, etc. The future teachers I speak with get excited to teach 4th grade mathematics or 6th grade language arts. On the other hand, they do not get excited about teaching in content or ages they dislike, and research shows that the teachers likes and dislikes, even subtle ones, echo in their students and even interfere with achievement gains. Recent research by Kosko et. al. (2024) looked at hopeful future teachers' opinions on entering programs that have pk-8 (all content) licensure. The study found that 23.4% of all future teachers would have chosen **not to become a classroom teacher**, with attrition being most severe amongst current elementary (33%) and middle grades future teachers (18%). These findings are significant especially with already declining rates of Ohioans who want to become teachers, which is due to wage increases not keeping up with economic pressures. I realize the idea of moving to a pk-8 licensure was intended to help with the teacher shortage by allowing Superintendents and school principals to move teachers into classrooms with higher needs, the evidence points that this move will do the opposite and increase the teacher shortage. I furthermore predict that when teachers are moved into teaching grade levels and/or content they do not prefer, that these actions will further increase the teacher burnout rate, thus making the teacher shortage worse.

Second concern in next communication:

Gabriel Matney

Dear Senator _____,

In regard to reasons we need to support SB 219, the second concern I have is about mathematics and STEM in Ohio. We have known for a long time, and it was well articulated during the Bush administration many years ago that the academic achievement of students in mathematics and science is directly related to the amount of content expertise the teachers have in these areas. A pk-8 licensure, coupled with the fact that our states want all students to graduate from college with no more than 120 credit hours, means that we would try to quickly squeeze in all the content knowledge necessary for those who are teaching this vast range of ages in the areas of reading, language arts, mathematics, science, and social studies. For the teaching of mathematics alone, it is recommended that grade 4-8 teachers have *minimally* 24 credit hours of mathematics. Then, for those teaching grades pk-3, they *minimally* have 9 credit hours of mathematics content learning. Putting these two together would mean 33 credit hours, just for the *minimal* preparation to teach mathematics from grades pk-8. Considering that language arts, science, and social studies all also require course time, it is likely that no program would be able to meet the minimal expectation of content hours while also staying under 120 total credit hours. The 120 hours would also need to include general education courses, including how to support students with disabilities. This means that in the preparation of these pk-8 teachers there would be only enough time for 9 credit hours for each content, which is less than half of the minimal expectation for such a large range of content across children of ages 4-14. This will be devastating to STEM learning of future students, including my future grandchildren, living in Ohio. The most important factor to the

children's learning in the classroom is the teacher. A key to ensuring learning in mathematics and science specifically is that the teachers have the content knowledge needed to help the children learn and thrive in those difficult and rigorous courses.

For these reasons, **we need to support SB 219**, and go back to the drawing board on satisfying the shortage of teachers as the **current legislation will have the opposite of the intentions we want**, more teachers who are prepared to teach Ohio's children about rigorous mathematics and science content. Most certainly, we should carefully and thoughtfully work together to ensure that our legislative decisions do not exacerbate the shortage any further and do not harm the quality of the teaching in our classrooms. The children of Ohio, my children and grandchildren, deserve to have us work together and find a proper solution. Thank you for your time and consideration of this matter.

Sincerely,

Dr. Gabriel Matney

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