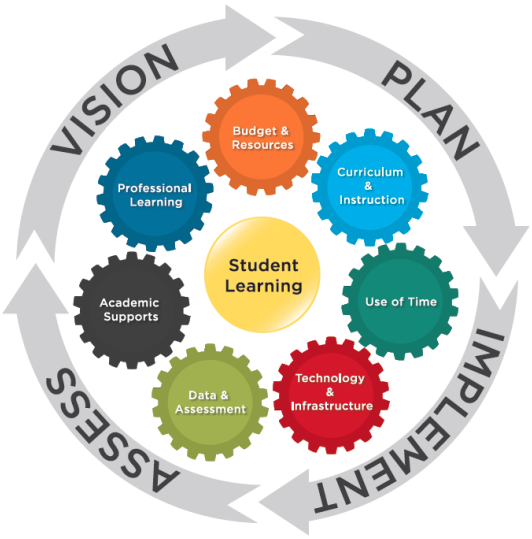
West Virginia Digital Learning

Report to the Governor, Legislature, and West Virginia Board of Education



Sponsored by the Alliance for Excellent Education

Conducted by the Metiri Group

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Preface

The Alliance for Excellent Education, Inc., (Alliance), a nonprofit national education advocacy and policy organization, sponsored this report. The Claude Worthington Benedum Foundation awarded the Alliance a grant to work with the State of West Virginia to advance digital learning in the state.

The Alliance worked with the West Virginia Board of Education, the State Department of Education, the West Virginia Governor's Office, and the West Virginia State Legislature to determine the purpose and timeline for the report.

The Alliance contracted with the Metiri Group to conduct the study and produce the independent report and recommendations.

Executive Summary

"We must have a comprehensive and consistent way to integrate technology and digital learning into our system. We must embrace opportunities like Project 24, an effort led by former Governor Bob Wise, that will enable our State to make the best use of technology to unleash our true potential.

- Governor Earl Ray Tomblin (2013 State of the State Address)

"The time has come to ensure that every child has access to an engaging experience that comes with powerful teaching and rigorous content available through digital learning."

- Governor Bob Wise, Alliance for Excellent Education

As a pioneering state in 21st century learning, West Virginia is striving to ensure student readiness for college and career through digital learning. In doing so, there is recognition that this will require a redesign of the K-12 education system. For the purposes of this report, "digital learning" is defined as any effective application of technology--- including data systems, adaptive and interactive software, online learning, web-based programs, and professional development--- that raises student learning outcomes. This report reviews West Virginia's readiness for digital learning at the district and school levels. The three surveys that informed this report were: 1) the Project 24 Digital Learning Readiness Survey, which gauges districts' readiness to begin implementing digital learning; 2) a West Virginia school administrator survey, and 3) a West Virginia teacher survey. The Project 24 survey assesses how well a school district is staged to begin to successfully implement digital learning. The teacher and school administrator surveys were designed to gain insights as to the implementation of such plans, i.e., the current uses of digital learning in schools. Together the three constitute a report of digital learning in the state. Then, based on data analyses, this report provides recommendations for the state to consider in advancing digital learning.

Accomplishing personalized, deeper learning through anywhere, anytime digital learning requires a redesign of the K-12 education system.

This report looks at readiness for digital learning at two levels: the district capacity building to ready the system for digital learning and school implementation of digital learning.

District Readiness to implement Digital Learning

The district level review analyzed the degree to which West Virginia school districts had established visions, policies, plans and capacity building in preparation for school implementation of digital learning. That district analysis was informed by statewide data from a self-assessment of digital learning conducted by all school districts in the state. All West Virginia districts (55 county school districts and 2 state school districts) participated in Project 24, a self-assessment audit provided by the Alliance for Excellent

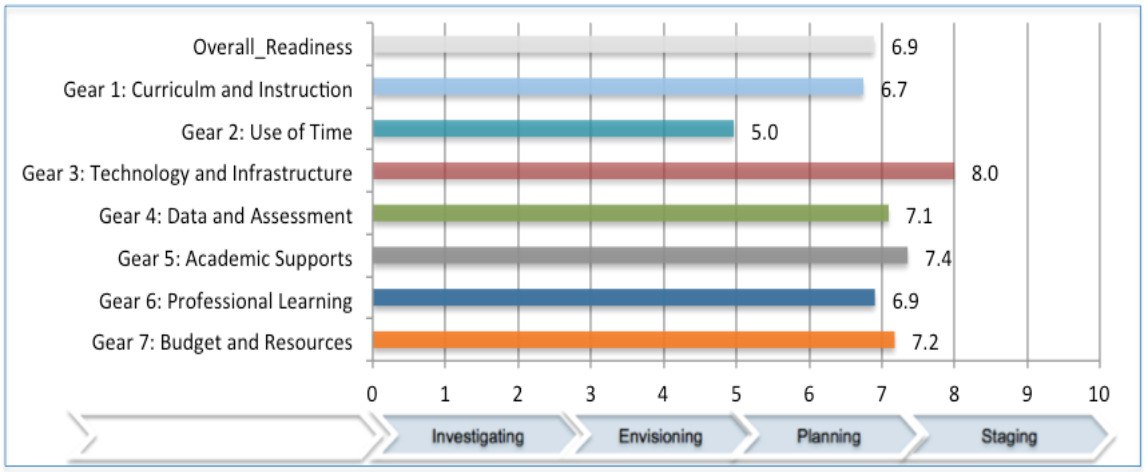
Education. The Project 24 audit is based on seven "gears" or categories for readiness for digital learning:

1. Curriculum and Instruction
2. Use of Time
3. Access and Infrastructure
4. Data and Assessment
5. Academic Supports
6. Professional Learning
7. Funding and Resources

The Project 24 audit analyzes district readiness across four phases: investigating, envisioning, planning, and staging for success. The audit determines the degree to which district leaders are building the capacity of the system to support digital readiness through changes in vision, policies, planning, and capacity building for school level implementation of digital learning.

The Project 24 data provide a snapshot of where the state is in terms of the seven gears or categories of readiness for digital learning. The figure below provides the state average rating of school district readiness across the seven gears.

Figure 1: Statewide average rating (on a scale of 0-10) of school district readiness for the Project 24 gears



Source: Project 24 self-assessment. n=57 school leadership teams (55 county schools districts and 2 state school districts)

The leading indicator is *Gear 3: Technology and Infrastructure*, at a statewide average rating of 8.0. This rating by school district leadership teams was supported by the data from the technology inventories from the West Virginia Department of Education. However, school administrators and teachers indicated that to implement digital learning in classrooms statewide would require further improvements in access to devices and reliable Internet bandwidth.

The digital learning readiness rating at the district level (6.9 overall) indicates that West Virginia has made some progress, but has significant capacity building yet to accomplish at the district level prior to implementation statewide.

The lagging indicator is the *Use of Time*. The vision articulated by many district leadership teams includes personalized, deeper, anywhere, anytime learning. That requires flexibility and student voice in what is learned, when it is learned, and the pace at which it is learned. Furthermore, it requires competency based learning, which, in turn, necessitates flexibility in the use of time. While teachers reported using some instructional time for collaborative, real world projects, students

are provided little choice in determining where, when, and at what pace they learn. School administrators concur that the transition to personalized, anywhere, anytime learning is still in the investigating and planning phases.

Overall, this gear (on the use of time) represents an area that must be addressed if the West Virginia vision of personalized, anywhere, anytime learning is to be achieved. Yet it is precisely this area that leaders have not yet fully investigated. To many it is still uncharted territory.

The digital learning readiness rating at the district level (6.9 overall) indicates that West Virginia has made some progress in preparing for digital learning, but has significant capacity building yet to accomplish at the district level prior to implementation in West Virginia schools.

The district leadership teams indicated that their top three priorities for digital learning were: student-centered learning, personalization of learning, and deeper learning/21st Century skills. The key stakeholders who were interviewed for this study included a Senator, a representative from the Governor's office, a State Board of Education member, a business leader, the Chief Technology Officer from the state education agency, a teacher, two district curriculum directors, one state curriculum director, two district superintendents (one from a rural district and one from an urban district), and a RESA Technology Leader. They agreed with the district leadership teams' priorities, stressing the importance of anywhere, anytime learning and of building the capacity for students to use information and communications technologies innovatively and effectively. Without reservation, stakeholders and district and school professional educators agreed on the basic tenets of a new vision of digital learning for West Virginia as exemplified below.

> ***The vision from one West Virginia School District Leadership Team:***
>
> ***All teachers and students have access to a variety of technology and digital content with which to create, communicate and collaborate locally and globally. Learning is engaging, personalized, and authentic to enable students to become college and career ready, as well as confident, creative, active, and informed citizens of the 21st century.***

Further analysis of the Project 24 data reveals significant differences in average district readiness scores across locales. The disaggregation was completed based on locale designations provide by the WVDOE, resulting in the following counts; 6 urban districts, 18 suburban/town districts, 25 fringe/distant rural districts, and 9 remote rural districts. The urban districts registered higher average readiness scores than the other locales. While scoring slightly lower on average than the urban districts, the suburban/town districts and fringe/distant rural districts (those within 25 miles of a population center) were fairly equivalent. However, the average Project 24 readiness ratings of the remote rural school districts (those more than 25 miles from a population center) consistently lagged behind the ratings of the other locales by a point or two.

Overall, the Project 24 ratings in each of the categories indicates the need for innovative redesign in all gears if the districts in West Virginia are to build the capacity of schools to advance deeper learning, personalized learning, 21st century skills, and anywhere, anytime learning.

