A Report to the 84th Texas Legislature

2014 Progress Report on the Long-Range Plan for Technology, 2006-2020

Instructional Materials and Educational Technology

The progress report is presented to the 84ᵗʰ Texas Legislature from the Texas Education Agency.

Submitted to the Governor, Lieutenant Governor,
Speaker of the House of Representatives,
and Members of the
Eighty-fourth Texas Legislature

Copyright © Texas Education Agency, 2014

About the Report

The Progress Report on the Long-Range Plan for Technology, 2006-2020 is a legislative report developed by staff at the Texas Education Agency. Contributions were made by the Education Service Center (ESC) Technology Task Force and school districts across the state.

Executive Management

Michael Williams
Commissioner of Education

Lizzette C. Gonzaléz Reynolds
Chief Deputy Commissioner

Michael Berry
Deputy Commissioner
Policy and Programs

Monica Martinez
Associate Commissioner
Standards and Programs

Kelly Callaway
Division Director
Instructional Materials and Educational Technology

Kerry Ballast
Director of Educational Technology

Educational Technology Team

Tammy L. Brite

Blair Claussen

Kathy Ferguson

Karen Kahan

Richard LaGow

Katie Woodson

Special thanks to TEA Curriculum, Educator Testing and Certification, Information Technology, and Student Assessment staff for their contributions.

Table of Contents

Introduction: The Long-Range Plan for Technology

The Long-Range Plan for Technology, 2006-2020 charts the course for educational technology in Texas and provides recommendations to various stakeholders. The vision of the long-range plan focuses on preparing students to learn, work, and live in the 21st century.

Developing a plan for educational technology through 2020 requires systematic planning and step-by-step strategies implemented over time to make the vision a reality. The Texas education system is built upon a commitment to excellence and equity, providing a quality education to all students. Rigorous curriculum standards, quality instructional materials, and comprehensive student assessments provide the framework for ensuring student success. Visionary school leaders and well prepared teachers build upon that framework to provide opportunities for students to reach their full potential.

In Texas, planning for the use of technology in education has been in place for more than 25 years. The Long-Range Plan for Technology has guided this planning.

Phases of the *Long-Range Plan for Technology, 2006-2020*

Phase I: Previous progress reports have provided accomplishments of the Long-Range Plan for Technology from Phase I, 2006-2010.

Phase II: The current phase spans the years 2011-2015.

Phase III: The final phase of the *Long-Range Plan for Technology, 2006-2020*, covers 2016-2020.

The Texas Education Code (TEC), §39.334, requires TEA to prepare and deliver to the governor, the lieutenant governor, the speaker of the House of Representatives, and each member of the legislature a technology report covering the preceding two school years and containing information on the status of the implementation of and revisions to the long-range plan. This 2014 progress report documents the state's progress and accomplishments in meeting recommendations from September 2012 through August 2014.

To gauge progress in meeting recommendations in the long-range plan, schools use the Texas Campus and Teacher School Technology and Readiness (STaR) Charts. (There are separate charts for campuses and for teachers/librarians.) Data shared by schools through the Texas STaR Charts and data provided by districts through the Texas ePlan system (the state's online technology planning system) is shared in this report to document progress in meeting the Long-Range Plan's recommendations.

Vision

Successful implementation of the long-range plan in Texas schools will result in an education system in which, by 2020, the following will have been accomplished:

Learners will	Educators will	Leaders will	Infastructure will
Use digital media content and social networking technologies to collaborate, construct knowledge, and provide solutions to real-world problems. Use research-based strategies and critical thinking in all subject areas to improve academic achievement. Use digital media and environments to communicate effectively in a variety of formats for diverse audiences. Create digital portfolios to document academic growth. Use personal, Internet-ready devices for learning.	Graduate from a preparation program that infuses current technology in instructional and administrative practices. Use technology effectively in the teaching-learning process as demonstrated by the State Board for Educator Certification (SBEC) Technology Applications Standards and integrate appropriate technology throughout all curriculum and instruction. Develop new learning environments that use technology as a flexible tool. Keep up-to-date with emerging trends and technologies and implement new teaching strategies into everyday teaching and learning.	Inspire and lead development and implementation of a shared vision for the transformation of teaching and learning using technology. Create, promote, and sustain a dynamic, technology-rich environment that provides a rigorous, relevant, and engaging education for all students. Promote an environment of professional learning and innovation to enhance student opportunities through the infusion of a variety of technologies and digital resources. Provide for the effective use of information and technology resources. Model and facilitate understanding of social, ethical, and legal issues and responsibilities related to a digital environment.	Provide equitable access to all digital technologies through ubiquitous broadband resources available 24/7 for all users at school and at home. Ensure just-in-time technical assistance to support teaching and learning. Provide for measures to ensure all data is secure and accurate. Have measures to ensure security of any device connected to the district's infrastructure. Implement the most cost-efficient approach to supporting the technology environment. Ensure uniform data standards to support the Texas Student Data System, interoperability, and accessibility for all users.

Priorities for Phase II

The following priorities were established to assist with meeting the recommendations in the long-range plan:

- Continue to refine and align curriculum content standards that reflect 21st century expertise and that take advantage of the flexibility and power of technology to reach all learners anytime/anywhere to produce graduates who are equipped to excel in the workplace and post-secondary education.

- Develop a vision and roadmap for shifting to digital learning, including the use of digital content and open education resources.

- Provide quality instructional materials aligned to content standards and deliver in print and digital formats to meet the needs of all students.

- Provide anytime/anywhere professional development for educators that models best practices for embedding digital resources into all curricular areas, for personalizing instruction, and for using data to inform instructional practice.

- Build capacity for all members of the education community to effectively use, adapt, and construct digital tools.

- Demonstrate and measure digital literacy skills of educators in all content areas as outlined in the technology applications standards.

- Adopt the mindset of career-long professional growth for educators to keep abreast of latest technology trends.

- Replace time-based staff development standards with competency-based standards including measurable performance indicators.

- Build capacity of leaders in education to use current and emerging technologies so that the educational community reflects a changing world.

- Leverage TEA digital initiatives to support learning, collaborations, professional development, and school operations.

- Eliminate barriers and provide opportunities for students and educators to use personally owned Internet-ready devices for learning and collaboration.

- Determine and implement the most cost-efficient 21st century infrastructure to support classroom instruction, virtual learning, assessment, professional development, and school operations.

- Build the architecture to sustain equitable, high-speed access for all members of the education community so that anytime/anywhere learning can occur.

New Developments

Changes in Schools and the School Environment

The school environment has seen prolific changes in technological advancements. The learning community reaches beyond the classroom walls, making it possible for students and educators to obtain knowledge and connect with others around the world. The ability to collaborate and exchange ideas is now prevalent due to the online resources available on personal computing devices. Part of the move to digital resources includes schools allowing students to bring their personal electronic devices to school and encouraging students to continue online-based learning beyond the traditional school day. Schools have also developed procedures for monitoring websites and students' access and keeping student information private and secure.

Texas Students' Wish List for Their Ultimate School

1. Access to the **Internet** school wide
2. Use of personal **mobile devices**
3. Use of **mobile apps** for education
4. A **laptop** for every student
5. Use of **online textbooks**
6. Use of **texts** to communicate
7. Educational **games** for learning
8. Use of **chat rooms** for collaborating

Data: Speak Up 2013

http://www.tomorrow.org/speakup/Texas.html

Developments in Technology and Digital Resources

The abundance of personal Internet-ready devices is changing the way individuals learn, and schools have begun to integrate these tools into the learning process. The increased access to personal devices has expanded opportunities for students and educators to learn and collaborate beyond the classroom and beyond traditional school hours. Because of this increased access, the security and privacy of an increasingly social and connected generation of students has become a top priority for many Texas districts.

Emerging technologies such as 3-D printers, games and gamification, gesture-based computing, and wearable technology are also beginning to appear in Texas classrooms. These new technologies will most likely continue to grow in popularity, and Texas districts will continue to explore new and innovative ways to educate students.

Texas teachers and students report on their access to the Internet and to devices.
Data: BrightBytes Report (data from 3,000 Texas schools participating in the fall 2014 survey)

Teachers and students experiment with new 3-D printers in Texas schools.

Changes in the Learning Environment

As technology develops, classrooms restructure into authentic, problem-based learning environments. Anytime/anywhere learning is now a reality with educators engaging students in various combinations of face-to-face and online learning experiences. Teachers have developed strategies to support new approaches to instruction and to help students succeed in the changing classroom. Digital content, open-source educational resources, adaptive learning, and global collaborations are examples of the innovations available to students in the classroom and at home.

ACCORDING TO FALL 2014 TEXAS CASE DATA:

44% students are asked to collaborate online with classmates at least monthly

30% of students are asked to write online at least monthly

48% of students are asked to identify and solve authentic problems using technology at least monthly

38% of teachers ask their students to complete online assessments at least monthly

83% of teachers spend less than 3 hours per year teaching digital citizenship

29% of teachers help select assistive technology for their students at least monthly.

Texas teachers and students report on technology-related learning tasks.
Data: BrightBytes Report (data from 3,000 Texas schools participating in the fall 2014 survey)

"Teachers are increasingly expected to be adept at a variety of technology-based approaches for content delivery, learner support, and assessment; to collaborate with other teachers both inside and outside their schools; to routinely use digital strategies in their work with students; to act as guides and mentors to promote student-centered learning; and to organize their own work and comply with administrative documentation and reporting requirements" (New Media Consortium [NMC] Horizon Report: 2014 K-12 Edition).

Developments in Business and Industry

Business and industry require an educated workforce capable of using integrated technologies and collaborative work environments. Today's workforce should understand how to employ basic digital tools in an effective, cooperative, and responsible manner. The simplest jobs now demand educated and informed digital citizens who know how to appropriately manage their digital footprint while collaborating online. During the past few years, there has been a movement of business and industry to reach out to the education entities in their communities. Recommendations in the Long-Range Plan for Technology address collaboration between private industry and K-12 schools by recommending that students have opportunities for internships and for interactions with business and industry experts.

Increased Expectations for Students and Educators

The State Board of Education (SBOE) adopted revised Texas Essential Knowledge and Skills (TEKS) in mathematics, fine arts, and languages other than English during the 2012-2013 and 2013-2014 school years. SBOE members nominated educators, parents, business and industry representatives, and employers to serve on the TEKS review committees. Each content area included student expectations that incorporated the use of technology. In addition, the TEKS for technology applications, revised in 2011, were implemented in the 2012-2013 school year.

Teachers and librarians continue to use the Technology Applications Educator Standards to gauge their progress in mastering technology skills. No Child Left Behind, Title II, Part D, requirements for educators are also still in place.

Online Opportunities for Professional Learning

In 2009, TEA launched Project Share to explore the development and delivery of high quality and ongoing professional development for educators. Since then, Project Share has continued to provide online professional development courses that encompass topics such as leadership, standards-based core instruction, and effective instructional frameworks. A listing of current professional development offerings is available at the Project Share Gateway. As of August 2014, there were over 100 online courses available to all Texas public teachers and administrators. As the following chart indicates, Texas teachers continue to expand their knowledge for both professional growth and classroom use.

Texas teachers report on their skills and knowledge in using technology.
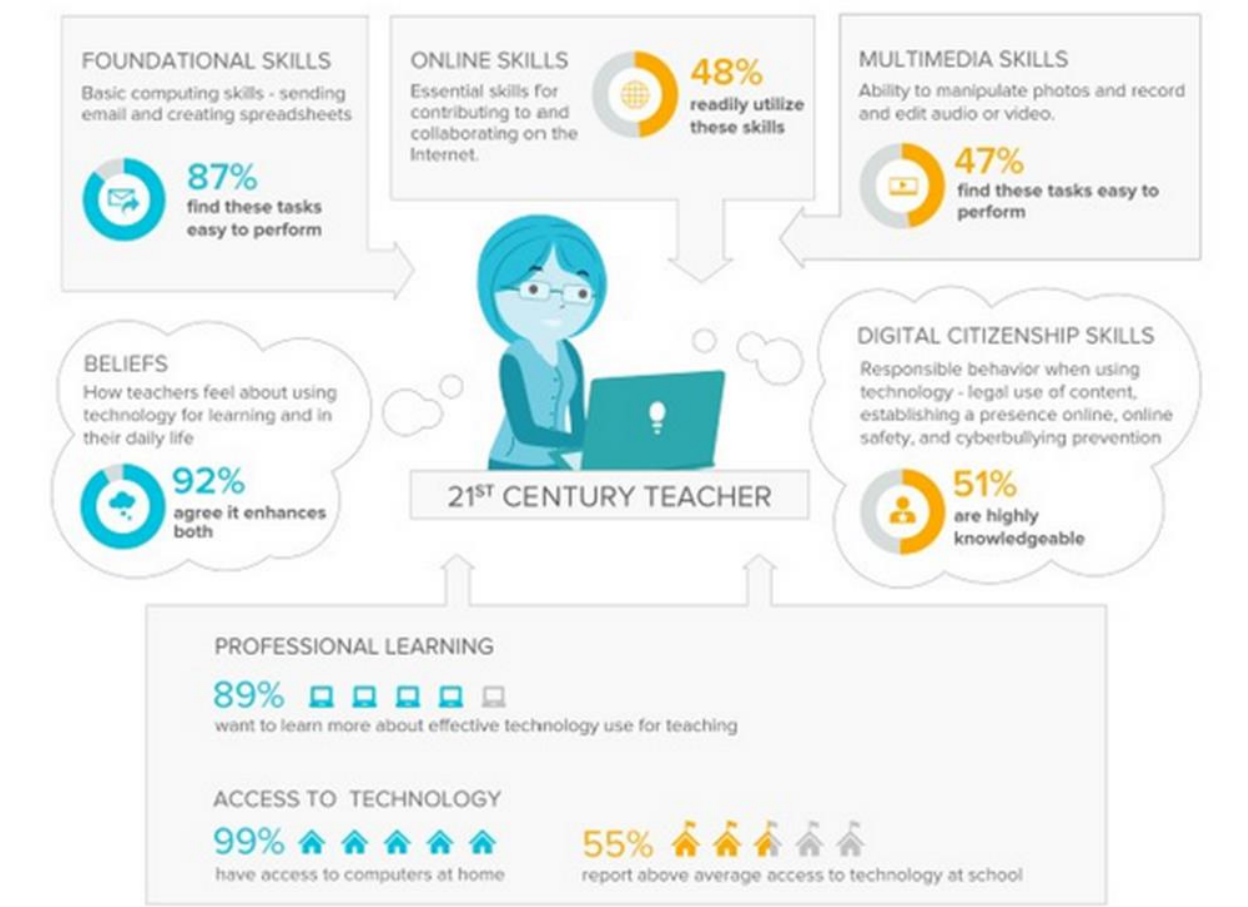Data: BrightBytes Report (data from 3,000 Texas schools participating in the fall 2014 survey)

Developments at the State Level

The 83rd Texas Legislature promoted the use of technology in schools by passing a number of laws. Examples of some of the legislation include the following:

House Bill (HB) 5 requires the SBOE to approve technology applications courses to satisfy a fourth credit in mathematics and establish an endorsement for science, technology, engineering, and mathematics (STEM).

Senate Bill (SB) 39 requires the evaluation of the need for and subsequent instruction in Braille, concept development, social interaction skills, career planning, and assistive technology, including optical devices, independent living skills, recreation and leisure enjoyment, self-determination, and sensory efficiency for students who are visually impaired.

House Concurrent Resolution 104 encourages school districts to adopt policies that promote the use of technology and technical devices in classrooms.

