2007 Technology Literacy Assessment and Educational Technology Standards Report

The State Educational Technology Directors Association (SETDA) produces an annual National Trends report which documents how NCLB Title IID educational technology dollars are spent, highlighting innovations in the classroom. The findings from the 2007 report represent survey data on the NCLB IID program for Round 5 (FY06). The survey data was collected from a single respondent – in most cases the state technology director – who represented the state education agency in each of 50 states and the District of Columbia.

As part of this survey, SETDA collects data on technology literacy. One of the goals of the NCLB IID is "to assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the eighth grade, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability". This report summarizes the current condition of technology literacy in states.

SETDA also collects data on educational technology standards, which is also summarized in this report.

What is Technology Literacy?

States differ greatly in how they define technology literacy. More than half of states reported using the ISTE NETS and SETDA definitions for technology literacy.

ISTE NETS defines technology literacy as:

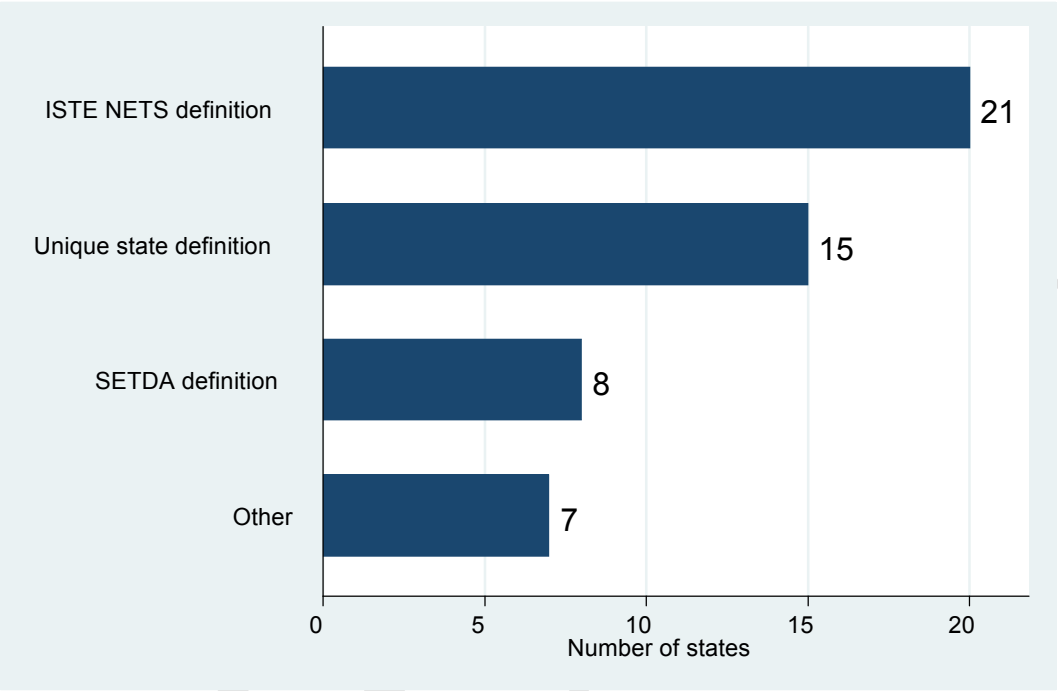
- The Technology Foundation Standards for All Students. These standards are divided into six broad categories: basic operations and concepts; social, ethical, and human issues; technology productivity tools; technology communications tools; technology research tools; and technology problem-solving and decision-making tools. Standards within each category are to be introduced, reinforced, and mastered by students.

SETDA defines technology literacy as:

- The ability to responsibly use appropriate technology to communicate, solve problems, and access, manage, integrate, evaluate, and create information to improve learning in all subject areas and to acquire lifelong knowledge and skills in the 21st century.

Twenty-one states reported that they use the ISTE NETS definition, fifteen states reported using a unique state definition, eight states reported using the SETDA definition, and seven states reported that they used another method for defining technology literacy. As indicated by the survey results, technology literacy is not uniformly defined by all states. Figure 1 shows a summary of how states define technology literacy and Figure 2 shows how *each* state defines technology literacy.