School Readiness for Digital Learning

Whereas the district data profiled readiness to begin implementation of digital learning, the school data collection was targeted at the current state of implementation of digital learning. The school level analysis

was informed by three sets of data, a statewide teacher survey (1371 completed responses), a statewide school administrator survey (92 completed responses), and technology inventories provided by the West Virginia Department of Education. The teacher survey data, the principal survey data, and the technology inventories from the state offered insights into the degree to which schools were actually implementing digital learning.

Gear 1: Curriculum and Instruction

Over 80% of responding teachers said that digital tools positively influenced student learning in their classrooms through problem solving, student product development that demonstrates their learning, online research, and presentation tools. Furthermore, 80% of teachers said they agreed that they "were ready to integrate strategies to promote 21st Century skills/deeper learning outcomes into curriculum and instruction."

93% of school administrators say that "Teachers are expected to transition to digital learning."

Teachers' reports of the frequency and type of technology use were mixed and were often limited by their reported lack of access to digital tools. When asked about regular use of technology, over 50% said they employed the following uses of technology, at least occasionally: online simulations or models, digital libraries of images, videos and/or animations, GIS-based images (Google Earth), virtual field trips, and online news services. Conversely, over 50% of these same teachers said they seldom or never used online courses or units such as Khan Academy or digital textbooks in their classrooms. Nor did they use eCommunications for student discussions or e-portfolios.

Gear 2: Use of Time

Teachers' reported use of instructional time indicates a mix including whole group instruction, collaborative learning, cooperative learning, and individual student learning. A mix such as this that includes significant percentages of cooperative and collaborative learning is often an important first step in transitioning from didactic, whole group instruction to more student-centered, personalized, deeper learning. However, when asked how often they offer students time flexibility (e.g., flexibility in final submissions of products), only 36% said they consistently provided that choice to students. Student choice is a key element in personalized learning. Teachers' responses to the surveys supported the low rating that this gear received by the district leadership teams (i.e., a rating of 5 out of 10). In fact, this gear was the lagging indicator statewide.

23% of classroom time spent with students working collaboratively in small groups on joint projects.

Gear 3: Technology and Infrastructure

The West Virginia Department of Education reports that nearly all schools are ready for online testing. The state department's data indicate that 97% of schools are device ready and 100% of schools are network ready for the online testing scheduled for the spring of 2014.

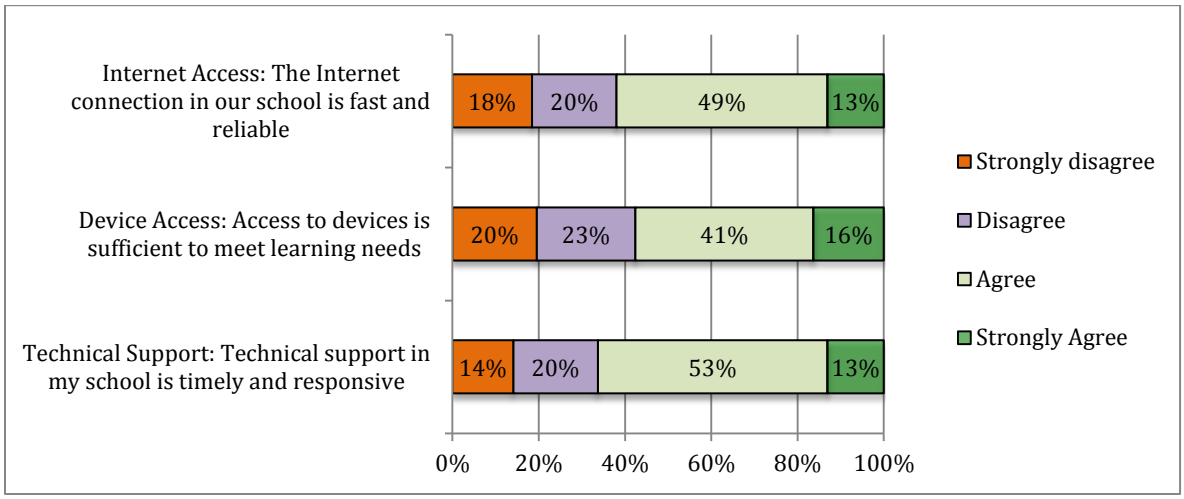
68% of West Virginia schools meet the Internet bandwidth standard for digital learning of 100 Kbps per student.

In the more comprehensive category of readiness for digital learning, a majority (68%) of schools and districts in West Virginia meet national standards for bandwidth. In 2012, the State Education Technology Directors Association (SETDA) set the

standard of 100 kbps per student for digital learning. According to SETDA, "By 2017-2018, the goal would be to increase the broadband width to more than 1,000 MBPS -- or 1 gigabyte-per-second (GBPS)."

Statewide, school administrators agree with this assessment. The majority of school administrators report sufficient Internet access (62%), device access (57%), and technical support (66%). However, a third or more of school administrators report inadequate Internet and technical support, and 43% report insufficient access to devices. See figure below.

Figure 2: Percentage representing principals' perspectives on bandwidth, devices, and technical support in their schools



Source: School Administrator Survey. n=92 school administrators

In terms of devices, the West Virginia Department of Education also reports that all districts have a student to computer ratio lower than 2:1. However, 211 teachers, (45% of the those who responded to an optional survey question asking teachers to comment on their experiences with digital learning) said that they would like to do more with digital learning, but lacked up-to-date, reliable computer devices.

Gear 4: Data and assessment

Teachers and school administrators indicated that they were using data to inform instruction. The state is a member of the Smarter Balanced Assessment Consortia (SBAC) and is planning to conduct state testing online in the spring of 2014. Reports from the West Virginia Department of Education indicate that the majority of West Virginia schools are technology ready for the online assessment.

75% *of teachers say that timely access to assessment data positively influences student learning in their classrooms.*

While 75% of teachers say that timely access to assessment data positively influences student learning in their classrooms, some teachers commented that the extensive use of the computer labs for testing reduced their access to the technology for learning purposes.

Gear 5: Academic supports

Academic supports include the context, culture, and learning environments that schools establish with the intent of increasing student learning. Teachers indicated that they were ready to begin implementing digital learning. However, 61% said they are not provided with time to work together to redesign lessons related to deeper learning/21st Century skills.

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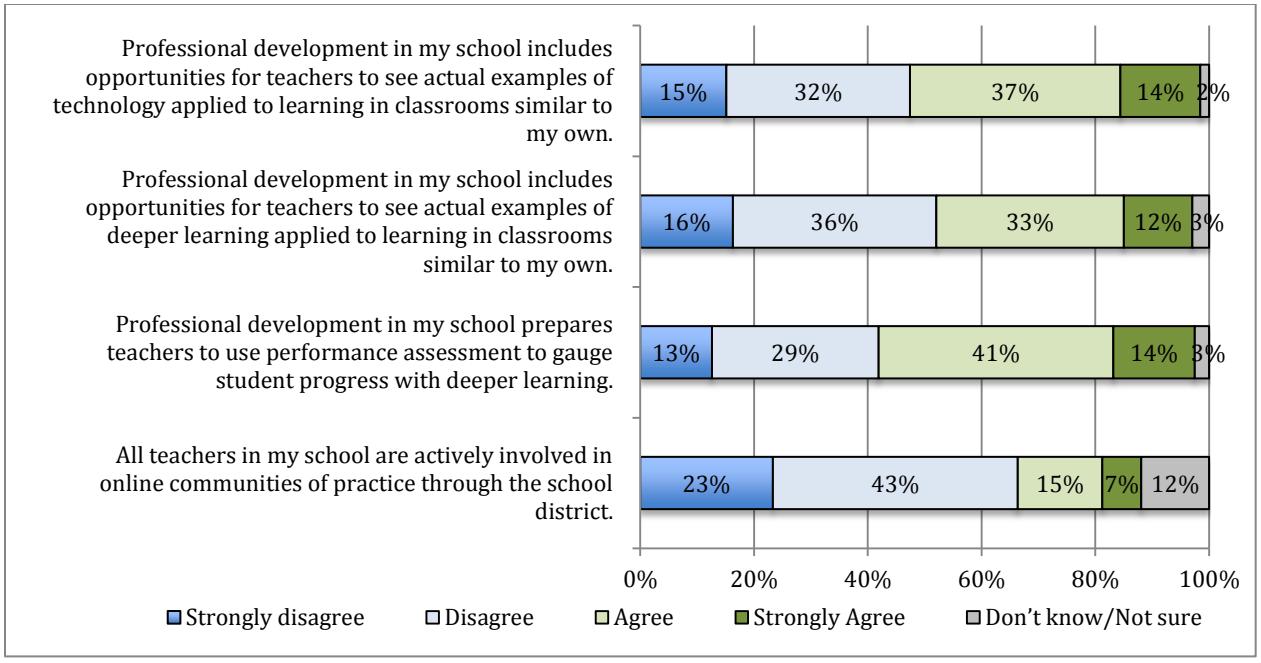
An important academic support is the online environments. Typically those integrated environments facilitate collaboration, instruction, research, production, document management, and content management. Only eleven percent (11%) of school administrators who responded to the survey indicated that they had deployed this type of learning environment successfully.

Gear 6: professional learning

Teachers responding to the survey provided feedback on their agreement with statements that exemplify sound professional development practices. In each case, nearly half of the teachers disagreed, indicating that the professional development offered them did not exhibit these attributes. See Figure 3.

Figure 3: The degree to which teachers agreed with the following statements about professional learning.



Source: Teacher Survey. n=1371 teachers

Teacher level of agreement on the last statement in the chart above indicate that many districts and schools have yet to leverage online communities of practice as a professional learning mechanism that can be accessed virtually from the teachers' desktops or mobile devices.