Finally, HB 1926 calls for a study to assess the network capabilities of each school district. The study must gather sufficient information to determine whether the network connections of a district and school campuses in the district meet the following targets:

- An external Internet connection to a campus's Internet service provider featuring a bandwidth capable of a broadband speed of at least 100 megabits per second for every 1,000 users (students and staff members)

- An internal wide-area network connection between the district and each of the school campuses in the district featuring a bandwidth capable of a broadband speed of at least one gigabit per second for every 1,000 users

Developments at the Federal Level

ConnectED

ConnectED, a federal technology initiative, has the following three charges:

- Upgrade Connectivity – Connect America's students to the digital age through next-generation broadband and high-speed wireless in their schools and libraries.

- Train Teachers – Invest in improving the skills of teachers, ensuring that every educator in America receives support and training to use technology to help improve student outcomes.

- Build on Private Sector Innovations – Allow teachers and students to take full advantage of feature-rich educational devices and high-quality educational software.

E-Rate Modernization Order

In July 2014, the Federal Communications Commission adopted an E-Rate Modernization Order designed to expand Wi-Fi networks in schools and libraries across America. The order is one of several steps in a comprehensive modernization of the E-Rate program. The order increases focus on the largest and most urgent need—closing the Wi-Fi gap—and transitions support away from legacy technologies. The E-Rate Modernization Order lists the following three goals for the E-Rate program:

1. Ensure affordable access to high-speed broadband.

2. Maximize cost-effectiveness of spending for E-Rate supported purchases.

3. Make the E-Rate application process and other E-Rate processes more simple and efficient.

Data from Schools: Texas Campus STaR Chart

The Texas Campus and Teacher STaR Charts are aligned to the four key areas of the Long-Range Plan for Technology, 2006-2020. The Texas Campus and Teacher STaR Charts can assist in measuring the impact of state and local efforts to improve student learning through the use of technology.

Schools use the Texas Campus STaR Chart to accomplish the following:

- Assist campuses in determining professional development needs based on a current educational technology profile

- Determine funding priorities based on teacher and classroom needs

- Provide data that can support the need for grants or other resources

- Help conceptualize the campus or district vision of technology

- Assist campuses in documenting the use of state and federal funding for technology

Texas Campus STaR Chart

Campus STaR Chart data indicates the status of schools in meeting the recommendations in the Long-Range Plan for Technology, showing areas of progress and areas in need of improvement. Data for the years 2012-2013 and 2013-2014 are shown below. Average Levels of Progress are as follows: Early Tech (6-8); Developing Tech (9-14); Advanced Tech (15-20); and Target Tech (21-24).

Texas Campus STaR Chart—Overall Scores in All Four Key Areas of the Long-Range Plan for Technology
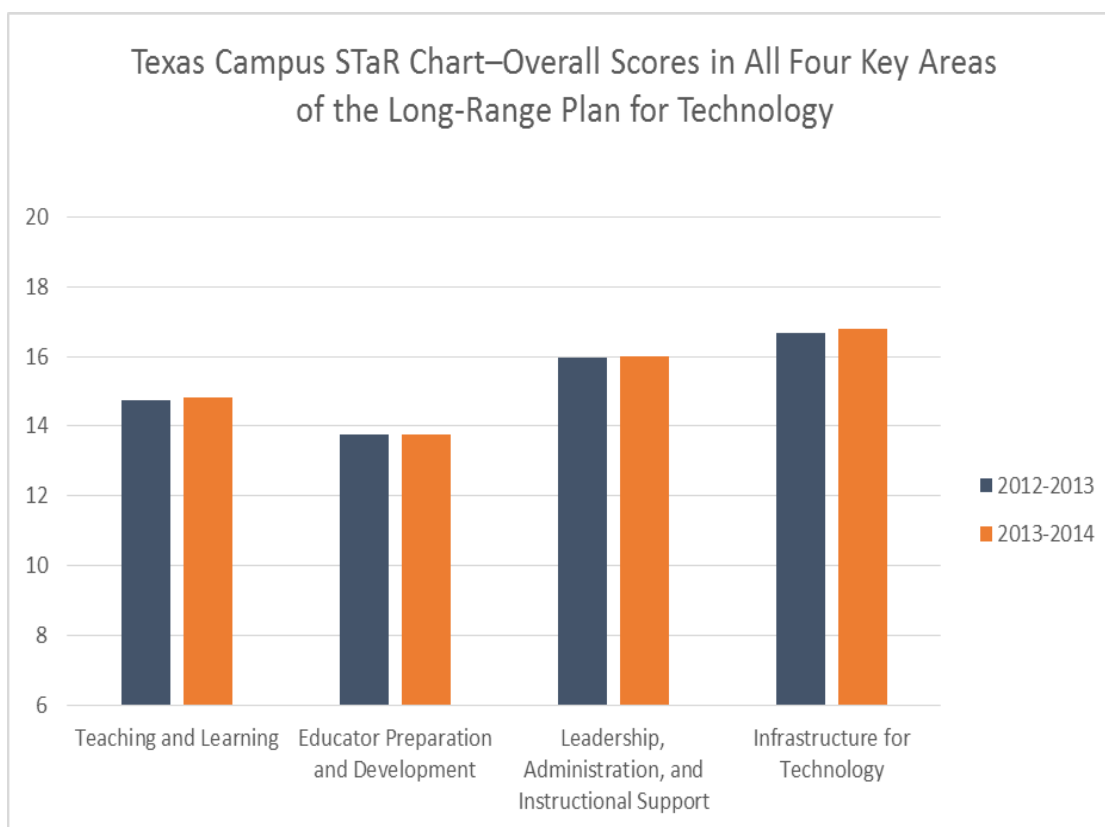
A history of Texas Campus STaR Chart data in each of the four key areas of the Long-Range Plan for Technology is shown below. Data indicates that, on average, campuses were and continue to be at or near the Advanced Tech level of progress. (Advanced Tech begins with the average score of 15.) The progress report that follows looks closely at each key area.
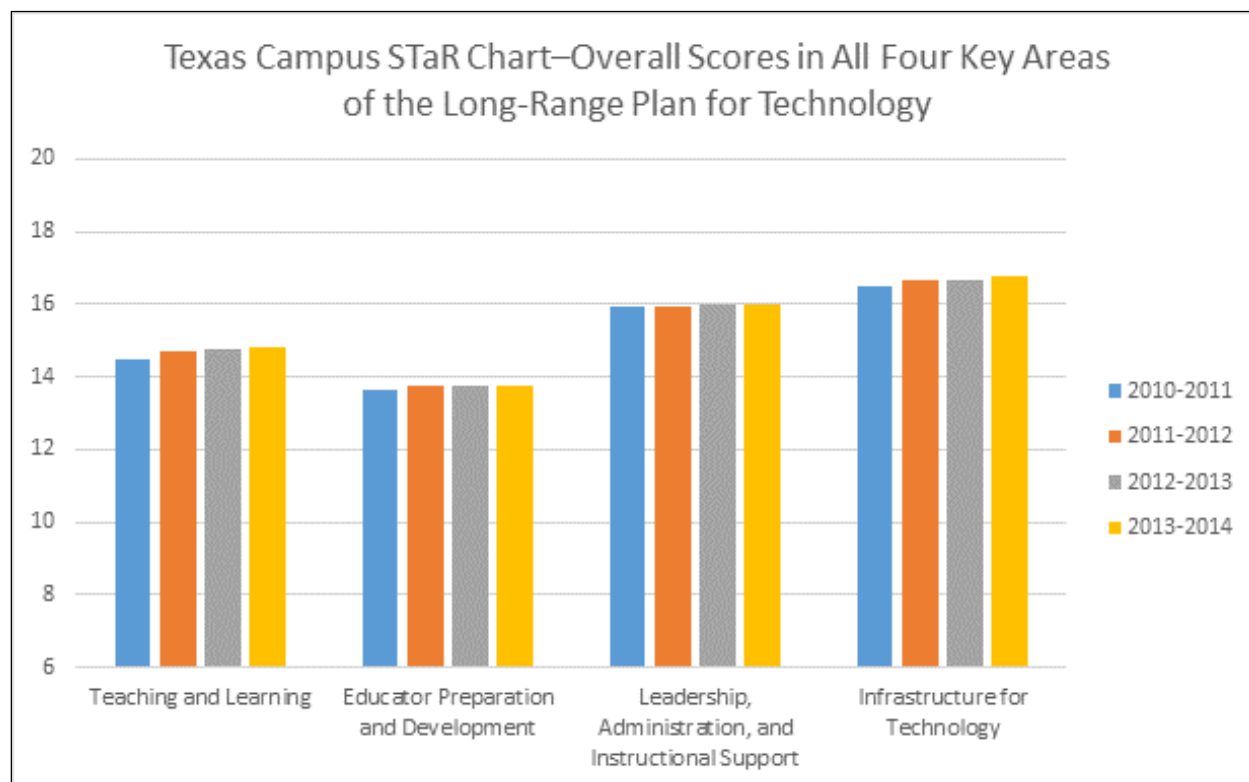
Key Area One: Teaching and Learning

Texas students come from a wide variety of backgrounds and experiences and often live many miles away from other communities. A key to success for students is full engagement in the learning process and opportunities in their schools, libraries, homes, and communities that encourage and initiate this engagement.

Technology provides tools that allow students to work, learn, and create beyond the physical boundaries of the classroom. By using resources such as online courses, cloud-based services, and digital instructional materials, educational technology can enhance students' learning environments and expand their opportunities for success. Students can also benefit from specialized software, communication aids, and assistive technology. Classroom management strategies that leverage technology, such as flipped classrooms and project-based learning, support highly interactive, engaging learning environments for students. Providing students with technological tools, digital content and resources, and sufficient access to the Internet both at school and at home helps prepare Texas students for post-secondary success.

The Long-Range Plan for Technology, 2006-2020 provides recommendations for teaching and learning to the Texas Education Agency (TEA), the State Board of Educator Certification (SBEC), education service centers (ESCs), Texas public school districts and open-enrollment charters, the Texas Higher Education Coordinating Board (THECB), and parents, community members, and private sector members. The recommendations begin on page 19 of the plan.

Data from Schools: Texas Campus STaR Chart

The Texas Campus STaR Chart produces a profile of each campus's status in reaching the goals of the Long-Range Plan for Technology. The profile indicators place a campus at one of four levels of progress in each key area of the plan: Early Tech, Developing Tech, Advanced Tech, and Target Tech. The profile indicators for Teaching and Learning are viewable on the Texas Campus STaR Chart.

Most campuses in Texas continue to improve in the Teaching and Learning key area. This chart shows the percentage of campuses across Texas at each progress level. There is overall growth at the Advanced Tech level of progress, which indicates that Texas campuses are expanding their use of digital content and technology. A breakdown of the
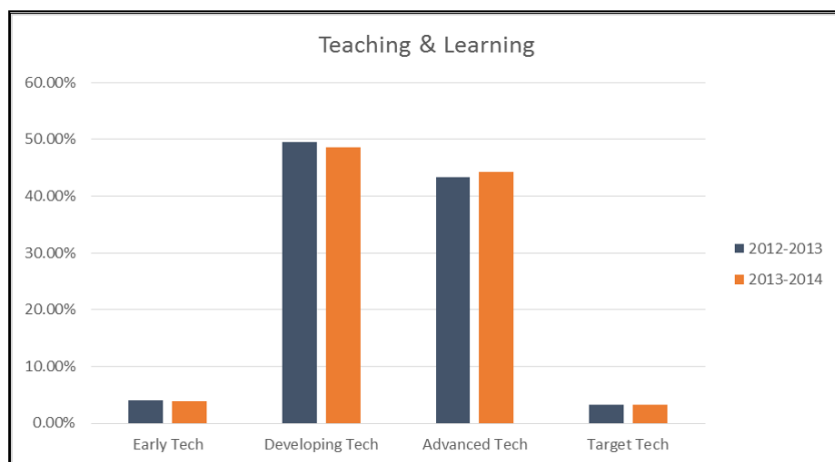
Teaching and Learning focus areas can be found in the Appendix at Teaching and Learning STaR Charts.

Standards and Guidelines

Texas provides standards and guidelines for technology applications as they apply to students, teachers, librarians, and administrators. The following table provides a list of standards and guidelines, the intended audiences, and links.

Standards and Guidelines	Links
Technology Applications for Prekindergarten Students	Prekindergarten Guidelines
Technology Applications TEKS for K-12 Students	Technology Applications Texas Essential Knowledge and Skills (TEKS), Texas Administrative Code Chapter 126
Technology Applications for All Beginning Teachers	Technology Applications Standards (I-V)
Technology Applications for Specialized Teachers and Master Technology Teachers	SBEC Technology Applications Standards (VI-XI) Master Technology Teacher
Standards for School Librarians	School Librarian Certificate School Library Standards
Technology Standards for Administrators	ISTE Technology Standards for School Administrators

State Standards and Guidelines

The purpose of the state's technology applications standards is to ensure that students and educators gain and apply critical 21st century digital knowledge and skills across the curriculum. Required by TEC, §28.002, and the Texas Administrative Code Chapter 74, technology applications provides a vertical alignment of what is expected for students from prekindergarten through grade twelve.

Digital technology standards are specified in the following:

- Technology Applications Guidelines for Prekindergarten

- Texas Essential Knowledge and Skills (TEKS) for Grades K-12

Newly revised TEKS for technology applications were implemented in schools beginning with school year 2012-2013. There are six strands for the revised technology applications TEKS. The strands are based on

National Educational Technology Standards for Students (NETS•S) and performance indicators developed by the International Society for Technology in Education (ISTE): creativity and innovation; communication and collaboration; research and information fluency; critical thinking, problem solving, and decision making; digital citizenship; and technology operations and concepts.

Process for Revision of Technology Applications TEKS	
State Board of Education members nominated educators, parents, business and industry representatives, and employers to serve on the technology applications TEKS review committees.	March 2010
Revised technology applications TEKS were adopted by the SBOE.	April 2011
Technology applications TEKS were implemented in schools.	2012-2013 school year

The Long-Range Plan for Technology, 2006-2020 recommends continued support for the implementation of the Prekindergarten Guidelines (Domain X, Technology Applications) and the technology applications TEKS for grades K-12. In addition, it identifies the need for the revision of the technology applications TEKS to ensure appropriateness of requirements over time and alignment with 21st century skills. The plan also recommends that school districts measure student mastery of the technology applications TEKS at grades 2, 5, and 8. (This recommendation aligns with requirements of NCLB, Title II, Part D).

> *"In today's world, it is not just about what we do in education but also about how we do it. We are not preparing our students for the present, let alone the future, unless our students have an opportunity on a daily basis to use a variety of technology platforms. Technology should no longer be limited to a technology class; technology is not supplemental but is a critical component for transforming learning across multi-curricular areas."*
>
> *Rosemary Kelly, Principal, Taylor ISD*

Federal Goals

NCLB Title II, Part D – Enhancing Education through Technology lists two goals that link to state technology applications standards. The two goals and how Texas addresses those goals follow.

Technology Literacy

"Assist every student in crossing the digital divide by ensuring that every student is technology literate by the time the student finishes the eighth grade, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability." Texas defines a "technology literate" student as one

who has mastered the technology applications TEKS for grades K-8 ([19 TAC, Chapter 126](#)). Data received in the [NCLB Technology Report](#) for school year 2012-2013 showed 68% of eighth graders were considered technology literate.

Curriculum Integration

"Ensure ongoing integration of technology into school curricula and instructional strategies in all schools in the state so that technology will be fully integrated into the curricula and instruction of the schools."

Teachers and librarians use technology standards (for students, teachers, and librarians) to document meeting expectations for teaching and learning with technology.

State, Regional, and District Initiatives

Coding for the Future

Spring Branch Independent School District (ISD) is moving beyond integration of technology as students design, create, and code games, graphics, and stories. The district launched an elementary school program with [Bee-Bots and Hour of Code](#) in 2013. Spring Branch ISD students gathered in [July 2014 at the Technology Training Center](#) to begin a [four-day camp](#) revolving around what many believe to be the language of the future: coding.

