STEMming the Tide:
STEMming Ahead By Including World Language Education

by Kathryn Murphy-Judy, Ph.D.

In my 45 years of teaching and researching on language education, I’ve concluded that collaboration yields far better results than competition. As I look around our world today, tensions run high. Yet, if there is anything we know as world language educators, people able to communicate and negotiate across troubled times and borders multilingually and multicultural are the 21st century’s greatest human resource, if not our best chance for survival. No matter how great our science and technology, if we can’t communicate competently with our seven billion neighbors, we fail the human race. What I’d like to do here, then, is tease out threads of current discourses-America’s language crisis, early childhood education, STEM and coding priorities, and technology enhanced language learning—to see if we can’t weave them into a different, stronger cloth.

This past academic year, 2016-2017, the language education community produced reports based on comprehensive data collection about the state of the field. Please click this link to see the K-12 language face of our nation: https://www.americancouncils.org/FLEREPORT (ACIE, 2016). The American Association of Arts and Sciences (AAAS) published a statistical report of U.S. language study. In its preface, it noted that our country “has neglected languages in its educational curricula, its international strategies.” (AAAS, 2016, p.3) It continues with a remark that “a dwindling number of the nation’s schools offer any language education. In academic year 2007/2008, 25% of elementary schools taught languages other than English. This marked a six percentage point drop from 1996/1997, with the largest decline at public schools." (p.9).

In the ensuing AAAS report (AAAS, 2017), the commission contends that, “As children prove especially receptive to language education . . . instruction should begin as early in life as possible. Its primary goal, therefore, is for every school in the nation to offer meaningful instruction in world languages as part of their standard curricula” (p.viii). Contrary to this goal, however, the report shows that there has been a six percent decline, from 31% down to 25%, in the number of elementary schools teaching languages other than English from 1997 to 2008, even fewer among public elementary schools with only 15% (p. 33) to the extent that Americans today “risk being left out of any conversation that does not take place in English.” (ibid.) Moreover, unequal educational access is particularly marked where it comes to world languages. The Commission warns, therefore, “This disparity of access and opportunity, mirroring other forms of systemic inequality, must be addressed immediately, beginning with a re-commitment by school administrators at public institutions in particular.” (p.34) So, this is our current reality quotient: we know we need more and earlier language instruction to keep the USA great, but as a nation we continue to trend in the opposite direction.

All schools, public and private, should be offering languages. Yet, pressures from all around the educational community and within it are focussing on science, technology, engineering and mathematics, or STEM, as is it commonly known. The thinking is that the American economy is based on human capital versed in STEM, that what really counts is the next Facebook, Tesla or genetic advance. Yes, they are important. The AAAS report notes correctly, however, that “language must be seen as complementary to, rather than as competing with, STEM,” (p.34). With only so much instructional time, competing learning needs, and limited resources, the mantra has become STEM, STEM, STEM. This, to the extent that several school systems have attempted to substitute coding for the foreign language requirement (Florida, Texas, Oklahoma, Virginia, Michigan, Kentucky, New Mexico, Washington, among others). Still, even programmers like James Previti disagree with such a move, realizing that “Computer ‘languages’ are for creating instructions for the actions of computers. Spoken languages are for the communication of ideas ... a realm not likely to be occupied by computers anytime soon. The clear communication of ideas is much more important for our race than computer instructions.” (Suhay, 2014) America faces different, necessary, and—in an ideal world—non-competitive, educational forces for the 21st century. Perhaps we need to remind those pushing STEM over all else that Darwin’s theory of evolution began in the context of linguistic change and that DNA is structured like a language. Humans think, discuss and do science, math, engineering and technology through languages.

World languages should look to the arts for another model of working with STEM. The powerful STEAM movement, led by the Rhode Island School of Design (RISD) and widely adopted, recognizes that art and design are fundamental aspects of science, technology, engineering, and math advances. It lists its objectives as: (1) transforming research policy to place Art and Design at the center of STEM; (2) encouraging integration of Art and Design in K-20 education; and, (3) influencing employers to hire artists and designers to drive innovation. ACTFL’s new movement, Lead with Languages, offers us a similar way to put languages in the heart of STEAMing forward. We might say, there is no STEAM without TEAM, and languages are central to teamwork. For the rest of this article, I’ll refer to STEAM rather than STEM, since the A team is better!
A powerful argument for early language instruction has been made over and over again in our field: bilingualism produces better brains. Moreover, these brains perform math and science better! As far back as 1989, studies were showing that elementary students taking languages scored higher on cognitive skill tests (Foster, K. M., & Reeves, C. K., 1989). Foreign Language in the Elementary School (FLES) improves cognitive skills. (FLES News, 2(3), 4.) ACTFL traces the impact of English, all-American coding can never open. STEAM, our young charges sitting in front of apps across national and linguistic borders. They are growing up in it as “natives”. Just be aware of our digital world and the fact that without so much as a coding class. This is the beauty of our digital world and the fact that underpins it. We know how to use listening, speaking, reading, writing together to introduce, scaffold, differentiate and deliver new knowledge. We have a lot to share with our colleagues in STEAM. To address the critical needs we have in America today for a globally STEAM literate 21st century, all of us must come to the table to discuss, share, innovate. Let the world language field cross the Sciences/Humanities divide, as we are trained to do, by using our world of words and our cornucopia of strategies. After all, we’re the ones who teach others to communicate and collaborate, whoever and wherever they may be.

Since we already connect globally to enrich student learning, why can’t we use similar media, techniques and technologies to connect across the hall to engage with our STEAM colleagues to help all of us move forward together, a single voice that calls for the best 21st century education for all the children.

REFERENCES

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