Gear 7: Funding and resources

A consistent theme from teachers, principals, school district leadership teams, and the interviewees was the challenge of funding the transition or transformation to digital learning. While many stakeholders said economic hard times meant educators should not expect additional funds for digital learning, the school-based educators commented on the need for additional services, support, and professional learning to accomplish this important, but monumental, transition. Suggestions were made for schools and districts to form partnerships, repurpose existing funds, and to collaborate, perhaps forming consortia to enable exchanges of ideas, products and services, share lessons learned, and explore economies of scale.

Gaps and Recommendations

West Virginia districts have made some progress getting ready to implement digital learning. However, much is yet to be accomplished before they can systematically begin to implement digital learning in schools across the state. The gaps in readiness for digital learning have been identified based on input from 55 county school district leadership teams, 2 state district leadership teams, 1371 teacher survey respondents, 9 school administrator survey respondents, 14 stakeholder interviewees, and the technology inventories from the West Virginia Department of Education. Recommendations to close those gaps are presented for consideration by West Virginia policy leaders.

The seven gaps are listed below.

1: Vision Gap

2: Transition/Transformation Gap

3: Capacity/Alignment Gap

4: Policy gap

5: Device and Access Gap

6: Professional Learning Gap

7: Funding Gap

Specific findings and recommendations associated with each gap are included in a section in the full report.

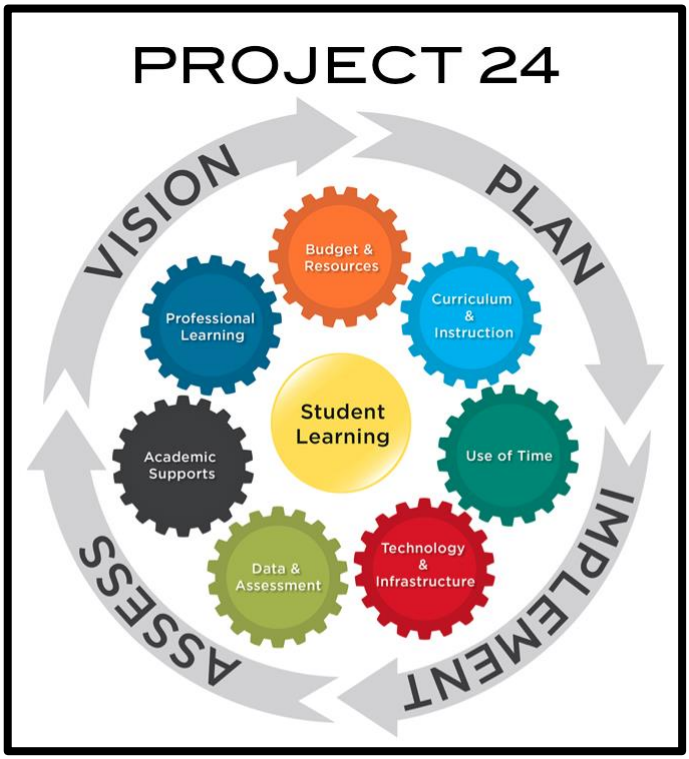
INTRODUCTION

"With today's technological advances, we have the ability to personalize learning and better meet the needs of each individual student."

- Governor Earl Ray Tomblin

Today's generation lives in a society that is fueled by ingenuity, knowledge, technological breakthroughs, and innovation. Life today is fast paced, connected, and highly interactive. The breakthroughs and advances responsible for these societal shifts are important to education for three critical reasons.

- First, the type of knowledge, competencies, and skills required to thrive in this century are different than they were in the past. Besides core content knowledge, students need to develop 21st century/deeper learning competencies in critical and creative thinking, problem solving, collaboration, self-direction, analytics, information literacy, and evidence based reasoning.
- Second, these innovations make it possible to personalize learning, making learning relevant and meaningful to each learner as they progress toward the achievement of state learning standards.
- Third, these shifts and breakthroughs enable a continuous collection, analysis, and reporting of data and information that create feedback loops for monitoring and of progress by the student, the teacher, and the parents. This stream of data and information provides important data for instructional and programmatic decision making.



In April of 2013, West Virginia Governor Earl Ray Tomblin joined with Bob Wise, president of the Alliance for Excellent Education and former governor of West Virginia, to announce that West Virginia would be the first state to implement Project 24, an urgent call to action for systemic planning around the effective use of technology and digital learning to achieve the goal of college and career readiness for all students.

A key element of Project 24 is an online self-assessment of a school district's readiness for

digital learning. Since April 2013, all 55 county school districts in West Virginia, plus the two state school districts have participated in that self-assessment.

The Project 24 framework helps districts address readiness for digital learning in seven key concepts: academic supports; budget and resources; curriculum and instruction; data and assessments; professional learning; technology and infrastructure; and use of time. (See the definitions below and Project 24 Gear Chart on the following page.)

This report summarizes the results from the statewide participation of school district leadership teams in Project 24 to provide an analysis of the state of district level readiness for digital learning. That analysis is then contextualized through several additional sources of information, a statewide survey of teachers, a statewide survey of school administrators, statewide inventories of the technology and infrastructure in the schools and districts, and the perspectives of 12 key stakeholders. The stakeholders included: a Senator, a representative from the governor's office, a State Board of Education member, a business leader, the Chief Technology Officer from the state education agency, a teacher, two district curriculum directors, one state curriculum director, two district superintendents (one from a rural district and one from an urban district), and a RESA Technology Leader.

The report consists of an Executive Summary, this introduction, individual sections summarizing data for each gear, a section with recommendations, a Gear Chart, and the methodology. The recommendations are those of the consultant, the Metiri Group alone.

The Gear Chart on the following page provides a description of each Project 24 gear, as well as a bulleted list of subtopics addressed by each gear. These serve as a framework for the shifts in policy and practice that will be required to achieve digital learning.

Definitions

Digital Learning. *Digital learning is any instructional practice that effectively uses technology to strengthen a student's learning experience. It emphasizes high-quality instruction and provides access to challenging content, feedback through formative assessment, opportunities for learning anytime and anywhere, and individualized instruction to ensure all students reach their full potential to succeed in college and a career. Digital learning encompasses many different facets, tools, and applications to support and empower teachers and students, including online courses, blended or hybrid learning, or digital content and resources. Additionally, digital learning can be used for professional learning opportunities for teachers and to provide personalized learning experiences for students.*
(Alliance for Excellent Education)

Deeper Learning. *Deeper learning prepares students to know and master core academic content, think critically and solve complex problems, work collaboratively, communicate effectively, and be self-directed and able to incorporate feedback. It enables graduating high school students to be college and career ready and to make maximum use of their knowledge in life and work.*
(Hewlett foundation)

Personalized Learning. *An approach to learning that is student-centric,* ***where the needs, interests, strengths, and preferences inform the learning, and where*** *students have a significant degree of control and choice in what, when, and how they learn.*
(Metiri Group)

Project 24 Gear Table (*Source: Project 24, Alliance for Excellent Education)*

Gear and Elements	Description
Gear 1: Curriculum and Instruction • **21st Century skills/ deeper learning** • **Personalized learning** • **Collaborative, relevant, applied learning** • **Leveraging technology**	Through a more flexible, consistent, and concentrated approach to academic content design and accessibility, teachers will have robust and adaptive tools to customize the instruction for groups of students or on a student-to-student basis to ensure relevance and deep understanding of complex issues and topics. Providing multiple sources of high-quality academic content offers students much greater opportunities to reflect on their own work, think critically, and investigate complex topics.
Gear 2: Use of Time • **Learning is flexible, anytime, anywhere** • **New pedagogy, schedules and learning environment for personalized learning** • **Competency-base learning** • **Strategies for providing extended time for projects and collaboration**	Student-centric learning requires changes in the way instructional time is used. Many schools are shifting away from Carnegie units to competency-based learning. This type of system adapts learning to meet the needs, pace, interests, and preferences of the learner. This transition is made possible through innovative uses of technology for diagnostic, formative and summative assessments, for managing learning, for engaging students in learning, and for providing anywhere, anytime learning. Such transitions required districts to rethink and more effectively leverage the use of instructional time.
Gear 3: Technology and Infrastructure • **Adequacy of devices; quality and availability** • **Robust network infrastructure** • **Adequate and responsive support** • **Formal cycle for review and replacement**	When employed as part of a comprehensive educational strategy, the effective use of technology provides tools, resources, data, and supportive systems that increase teaching opportunities and promote efficiency. Such environments enable anytime, anywhere learning based on competency and mastery with empowered caring adults who are guiding the way for each student to succeed. High quality, high speed technology and infrastructure systems within a school district are essential to the advancing of digital learning.
Gear 4: Data and Assessment • **Culture of evidence-based decision making** • **Online assessment and data systems support for the data culture** • **Data- and assessment-literate staff** • **Adaptive learning-analytics inform instruction**	Assessment, data, and data analytics are critical aspects of digital learning. A personalized, learner-centered environment uses technology to collect, analyze, and organize data to improve the effectiveness and efficiency of learning. Data is the building block of diagnostic, formative, and summative assessments—all of which are key elements in a system where learning is personalized, individualized, and differentiated to ensure learner success.
Gear 5: Academic Supports • **Expectations for learner-centered environments** • **Community engagement and outreach** • **Digital learning environment** • **Collaboration and teamwork** • **Parental communication and engagement**	Academic supports include the context, culture, and learning environments that are provided with the intent of increasing student learning. These supports include both the formal structures within the school day, and the informal structures that may extend learning beyond the typical school day on school grounds or beyond into the home and community. Digital communications, online communities, and digital learning environments often serve as connectors across these structures.
Gear 6: Professional Learning • **Digital Age skill set** • **Diverse opportunities for professional learning** • **New responsibilities for collaboration** • **Broad-based, participative evaluation**	Technology and digital learning can increase professional learning opportunities by expanding access to high-quality, ongoing, job-embedded resources to improve student success and to create a broader understanding of the skills that comprise success in a digital age. Professional learning communities, peer-to-peer lesson sharing, and better use of data and formative assessment, combined with less emphasis on "sit and get" professional development sessions eliminate the confines of geography and time. These ever-increasing resources offer teachers vast new opportunities to collaborate, learn, share, and produce best practices with colleagues in school buildings across the country. In addition, educators must be engaged in more collaborative, goal-oriented approaches to the evaluation of their own teaching to serve as a personal model for the experiences that they might bring to students.
Gear 7: Budget and Resources • **Efficiency and cost savings** • **Alignment to district- and building-level strategic and tactical plans** • **Consistent funding streams** • **Learning return on investment**	The transition to digital learning will require strategic short-term and long-term budgeting and leveraging of resources. All budgets at the district and the school should be aligned to the new vision, with consistent funding streams for both recurring and non-recurring costs. During the transition, district leaders should strive for cost-savings and efficiencies through effective uses of technology. The financial model should include the metrics and processes to ensure accountability for learning returns on investments.