Spring Branch ISD is changing classrooms with computer science education, using both unplugged and online lessons. Elementary school teachers are participating in free professional development from local [Code.org](#)® affiliates. Launched in 2013, Code.org® is a non-profit dedicated to expanding participation in computer science by making training available in more schools and increasing participation by women and underrepresented students of color. Code.org® is working to reduce the gaps in access and to introduce more students to coding. Spring Branch ISD is part of that change by building computational-thinking minds and providing opportunities for students and teachers to code. As Spring Branch ISD Code Camper Ryan Stanicic states, "You can do anything you want through coding. You can build anything, create anything. It is incredible, really."

Robots in Classrooms

When the SBOE convened in spring 2014, board members got a glimpse of the future in the form of a four-foot tall white robot on wheels and the Montgomery ISD fifth grader operating the machine from more than 100 miles away. Morgan's Angels is a program operated by the Region 6 Education Service Center in Huntsville that provides VGo robots to homebound students so they can attend class–and more importantly, interact with their classmates–from home.

"They're able to participate in activities, just like if they were there," said Kip Robins, the director of the Morgan's Angels program. Robins also noted that the program is getting worldwide attention.

ESC Region 10 launched a similar program called [Reggie's Robots](#). The service center purchased five robots to start the program. Three robots were successfully piloted in May 2014, serving one student

recovering from a liver transplant, one student recovering from a serious injury, and one student with a medical condition requiring a tracheotomy. Reggie's Robots meets the recommendations in the Long-Range Plan for Technology that students have access to relevant technologies, tools, and resources and services for individualized instruction, 24/7.

Access to Online Databases

The Texas State Library and Archives Commission (TSLAC) opened registration to Texas schools for TexQuest, a new statewide database program, for the 2014-2015 school year. The program offers 15 databases, a collection of eBooks from Gale Cengage, and two historical archives of primary source materials from Adam Matthew Digital. The program offers equitable access to high-quality digital research and information resources to the state's more than five million public school students attending nearly 9,000 schools.

TexQuest provides high-quality digital resources to Texas public schools and open-enrollment charter schools that enhance teaching and learning by providing access to curated digital content for all grade levels and subject areas. The content serves as an equalizer for all Texas students, providing statewide 24/7 access to resources at a low cost to districts.

TexQuest offers information about the resources available and the training and support offered for teachers, librarians, and other school staff. As of July 24, 2014, 321 Texas school districts have signed up for TexQuest, representing over 3.5 million Texas students.

Quick Facts about TexQuest

- TexQuest assists school leaders by making significant resources available to school districts at a reduced cost, freeing up funding for other purposes.

- TexQuest provides significant instructional support by keeping students engaged with academic content for assignments.

- Students have access to reliable, authoritative, curated content that serves as an introduction to the types of resources long available in academic institutions.

- Educators also have access to high quality instructional materials beyond those found in textbooks and supplementary materials that are up-to-date and assist in enriching the curriculum.

Online Resources for Teachers, Students, and Parents

TEA also sees the promise and potential for using digital content and the online world to deliver information, training, and support to teachers, students, and parents. The following list provides descriptions and links to various statewide initiatives:

- OnTRACK Lessons for College Readiness provide no-cost, TEKS-aligned lessons to districts and teachers. The lessons may be used to supplement classroom instruction, provide extra practice beyond traditional hours, and support students in need of additional instruction and support.

- Online testing options give districts the ability to administer assessments for the State of Texas Assessments of Academic Readiness (STAAR®) program.

- The Project Share Gateway provides TEKS-aligned supplemental open educational resources, including OnTRACK lessons that can be accessed through a drop-down menu of grade-level TEKS on the Project Share landing page.

- Texas Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) assists districts and low-income/historically underserved students as they prepare for a successful transition into undergraduate programs. The GEAR UP website provides links to various resources, including the Own Your Own Future (OYOF) curriculum website for students, families, and educators, and serves as a communications and resource hub for program staff.

- Texas Education on iTunes U offers 24/7 access to free, downloadable educational content from TEA, regional ESCs, Texas universities, Texas cultural institutions, Texas K-12 public schools, and other organizations.

- The Texas Virtual School Network (TxVSN) offers supplemental high school and dual credit courses for students and provides full-time online instruction for public school students in grades 3-12.

- The Online Career and College Readiness Resource Center (OCCRRC) provides numerous resources to assist educators and counselors as they work toward preparing all students to succeed in life beyond high school.

- Texas English Language Learners Portal provides information and resources to support English language learners including assessment, compliance and accountability, and teacher certification; instructional environment; and professional development.

- Texas Success provides Texas public school students access to interactive math and reading programs in grades 3-8 under the Student Success Initiative (SSI).

- School districts must enforce a policy of Internet safety and certify compliance with the [Children's Internet Protection Act (CIPA)](#) to be eligible for E-Rate telecommunications discounts. In Texas, districts certify that CIPA has been addressed in the online ePlan system. In accordance with TEC, §38.023, TEA has developed and made available to school districts a list of resources related to [Internet safety](#).

- The [Equity in G/T Education](#) website provides tools to encourage equitable representation of student populations in G/T programs throughout the state. The site addresses both ethnic and socio-economic equity and the need of twice-exceptional students.

Key Area Two: Educator Preparation and Development

Professional learning is an essential and ongoing process that provides all educators with knowledge, skills, and classroom strategies to transform teaching and learning. All Texas educators pursue professional growth throughout their careers and, increasingly, focus on the needs of digital-age students. The growth resulting from professional development is then translated into the classroom, affecting lasting change in instruction and learning.

Professional learning supports and encourages teachers to devise new learning environments that feature instructional strategies that reflect current technology integration research, modern contexts to engage students, and assessments that effectively measure learning. Educator preparation programs can ensure that beginning teachers have a broad understanding of the many applications of technology in 21st century classrooms. Collaboration between higher education, educator preparation programs, and PreK-12 schools is essential to ensure that pre-service educators are prepared for today's classrooms.

Distance learning and telecommunication technologies are important tools for providing today's teachers and administrators with new opportunities for professional growth. As educators complete more online professional development, it is expected that they will draw from their online learning experiences and use those experiences to determine how they will use technology in their classrooms.

The Long-Range Plan for Technology, 2006-2020 provides recommendations for educator preparation and development to TEA, SBEC, ESCs, Texas public school districts and open-enrollment charters, the THECB, and parents, community members, and private sector members. The recommendations begin on page 25 of the plan.

Data from Schools: Texas Campus STaR Chart

The Texas Campus STaR Chart produces a profile of each campus's status in reaching the goals of the long-range plan. The profile indicators place a campus at one of four levels of progress in each key area of the plan: Early Tech, Developing Tech, Advanced Tech, and Target Tech. The profile indicators for Educator Preparation and Development are viewable on the Texas Campus STaR Chart.
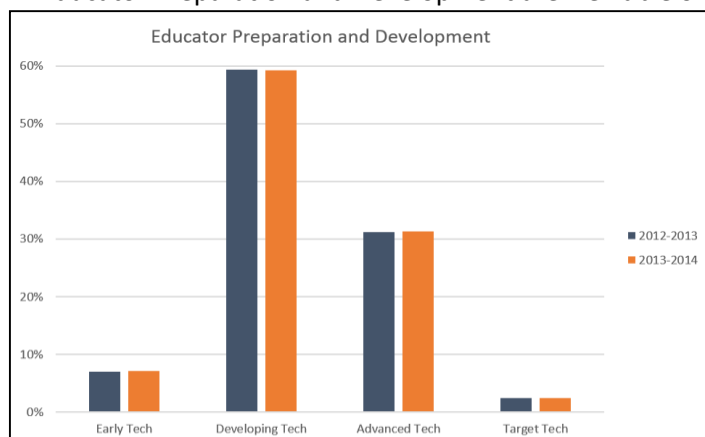
The overall percentages for the six focus areas in Educator Preparation and Development are predominantly at the Developing Tech level of progress. This chart shows the percentage of campuses across Texas at each progress level and indicates slight growth at the Advanced Tech level of progress. A breakdown of the focus areas can be found in the Appendix Educator Preparation and Development STaR Charts.

Standards

Texas provides technology applications standards for all beginning teachers. The standards, which follow, are also recommended for current teachers.

Standard I. All teachers use technology-related terms, concepts, data input strategies, and ethical practices to make informed decisions about current technologies and their applications.

Standard II. All teachers identify task requirements, apply search strategies, and use current technology to efficiently acquire, analyze, and evaluate a variety of electronic information.

Standard III. All teachers use task-appropriate tools to synthesize knowledge, create and modify solutions, and evaluate results in a way that supports the work of individuals and groups in problem-solving situations.

Standard IV. All teachers communicate information in different formats and for diverse audiences.

Standard V. All teachers know how to plan, organize, deliver, and evaluate instruction for all students that incorporates the effective use of current technology for teaching and integrating the technology applications TEKS into the curriculum.

NOTE: As of fall 2014, the Technology Applications Educator Standards are in the process of being revised.

Master Technology Teacher

Texas also provides standards for educators wishing to earn Master Technology Teacher (MTT) certification. The MTT Certificate prepares teachers to mentor other teachers and work with students in order to increase the appropriate use of technology in each classroom. Certified Master Technology Teachers play a critical role in schools as they work with teachers to ensure the best uses of technology to improve student achievement and help other teachers try new methods of enhancing curriculum with technology. They meet the following standards:

Standard I. Effectively models and applies classroom teaching methodology and curriculum models that promote active student learning through the integration of technology and addresses the varied learning needs of all students

Standard II. Selects and administers appropriate technology-related assessments on an ongoing basis and uses the results to design and improve instruction

Standard III. Applies knowledge of digital learning competencies including Internet research, graphics, animation, website mastering, and video technology

Standard IV. Serves as a resource regarding the integration of assistive technologies and accessible design concepts to meet the needs of all students

Standard V. Facilitates appropriate, research-based technology instruction by communicating and collaborating with educational stakeholders; mentoring, coaching, and consulting with colleagues; providing professional development opportunities for faculty; and making decisions based on converging evidence from research

Technology-Related Certifications Awarded				
As of 2012 and 2014				
			2012	**2014**
All Level	EC-12	Technology Applications	1,324	1,578
All Level	EC-12	Master Technology Teacher	144	136
Elementary	EC-4	Generalist (includes Technology Applications)	24,920	22,441
Elementary	EC-6	Generalist (includes Technology Applications)	19,593	23,991
Secondary	8-12	Technology Applications	504	695
Secondary	8-12	Computer Science	172	163
Professional Service	EC-12	School Librarian	1,616	1,549

District, Regional, and State Initiatives

Blended Training for District Teachers

Texas districts are continuously working with teachers to identify new ways to bring technology into the classroom and to train teachers on how to best use that technology for both personal and student learning. Boerne ISD, for example, recently partnered with Abilene Christian University's (ACU's) Connected Consulting to complete a series of professional development sessions in which Boerne teachers work with ACU staff to learn new approaches for using technology in the classroom. The training, provided through a blended model, covers topics such as developing 21st century skills, creating lessons that include new practices while meeting state standards, and managing new classrooms. Boerne ISD's first cadre, consisting of math and science teachers, began their work in 2013.

Vision, Training, and Support from Education Service Centers

Thousands of professional development opportunities have been provided by Texas's twenty ESCs over the past two years for teachers, librarians, and administrators via distance learning and face-to-face sessions. New technology information and resources are shared at meetings and in training sessions. ESC staff model best teaching practices when

conducting trainings by presenting with different devices and directing participants to current digital sites for collaboration and networking in accordance with the technology applications TEKS. Because ESCs strive to model the best uses of technology for clients, all employees are encouraged to participate in their own professional development and to become proficient in emerging technologies and applications.

Region 5 provides instructional technology services for all districts throughout its service area and beyond. Many school districts are not able to hire instructional technology staff for their district, so Region 5 staff fill that role by providing onsite support for technology integration planning, implementation, and evaluation. Region 5 staff also provide assistance in the implementation of mobile devices, addressing accessibility, purchasing, training, and policies of use for teachers and students.

After more than five years of planning and work, Region 7 ESC and Head Start Program opened the EcoLand Early Learning Center for use by Region 7 teachers, childcare professionals, and early childhood students. The center allows young students and their teachers to engage in activities designed to enhance their classroom learning through the use of a model classroom, nine interactive exhibits, and TEKS-aligned programming.

Online Professional Development for Teachers and Administrators

Like districts and ESCs, TEA recognizes the importance of training and supporting teachers as they not only master content area standards but also consider how to provide instruction and guide students in a technology-rich classroom. TEA has also noted that, just as with K-12 students, many teachers prefer to learn and access materials in online settings. The following list provides descriptions and links to examples of online, statewide professional development courses and resources accessed through Project Share:

- The ELPS Academy provides opportunities for participants to examine the English language proficiency standards (ELPS), practice writing language objectives, and identify linguistic accommodations for English language learners (ELLs) based on proficiency level descriptors (PLDs).

- Science Academies include a K-12 Science TEKS Overview and Science Academies for grades K-4 and 5-8.

- New math TEKS courses and resources introduce K-12 math teachers to the revised math TEKS and provide support materials such as vertical alignment charts, side-by-side comparison charts, and an interactive glossary to assist with the transition to new state standards. Links to the courses and resources will be posted on the TEA website soon.
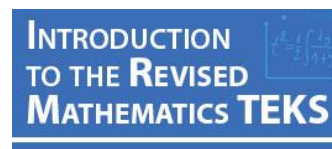
- Texas Adolescent Literacy Academies, organized as Tier 1 for all secondary content area teachers and Tiers II and III for secondary English language arts/reading teachers, promote the implementation of effective reading instruction across all content areas.

- Write for Texas, a multi-course blended training designed for secondary teachers of all content areas, provides information and activities designed to improve writing instruction in all classrooms.

- TEA also offers professional development for teachers of high school CTE courses for math and science credit. The professional development, which is organized in a series of modules, is designed for teachers assigned to teach Advanced Animal Science, Advanced Biotechnology, Advanced Plant and Soil Science, Engineering Design and Problem Solving, Engineering Mathematics, Food Science, Forensic Science, Mathematical Applications in Agriculture, Food, and Natural Resources, and Statistics and Risk Management.

Key Area Three: Leadership, Administration, and Instructional Support

Implementing and sustaining school improvement and technology innovation requires skilled and persistent leadership. District and school administrators play a key role in creating a shared vision and serve as a catalyst for change. School administrators typically conduct needs assessments to determine strengths and challenges within a district or campus and use the results of those assessments to adjust, continue, and plan for district- and campus-wide initiatives. Today, many of those initiatives include technology. As leaders, administrators must plan for, fund, implement, and assess the use of technology in classrooms. Administrators must also consider how technology is available for student, faculty, administrative, and community use beyond the traditional school environment, particularly in light of today's online instructional materials.

As models for 21st century skills, administrators collaborate with all stakeholders to develop technology plans with a shared vision. The technology plan reflects current state and federal requirements and E-Rate discounts. The plan also addresses other components such as disaster recovery, communication, infrastructure, and policies that facilitate accessibility to online materials and resources. The tables below provide insight into how Texas district administrators, including technology leaders, view the strengths and challenges of educational technology.

| **Speak Up 2013 Texas Results**
 from Texas District Administrators |
|---|
| Imagine you are designing the ultimate school for 21st century learners. Which of these tools or strategies do you think holds the greatest potential for increasing student achievement and success? (top responses) |
| Adaptive learning software which adjusts levels of difficulty and content to address student needs |
| Ability to access the Internet anywhere at school |
| Digital media creation tools such as video and audio |
| Digital content (such as databases, electronic books, animations, videos, etc.) |
| Educational mobile apps such as graphing calculators, vocabulary lists, and language translators |
| Electronic portfolios for students |
| Tools to help students and teachers organize their work by communicating, organizing assignments, and taking notes |
| Ability for students to use their own mobile devices such as smart phones and tablets at school |

Speak Up 2013 Texas Results from Texas Technology Leaders
Specific to the use of technology within instruction, besides funding, which of these issues are the most challenging for your district? (top responses)
Providing technology support to teachers
Solving digital equity issues such as ensuring student access to technology and the Internet at home
Evaluating emerging technologies for instructional use
Determining availability of technology for student use at school
Providing professional development regarding the use of technology for instruction
Incorporating student-owned devices into our network
Creating a technology vision for our school/district

http://www.tomorrow.org/speakup/Texas.html

The Long-Range Plan for Technology, 2006-2020 provides recommendations for leadership, administration, and instructional support to TEA, SBEC, ESCs, Texas public school districts and open-enrollment charters, THECB, and parents, community members, and private sector members. The recommendations begin on page 31 of the plan.

