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Abstract

Effectively integrating Science-Technology-Engineering-Mathematics (STEM) education and its impact on the economic opportunity into the culture is more important today than anyone ever anticipated. Our nation's recent economic struggles, coupled with concerns about career readiness and 21st century jobs, have refocused our attention on infrastructure – both physical and human.

Advocating STEM Education As a Gateway To Economic Opportunity

By Patrick R. Riccards

Effectively integrating Science-Technology-Engineering-Mathematics (STEM) education and its impact on the economic opportunity into the culture is more important today than anyone ever anticipated. Our nation's recent economic struggles, coupled with concerns about career readiness and 21st century jobs, have refocused our attention on infrastructure – both physical and human. At the heart of rebuilding our nation's intellectual infrastructure is a STEM-literate society, and students equipped with the STEM skills needed to succeed both in school and career.

But implementing a STEM education effort isn't as easy as it seems. To some, STEM is a retreat of education programs offered decades ago or a recast of vocational education. To others, it is something for the future rocket scientists and brain surgeons, not for every student. To overcome these obstacles, states and school districts are forced to move into a mode of advocacy and social marketing, effectively linking K-12 education and economy and demonstrating the urgency for improvement to both.

Education improvement no longer happens in a vacuum. Call it communications, advocacy, PR, or social marketing, it all comes down to effective public engagement. For education reform efforts across the nation, ultimate success is more than just educating key constituencies about their cause and goals. True success requires specific action – implementing improvements in partnership with educators and other stakeholders to boost student success, close the achievement gap, and ultimately prepare every student for the challenges and opportunities of the 21st century workforce. Such actions require us to move from informing the public to building commitment for a solution, and, finally to mobilizing around specific actions.

Making stakeholders aware of a concern like the need for STEM education is one thing. It is quite another to move the public to the more sophisticated level of informed opinion necessary to reach consensus and generate a sense of urgency that ultimately leads to the action of investing

in a K-12 STEM agenda. But this is how great education reforms move from simply good ideas to great successes.

Before we can get audiences to adopt STEM education efforts and embrace the portfolio of research and recommendations available to them, we must first make them aware of the issues at hand. The informing stage makes people aware of the issue, developing a true sense of urgency for change.

While many decisionmakers recognize that there are problems in meeting the coming workforce demands, many do not agree on what those problems may be or what actions might successfully address them. Unfortunately, too many people believe that there is nothing that can be done to fix these problems. Those states that are poised to become leaders in STEM education must convince K-12 and postsecondary education leaders, current and potential employers, state and local policymakers, and the public at large that there are solutions that will work, and solutions their communities can get behind and support.

Ultimately, we do this by showing the enormous need for reforms in "schools like mine, in classes like mine, with kids like mine." By focusing on past successes and proven-effective methods, educators can demonstrate the critical role STEM plays in our schools, economy, and community, helping make key decisionmaking constituencies understand the serious risks they face simply accepting the status quo. Thanks to groups like the National Governors Association (and a number of forward-thinking states) and the National Math and Science Initiative, such efforts are well underway.

Next, we shift into phase two -- building commitment. Once parents, educators, and policymakers recognize the problem, they are ready to commit to a meaningful solution. Transforming a general need for improvement into a public call to arms for STEM education requires understanding that these solutions are the right ones to improve efficiency and success.

Inevitably, some people will reject proposed reforms. Some will be reluctant to face and accept the trade-offs that come from choosing a specific plan of action. Opponents will try to poke holes in specific reforms. The best way to avoid this resistance is to ensure that everyone is involved in the process and that all of their concerns have been heard.

After moving beyond initial resistance, stakeholders begin to weigh their choices rationally and look to a variety of options for moving recommendations into practice. Decisionmakers need to feel that they have a range of choices and a reason to make them. Successful advocacy clarifies the pros and cons of each decision and allow time and opportunity for deliberation. In Colorado, for instance, STEM leaders are working with business leaders and the P-20 Council to explore opportunities and make specific choices to meet the state's educational and economic needs.

With that, we are finally ready to move to phase three -- mobilizing for action. Changing attitudes and informing the debate is not enough. STEM education succeeds when policymakers and community leaders are actively supporting its solutions. Once our target audiences are engaged because they believe in the merits of our position, they will need to know what we want

them to do to help accomplish these goals. So it is important that our communications and organizing efforts include specific actions – ideally actions that are easy and feasible – that supporters can take to help reach overall goals.

If history tells us anything, we know the public may agree that reform efforts are valid and will produce desired results, but may not be willing to change their behavior or adopt specific recommendations. This is temporary, though. Given time, incentives, and opportunities to consider their core values in light of challenges and needs, stakeholders can reach the final stage of full intellectual and emotional acceptance of the importance of improving education opportunity for all. Now is the best time to make sure that there is a role for everyone to play in education improvement, giving stakeholders the tools and information needed to move themselves and others from awareness to action.

Education is an industry as driven by emotion as it is by fact. As a result, too often, stakeholders decide that inaction is the best action, out of fear of taking a wrong step or alienating a specific group. That is why too many groups, causes, and reforms struggle to develop true public engagement efforts that affect real outcomes. That's where the Inform-Build Commitment-Mobilize Action model comes into play, offering education leaders one of the most effective methods to implement meaningful education solutions. Applying this model to STEM efforts is critical and will offer long-term impacts on strengthening our schools, our community, and our economy.

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