GEAR 1

Through a more flexible, consistent, and concentrated approach to academic content design and accessibility, teachers will have robust and adaptive tools to customize the instruction for groups of students or on a student-to-student basis to ensure relevance and deep understanding of complex issues and topics. Providing multiple sources of high-quality academic content offers students much greater opportunities to reflect on their own work, think critically, and investigate complex topics. This gear is defined as the combination of several sub-categories listed below.

Gear 1: Curriculum and Instruction

- 21st Century skills/ deeper learning
- Personalized learning
- Collaborative, relevant, applied learning
- Leveraging technology

The Project 24 self-assessment reveals that West Virginia educators are envisioning new designs for learning curriculum and instruction. Two examples of those visions are shared below.

"Curriculum & Instruction will explore all options to develop digital literacy, engaging the learner in a technology-rich 21st Century environment that promotes communication, collaboration, creativity and critical-thinking."

-Urban District

"Curriculum and instruction will leverage the full range of technology and digital resources to ensure students are immersed in rich, authentic, relevant learning experiences that enable 21st Century Skills across all disciplines."

-Fringe/Distant Rural District

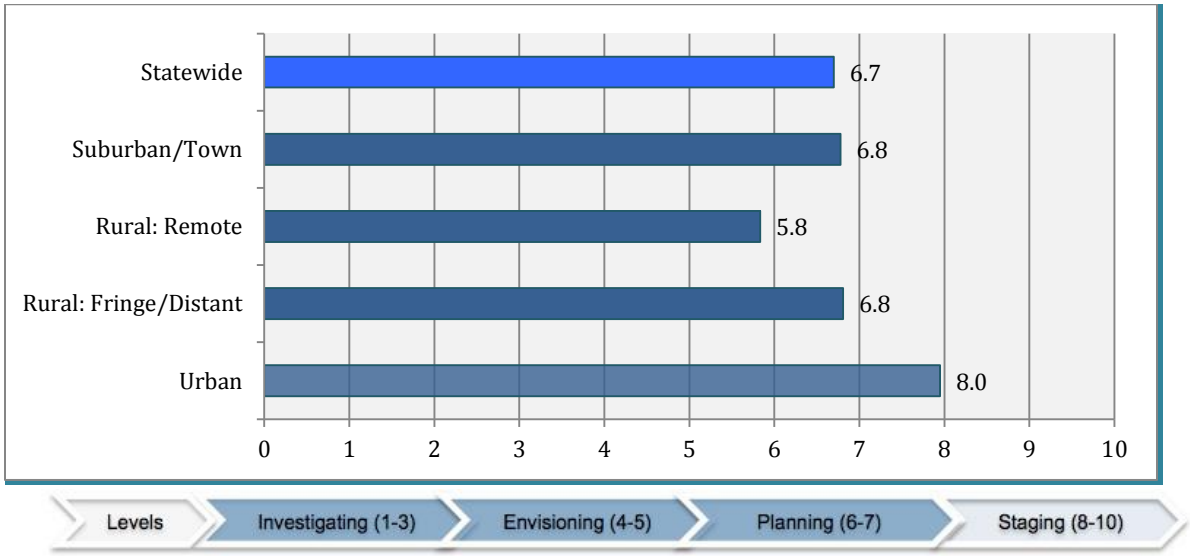
District Leadership Team Perspectives

The Project 24 self-assessment rates the readiness of school districts for successful implementation of digital learning. The four stages are: investigating, envisioning, planning, and staging.

Most West Virginia districts are in the planning stage for Gear 1 (curriculum and instruction), with a mean score of 6.7 out of 10.0 on the P24 readiness scale. This score is an indicator that most West Virginia school districts have investigated the topics associated with curriculum and instruction related to digital learning and are *beginning* to plan how they will implement those strategies in their schools. This also indicates that most districts in the state have yet to implement digital learning.

The data are also disaggregated for this Gear by locale, i.e., Urban (5), Suburban/Town (25), Fringe/Distant Rural (9), or Remote Rural (18). Results indicate that urban school districts, with an average score of 8, have finished their plans and are beginning to stage policies and practices that will ensure successful curricular and instructional shifts toward digital learning. The Fringe/Distant Rural School districts and Suburban/Town school districts are well into the planning stage, and the Rural Remote school districts are at the beginning stages of planning. See Figure 4.

Figure 4: Stage of readiness mean scores for the curriculum and instruction gear, by locale



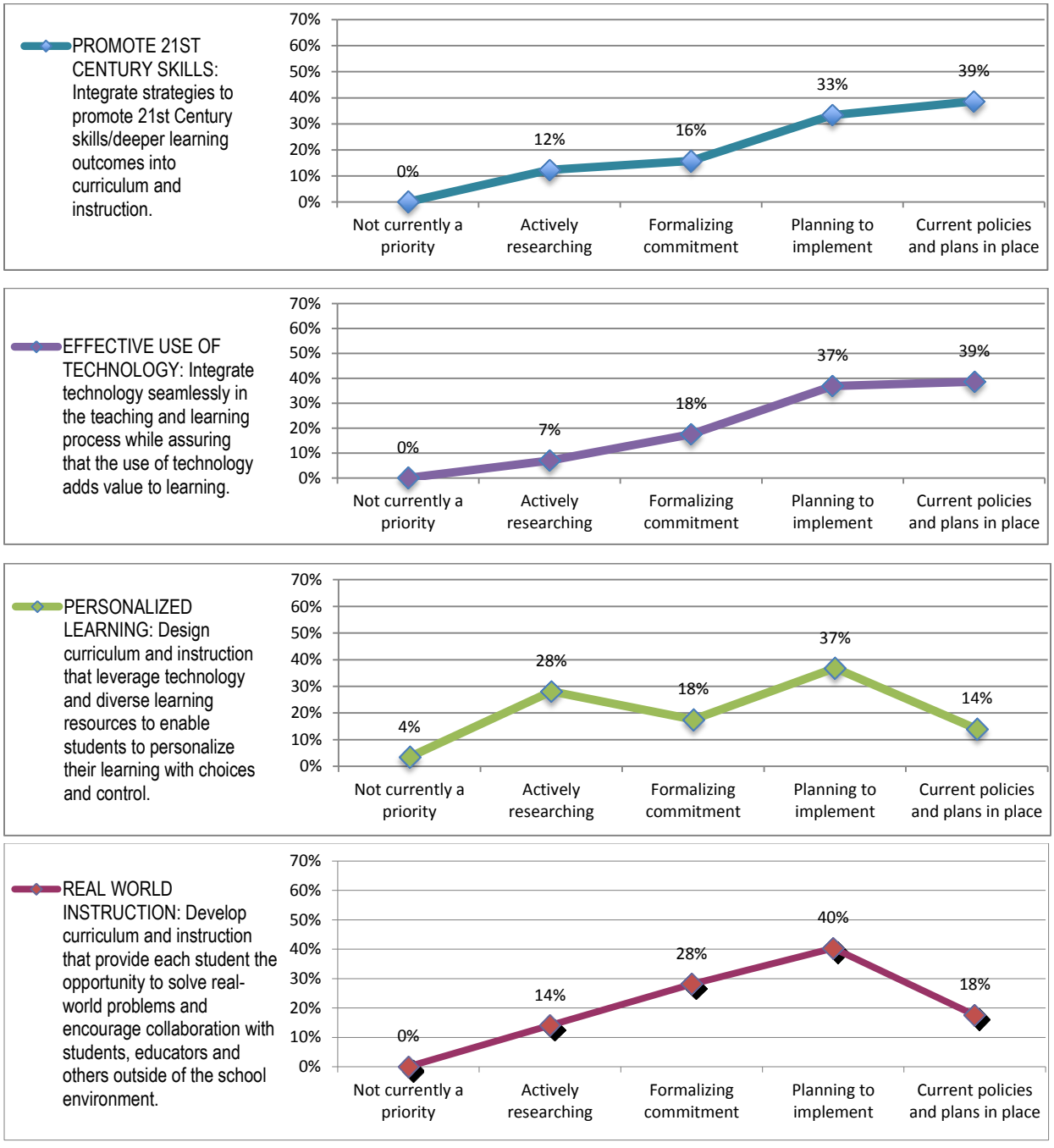
Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

West Virginia school districts were asked to report on their readiness to address curriculum and instruction differently in order to advance digital learning. This scale is designed to see where districts are, on a continuum from "*not a priority"* to "*policies and plans in place*," on subtopics related to curriculum and instruction. Those subtopics are: 21st Century Skills/deeper learning, effective use of technology for learning, personalized learning, and real-world instruction.