Data from Schools: Texas Campus STaR Chart

The Texas Campus STaR Chart produces a profile of each campus's status in reaching the goals of the plan. The profile indicators place a campus at one of four levels of progress in each key area of the LRPT: Early Tech, Developing Tech, Advanced Tech, and Target Tech.
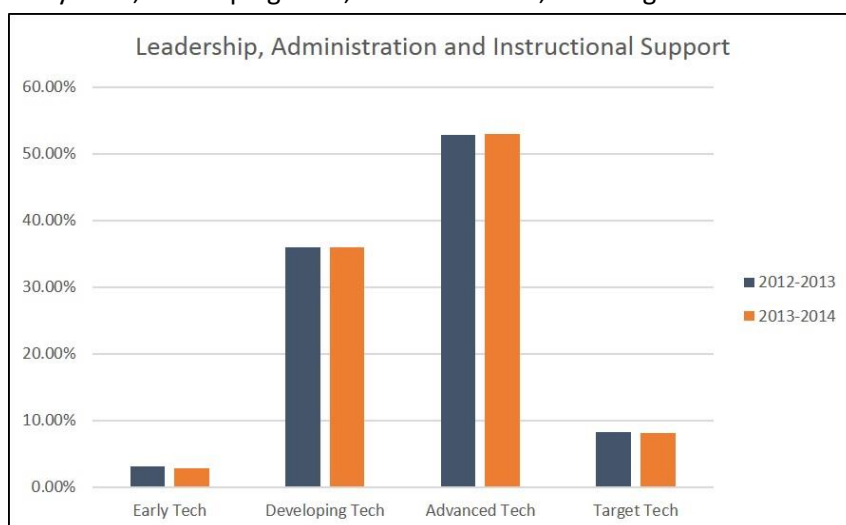
During the past biennium, the data gathered through the Campus STaR Chart for Leadership, Administration, and Instructional Support shows that the majority of Texas teachers and campuses perceive campus leadership and support to be at the Advanced Tech level. This chart shows the percentage of campuses across Texas at each progress level. A breakdown of the focus areas can be found in the Appendix: Leadership, Administration and Instructional Support.

Standards

NCLB, Title II, Part D, requires technology proficiency for administrators. These technology expectations for campus administrators should be measured and documented at the local level. When measuring proficiency, a district may use the following International Society for Technology in Education (ISTE) Technology Standards for School Administrators:

Visionary Leadership: Educational administrators inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization.

Digital Age Learning Culture: Educational administrators create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students.

Excellence in Professional Practice: Educational administrators promote an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources.

Systemic Improvement: Educational administrators provide digital-age leadership and management to continuously improve the organization through the effective use of information and technology resources.

Digital Citizenship: Educational administrators model and facilitate understanding of social, ethical, and legal issues and responsibilities related to an evolving digital culture.

District, Regional, and State Initiatives

Technology Planning in Districts

In 1988, the SBOE developed the first Long-Range Plan for Technology in compliance with TEC, §32.001. Changes in technology and changes in legislation mandated updates to the plan. In 1996, the SBOE developed the Long-Range Plan for Technology, 1996-2010 and presented it to the Legislature. The plan reflected the ongoing changes in the key areas of Teaching and Learning, Educator Preparation and Development, Administration and Support Services, and Infrastructure for Technology. In 2006, the Educational Technology Advisory Committee (ETAC) completed a revised Long-Range Plan for Technology, 2006-2020. This latest version of the plan was presented to the SBOE and approved in November 2006.

The long-range plan guides much of the technology planning occurring in Texas districts. The planning
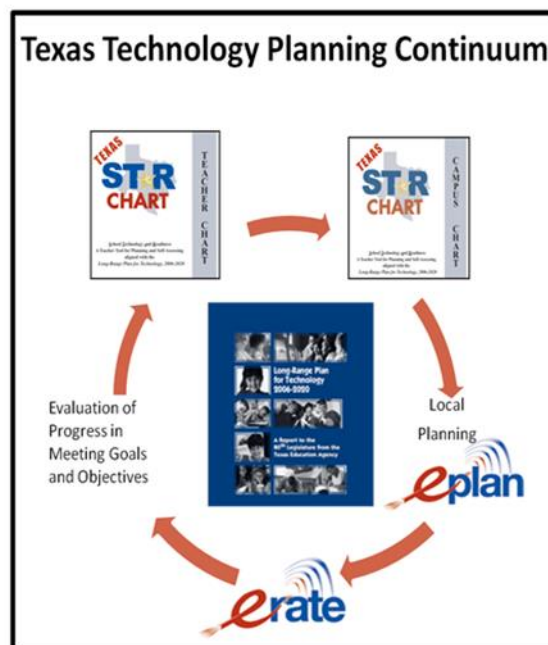
process goes hand-in-hand with the Texas Teacher STaR Chart, the Texas Campus STaR Chart, the ePlan system (for online technology planning), and the federal E-Rate program. As the previous chart illustrates, the process is a continuum rather than a timeline with a definitive start and end. At any point in the continuum, a district may be accomplishing more than one step in the planning process. The various steps are described more fully below.

The Texas Campus and Teacher STaR Charts, which are completed and submitted online, are aligned to the four key areas of the Long-Range Plan for Technology, 2006-2020. Campus STaR Charts are completed by campus principals. The Teacher STaR Chart is completed by every teacher and librarian in Texas public and open-enrollment charter schools. STaR Chart data is typically used by districts and campuses to Texas Campus and Teacher STaR Charts to accomplish the following:

- Assist campuses in determining professional development needs

- Determine funding priorities based on teacher and classroom needs

- Provide data that can support the need for grants or other resources

- Help conceptualize campus or district plans for use of technology

- Assist campuses in documenting the use of state and federal funding for technology

ePlan System

The Texas ePlan system is an electronic resource provided by TEA that assists districts and charter schools in preparing and submitting their technology plans. District technology plans must be aligned with the Long-Range Plan for Technology. The recommendations of the long-range plan guide school technology planning efforts.

Texas public school districts and open-enrollment charter schools submit their technology plans through the ePlan system. Each technology plan is peer reviewed and approved by TEA through an electronic process. Southwest Educational Development Laboratory (SEDL) developed and hosts the ePlan system. TEA provides statewide technical support for the ePlan system that remains open throughout the year.

The state's planning process guides districts as they plan for and use technology to improve teaching and learning. Districts specify strategies for meeting the recommendations of the long-range plan and requirements in NCLB, Title II, Part D. In previous years, E-Rate applicants have been required to have an approved technology plan for Priority 2 services (Internal Connections and Basic Maintenance of Internal Connections). This E-Rate requirement has been removed for the 2015-2016 school year. E-Rate information is provided in the following section.

E-Rate Program

The E-Rate program is part of the Federal Universal Service Fund (USF), overseen by the Federal Communications Commission (FCC) and implemented by the Universal Service Administrative Company (USAC). The program is funded through a fee added to telephone bills. The E-Rate program is not a grant or a formula funding program. Eligible applicants receive either discounts on their telecommunication-related bills or reimbursement of expenses paid in full from their certified telecommunications carrier.

In the past biennium, Texas public school districts, libraries, ESCs, and other eligible entities received more than $249,538,625 in discounts for telecommunication services, Internet access, basic

maintenance, and in some cases, internal connections. Because the current E-Rate funding year ends June 30, 2015, the dollar amount will continue to grow beyond publication of this report. Over the lifetime of the program, Texas entities have received approximately 10 percent of all E-Rate discounts available.

For the 2012-2013 and 2013-2014 school years, TEA provided assistance to applicants and served as a conduit between the Schools and Libraries Division (SLD) and school districts in the state. TEA also acted as the third party verifier for school district data such as new school construction, National School Lunch data, and school district and campus eligibility issues.

During the past biennium of the E-Rate program, telecommunication services and Internet access were considered Priority 1 services. All applicants were eligible for discounts on Priority 1 services. Internal connection discounts, considered Priority 2 services, were available to applicants with a higher need as determined by the number of students eligible for the National School Lunch Program. Discounts also differed on the basis of urban versus rural status. Discounts ranged from 20 to 90 percent. Applicants were required to pay for the non-discounted portion of their bills.

Under the new E-Rate Modernization order adopted in July 2014, "Priority 1" services are, for the most part, now considered "Category 1" services, and "Priority 2" services are considered "Category 2" services. Beginning with funding year 2015, only Category 2 services (Internal Connections and Basic Maintenance of Internal Connections) will be eligible for funding of up to $150 (pre-discount) per student with a funding floor of $9,200 over a five-year period. Eligible schools, school districts, and libraries may apply each year either individually or as part of a consortium. The application window normally opens in December and closes in February or March of each year.

Instructional Materials Planning in Districts

With the passage of Senate Bill 6 by the 82nd Texas Legislature, school districts and open-enrollment charter schools now receive an annual instructional materials allotment (IMA) for each student enrolled. The IMA may be used to purchase adopted and non-adopted instructional materials, technological services, and technological equipment.

The IMA has changed the way districts select and order instructional materials. The funds may be used to purchase print or digital content and to pay for personnel costs for educational technology staff to support the technological equipment used for instruction in the classroom. These funds may also be used to purchase software applications, learning management systems, professional development, wireless access points, and other components that provide access to content or contribute to the learning process.

Training, Technical Assistance, and Support from Education Service Centers

The 20 ESCs provide training and technical assistance to administrators for campus and district technology planning, budgeting, integration strategies, and data-driven decision-making. The ESCs also train and support district staff on how to access and use systems such as ePlan, E-Rate, the Public Education Information Management System (PEIMS), STaR charts, the Texas Student Data System

(TSDS), and district-selected statewide student information system (SSIS) software. ESCs also assist districts with business services such as budget, financial accounting, and payroll.

ESC staff form partnerships with colleges and universities, content providers, software companies, and educational technology vendors to offer the latest technology tools that support administration, instruction, and shared technology for systemic improvement in teaching and learning. Collaborative partnerships are developed with experts in the field through networking to share current technology trends with administrators and coordinators and to maintain a network for sharing best practices of technology integration models.

Instructional Decisions Made through Technology

The TEA Information Technology Services (ITS)/Statewide Education Data Systems (SEDS) department accomplished many of the following long-range plan's recommendations:

Recommendation 1. Provide leadership and vision in planning for the effective integration of technology into teaching, learning, school, and district operations.

- TEA's new studentGPS® Dashboards integrate performance data and technology in the classroom. In the past, TEA has collected PEIMS data but was not able to return that data to teachers fast enough or in a sufficiently flexible format to be useful in the classroom. The studentGPS® Dashboards allow teachers access to their own data in dashboards that perform formatting and calculations that can help educators spot trends and opportunities for improvement. The information provided through the dashboard allows teachers to tailor their instruction to individual student needs as those needs arise.

- The new emphasis on returning data to educators is one example of TEA's leadership. Another example is the degree of collaboration between the agency and the end users that has resulted from the project. TEA engaged LEA administrators and educators from the earliest stages of the TEA Data Collection Analysis and Reporting System Investigation (TDCARSI) research project. The level of collaboration ensured that the agency is able to provide technology that will benefit the LEAs and will be what they want to use.

Recommendation 2. Provide electronic information and tools to support the adoption of digital instructional resources and technology-based tools and services.

- The collateral, website, and digital tools help LEAs adopt and get the most from TSDS applications.

- The Information Technology Services/Statewide Education Data Systems (ITS/SEDS) training group uses the Texas-wide Project Share platform and the TSDS public-facing website to make materials and tools available to all teachers and administrators throughout the state.

Recommendation 3. Require and support quality planning by school districts through the continued use of statewide technology planning resources including, but not limited to, the Texas Campus and Teacher STaR charts and the Texas ePlan system.

The studentGPS® Dashboards allow LEA administrators to track their teachers' credentials and attendance, helping them to spot deficiencies and make adjustments to improve performance.

Recommendation 6. Develop and maintain secure information access, confidentiality policies, and electronic access to non-secure data files.

- All TSDS systems are FERPA and HIPAA compliant.

- TSDS uses a proven commercial-off-the-shelf security system (TIM/TAM) to ensure that TEA follows industry best practices to secure the data. Only users who have been authorized by local LEA or ESC authorities can access the system, and they can only see those components of the system and those categories of data for which they have been given permission.

- TEA can only access data on a limited support basis and only when given formal permission through the TIMS system by the requesting LEA.

- All TEA support staff sign a data-use agreement that obligates them to comply with industry best practices on information security. In addition, TEA uses the Web Intelligence for Business Objects tool (WebI), which only allows authorized staff to query the data that they have confirmed in TIMS as being essential to resolve a specific incident. This access is temporary, constrained, and logged for security.

- Unique ID (UID) was implemented by TEA to ensure privacy and information protections of data. UID uses complex and powerful algorithms to ensure that each student has only one UID and that each student is correctly matched to his UID when he moves from one school or LEA to another, or when he moves in and out of the state or country. By providing a reliable, stable identifier, TEA and LEAs are able to move away from using social security numbers in their systems, placing confidence in the uniqueness and accuracy of the UID instead.

- TEA further provides blanket protection by masking all but the last 4 digits of social security numbers in PEIMS and by using the new UIDs as primary identifiers, rather than social security numbers.

- At the organizational level, TEA has hired an information security officer (ISO) who is dedicated to the security of information and who is responsible for responding to and resolving audit findings.

Recommendation 8. Encourage compliance with interoperability and accessibility data standards to ensure data integrity and economic efficiencies in technology purchases.

- The TSDS Education Data Standards (TEDS) are based on national Ed-Fi data standards that were adapted for the needs of Texas.

- TSDS allows LEAs to load data one time. That data can then be used by the LEAs to fulfill multiple data collection needs. For example, Early Childhood Data System data is now being used in studentGPS® Dashboards for participating LEAs.

- TSDS provides three opportunities to clean data: locally, using the downloadable Validation Tool; upon load to the Operational Data Store, which runs its own validations; and upon promotion to individual programs, like PEIMS, which run program-specific validations.

Recommendation 9. Require compliance with the accessibility standards outlined in Section 508 of the Rehabilitation Act, as a requirement for the interoperability of all software, assessments, or other programs that are required or funded by the state.

- TSDS has practiced an unprecedented level of collaboration with the TEA Web Administration Team (which enforces 508 compliance) during design, development, and testing. The web administrators reviewed the requirements for the TSDS Portal, helped select a web design vendor, helped implement the TSDS public-facing website, worked with the PEIMS development team to identify 508-friendly development tools, and trained TSDS testers to test TSDS components for accessibility compliance.

- Based on best practice, the TSDS Portal requirements specify an extra level of accessibility and usability beyond the baseline 508 standards required by TEA.

Recommendation 12. Design and implement education initiatives with business and industry.

- As described in Recommendation 1, TEA has been engaged in local learning communities since the beginning of the TDCARSI research project, an approach that has intensified as the system itself has grown. TEA has also connected with ESC staff, LEA administrators, educators, superintendents, and vendors at various conferences throughout the state and via webinars.

