Expanding Education from STEM to STEAM
Preparing Florida's Students to Thrive in the 21st Century

High quality public education must be the foundation of every successful economic development plan. Ask a real estate agent what drives home prices and relocation decisions. Ask a developer what infrastructure requirement is essential to successful new developments. "Good schools" is invariably one at the top answers to such questions. These are micro-examples that translate to a statewide imperative: "Good schools" will attract and retain businesses. The creative, innovative workers sought in the Roadmap for Florida's Future, will not move to Florida and will not stay in Florida if they cannot educate their children in high-quality public schools.

Reliable Funding

Appropriate and consistent funding of public education is necessary for quality education. Educators and administrators waste valuable resources responding to the variable funding of education. Unfunded (or under-funded) mandates (e.g., class size requirements, physical education requirements) further hamstring educators and take the focus away from the content and quality of education. Adequate, reliable, predictable funding is the basis for a strong public education system. Backing away from micro-managing through unfunded mandates that reflect narrow interests and further hamper Florida's educators will strengthen Florida's public education system.

Arts Education: Part of the Solution

At the regional forums held to inform the revision of the Roadmap to Florida's Future, panelists and the public repeatedly voiced concern for high dropout rates, the need to prepare students to be creative, innovative workers – ready to thrive in the 21st century economy - and a call for more emphasis on arts education. These three issues fit together well as arts education can play an important role in preparing students to be agile, resourceful learners and in keeping students in school.

A recent study of Florida Department of Education* data showed that students with more arts credits have better academic performance in every curricular area and lower dropout rates. These data have been reviewed by researchers from Florida State University and University of South Florida. The strong positive correlation between arts credits and overall academic performance is irrefutable corroboration of national studies – students with more arts education perform better in all academic areas. Perhaps more important is scope of the effect of arts education - improved student performance is consistent across racial and socio-economic groups. In other words, arts education is positively correlated to higher academic achievement for the very students we struggle to reach. The arts bridge the achievement gap and lower dropout rates.

A commitment to improving education through the arts is a commitment to systemic, sequential arts education taught by certified, qualified teachers. This is much more than a monthly visit from the picture lady or a school assembly to see a performance. Quality arts education is based on the Sunshine State curriculum and includes hands-on participation in the art form. The 2009 study of Florida students referenced above, shows academic achievement for high school seniors based on arts credits earned in high school. It is important to note that students do not typically take up the arts in high school without a strong foundation in their elementary and middle schools years. So, achieving these outcomes in high school requires a commitment to elementary and middle school arts education.

Hands-On Arts Education

One of the characteristics of arts education that may explain its high correlation to achievement in other academic areas is that arts education requires student participation. Whether it be music, visual art, theatre, or dance, students must "do" the art.

Quality arts education:

- requires translation of theory and instruction into practice;
- rewards practice, persistence, and experimentation;
- requires problem-solving; and
- involves consequences for each choice.

With the necessary training for teachers and curricula and lesson plans designed to accommodate inquiry-based learning, these same skills can be developed in other subject areas. However, by its very nature, arts education is an inquiry-based undertaking. Arts educators and the arts curricula are designed for hands-on learning. Florida has a large contingent of highly qualified and capable arts educators who can provide Florida students with the hands-on learning experiences that build these fundamental learning skills.

From STEM to STEAM

In Ohio, New York and Florida, to name just three, the idea of STEAM (STEM + Arts) is bubbling up. Duval Elementary School went from an F to an A school in just one year - no small feat for a school with limited resources located in one of the poorest areas on the east side of Gainesville, Florida. Dr. Donald Pemberton, director of the University of Florida's Lastinger Center for Learning, described how Duval continues to achieve success by "infusing the arts into math and science and technology to improve student learning."

The Arts are a Core Subject

Secretary of Education, Arne Duncan released a letter in August 2009 to School and Education Community Leaders reiterating that the arts are a core subject area and should be part of every child's education. A narrow focus on STEM curriculum will crowd out other key curricular areas – including the arts, social studies, languages. A call for a balanced curriculum that educates the whole child, brings about high achievement in all areas and offers the broadest preparation for citizenship, higher education and participation in a global economy and rapidly changing world should be the goal.

Balanced Curriculum

With limited resources and limited hours in the school day, we must avoiding the tyranny of "or" and embrace the possibilities of "and." Promoting a balanced curriculum that includes arts education gives students the opportunity to develop the skills and ability to transfer knowledge from abstract to concrete as they "do" art. Aside from the valuable content of arts education, these transferable, fundamental skills prepare students to excel in all academic areas and to succeed in the 21st century.

Daniel Pink, in his best-selling book, *A Whole New Mind* gives us a new frame of reference.

> *"We are moving from an economy and a society built on the logical, linear, computer-like capabilities of the Information Age to an economy and a society built on the inventive, empathic, big-picture capabilities of what's rising in it's place, the Conceptual Age."*

In the conceptual age, logical, linear, rule-based thinking skills will still be required, but they will no longer be sufficient. In order to succeed in the 21st century we must use both hemispheres of our brains and combine the logical, linear computations with creativity, and innovative thinking. A balanced curriculum that educates the whole child combines the arts and STEM and produces STEAM.

* Florida Department of Education data report sponsored by Senator Stephen Wise and the Florida Music Educators Association was reviewed by Steven Kelly PhD of Florida State university and Victor Fung, PhD of University of South Florida. The data, reports, and additional information are available at www.faae.org Click 'advocacy' then 'evidence.'