Figure 5 clearly illustrates that West Virginia, as a state, is making steady progress in updating its policies and plans related to 21st Century skills/deeper learning. Districts are accomplishing this through the

integration of strategies that promote 21st Century skills and deeper learning outcomes into curriculum and instruction.

Figure 5: The percent of West Virginia districts in various stages of readiness to promote 21st Century skills/deeper learning and effective use of technology



Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts).
Note: Due to rounding, some totals will not add to 100%.

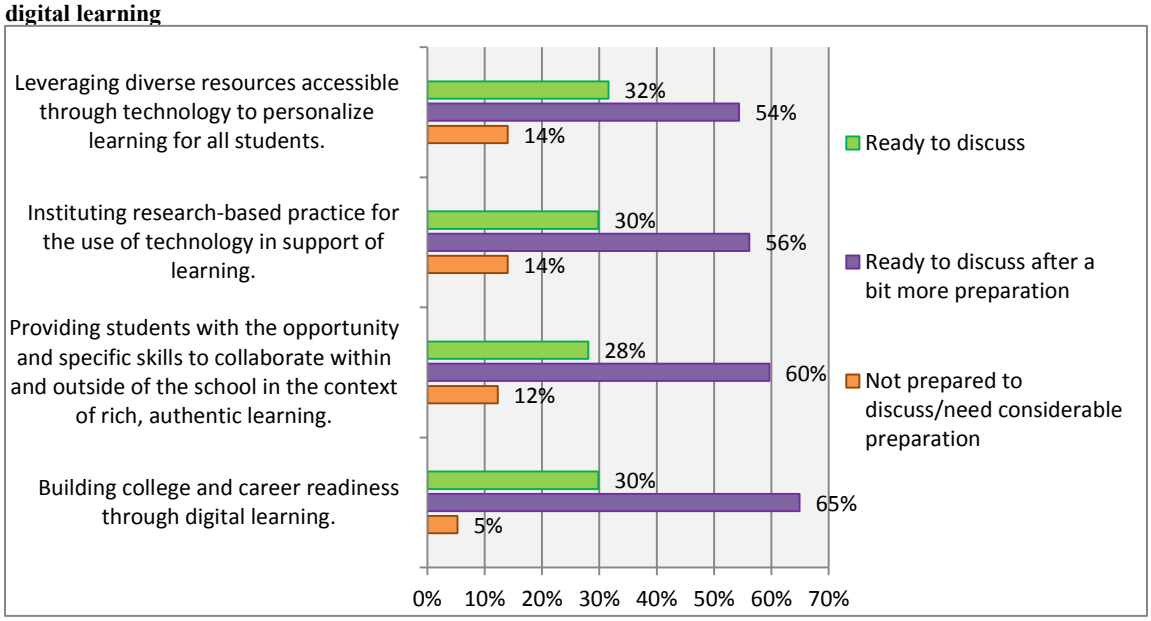
Districts have made similar progress in getting ready to use technology effectively in curriculum and instruction. In terms of personalized learning and real world instruction, more West Virginia districts are

currently engaged in planning and fewer report having policies and plans in place. Thirty-seven percent (37%) are devising plans to implement personalized learning, including designing curriculum and instruction that leverage technology and diverse learning resources to enable students to personalize their learning with choices and control. Forty percent (40%) are designing plans to implement real world instruction, developing curriculum and instruction that provide each student the opportunity to solve real world problems and encourage collaboration with students, educators and others outside of the school environment.

When results are disaggregated by locale, three of the locales, the urban, fringe/distant rural, and suburban/town have current policies and plans in place for two of the subtopics: promoting 21st Century skills/deeper learning and effective use of technology. For those same subtopics, districts in the fourth locale, remote rural, are still in the planning stage. Similar trends were found for the other two subtopics related to curriculum and instruction, personalized learning and real world instruction. The only exception to this is with urban school districts, where 44% have current policies and plans in place for real world instruction.

The Project 24 self-assessment also asked leadership teams about their readiness to discuss topics critical to digital learning. The majority of West Virginia leadership teams reported that with some additional preparation, they would be ready to discuss the topics associated with the gear. See Figure 6. This has major implications for the professional learning opportunities that will be necessary to ensure district leadership teams are grounded in sound research and knowledge as they get their districts ready for digital learning. The percentage of leadership teams that reported being ready to enter into informed discussions on each of the four topics hovered around 30%, while the percentage that reported they were not prepared for such discussions was 14% or less for each of the topics. This figure illustrates the consistency across the state of the need for further professional learning in topics related to curriculum and instruction.

Figure 6: Readiness of the 57 statewide Leadership Teams to discuss topics related to curriculum and instruction for digital learning



Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

For the most part, this pattern is repeated when the results are disaggregated by locale (urban, fringe/distant rural, remote rural, and suburban/town). Most leadership teams reported being confident they could discuss these curriculum and instruction strategies with some additional preparation. The exception is with the urban leadership teams, where 56% indicated they were ready to discuss strategies for building college and career readiness through digital learning. The remaining 44% of the urban teams reported that they would be fully informed after some additional preparation.

Teacher and School Administrator Perspectives

In a 2013 survey, West Virginia teachers were asked to rate the influence various uses of technology have on student learning in their classes. Overall, teachers indicated that most such uses of technology have a "positive influence" on student learning. Table 1 shows the majority of teachers reported that digital tools, which enable students to problem solve, develop products that demonstrate their learning, conduct online research, and conduct presentations, have a positive influence on student learning.

Table 1: The degree of influence each of the following uses of technology has on student learning in teachers' classrooms

	Not used	Negative influence	No influence	Positive influence
Digital tools for problem solving	10%	1%	5%	84%
Digital tools for students to develop products that demonstrate their learning	17%	1%	10%	72%
Online research	11%	1%	7%	81%
Presentation tools	7%	0%	6%	87%

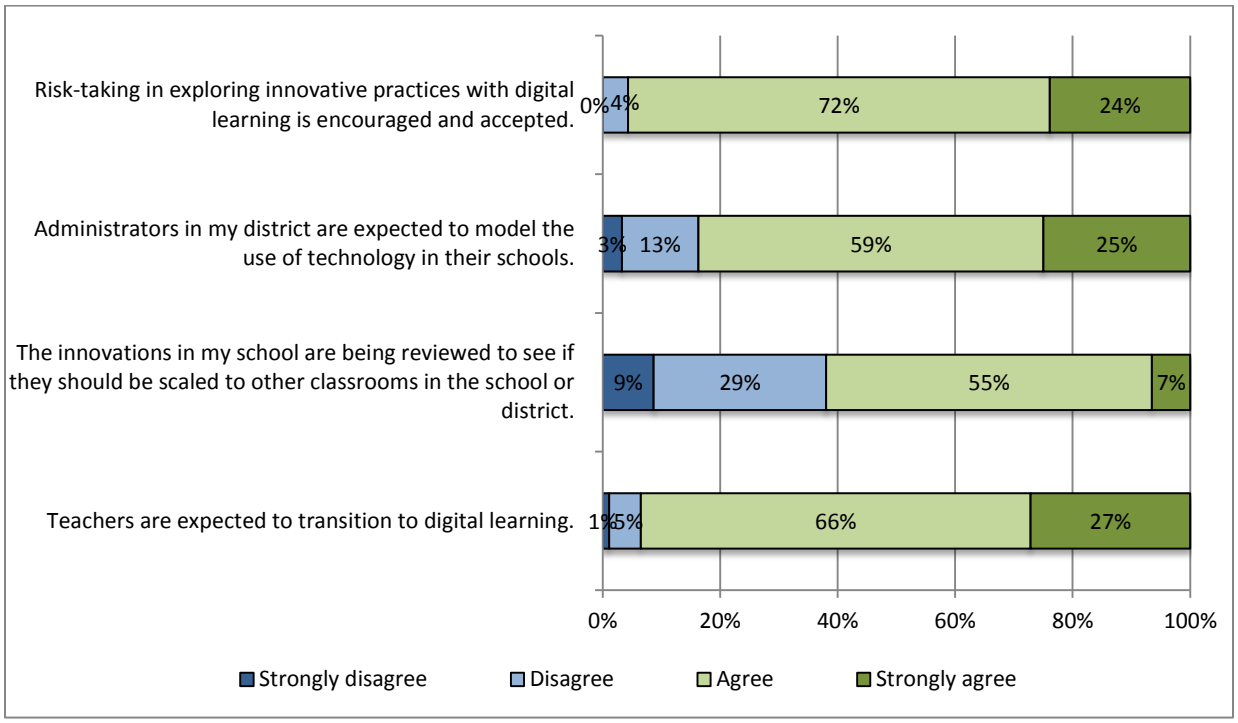
Source: Teacher Survey. n=1371 teachers

Over 80% of teachers said that digital tools positively influenced student learning in their classrooms. Furthermore, 80% of teachers said they agreed that they, as teachers, "were ready to integrate strategies to promote 21st Century skills/deeper learning outcomes into curriculum and instruction."

When asked about regular use of technology, over 50% said they used technology (at least occasionally) in the following ways: online simulations or models, curated digital libraries of images, videos and/or animations, GIS-based images (Google Earth), virtual field trips, and online news services. Conversely, over 50% of these same teachers said they never or seldom used online course or units such as Khan Academy or digital textbooks in their classrooms, eCommunications for student discussions, and e-portfolios.