- In addition to these state-focused activities, TEA has also been a leader on the national level, where Texas's statewide longitudinal data system (SLDS) is a model for other states due to its size, complexity, and the stage of implementation that it has reached. TEA has presented its goals, methodologies, and lessons learned at national SLDS symposia for the past five years.

- In addition to these SLDS-focused forums, TEA has also participated in studentGPS® Dashboard panels at Austin's SXSW education conference, allowing TEA to reach a diverse national audience.

Key Area Four: Infrastructure

Texas has made progress in connecting schools to each other, to external resources, and to the Internet. Educator and student use of the Internet as a major resource is now an education standard. Texas requires a truly high-performance infrastructure to take advantage of new technologies, significantly reduce costs, increase student access, and improve communication and collaboration among all stakeholders.

A 21st century infrastructure offers high-speed connectivity among schools, colleges, medical facilities, libraries, businesses, and homes and provides ample digital tools and resources for all learners. A robust statewide infrastructure is critical in providing access to all learners. Districts should have an infrastructure that is safe and secure, flexible, scalable, and reliable. The campus infrastructure needs to integrate voice, video, and data and have the capacity to host large volumes of digital content and powerful applications. This kind of infrastructure allows schools to meet the high expectations of technology-savvy students with anytime/anywhere connectivity. It also provides easy access to tools that allow students and educators to access online information and materials, do collaborative work, and broadly share resources.

The Long-Range Plan for Technology, 2006-2020 provides recommendations for infrastructure to TEA, the SBOE, ESCs, Texas public school districts and open enrollment charters, the THECB, and parents, community members, and private sector members. The recommendations begin on page 37 of the plan.

Data from Schools: Texas Campus STaR Chart

The Texas Campus STaR Chart produces a profile of each campus's status in reaching the goals of the long-range plan. The profile indicators place a campus at one of four levels of progress in each key area of the plan: Early Tech, Developing Tech, Advanced Tech, and Target Tech.
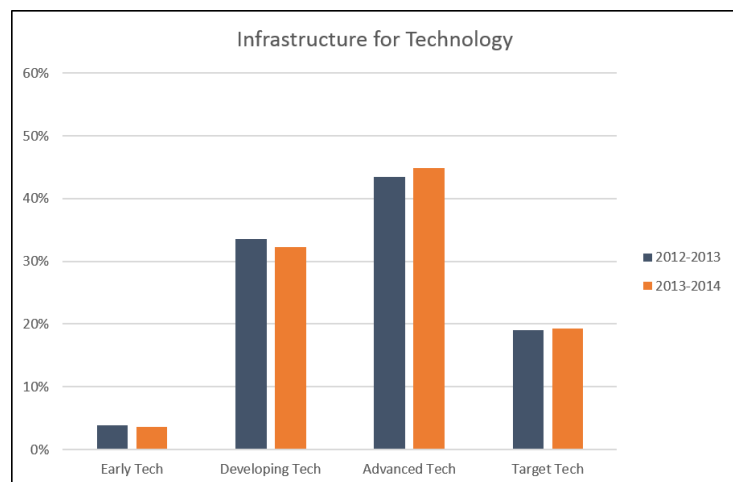
The data gathered through the Campus STaR Chart for Infrastructure for Technology shows that the majority of Texas campuses evaluate themselves at the Advanced Tech level. This chart shows the percentage of campuses across Texas at each progress level. A breakdown of the focus areas can be found in the Appendix: Infrastructure.

Texas Education Telecommunications Network

The Texas Education Telecommunications Network (TETN) connects over 225,000 students annually to museums, libraries, and communities. Students engage in learning activities sponsored by Texas-based entities such as the Sam Houston Memorial Museum, the Bob Bullock History Museum, Perot Museum of Nature and Science, Amon Carter Museum of American Art, the National Cowgirl Museum and Hall of Fame, and the Fort Worth Zoo.

The TETN is the backbone that supports over 10,000 students annually in dual-enrollment and high school courses delivered through the network. Students are able to participate in high school courses that are not offered in their own districts to receive credit toward earning their diplomas. Dual credit courses provide students opportunities to earn higher education credit hours while attending high school.

TETNPlus Network

Beginning in 2007 with the initiation of the TETNPlus project, TETN began building gigabit connections to provide a high-speed, high-capacity backbone as recommended in the Long-Range Plan for Technology, 2006-2020. Implemented and shared Internet2 services were established by using the infrastructure of the Lonestar Education and Research Network (LEARN). Internet2 is a high-performance network that supports education and research missions of 221 U.S. universities and 35 state research and education networks.

In order to meet the continuously growing need for high-speed broadband capacity, the TETNPlus network has upgraded the core of the network to 10 gigabits Multi-Protocol Label Switching (MPLS). This upgrade establishes the foundation for network members to add capacity of up to 10 Gigs at their locations. The TETN-managed MPLS-based optical network allows members to share data with enhanced performance on a more reliable and efficient network. Benefits of the network include the following:

- Access to Internet bandwidth at significantly reduced rates

- Direct access to state colleges and ESCs and their services, allowing for the removal of dedicated circuits for significant cost savings

- Shared applications and services among ESCs without bandwidth constraints or quality of service issues via the private intranet

Video Services

Using the TETN video network, the state's 20 ESCs provide Interactive Video Conferences (IVC) to classrooms across the state. IVC is used to provide dual-credit and graduate courses, professional development, certification programs, TEA updates, and student programs. The TETN video network assisted state education entities in 2012-2014 in the following ways:

- Bridging over 300 TEA updates

- Providing connectivity for over 2,800 adults to participate in graduate and certification courses

- Connecting more than 95,000 teachers and administrators for professional development workshops, meetings, or trainings

- Enabling over 20,000 students to earn credit through dual-enrollment courses and high school courses offered over the network

- Providing connectivity for over 450,000 students across Texas to interact with museums, libraries, zoos, and other electronic field trip opportunities

Broadband Access Plan

In 2010 the National Broadband Plan was adopted by the Federal Communications Commission (FCC) to increase the role of broadband in America. The plan set six overarching goals that addressed areas of affordability of access, equality of access, minimum gigabit service for anchor institutions such as schools and hospitals, and an interoperable public safety network and broadband to track real-time energy consumption. Success of the plan may result in 19 million American households and businesses having affordable access to broadband by 2020. The plan recognized that broadband enables improvement in public education by supporting online learning, facilitating flow of information among teachers, parents, schools and other organizations, and improving decision-making tied to each student's needs and abilities. To those ends, the plan included recommendations to upgrade the FCC's E-Rate program to increase flexibility for obtaining broadband, to promote digital literacy, and to foster adoption of electronic educational records. Steps towards upgrading the E-Rate program are described in the following sections.

E-Rate Modernization Order

In July 2014, the Federal Communications Commission adopted an E-Rate Modernization Order designed to expand Wi-Fi networks in schools and libraries across America. The order is one of several steps in a comprehensive modernization of the E-Rate program. The order increases focus on the largest and most urgent need—closing the Wi-Fi gap—and transitions support away from legacy technologies.

Recommendations to Address K-12 Educational Infrastructure Needs

The Broadband Imperative developed by the State Educational Technology Directors Association (SETDA) provides specific recommendations for broadband capacity.

Broadband Access for Teaching, Learning and School Operations	2014–2015 School Year Target	2017–2018 School Year Target
An external Internet connection to the Internet Service Provider	At least 100 Mbps per 1,000 students/staff	At least 1 Gbps per 1,000 students/staff
Internal wide area network (WAN) connections from the district to each school and among campuses within the district	At least 1 Gbps per 1,000 students/staff	At least 10 Gbps per 1,000 students/staff

State Activities on Broadband

District Network Capabilities Study

In 2013, the 83rd Texas Legislature passed HB 1926, which called for a broadband study to assess the network capabilities of each school district. The study must gather sufficient information to determine whether the network connections of a district and campuses in the district meet the following targets:

- An external Internet connection to a campus's Internet service provider featuring a bandwidth capable of a broadband speed of at least 100 megabits per second for every 1,000 students and staff members

- An internal wide area network connection between the district and each of the school campuses in the district featuring a bandwidth capable of a broadband speed of at least one gigabit per second for every 1,000 students and staff members

The study must be completed no later than December 1, 2015. Plans are for a survey designed to collect the required information to go to public school districts and open-enrollment charter schools in fall 2014.

Connected Texas

Connected Texas is a subsidiary of Connected Nation and operates as a non-profit in the state of Texas. Connected Texas was commissioned by the Texas Department of Agriculture to work with all broadband providers in the state of Texas to create detailed maps of broadband coverage in order to accurately pinpoint remaining gaps in broadband availability in Texas. The following are some of Connected Texas's Resources:

- Broadband Landscape (detailed maps)

- Results from Connected Texas's 2013 Residential Technology Assessment

- Broadband and Education – Connecting Students in Texas

Technology Lending Program Grants

In addition to improving and increasing access to broadband services, Texas districts and open-enrollment charters are also focused on ensuring that students have continuous access to learning made possible through technology and the Internet. Senate Bill 6, passed by the 82nd Texas Legislature, established a program to fund district technology lending grants. The grant program was created to award funds to school districts and open-enrollment charter schools to implement or enhance an existing technology lending program established to lend students the equipment necessary to access and use electronic instructional materials. The goal of the program was (and continues to be) to ensure that all students, including economically disadvantaged students, have dedicated access to a personal technology device.

Technology Lending Program Grant: 2012

The first administration of the Technology Lending Program Grants was managed by ESC Region 10 on behalf of TEA. ESC 10 requested applications from school districts and open enrollment charter schools for funds to design and implement a program to lend students the equipment necessary to access and use electronic instructional materials adopted by the school. The grants were implemented beginning in the 2012-2013 school year. A total of 124 grants were awarded as follows:

- Districts with an enrollment of more than 10,000 received 18 grants totaling $2,214,706.

- Districts with an enrollment between 1,600-9,999 received 45 grants totaling $4,475,099.

- Districts with an enrollment of less than 1,600 received 61 grants totaling $3,025,986.

Additional Information on the 2012 Program

Technology Lending Program Grant: 2014

The 2014-2016 Technology Lending Program Grant is being managed by TEA. Applications were requested under Request for Applications (RFA) #701-14-107 from Texas public school districts and open-enrollment charter schools in March 2014. The program awarded grants to Texas public school districts and open-enrollment charters to implement a program to lend students the equipment necessary to access and use electronic instructional materials. In awarding grants, TEA considered the availability of existing equipment to students and other funding available to the school districts or open-enrollment charter schools. With the Technology Lending Program Grant, districts can move forward with the implementation of electronic instructional materials while ensuring access for students through grant-provided equipment for learning at school and at home. Key details regarding the 2014-2016 grant are provided below:

- There was $10,000,000 appropriated for the Technology Lending Program Grant.

- One hundred twenty-four districts and open-enrollment charter schools were awarded grants.

- The grant period is from October 1, 2014, through August 31, 2016.

- Results of the grant program will be provided in the next biennium report on the Long-Range Plan for Technology, 2006-2020.

Additional Information on the 2014 Program

Conclusion and Next Steps

From September 1, 2010, to August 31, 2014, Texas districts have shown progress in meeting the recommendations in the Long-Range Plan for Technology, 2006-2020. Districts continue to use the Texas Campus and Teacher STaR Charts as tools to establish their needs and document their accomplishments. For this report, examples of developments have been shared from Phase II of the long-range plan. The next progress report will continue with Phase II, focusing on school years 2014-2015, and will move to Phase III, focusing on school years 2015-2016.
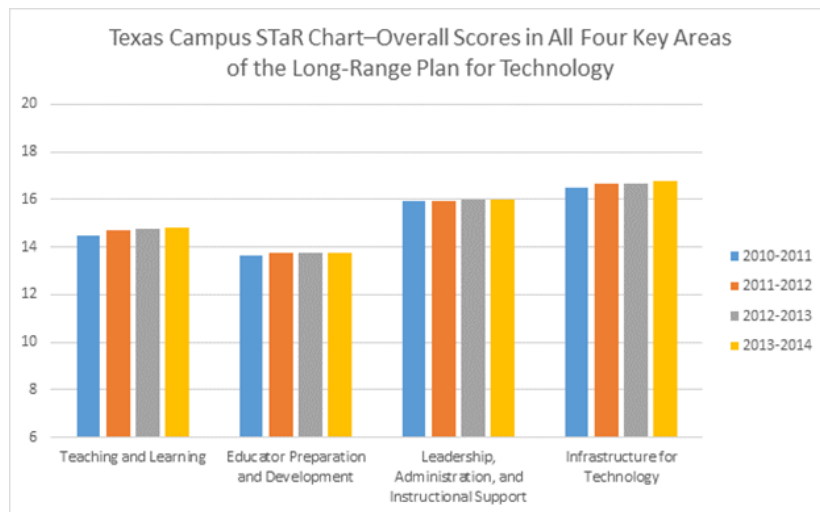
As a key indicator of progress, on average, campuses have reached the Advanced Tech level or close to this level for each of the four key areas in the Long-Range Plan for Technology, 2006-2020. Fifteen is the average score needed to be at the Advanced Tech progress level. Twenty-one is needed to reach the Target Tech level.

Education stakeholders should continue to work together to plan for and implement technology programs that reach for higher levels of progress on the Texas STaR Charts over time. Some suggestions for next steps are provided below:

- Continue to use the Campus and Teacher STaR Chart results to identify needs and next steps.

- Refer back to the Long-Range Plan for Technology, 2006-2020 to determine if any changes need to be made in local technology plans as districts continue to build partnerships and collaboration opportunities with various stakeholders.

- Determine if planning strategies and the action plan will lead to the goals that have been set.

- Review the priorities set for Phase II, 2011-2015, to see how they have been addressed in planning.

- Determine how state resources are being used in districts.

- Consider leveraging partnerships with other districts and campuses.

- Continue to explore new uses for digital content, open source, and existing and emerging technology.

- Keep the students in mind, understanding their needs and enthusiasm for bringing digital learning into the schools and classrooms as well as in their homes.