Figure 1 – Summary of How States Define Technology Literacy



Source: SETDA Fall 2007 Survey

Figure 2 – How Each State Defines Technology Literacy

State	Definition	Comment
Alabama	ISTE NETS Definition	
Alaska	Unique State Definition	Technology literacy and proficiency is the ability of an individual to use technology effectively, appropriately, and responsibly to acquire lifelong knowledge and skills.
Arizona	Unique State Definition	Ability to responsibly use appropriate technology to communicate, solve problems, create products and access, manage, integrate, evaluate, and create information to improve learning in all subjects, to use information to improve learning.
Arkansas	ISTE NETS Definition	
California	Unique State Definition	Ability to responsibly use appropriate technology to communicate, solve problems, and access, create, integrate, evaluate, and manage information to improve learning of state content standards in all subject areas and to acquire lifelong knowledge and skills in the 21st century.
Colorado	Other	SETDA definition with minor modifications
Connecticut	ISTE NETS Definition	
Delaware	SETDA Definition	

State	Definition	Comment
D.C.	ISTE NETS Definition	
Florida	SETDA Definition	Florida Technology Literacy Profile: Ability to responsibly use appropriate technology to communicate, solve problems, and access, manage, integrate, evaluate, and create information to improve learning in all subject areas and to acquire lifelong knowledge and skills in the 21st century. http://www.fldoe.org/BII/Instruct_Tech/downloads/FLTechLiteracyProfile.pdf
Georgia	Unique State Definition	Ability of students to use the tools of their society with skill in an ethical, accurate, and insightful manner to meet the demands of the 21st Century workplace and world. This includes the ability to use appropriate technology responsibly to solve problems and to create knowledge and learning by: accessing; managing; evaluating and analyzing; integrating and synthesizing; and communicating information.
Hawaii	ISTE NETS Definition	
Idaho	ISTE NETS Definition	
Illinois	Unique State Definition	Technology literate is the ability to contribute effectively in a global society through the appropriate use of technology to solve problems, to communicate, to collaborate, and to connect information, ideas, and learning.
Indiana	SETDA Definition	
Iowa	Other	Defined by each district supported by the Area Education Agency.
Kansas	SETDA Definition	
Kentucky	ISTE NETS Definition	
Louisiana	ISTE NETS Definition	
Maine	SETDA Definition	
Maryland	Unique State Definition	Technology literacy is defined as the ability of an individual, working independently and with others, to responsibly, appropriately and effectively use technology tools to access, manage, integrate, evaluate, create and communicate information.
Massachusetts	Unique State Definition	Three broad standards: Basic Operations, Concepts, and Productivity Tools; Digital Citizenship, Ethics, Society, and Safety; and Research and Information Fluency; Critical Thinking, Problem Solving & Decision Making; Communication and Collaboration; and Creativity and Innovation. http://www.doe.mass.edu/edtech/standards/itstand_draft.doc
Michigan	Unique State Definition	Technology literacy is the ability to responsibly use appropriate technology to communicate, solve problems, and access, manage, integrate, evaluate, and create information to improve learning in all subject areas and to acquire lifelong knowledge.
Minnesota	ISTE NETS Definition	
Mississippi	ISTE NETS Definition	
Missouri	SETDA Definition	
Montana	Other	The state uses TAGLIT as a measurement devise with a score of "3" or better indicating literacy.