The 2013 survey of West Virginia school administrators asked questions about their expectations related to deeper learning/21st century skills and technology. (See Figure 7.) School administrators overwhelmingly reported that their schools and teachers are expected to transition to digital learning. In this cluster of questions there was only one statement where they registered some disagreement: *"The innovations in my school are being reviewed to see if they should be scaled to other classrooms in the school or district."* Thirty-eight (38%) disagreed or strongly disagreed, indicating that over a third of schools are not yet evaluating innovations and scaling up the innovations that work.

Figure 7: School administrators' characterization of the culture of change related to deeper learning and technology

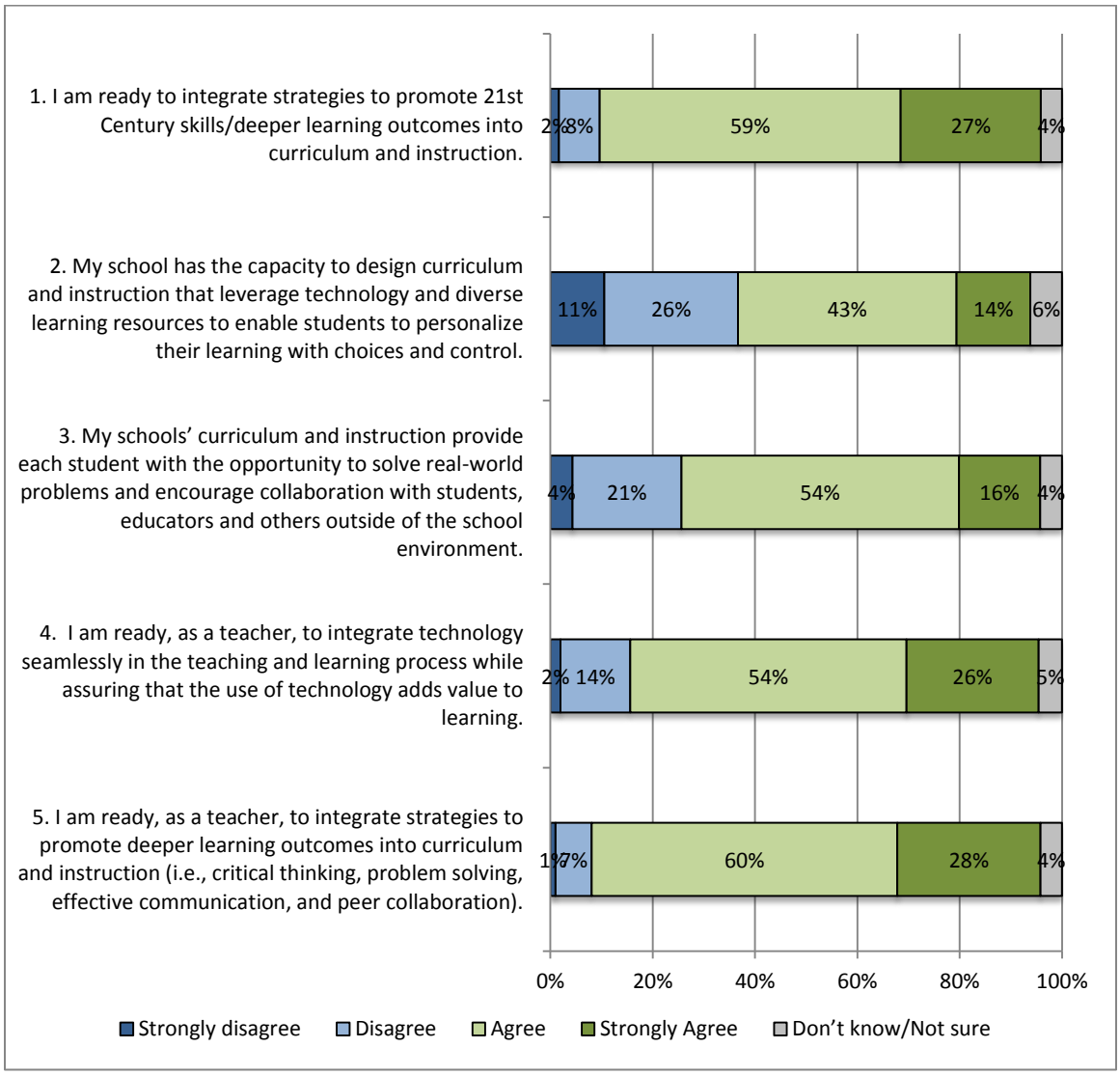


Source: School Administrator Survey. n= 92 school administrators

The set of responses from the school administrators in the chart above provide an important context to the curriculum and instruction discussion. It is clear from these data that high expectations exist in West Virginia for the transformation of classrooms and schools to digital learning. This will require significant changes in curriculum and instruction.

In a parallel survey, teachers were asked about the culture of change within their schools and to what extent they agreed with the statements in Figure 8. In general, the teachers' perceptions align with the school administrators' perceptions of the expectations for change. However, it is important to note that, while the teachers said they are ready for the transition to deeper learning/21st century skills, 37% of the teachers said their schools did not have the capacity to redesign curriculum and instruction to move toward digital learning (see chart below). In addition 25% said that their schools' curriculum and instruction does not provide students with relevant experiences necessary for this transition (see chart below).

Figure 8: Teachers' characterization of the culture of change related to deeper learning and technology



Source: Teacher Survey. n= 1371 teachers
Note: Due to rounding, some totals will not add to 100%.

Summary

Gear 1 addresses the changes required in curriculum and instruction related to digital learning. Most school districts are in the planning stage and not quite ready to implement digital learning. In separate surveys, school administrators and teachers concurred, indicating their readiness to begin the transition, but with most reporting no significant progress to date in shifting curriculum and instruction toward a vision for digital learning.

GEAR 2

Student-centric learning requires changes in the way instructional time is used. With personalization of learning as a goal, many schools are shifting away from Carnegie units, which are based on how much time a student is in class, or "seat-time," to competency-based learning. This type of system adapts learning to meet the needs, pace, interests, and preferences of the learner. This transition is made possible through innovative uses of technology for diagnostic, formative and summative assessments, for managing learning, providing real time data, engaging students in learning, and providing anywhere, anytime learning. Such transitions require districts to rethink and more effectively leverage the use of instructional time. This gear is defined as the combination of several sub-categories listed below.

Gear 2: Use of Time

- Learning is flexible, anytime, anywhere
- New pedagogy, schedules and learning environment for personalized learning
- Competency-base learning
- Strategies for providing extended time for projects and collaboration

Visions of West Virginia school districts on the use of time:

> ***"Time is crucial in all areas of implementation. Teachers need time up front to research and help support student learning on an individual basis. Learning takes longer but engages the learner, which allows for longer retention and a higher level of learning. Mastery of content is the goal not time on task."***
>
> ***- Urban District***

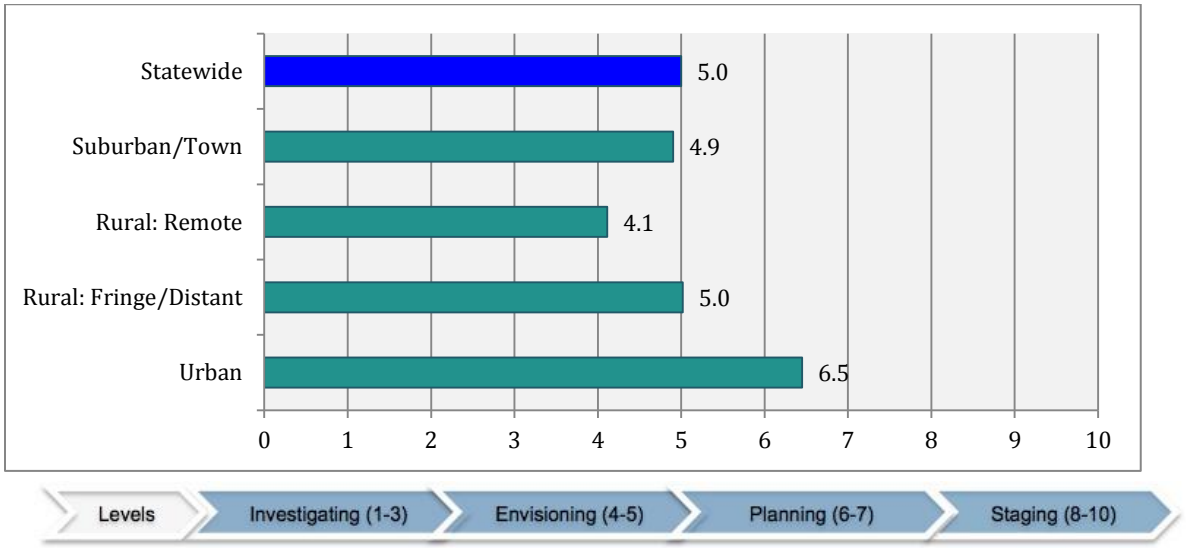
> ***"Classrooms are equipped with iPads, laptops, and notepads intended to provide extended time for personalized learning."***
>
> ***- Suburban/Town District***

District Leadership Team Perspectives

The Project 24 self-assessment rates the readiness of school districts for successful implementation of digital learning. The four stages being surveyed are: investigating, envisioning, planning, and staging.

The data are also disaggregated for this Gear by locale, i.e., Urban (5), Suburban/Town (25), Fringe/Distant Rural (9), or Remote Rural (18). The overall readiness score for Gear 2 is 5.0, which suggests that for this gear on the *Use of Time*, the state is in the envisioning stage. That typically means that district leaders have identified viable new directions for the school district. They have reviewed the possibilities, built scenarios for how those possibilities would look in their district, and by working with key stakeholders, established a common vision of the future.

