Achieving Higher Levels of Technological Literacy: A Strategic Perspective for K-12 Education

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Given the ubiquitous presence of technology in all societies, it would seem obvious that students would learn about technology in school programs. Although there are significant national exceptions, this is not the case. My main argument is simple and straight forward. Whether the need is for more engineers or better educated students, achieving higher levels of technological literacy is an imperative for all nations, and K-12 education must play a significant role.

My perspective is strategic and opportunistic. Rather than lament the lack of engineering education or arguing for full programs for technology education, I recommend using a systemic approach and identifying favorable opportunities to increase the emphasis on technology and engineering education. Some opportunities may demand new initiatives; others may require building on current curricula. This multifaceted, systemic and strategic approach should center on appropriate national, regional, and local policies, programs, practices, and personnel. The central purpose should be to increase teaching and learning of technological and engineering knowledge, abilities, and skills for all students, K-12. Some recommendations that may be considered are:

Policies

- High school graduation requirements could include technology and pre-engineering courses.
- Teacher certification could include an introduction to technology.
- Technology should be included in international assessments such as TIMSS and PISA.
- National assessments should report on technological, knowledge, attitudes, and abilities.

Programs

- Lessons and units of study should be developed and implemented in elementary and middle schools.
- A new generation of engineering and technology programs should be developed for high school.

Practices

- Review best research available on how students learn technology.
- Implement research-based instructional strategies in the aforementioned proposed programs.

Personnel

- Professional development programs on technology and engineering education should be implemented for classroom teachers at all grade levels.

Implementing this perspective and working on it has the advantage of distributing the responsibilities and not relying on single major changes; the likelihood of happening is small. Using this strategy for a decade will be difficult, but the benefit will be higher levels of technological literacy.

References and Resources

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