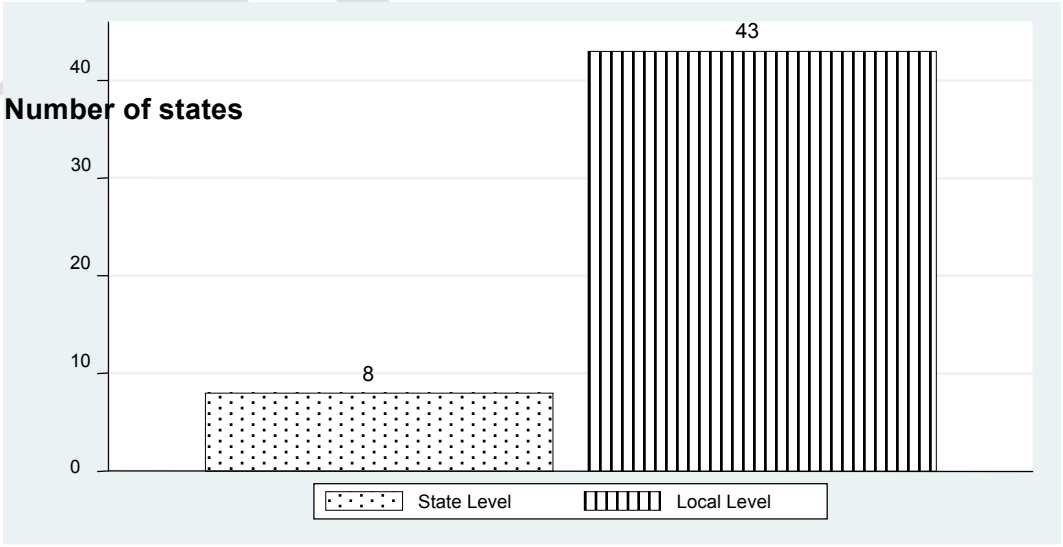
State	Definition	Comment
Nebraska	ISTE NETS Definition	
Nevada	ISTE NETS Definition	
New Hampshire	Unique State Definition	ICT Literacy Standards describe a K-12 program for all public schools. ICT is integrated with core content, students create digital portfolios, 8th grade portfolios are assessed, and 1/2 credit of ICT is required for graduation. http://www.nheon.org/oet/standards/ICTquickref.pdf
New Jersey	Unique State Definition	All students will use computer applications to gather and organize information and to solve problems. http://education.state.nj.us/cccs/?_standard_matrix;c=8
New Mexico	ISTE NETS definition	
New York	Other	Technology literacy is: 1. An understanding of the concepts behind computing equipment, network connectivity, and application software; 2. The skills to responsibly use appropriate technology to access, synthesize, evaluate, communicate, and create information to solve problems and improve learning in all subject areas; and 3. The ability to acquire new knowledge for on-going and lifelong learning in the 21st century global workplace.
North Carolina	ISTE NETS definition	
North Dakota	Unique State Definition	North Dakota has used its Library/Technology Literacy standards: research, developing products using media/technology, technological systems, collaborative skills/independent learning/personal enjoyment, and ethical, legal, and social usage http://www.dpi.state.nd.us/standard/content/tech.pdf
Ohio	Unique State Definition	Achievement of State of Ohio Technology Academic Content Standards. Seven standards: Nature of Technology; Technology and Society Interaction; Technology for Productivity Applications; Technology and Communication Applications; Technology and Information Literacy; Design; and Designed World http://www.ode.state.oh.us/GD/Templates/Pages/ODE/ODEDetail.aspx?page=3&TopicRelationID=339&ContentID=1279&Content=32802
Oklahoma	ISTE NETS Definition	
Oregon	SETDA Definition	The Oregon Educational Technology Evaluation Task Force if reviewing the definition of technology literacy in light of the release of the ISTE NETS for Students and the new State Board revisions to high school diploma requirements.
Pennsylvania	Other	Pennsylvania has not formally adopted a Technology Literacy definition; however, for the purposes of EETT, PA requires that LEA adopt local standards that meet or exceed the ISTE NETS.
Rhode Island	ISTE NETS Definition	
South Carolina	ISTE NETS Definition	
South Dakota	Unique State definition	Technology literacy is the ability to responsibly use appropriate technology to communicate, solve problems, and access, manage, integrate, evaluate, and create information to improve

State	Definition	Comment
		learning in all subject areas and to acquire lifelong knowledge and skills in the 21st century.
Tennessee	ISTE NETS Definition	
Texas	Other	Technology literacy is the ability to responsibly use appropriate technology to communicate, solve problems, and access, manage, integrate, evaluate, and create information to improve learning in all subject areas and to acquire lifelong knowledge.
Utah	ISTE NETS definition	
Vermont	ISTE NETS definition	
Virginia	Unique State Definition	The possession and use of technology skills to communicate, solve problems, and access, create, integrate, evaluate, and manage information to improve the learning of state content standards in all subject areas and to acquire lifelong knowledge.
Washington	Unique State Definition	Ability to responsibly, creatively, & effectively use appropriate technology to: communicate; access, collect, manage, integrate, & evaluate information; solve problems & create solutions; build & share knowledge; and improve & enhance learning.
West Virginia	Other	A combination of both the ISTE and SETDA definitions.
Wisconsin	SETDA definition	
Wyoming	Other	The State does have a unique definition of technology literacy, however the State also used the ISTE NETS definition to fine to fine tune the State definition.