Figure 9: Readiness scores for gear 2, use of time, by locale



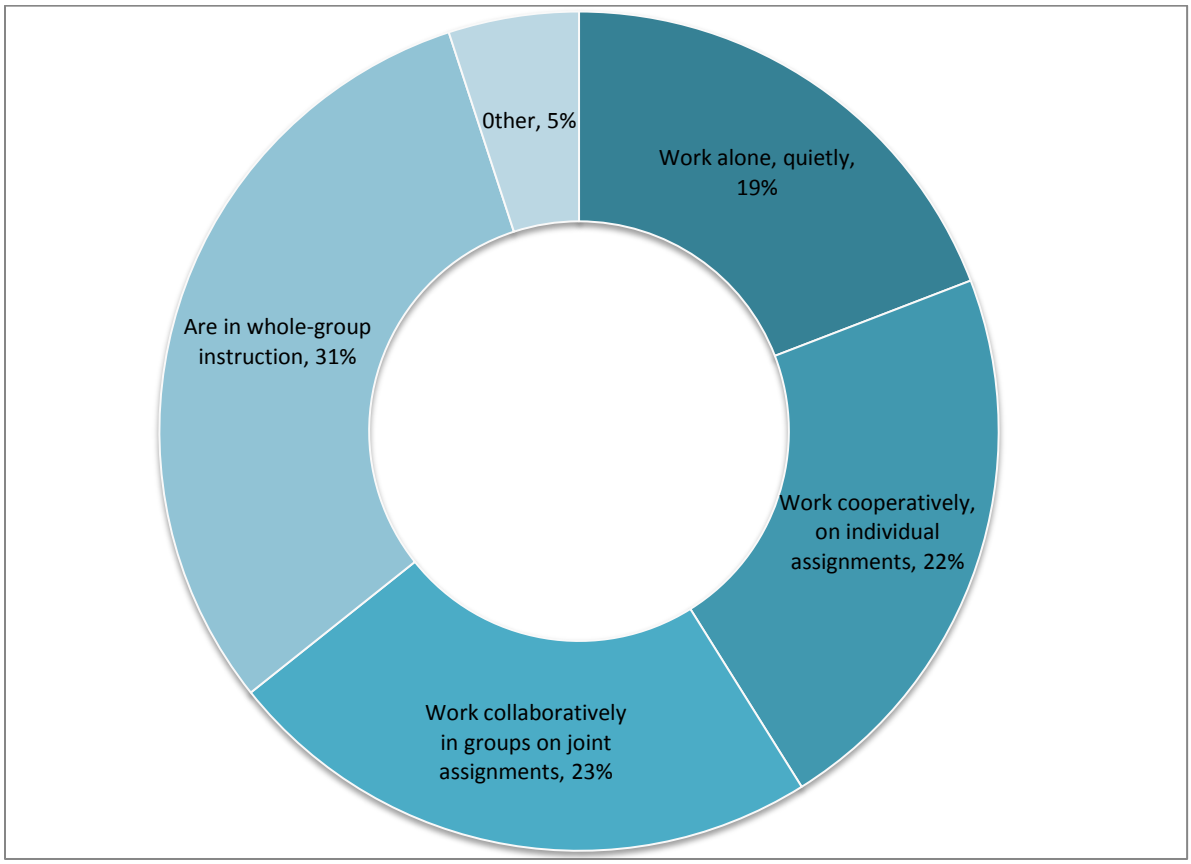
Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

Teachers and school administrators also envision new design for learning where time is leveraged differently. When asked to prioritize a list of seven student outcomes (i.e., personalization of student learning, student-centered learning, deeper learning/21st century skills, college and career readiness, digital citizenship, technology skills, and anywhere, anytime learning), both teachers' and school administrators' top three priorities were *student-centered learning*, *personalization of student learning*, and *deeper learning/21st century skills*. All fifty-seven district leadership teams reported that all seven of the outcomes were in nearly 90% of all school district visions. The notable exception was *anywhere, anytime learning*, which was in only 56% of the school districts' visions.

Teachers responding to a 2013 statewide WV teacher survey on digital learning reported using instructional time in ways that promoted small, but significant levels of cooperative and collaborative learning. That included a mix of whole-group instruction, small group, and individual learning. On average, across the 1371 respondents' classrooms, teachers reported that students spend 23% of their time working collaboratively on joint projects; 22% of their time working cooperatively on individual

assignments; 19% of their time working alone; 31% engaging in whole group instruction; and 5% in other configurations. See Figure 10. It should be noted that, in each category of instructional time there were some teachers who reported no usage, while others reported high usage. Take for example the case of collaborative learning. While the average across the state for this survey was 23%, of the 1371 teachers who responded to the survey, 450 reported 10% or less time spent on collaborative learning, while 500, 341, 60, and 20 were respectively in the categories of 15-25%, 26-50%, 51-75%, and 76-100% of time spent in collaborative learning.

Figure 10: The percentages of classroom time that teachers report spending on various pedagogical strategies.



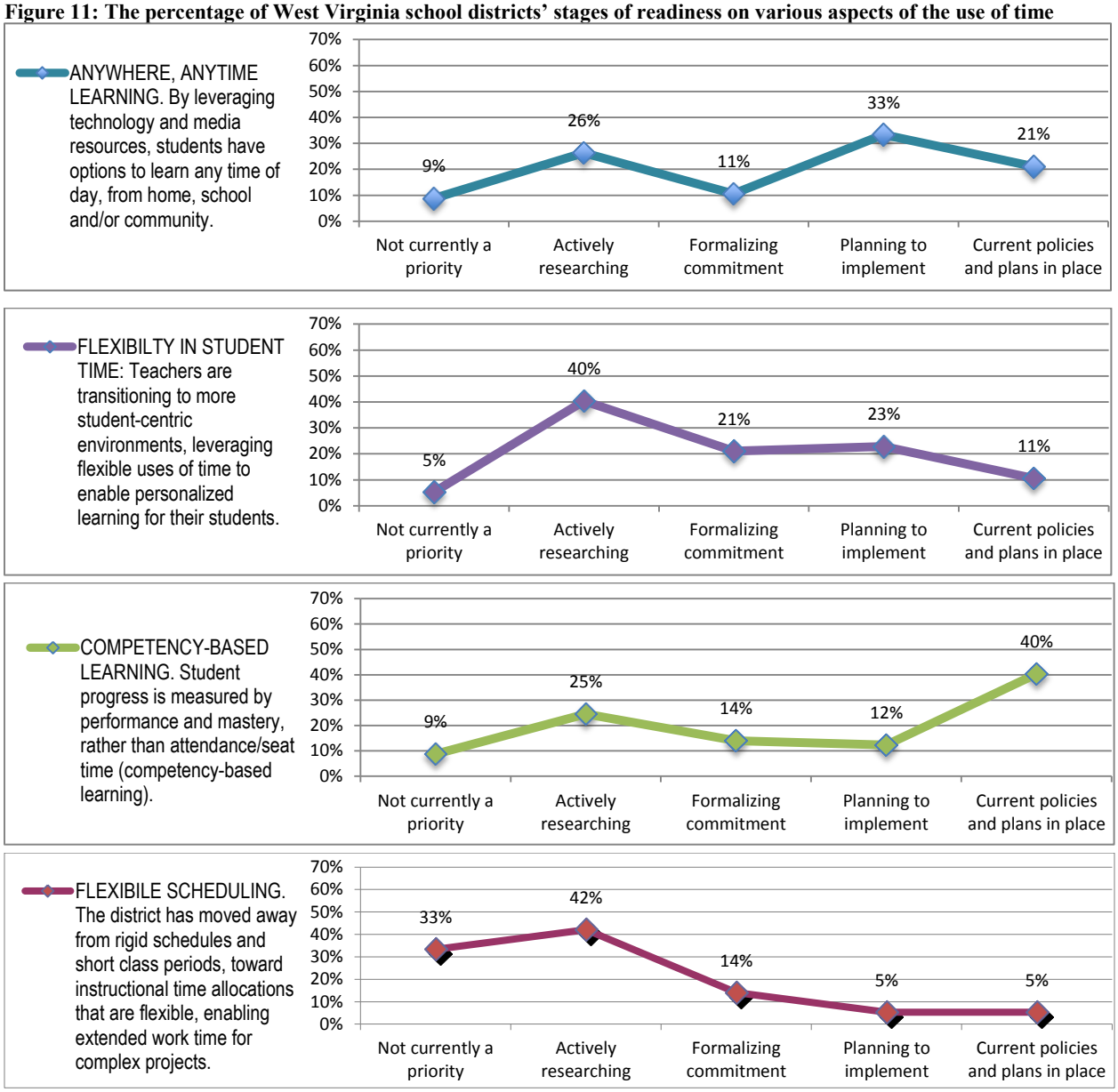
Source: Teacher Survey. n=1371 teachers

While on average, teachers' reported use of instructional time indicates a balance of whole group instruction and collaborative and cooperative learning, the range in both cases included some teachers spending no time in these categories, while others spend nearly 100% of their time using these pedagogies. Such use is often an important first step in transitioning to student-centered, personalized, deeper learning.

The Project 24 self-assessment also asked West Virginia school districts to report on their readiness to use instructional time differently. The four approaches included: *anywhere, anytime learning, flexibility to enable personalization of learning, competency-based learning*, and *flexible schedules*. This scale is designed to see where districts are on a continuum, from "*not a priority"* to "*policies and plans in place*." (See Figure 11.)

Based on responses from the school district leadership teams, it appears that 40% of school districts are beginning to implement competency-based learning, 21% are implementing some forms of anywhere, anytime learning, but only 11% on average are allowing flexibility in students' use of time, and only 5% offer flexible schedules in their schools.

