Rationale for Revising the Standards for Technological Literacy

Development of the *Standards for Technological Literacy: Content for the Study of Technology* (International Technology and Engineering Educator Association [ITEEA], 2000, 2002, 2007) was undertaken in the late 1990s, with funding from the National Science Foundation and NASA. When published in 2000, the *Standards* established content guidelines and benchmarks for learning across the K-12 spectrum for technology and engineering education programs across the United States and beyond.

Standards "provide criteria that people at the local, state, and national levels can use" to make judgments about curricula, and they serve to "bring coordination, consistency, and coherence" to this process (National Academy of Sciences [NAS], 2018, para. 10). Much like the *Next Generation Science Standards* (NGSS Lead States, 2013) and the NCTM *Principles and Standards for School Mathematics* (National Council of Teachers of Mathematics [NCTM], 2000), the *Standards for Technological Literacy* have served as the basis for decision making and educational planning across a wide spectrum of school programs, districts, state departments of education, teacher certification exams, and national curriculum development efforts.

When originally published in 2000, the *Standards for Technological Literacy* established content guidelines and benchmarks for learning across the K-12 spectrum for technology and engineering education programs in the United States and beyond. However, the technologically designed world and the knowledge required to be productive in it continues to evolve. Educational leaders realize that what students should know and be able to do is different today from what was required in the past, particularly in subjects like technology and engineering that evolve rapidly.

The ITEEA and the Council on Technology & Engineering Teacher Education (CTETE) are working together to plan for this needed revision. The proposed *SfTL Revision Conference* will build upon the preparatory activities initiated in 2018 by bringing together 38 educators in August 2019 to review and refine an updated standards document, with a target publication date of early 2020 for the newly revised *SfTL*.

Now is the time to update these national content standards to make them relevant and beneficial to curriculum leaders, universities, classroom teachers, school districts, textbook writers, and technology and engineering resource developers. Board members from the CTETE and the ITEEA strongly concluded that a more rigorous process is needed to update the standards in order to provide informed guidance to the field and to better reflect the role of technology and engineering in the changing K-12 STEM landscape.

In November 2018, a survey was released to 60,000 ITEEA members and stakeholders across the world to solicit input on the *SfTL*, including the format and possible deletion or addition of standards. We received 1,443 responses including 13.4% of ITEEA members. Highlights of the survey results are provided on the next page. Additional opportunities for input on the *SfTL* revision will be provided to members in the coming year.

Thomas Loveland   Marie Hoepfl   Steve Barbato
CTETE Board, PI   CTETE Board, Co-PI   ITEEA, Co-PI

ITEEA STL Update
PreK-12 classroom teachers: how are you using the 2000/2002/2007 STL standards now?

Answer Choices	Responses	
Linking to lesson plans.	37.93%	253
Reference for curriculum development.	46.03%	307
Reference for assessment.	26.99%	180
Not using at all (never).	21.89%	146
No longer using (used them in the past).	12.59%	84
Comment(s)	11.54%	77
	Answered	**667**

Administrators/Supervisors: how is your state/district using the 2000/2002/2007 STL

Answer Choices	Responses	
Linking to lesson plans.	22.37%	17
Reference for curriculum development.	55.26%	42
Reference for assessment.	22.37%	17
Not using at all (never).	17.11%	13
No longer using (used them in the past).	11.84%	9
Comment(s)	13.16%	10
	Answered	**76**

Almost 12% of district and state supervisors report that they no longer use the SfTLs., an indication that the STLs are considered out-of-date.

Post-secondary educators: how are you using the 2000/2002/2007 STL standards now?

Answer Choices	Responses	
Linking to lesson plans.	46.94%	46
Reference for curriculum development.	65.31%	64
Reference for assessment.	42.86%	42
Not using at all (never).	12.24%	12
No longer using (used them in the past).	9.18%	9
Comment(s)	11.22%	11
	Answered	**98**

Pos

Comparison of Classroom Teachers, Supervisors and University Professor Views on STLs as Content Guides or Prescriptive Objectives

	All	Classroom Teachers	Supervisors	University Professors
Keep as Content Guides	51.12%	49.7%	50.6%	53.9%
	431	322	40	69
Develop as Curriculum or Lesson Objectives	40.18%	42.9%	34.2%	28.9%
	342	278	27	37
Other	8.7%	7.4%	15.2%	17.2%
	82	48	12	22
Total Percent	100%	100%	100%	100%
Total Responses	855	648	79	128

There was support from all three groups to keep SfTLs as content guides rather than prescriptive objectives.

ITEEA STL Update National Survey
What is your preference for the title of the new standards?

Answer Choices	Responses	
Leave it as the Standards for Technological Literacy (2000, 2002, 2007, 2020)	19.73%	193
Change it to the Standards for Technological and Engineering Literacy (2020)	35.07%	343
Change it to Technology and Engineering PK-12 Standards	0.00%	0
Change it to the Standards for Technology and Engineering Education Literacy (2020)	37.63%	368
Change it to:	7.57%	74
	Answered	**978**
	Skipped	**465**

Including engineering in the title was supported by 72.7% of the respondents.

Summary of Respondent Views on New Content Standards.

Choices	Computational Literacy	Engineering	STEM	Robotics Automation	Gaming Sci. Visual
Stand-Alone New	61.865	61.88%	40.91%	61.65%	47.98%
Not Appropriate	10.52%	3.46%	5.74%	5.09%	19.78%
Embed Language	27.63%	34.66%	53.35%	33.26%	32.24%

Three new standards had >60% support.