8th Grade Technology Literacy Assessments

Forty-three states (84 percent) reported that 8th grade technology literacy assessments are conducted at the local level and not at the state level. Eight states (16 percent) reported conducting state-level 8th grade technology literacy assessments – Arizona, Hawaii, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, and South Dakota.

Figure 3 – 8th Grade Technology Assessments at the State versus Local Level



Source: SETDA Fall 2007 Survey

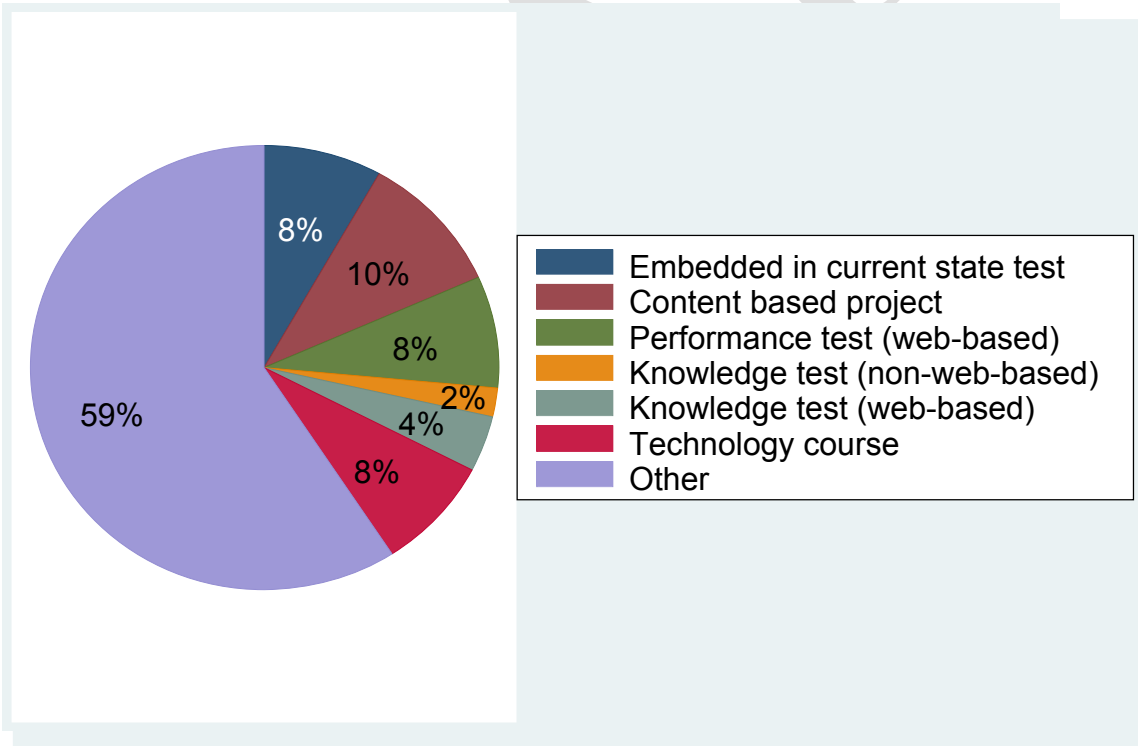
8th Grade Technology Literacy Assessments Methods

States vary widely in the methods used for conducting 8th grade technology literacy assessments. Ten percent of states reported using a content-based approach for assessing technology literacy. Four states reported that 8th grade technology literacy is embedded in overall current state assessments. Another four states reported using performance test (web-based) methods, and another four states reported using a technology course. Finally, two states utilized knowledge tests (web-based) methods and one state reported using knowledge tests (non-web-based) methods. Fifty-nine percent of states reported using a different method than the ones surveyed for assessing 8th grade technology literacy. Figure 4 shows a summary of methods used for assessing 8th grade technology literacy and Figure 5 shows the methods that each state is using for 8th grade technology literacy assessments.

