Tsichlis: STEM Education Needs HELP - St. Louis Post-Dispatch (MO) - May 1, 2019 - page A11
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For over a decade, the dizzying pace of scientific and technological innovation has prompted educators to place greater emphasis on instructing K-12 students in science, technology, engineering, and math, or STEM. To better meet the needs of a tech-driven workforce, Gov. Mike Parson signed a bill in October authorizing the Missouri Department of Elementary and Secondary Education to create a "STEM Career Awareness Program," that encourages students to explore those fields beginning in sixth grade.

Few challenge the need for quality education in those fields. What is often left out of the conversation, however, are the potentially challenging ethical quandaries that can result from scientific innovation. For example, many would consider it a noble goal if medical advances supported by work in genetics, nanotechnology and cybernetics produced treatments and cures that lengthen our lifespan and enhance our quality of life. On the other hand, are we willing to accept the risks to privacy and possible discrimination that go with others accessing our genetic profiles?

Expect a Pandora's Box of such questions to be unleashed in coming years. Who will benefit from such applications? Who will not? Will there be a choice? Are we prepared to relinquish such important ethical decisions to tech elites or the algorithmic conclusions of artificial intelligence itself? Is this the path for a society that claims to live by democratic values?

The challenge with today's children is how to best steer them through such ethical dilemmas. Such guideposts are readily found in the fields of humanities, ethics, literature, and philosophy, or HELP.

HELP directly ties to STEM. Corresponding to the all-encompassing, multi-disciplinary term "science," humanities refers to that broad array of studies in human experience — particularly history — that traces the trajectory of human development and its related progress, challenges, and dangers.

Paralleling technology is the study of ethics, the tools by which we understand and make moral choices. As engineering concerns the language of design, so too does literature provide the narrative language of human experiences, such as life lessons and moral dilemmas pondered in works like "I, Robot," among others. Finally, as mathematics is the study of the world by numeric precision, philosophy suggests ways to navigate the imprecise world and messy relationships between human perception and action.

The disciplines of humanities, ethics, literature, and philosophy will not only be essential to future workers in scientific research and development, but for all who grapple with the proper applications and limits to these developments in a democratic society. The emphasis is not principally to ask "How do we do it?" but rather "Whom will it benefit?", "How might it do harm?", and ultimately "Should we do it?" It's about what millennia of collective experience has shown us. It's about wisdom-building.

Science doesn't happen in a value-free vacuum. Developing a research question or hypothesis is itself an exercise laden with presuppositions based on one's priorities and values. If society is to remain built on freedom and participation — and not merely a race to keep up with advances in science, technology, engineering and math with little reflection on their consequences — HELP subjects will be essential to the K-12 education. The lessons of humanities, ethics, literature and philosophy are as vital as their STEM counterparts.

There is also a diversity of personal, family, cultural, and faith-based foundations that undergird students' ethical and moral decision-making developed outside of public schools. But K-12 students spend the bulk of their young lives in a school-based setting, and the least we can do is ensure the instruction they receive includes the fundamentals of how to make the best possible choices.

If we fail to engage our children in the discernment between right and wrong, it will be left to others to do it for them, be they corporations, government entities or the next upgrade in artificial intelligence.

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