Testimony in opposition – Steve Madler - Principal

The forthcoming dialogue is a response in opposition to the proposed bill to amend and reenact 15.1-21-01, subsection 1 of 15.1-21-02 and 15.1-21-02.2 of NDCC relating to computer science and cybersecurity as required instruction and graduation requirements. I am in a unique position to share this stance as I have degrees in mathematics, computer science, and have spent the past 16 years of my career in high school administration. I have taught high school math courses ranging from pre-Algebra through PreCalculus in high school and CIS and Statistic courses at the collegiate level. However the bulk of my teaching load was in the realm of computer programming. In the late 90's, I developed the curriculum in Bismarck Public Schools to have a ½ unit Computer Programming I course (MISO-3 course # 23012), a ½ unit Computer Programming II course (MISO-3 course # 23015), and a ½ unit of AP Computer Science A (MISO-3 course # 23580). Obviously, the curriculum has grown over the past 20 years and we now have adopted AP Computer Principles, Cybersecurity, IT Essentials, and computer hardware courses through our CTE program. The only reason I share this background is to underscore that I have a vested interest in this curriculum and have a solid understanding of the student skillset needed to grow and succeed in this curriculum.

My first positional objection to the bill has to do with supplanting required math requirements. Granted this has been a 'may' option for the past few years, but our district has roughly 45 students who take AP Computer Science every year and we have yet to have a supplant request. The reason being is that if a student truly wants to pursue preparation and a pathway to an IT career, cutting out math requirements is an incredibly negligent approach. The reason being, typical college course requirements for a computer science degree include Calc I, Calc, II, Discrete Math, Linear Algebra and Statistics. Certainly, those in the field might have opinions as to the level of impact these courses have in IT careers but colleges, Higher Learning Commissions and post-secondary advisory boards set that stage (and have well-established reasons/research for doing so) . I have no confidence that a student will be able to take Algebra I, Geometry, a computer programming/cybersecurity course and have the necessary skills to pursue a post-secondary degree in computer science.

My second positional objection to the bill has to do with the idea of 'if you don't do it in math, just use it to take care of a lab science'. Just because computer science has the word 'science' in it's name, does not insinuate that it all of a sudden becomes a lab science. I cannot imagine science, health science and engineering programs across the country would accept half of a chemistry course or half of a physics course in lieu of a computer science/cybersecurity course. In some regards, it is like saying band is a substitute for Spanish in the fine arts.

My third positional objection has to do with dilution of programming. As mentioned above, there is a skillset needed to do this work and the skillset has unique traits. To say all students will be able to show proficiency in computer programming and cybersecurity is like saying all students will run a 5 minute mile. Some can and some regardless of the accommodations or dilution of outcomes simply cannot. We have a duty to our students and stakeholders to develop an IT pathway that is robust and positions our completers to address this critical societal issue. Once it gets turned into a minimum graduation requirement for all, the reality of diminished returns shows up in spades. This statement may not be a popular statement, but you can ask any 20-40 year veteran math teacher if Algebra II is the same as Algebra II was 20 years ago and you will get an emphatic response of 'NO'. I see this being no different. We need to invest in high quality programming and need to develop the greatest minds to lead their generation through this crisis. Anything less will grow 'minimum requirement' programs; which will build generic skills; which equates to deficit skills for those pursuing this career pathway.

My last positional objection goes beyond curriculum and revolves around the crisis all ND schools face with critical staffing shortages. My current district (BPS) is the largest district in the state. We have an established program and 4 faculty who are credentialed to teach these courses (one at each high school and myself). If this were to become a requirement, we would need to find/train/hire 7.5 FTE's to make this a graduation requirement. One could argue... 'Well if you have it replace a math requirement it is a budget neutral event'... but college bound students/their parents/scholarship committees will not be satisfied with a minimalist math prep route in the name of computer science/cybersecurity. Therefore, it will not be budget neutral. Secondly, it is incredibly rare for Computer Science majors to go into the education field. That leaves the only plausible solution to emergency certify math teachers or try to credential those in the field to become CTE practitioners. A blanket certification for math teachers flies in the face of my third objection and the salaries which lure current IT professionals to leave their field to teach is not fiscally attainable.

In closing, it doesn't take much penciling out to determine what kind a fiscal impact this unfunded mandate would have on local school districts. In my district alone, there would be a $500,000 outlay of resources to accomplish the required minimum. As this gets scaled out throughout the state, the number becomes obnoxiously high and it still has not defined the overall objective/outcome other than a 'required for all minimum'. With this said, if appropriations are on the table, I would hope our elected constituents can see past this short-sighted approach and reserve funding for schools/REA's to access in order to build out and grow high quality programming for the talent which exists in all our schools.