Figure 4 - Methods for Conducting 8th Grade Technology Literacy Assessments

Source: SETDA Fall 2007 Survey

Figure 5 – 8th Grade Technology Literacy Assessment Methods by State



State	Method	Comments
Alabama	Stand Alone Knowledge Assessments Non-Web-Based	
Alaska	Other	Multiple methods. Some districts are standards-based

State	Method	Comments
		(QSM) and have technology standards and assessments.
Arizona	Stand Alone Performance Tests Web-Based	The state uses Tec Literacy Assessment created by Learning.com.
Arkansas	Other	Assessed by various methods at the LEA level
California	Other	Stand alone self assessment on performance and knowledge
Colorado	Other	Districts are responsible for assessing technological literacy using a state approved assessment method. Those methods are: Program based, Paper pencil, Performance based, Portfolio, Projects, Online assessment program
Connecticut	Other	LEAs choice. LEAs detail the evaluation process in their technology plans.
Delaware	Content Based Project	
D.C.	Technology Course	
Florida	Stand Alone Performance Tests Web-Based	
Georgia	Stand Alone Performance Tests Web-Based	
Hawaii	Content Based Project	
Idaho	Content Based Project	
Illinois	Other	Illinois is a local control state and it is the responsibility of the district to determine if a student is technology literate.
Indiana	Other	Schools can demonstrate through multiple methods
Iowa	Other	Checklists, observations, portfolio, tests, course completion, district developed assessment
Kansas	Other	
Kentucky	Embedded in the Current State Assessment	
Louisiana	Stand Alone Knowledge Assessments Web-Based	
Maine	Other	No one method, several
Maryland	Other	Technology literacy is not uniformly assessed in the state, although the state is working on it. Some districts conduct their own measurements using some of the above strategies.
Massachusetts	Other	Local districts decide on how to assess student literacy. Technology in Massachusetts, page 3. http://www.doe.mass.edu/edtech/etreport/2006.doc
Michigan	Other	Local decision. Districts use all assessments described except for "embedded in current state assessment"
Minnesota	Other	Local assessments based on local school district choice. Required by law to embed information and technology literacy skills within our academic content standards, impacting assessment in future years.
Mississippi	Other	The process to assess technology literacy is currently being created.