Appendix

Teaching and Learning

Profile indicators are organized and reported according to six focus areas in Teaching and Learning: Patterns of Classroom Use (TL1); Frequency/Design of Instructional Setting Using Digital Content (TL2); Content Area Connections (TL3); Technology Applications TEKS Implementation (TL4); Student Mastery of Technology Application (TL5); and Online Learning (TL6). Focus area scores in the key area of Teaching and Learning are provided in the charts that follow.
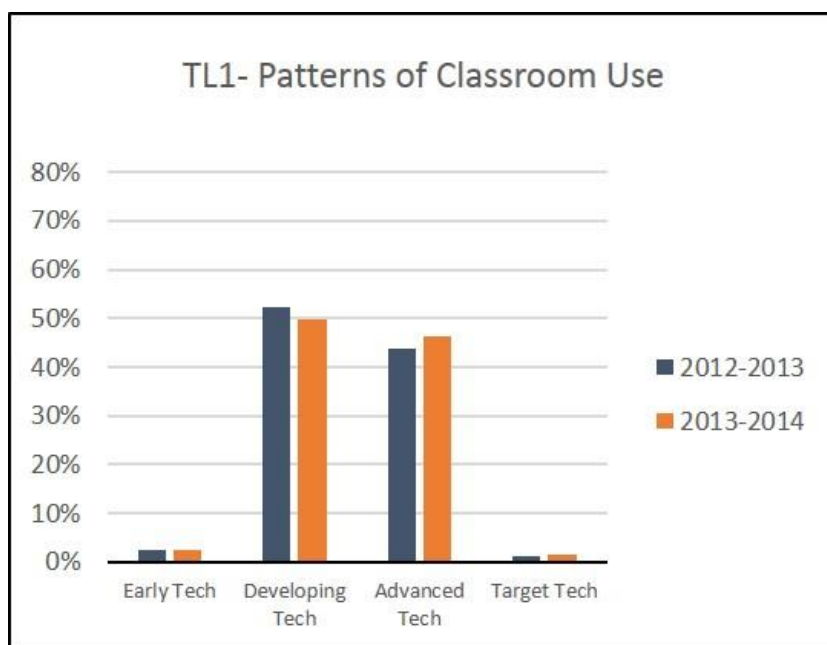

The **Patterns of Classroom Use (TL1)** focus area responses are primarily in Developing Tech. Teachers use technology to direct instruction and improve productivity. The Advanced Tech showed a gain over the two-year reporting period. The Advanced Tech level uses technology in teacher-led and student-centered learning to collaborate and develop higher-order thinking skills.
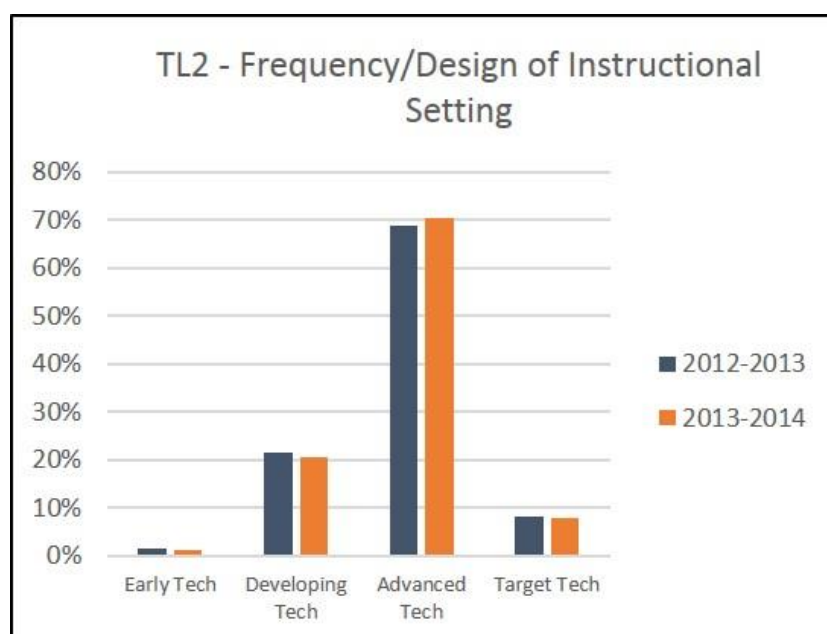
The **Frequency/Design of Instructional Setting Using Digital Content (TL2)** focus area responses are primarily at the Advanced Tech level. The focus area for the Advanced Tech level is defined as most teachers having regular weekly access and use of technology and digital resources in various instructional settings.
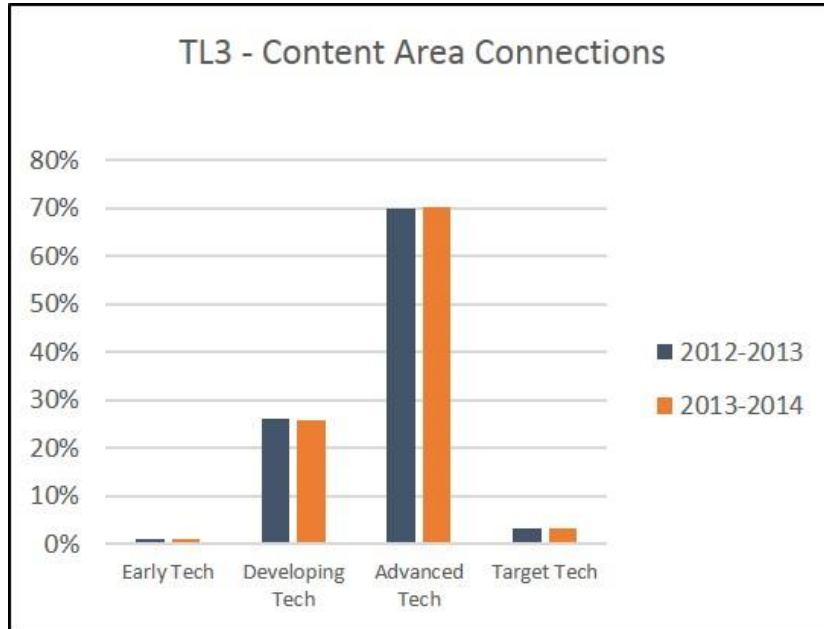
The **Content Area Connections (TL3)** focus area responses are primarily in the Advanced Tech level. In this area, most teachers incorporate technology in their subject area TEKS, and classroom applications of technology support the development of higher-order thinking skills and encourage collaboration.
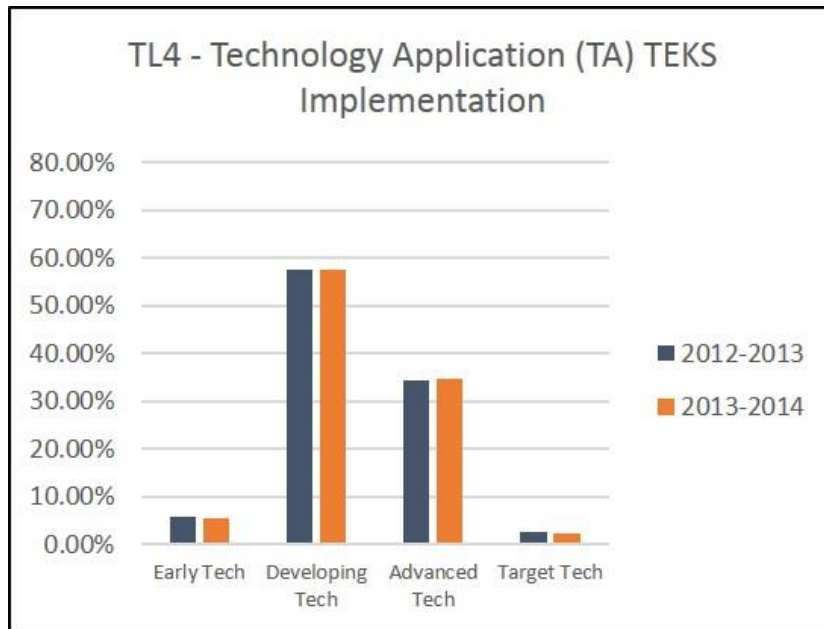
The **Technology Applications TEKS Implementation (TL4)** focus area responses are primarily at the Developing Tech level. In this area at grades K-8, teachers are aware of the technology applications TEKS appropriate to content areas and regularly include technology skills in planning and implementing instruction. At grades 9-12, at least four technology applications courses are offered and two are taught.

TL5 - Student Mastery of Technology Applications
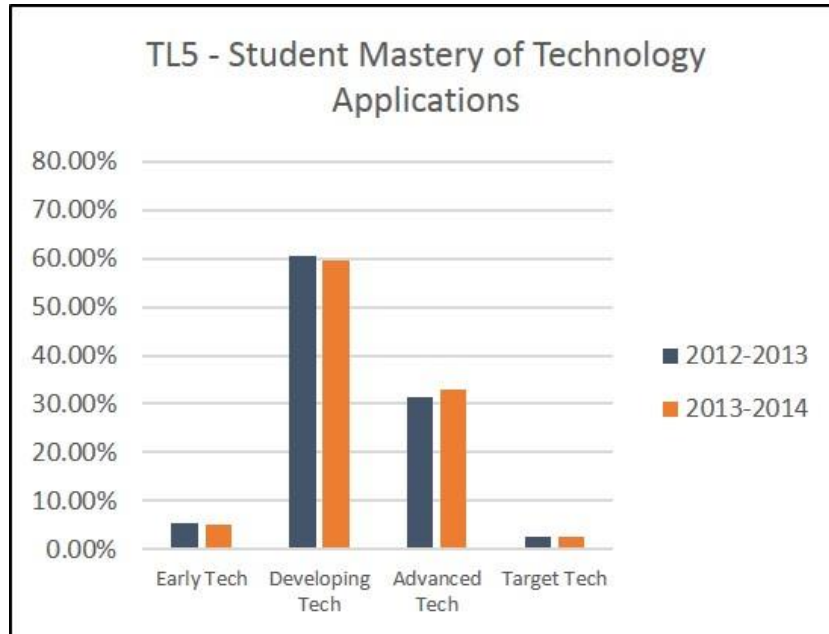
The **Student Mastery of Technology Applications (TL5)** focus area responses are primarily at the Developing Tech level. At the Developing Tech level, Technology Applications TEKS are mastered by 26-50% of the students. The Advanced Tech showed a gain over the two-year reporting period.

TL6 - Online Learning
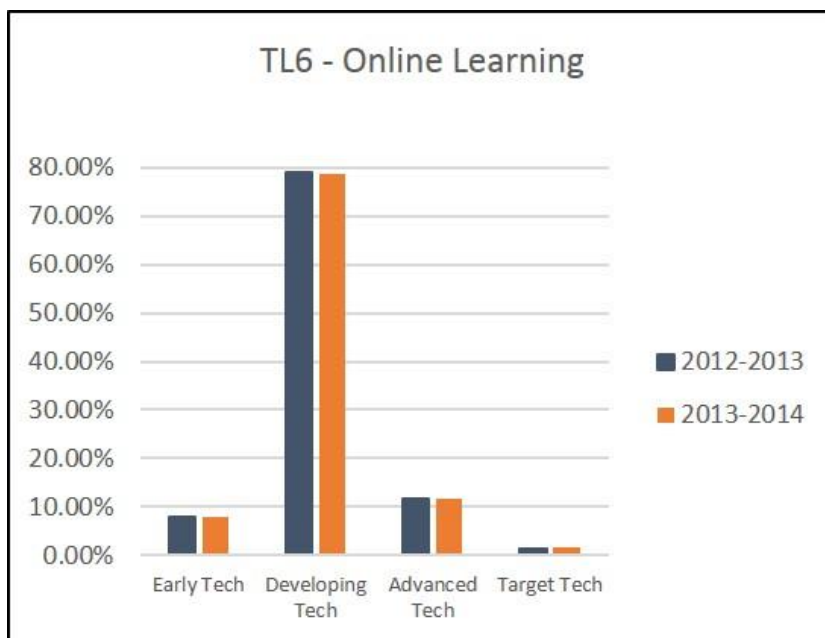
The **Online Learning (TL6)** focus area responses are primarily in the Developing Tech level. At the Developing Tech level, most teachers customize several web-based lessons which include online TEKS-based content, resources, learning activities, and interactive communication that support learning objectives.

Educator Preparation and Development

Profile indicators are organized and reported according to six focus areas in Educator Preparation and Development: Professional Development Experience (EP1); Models of Professional Development (EP2); Capabilities of Educators (EP3); Access to Professional Development (EP4); Levels of Understanding and Patterns of Use (EP5); and Professional Development for Online Learning (EP6). Focus area scores in the key area of Educator Preparation and Development are in the following charts.
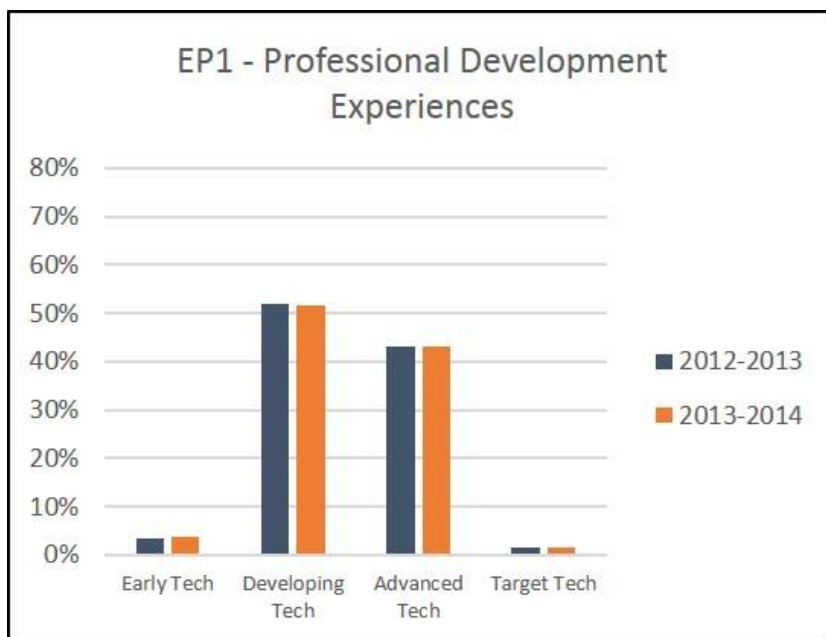
The **Professional Development Experiences (EP1)** focus area shows little change over the two school years. Most campuses are at the Developing Tech level where they focus most professional development on the integration of technology into content areas and use technology to improve productivity.
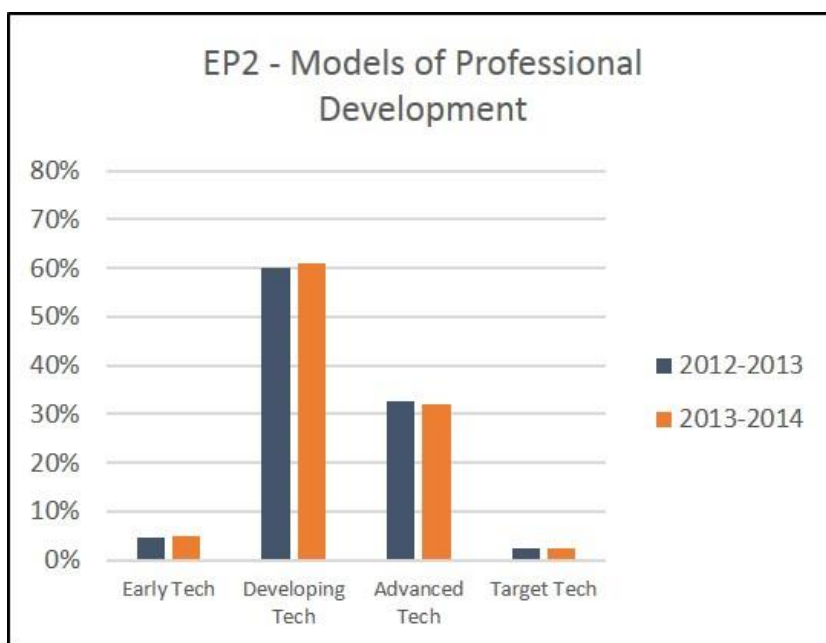
The **Models of Professional Development** (**EP2)** shows a slight increase at the Developing Tech level and a decrease at the Advanced Tech level. At the Developing Tech level, campuses provide large-group professional development sessions that focus on increasing teacher productivity and building capacity. The Advanced Tech provides ongoing professional development models for teachers such as mentoring and study groups.

EP3 - Capabilities of Educators
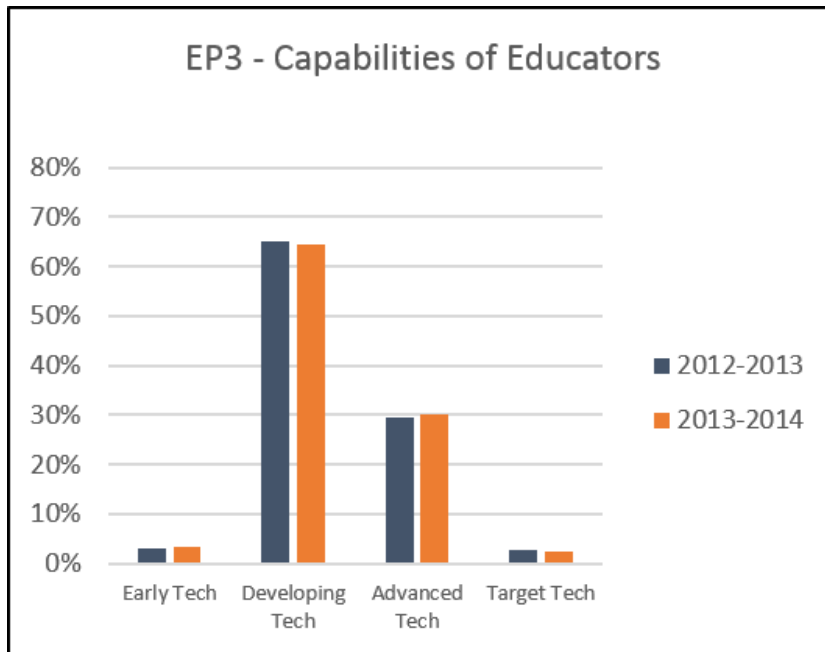
The **Capabilities of Educators (EP3)** shows a slight decrease at the Developing Tech level and a slight increase at the Advanced Tech level. Most campuses report that their educators fall in Developing Tech, which indicates mastery of at least two to three Technology Applications Educator Standards. At Advanced Tech, most teachers are able to demonstrate four standards. Target Tech indicates mastery of all five of the Technology Applications Educator Standards.

EP4 - Access to Professional Development
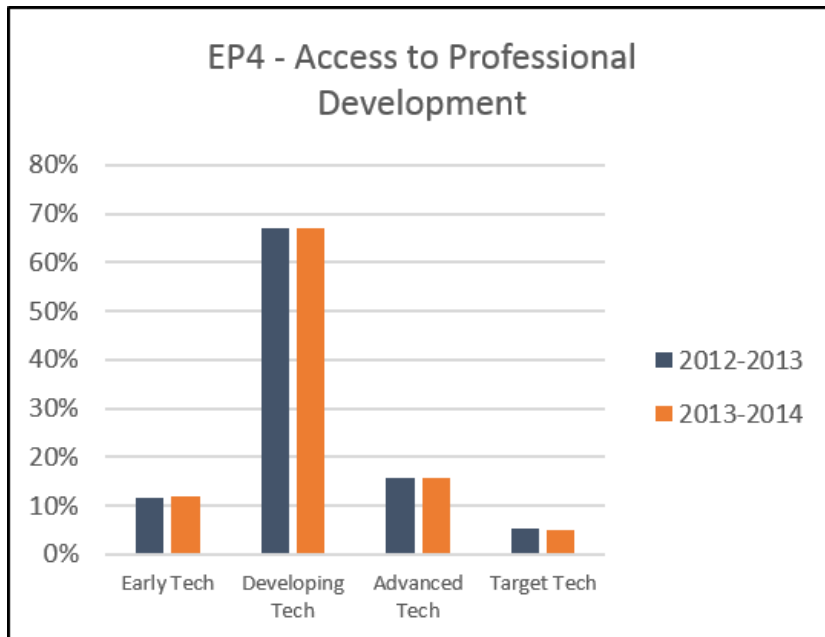
The **Access to Professional Development (EP4)** falls primarily at the Developing Tech level. At the Developing Tech level, campuses report that there are 9-18 hours for technology professional development available per school year. Advanced Tech signifies 19-29 hours of technology professional development.

EP5 - Levels of Understanding and Patterns of Use
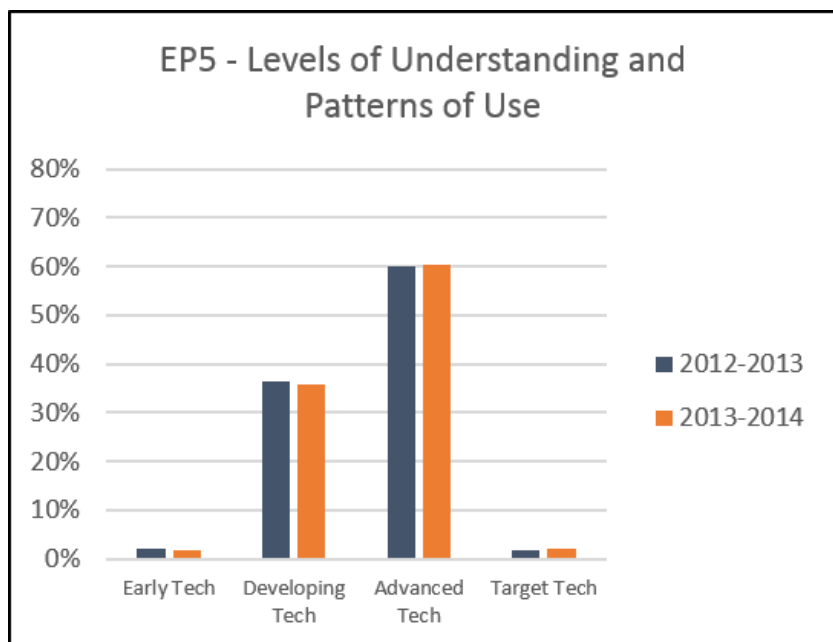
The **Levels of Understanding and Patterns of Use (EP5)** are at the Developing and Advanced Tech levels. This focus area has the highest percentage of campuses at the Advanced Tech level. The Advanced Tech level indicates most teachers use technology as a tool in and across content areas to enhance learning.

EP6 - Professional Development for Online Learning
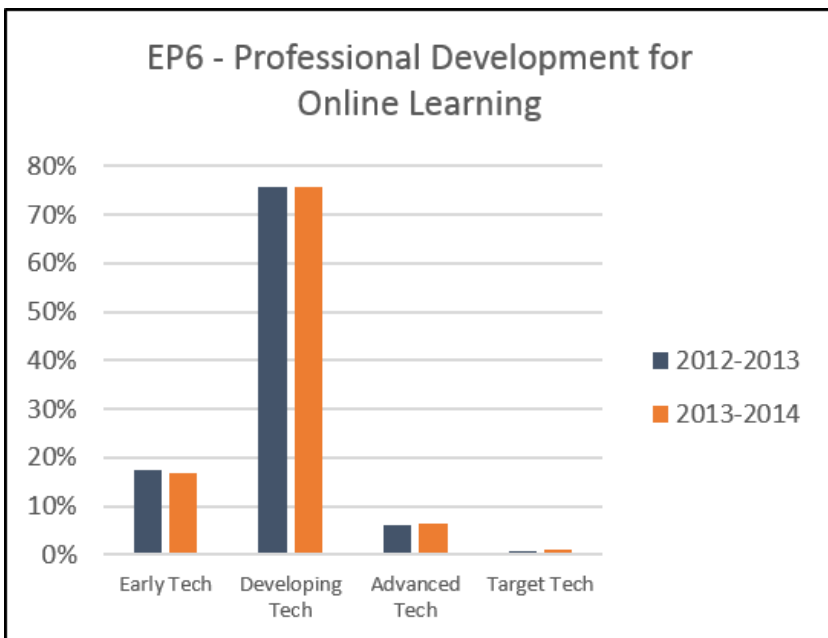
The **Professional Development for Online Learning (EP6)** focus area falls heavily at the Developing Tech level. At the Developing Tech level, campuses report that most teachers have participated in professional development on the customization of online courses or content for appropriate subject areas. The Advanced Tech level is reached when most teachers have participated in professional development online.

Leadership, Administration, and Instructional Support

Profile indicators are organized and reported according to six focus areas in Leadership, Administration, and Instructional Support: Leadership and Vision (L1); Planning (L2); Instructional Support (L3); Communication and Collaboration (L4); Budget (L5); and Leadership and Support for Online Learning (L6). Focus area scores in the key area of Leadership, Administration, and Instructional Support are provided in the following charts.
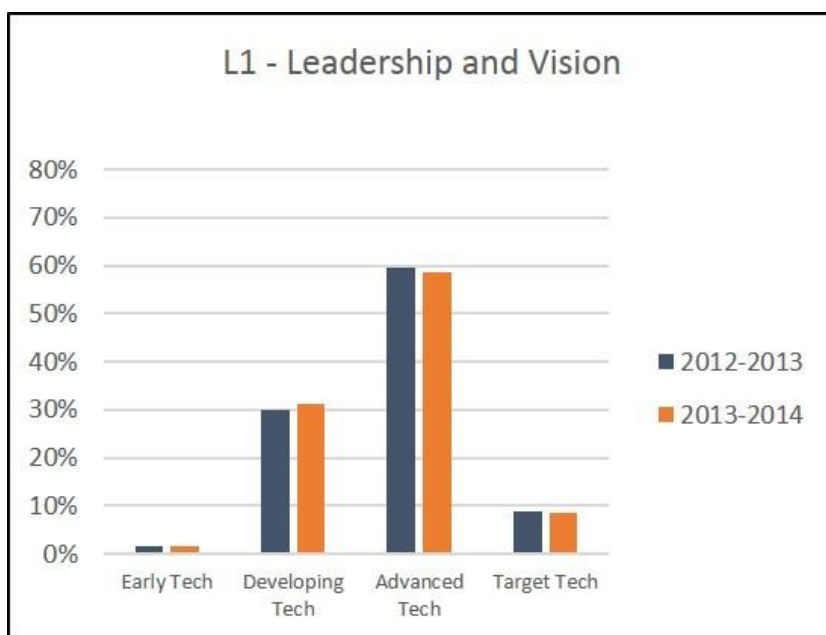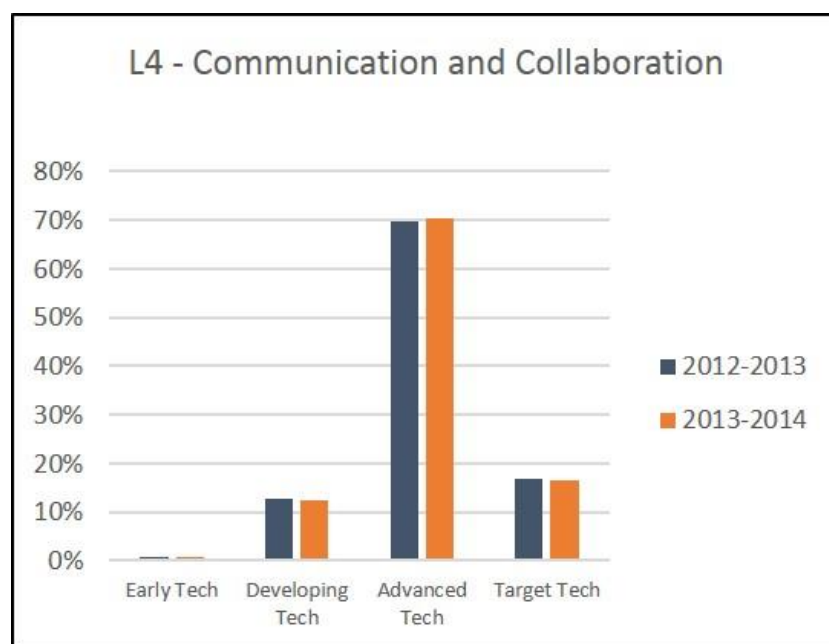

The majority of campus responses on the STaR Chart in **Leadership and Vision (L1)** continue to fall in the Advanced Tech area. At the Advanced Tech level, leadership communicates and implements a shared vision and obtains buy-in for comprehensive integration of technology leading to increased student achievement.
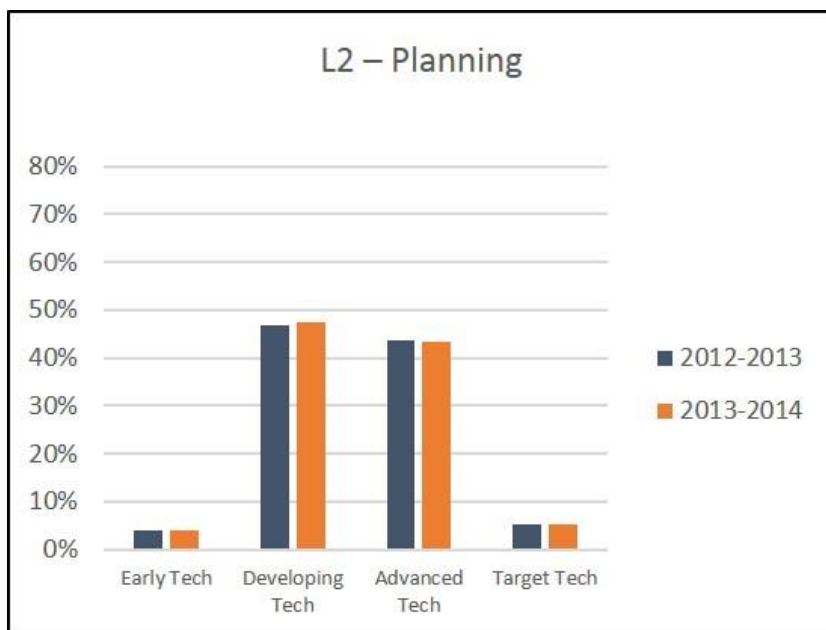
The majority of campus responses in **Planning (L2)** fall in Developing Tech, closely followed by Advanced Tech. Planning at the Developing Tech level includes the development of several technology goals and objectives that are incorporated into the Campus Improvement Plan. The Advanced Tech level adds the component of having a leadership team that sets annual benchmarks for technology standards.
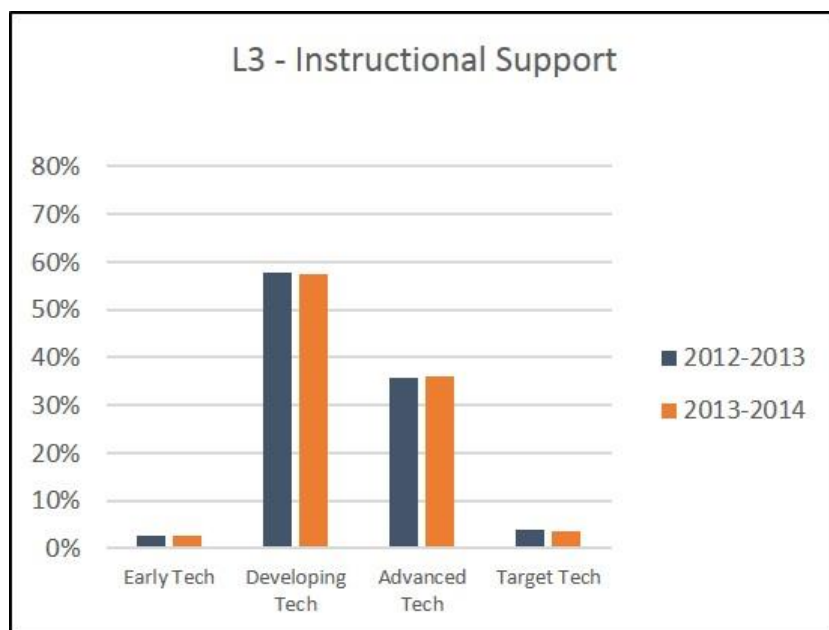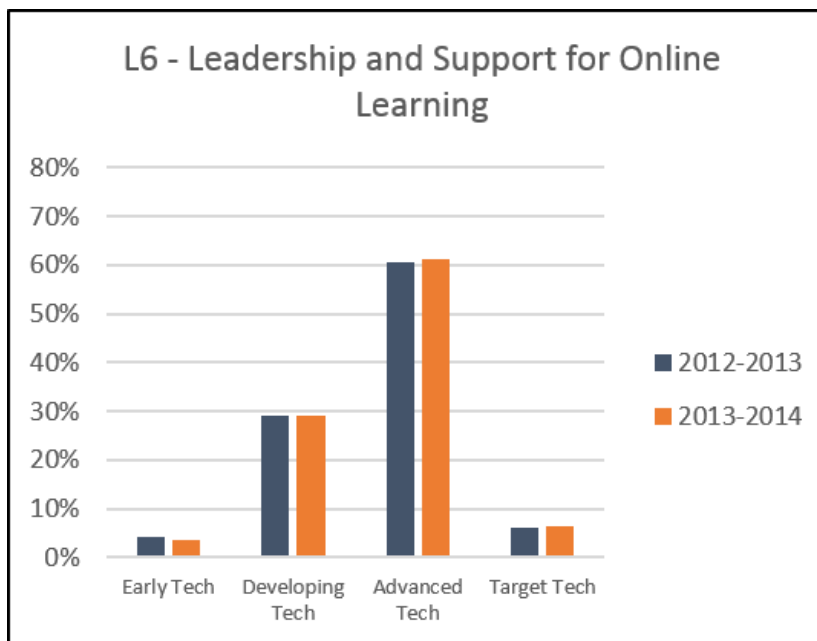
The majority of campus responses in **Instructional Support (L3)** fall at the Developing Tech level. Instructional Support at the Developing Tech level includes providing regular access to instructional support for the use of technology in content areas. The Advanced level adds the component of having teachers' cadres and a support structure to maximize teaching and learning.