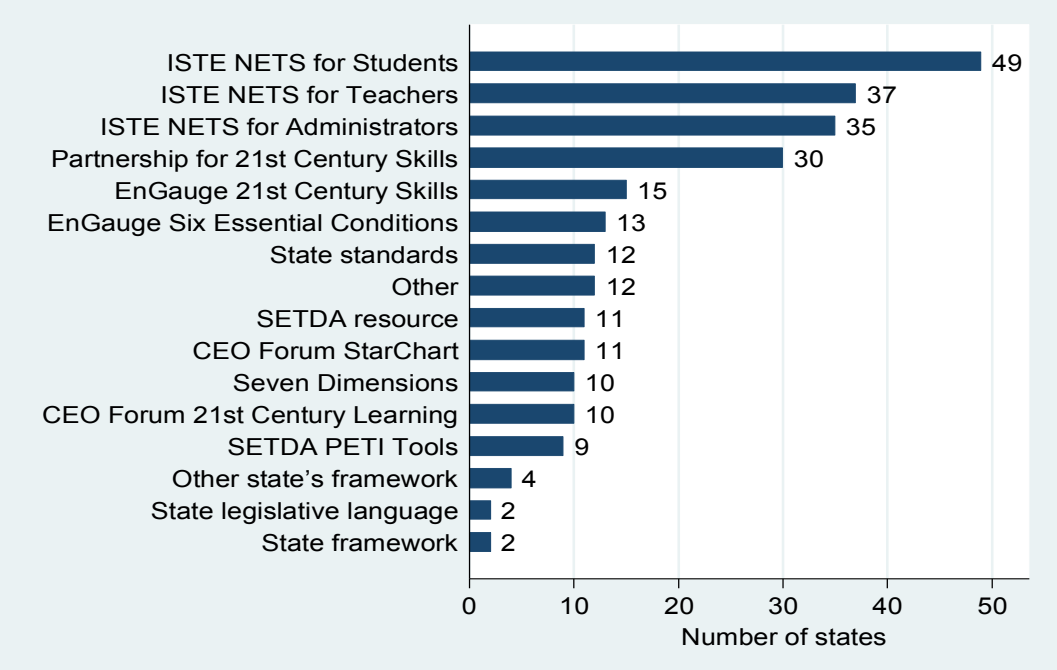
State	Method	Comments
Missouri	Content Based Project	Districts use a variety of methods with content-based projects being the most prevalent. The next widely used method is a middle school technology exploratory course.
Montana	Other	TAGLIT
Nebraska	Other	Local districts use their own assessments and the Nebraska rubric of essential technology conditions.
Nevada	Technology Course	
New Hampshire	Other	ICT Literacy Standards. ICT is integrated with core content, students create digital portfolios, 8th grade portfolios are assessed, and 1/2 credit of ICT is required for graduation.
New Jersey	Other	Local district decision.
New Mexico	Embedded in the Current State Assessment	
New York	Other	LEAs decide how they will approach the expectation of assessing students
North Carolina	Stand Alone Performance Tests Web-Based	
North Dakota	Technology Course	School districts use an eighth grade course or fully integrate technology into the curriculum in all areas.
Ohio	Other	Varies by LEA
Oklahoma	Other	Local assessments, including observations
Oregon	Other	All Competitive Grant awardees use the PETI tool for evaluating their grants. Formula districts use a variety of assessments including LoTi and district developed tools.
Pennsylvania	Other	LEA utilize multiple instruments to assess tech literacy, including all of the above plus portfolios, observations, etc.
Rhode Island	Other	As defined by the LEA
South Carolina	Stand Alone Knowledge Assessments Web-Based	
South Dakota	Embedded in the Current State Assessment	Both embedded in other content area and newly piloted stand alone test based on new ed-tech standards
Tennessee	Other	LEAs determine assessments.
Texas	Other	Not assessed at this time.
Utah	Technology Course	
Vermont	Other	A set of Performance Assessment tasks have been developed and are optionally available to schools.
Virginia	Other	The Commonwealth of Virginia assesses eighth-grade technology literacy at the state level during the computer-based Standards of Learning assessments each fall and spring. LEAs must provide information on the alignment of local technology plans to the Virginia Technology Plan, including methods for assessing computer literacy.

State	Method	Comments
Washington	Other	Determined by each district. State provides free optional Student Technology Literacy Self-Assessment Tool at http://www.edtech.wednet.edu/pilotjr/
West Virginia	Embedded in the Current State Assessment	
Wisconsin	Content Based Project	Overwhelming majority of LEAs use multiple methods. Most common are grade level subject/content base.
Wyoming	Other	Local control state. Each LEA is responsible for their own assessment, tailored to their individual needs.

Technology Standards

States provided information on what frameworks were used to guide the states' policies and standards for educational technology. Many states utilized more than one framework. The ISTE NETS for students, teachers, and administrators was used most often by states. Figure 6 shows how often the various frameworks were used to guide states' policies and standards for educational technology.

Figure 6 – Frameworks Used to Guide Policies and Standards for Educational Technology