The majority of campus responses for **Communication and Collaboration (L4)** are in Advanced Tech. The Advanced level indicates that campuses use current information tools and systems for communication, management of schedules and resources, performance assessment, and professional development.
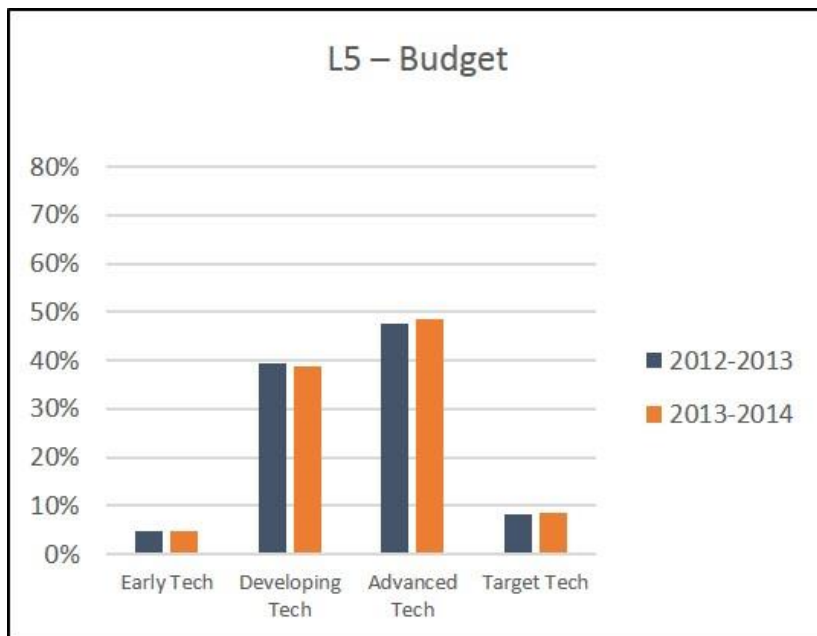
The majority of campus responses in the **Budget (L5)** focus area are in Advanced Tech. Budget at the Advanced Tech level is defined as the campus using discretionary funds and other resources to advance implementation of most of the technology strategies to meet the goals and objectives outlined in the Campus Improvement Plan.


The majority of campus responses in **Leadership and Support for Online Learning (L6)** are in Advanced Tech. This focus indicates continued interest by campus administrators in implementing online learning. At the Advanced Tech level, online learning is encouraged and supported through professional development, and goals for online learning are developed for the Campus Improvement Plan. At the high school level, online for-credit courses are available to students who meet a variety (more than two) of specific circumstances.

Infrastructure

Profile indicators are organized and reported according to six focus areas in Infrastructure: Students per Computer (INF1); Internet Access Connectivity/Speed (INF2); Other Classroom Technology (INF3); Technical Support (INF4); Local Area Network/Wide Area Network (INF5); and Distance Learning Capacity (INF6). Focus area scores in the key area of Infrastructure are provided in the charts that follow.
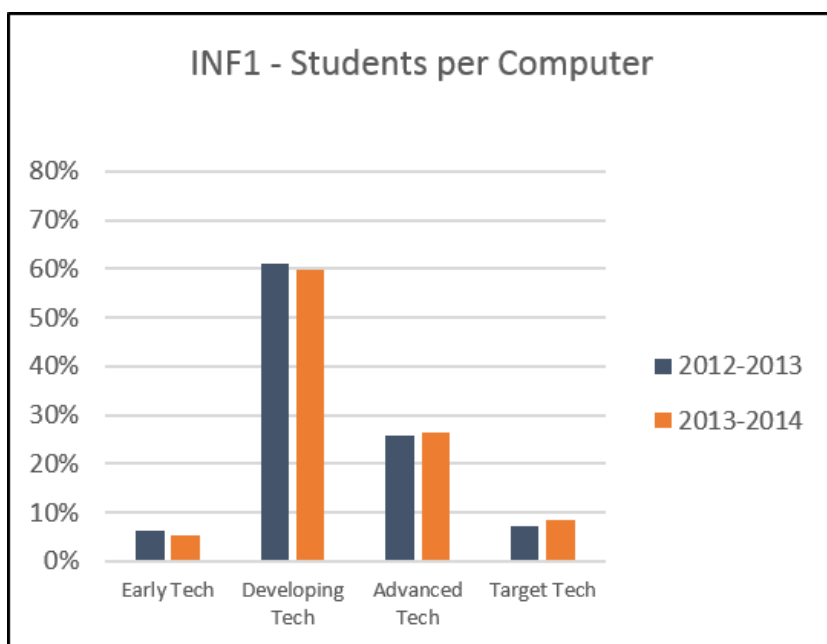

The **Students per Computer (INF1)** focus area responses are primarily at the Developing Tech level. At the Developing Tech level, campuses have between five and nine students per Internet-connected multimedia computer. Advanced Tech showed a gain over the two-year reporting period. At the Advanced Tech level, campuses have four or fewer students per Internet-connected multimedia computer. At the Target Tech level, all students have one-to-one access when needed.
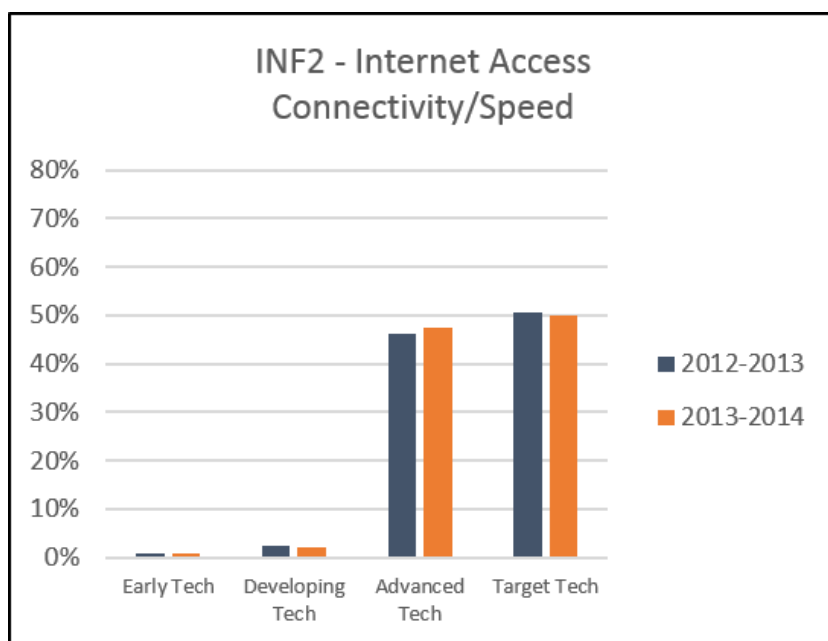

The **Internet Access Connectivity/Speed (INF2)** focus area responses are primarily at Target Tech level. At the Target Tech level, direct connectivity is available in all rooms with adequate bandwidth. At the Advanced Tech level, schools have direct connectivity to the Internet available at the campus in at least 75% of the rooms, including the library. Of all focus areas, this area has the largest percentage at the Target Tech level.
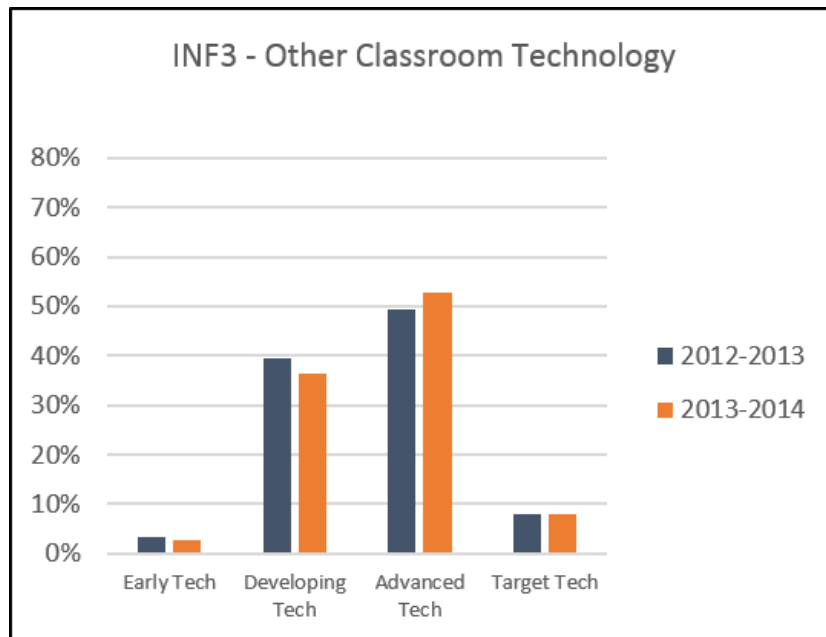
The **Other Classroom Technology (INF3)** focus area responses are primarily at the Advanced Tech level. The Advanced Tech level has a dedicated computer per educator with shared use of technologies such as digital cameras, classroom phones, flash drives, portable digital devices, probes, interactive white boards, projection systems, and classroom sets of graphing calculators.
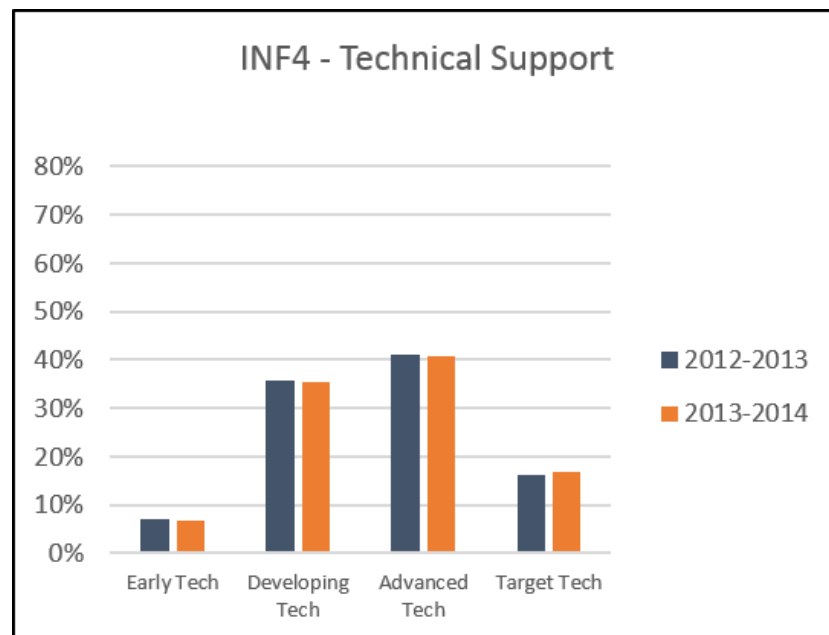
The **Technical Support (INF4)** focus area responses are primarily at the Advanced Tech level. At the Advanced Tech level, there is at least one technical staff member to 351-500 computers. Target Tech is at least one technical staff member to 350 or fewer computers.

INF5 - Local Area Network Wide Area Network
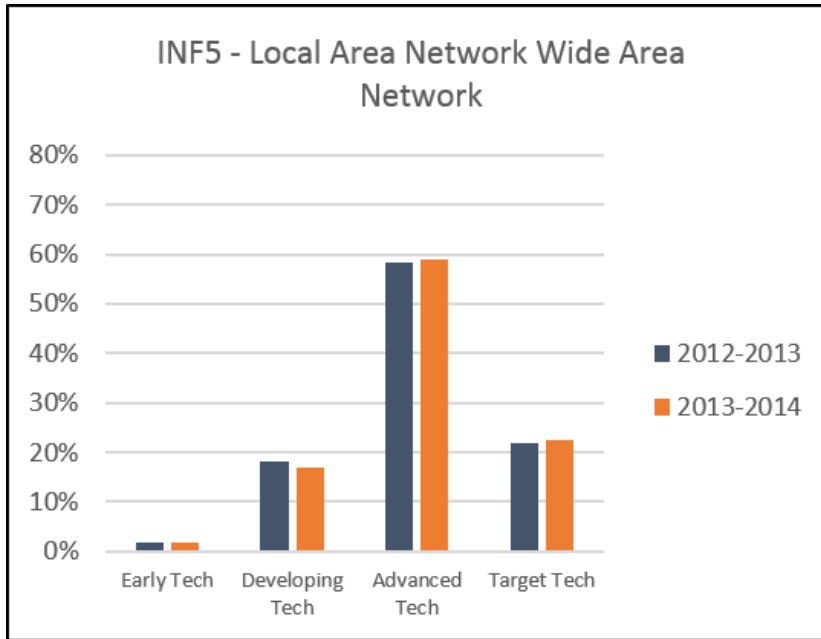
The **Local Area Network/Wide Area Network (INF5)** focus area responses are primarily at the Advanced Tech level. At the Advanced Tech level, there is (1) broadband access to the campus, with most rooms connected to the LAN/WAN with access for teachers and students to print/file share, and (2) district-wide resources on the campus network.

INF6 - Distance Learning Capacity
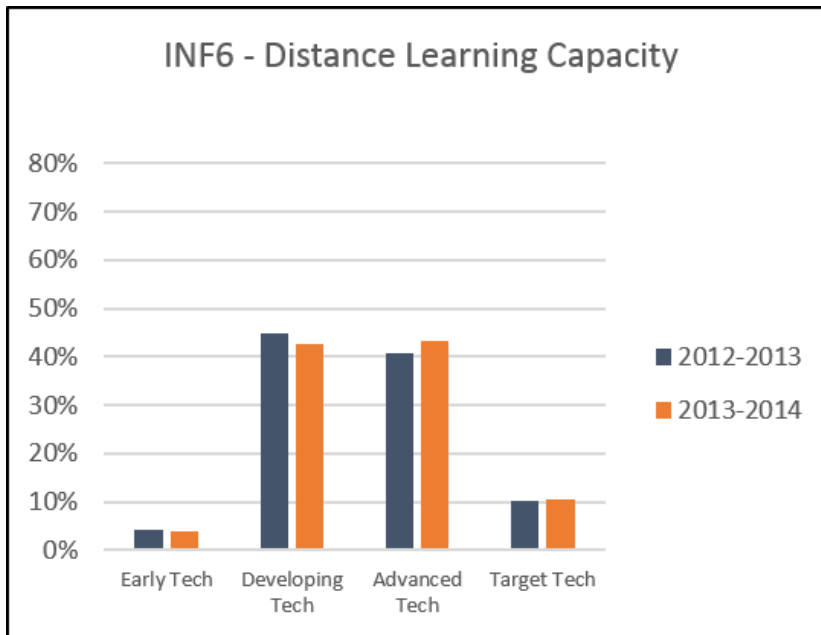
The **Distance Learning Capacity (INF6)** focus area responses are primarily at the Developing Tech and Advanced Tech levels. The Developing Tech level has scheduled access to online learning with rich media such as streaming video, podcasts, applets, and animation. The Advanced Tech level has simultaneous access to online learning with rich media such as streaming video, podcasts, applets, animations, etc.