Source: SETDA Fall 2007 Survey

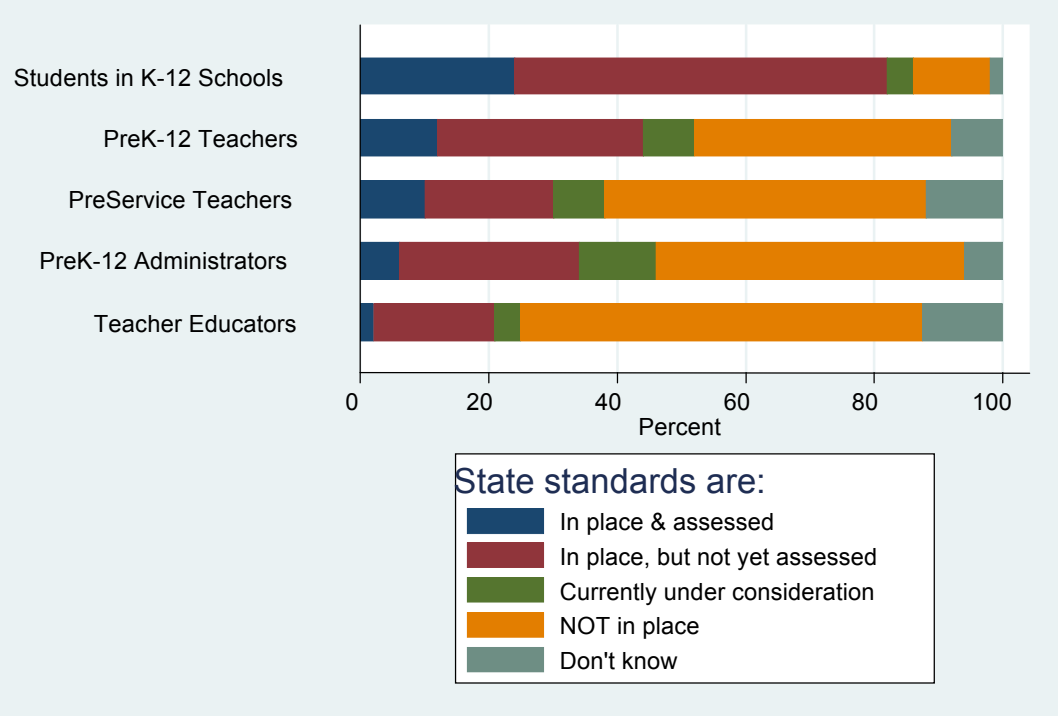
Setting and Assessing Technology Standards

Setting and assessing technology standards varies widely among students, educators, and administrators. For Students in K-12 schools, 24 percent of states have set and assessed standards and an additional 58 percent of states have standards in place, but not yet assessed. For PreK-12 teachers, 12 percent of states have standards in place and assessed and an additional 32 percent have standards in place, but not yet assessed.

Twenty-eight percent of states reported that technology standards were in place, but not assessed for PreK-12 administrators and 19 percent of states reported that technology standards for teacher educators were in place, but not assessed.

Forty percent of states reported that there are no state standards for technology for PreK-12 teachers. The trend continues with Pre-service teachers and PreK-12 Administrators, with almost 50 percent of states reporting that state standards for technology are not in place. For teacher educators, the numbers are even higher with 63 percent of states reporting that state standards are not in place (Figure 7).

Figure 7 – State Standards and Assessments for Students, Teachers, and Administrators



Source: SETDA Fall 2007 Survey

Level of State Support to LEAs when Implementing Technology Standards

Thirty-three states reported providing some type of state support to LEAs when implementing technology standards. Five states reported providing both professional development and technical assistance to LEAs when implementing technology standards. Thirteen states reported providing technical assistance to LEAs and fifteen states reported providing professional development to LEAs when implementing technology standards. Figure 8 lists the states that provide support to LEAs when implementing technology standards.

Figure 8 – Type of State Support Provided to LEAs when Implementing Technology Standards

State	Type of Support

State	Type of Support
Alabama	Professional Development
Alaska	Technical Assistance
Arizona	Professional Development
Arkansas	Both
California	Technical Assistance
Connecticut	Professional Development
Delaware	Professional Development
Florida	Professional Development
Hawaii	Technical Assistance
Illinois	Technical Assistance
Indiana	Professional Development
Iowa	Technical Assistance
Kansas	Technical Assistance
Louisiana	Professional Development
Maryland	Technical Assistance
Massachusetts	Technical Assistance
Michigan	Professional Development
Minnesota	Professional Development
Nebraska	Technical Assistance
New Hampshire	Professional Development
New Jersey	Technical Assistance
North Carolina	Professional Development
Oklahoma	Both
Oregon	Professional Development
Pennsylvania	Professional Development
Rhode Island	Technical Assistance
South Dakota	Professional Development
Tennessee	Professional Development
Utah	Professional Development
Vermont	Technical Assistance
Washington	Both
West Virginia	Both
Wisconsin	Technical Assistance
Wyoming	Technical Assistance