Figure 11: The percentage of West Virginia school districts' stages of readiness on various aspects of the use of time



Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

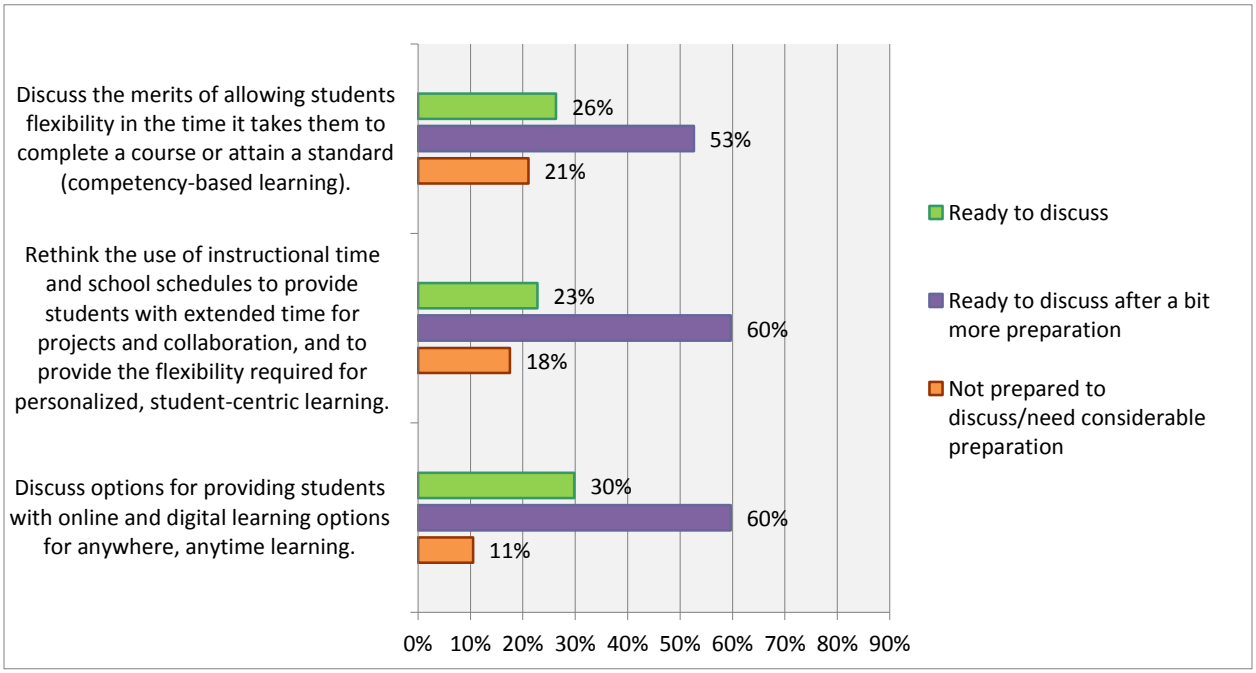
When school administrators were also asked about anywhere, anytime learning, they answered the question quite differently from the district leadership teams. Over 41% of school administrators said that it was not currently a priority, in comparison to the 9% of district leadership teams with the same

response. For that same topic (anywhere anytime learning), 27% of the school administrators said they were in the implementing stage in comparison to 21% of the district leadership teams.

Teachers also weighed in on how they are using instructional time across multiple categories. On average, teachers reported that in a typical week they dedicated 16% of instructional time to personalized learning (defined as providing students a voice in determining what, how, when, where, or with whom they learn). In contrast, on average, teachers reported that they were using direct instruction 33% of the time in class.

Leadership teams were queried as to their readiness for informed discussions on topics related to innovative uses of time in K12 schools. Gear 2 responses indicate lower readiness among the leadership teams than was found in other gears. For this gear (*Use of Time)*, only 25% of the leadership teams said they were ready to enter into informed discussions today. However, the majority (nearly 60%) of leadership teams felt they would be "ready to discuss the topic after more preparation," and between 10 and 20% felt they were not at all prepared to discuss the topics and would need consideration preparation. The most confident subgroups on this topic are the urban district leadership teams, and the least confident are the rural fringe/distant teams. See Figure 12.

Figure 12: Readiness of the 57 District Leadership Teams to consider options in the use of time that would enable personalization and flexibility in student learning



Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

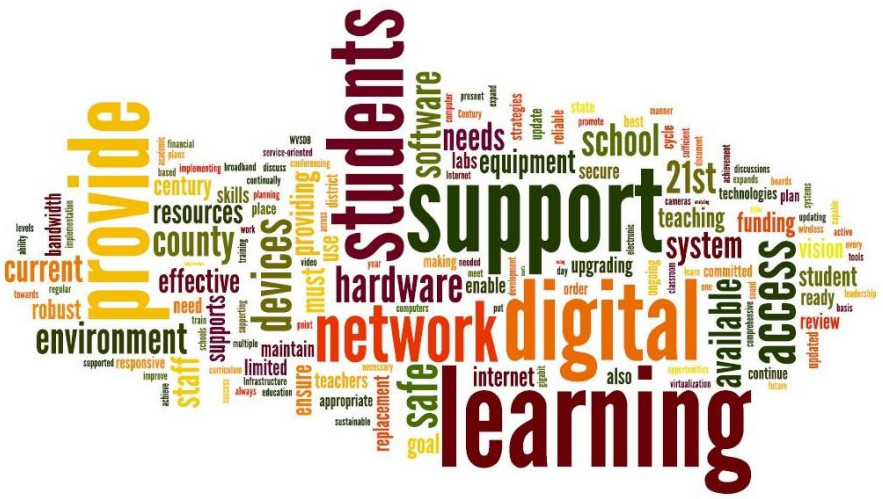
Overall, this gear (on the use of time) represents an area that must be addressed if the West Virginia vision of personalized learning, anywhere, anytime learning is to be achieved. Yet it is precisely this area that leaders have not yet fully investigated. To many it is still uncharted territory.

GEAR 3

When employed as part of a comprehensive educational strategy, the effective use of technology provides tools, resources, data, and supportive systems that increase teaching opportunities and promote efficiency. Such environments enable anytime, anywhere learning based on competency and mastery with empowered caring adults who are guiding the way for each student to succeed. High quality, high-speed technology and infrastructure systems within a school district are essential to the advancing of digital learning. This gear is defined by the subset of topics included below.

Gear 3: Technology and Infrastructure

- Adequacy of devices; quality and availability
- Robust network infrastructure
- Adequate and responsive support
- Formal cycle for review and replacement



Two examples of technology and infrastructure visions are shared below.

> ***"The technology leadership teams regularly evaluate and plan for future technology needs and upgrades to ensure appropriate digital access for students and instructors."***
>
> ***-Fringe/Distant Rural District***

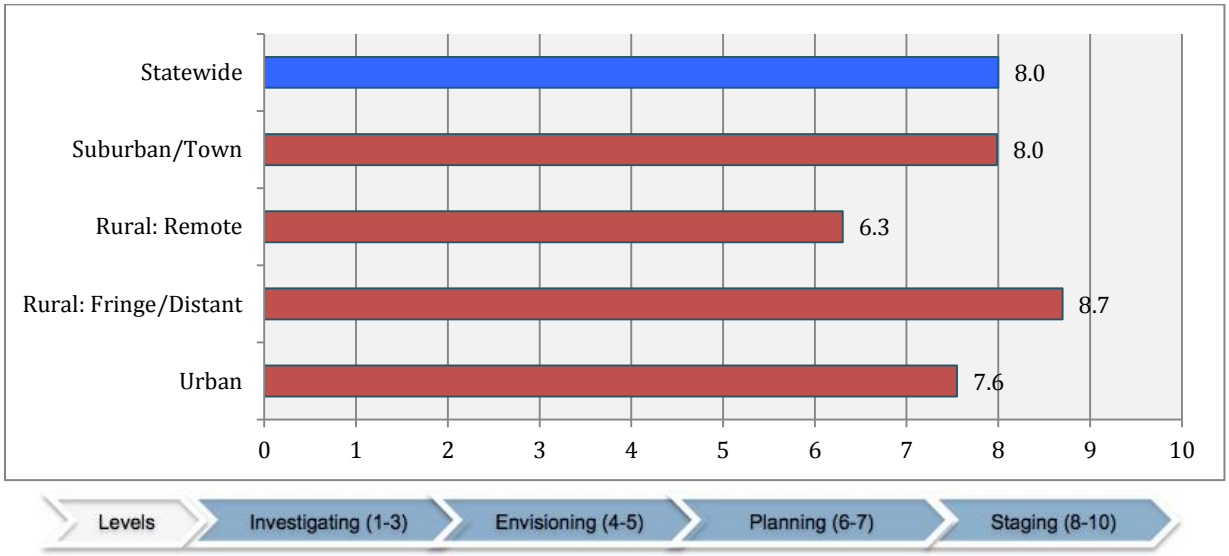
> ***"Our goal is to provide a safe, solid, infrastructure to support current and emerging technology. To that end, local, state, and federal funds will be used to upgrade software and hardware."***
>
> ***-Suburban/Town District***

District Leadership Team Perspectives

District leadership teams completed the Project 24 audit on their state of readiness for digital learning from their unique perspective. The Project 24 self-assessment rates the readiness of school districts for successful implementation of digital learning. The four stages are: investigating, envisioning, planning, and staging.

The West Virginia districts are in the staging phase of readiness in terms of technology and infrastructure, with a mean score of 8.0. This means that the districts in the state are ready for implementation of technology and infrastructure required as a foundation for digital learning. More specifically, the district leadership teams report that their districts and schools are well staged in terms of having: adequate devices, i.e., quality and availability; robust network infrastructure; adequate and responsive technical support; and a formal cycle for review and replacement.

Figure 13: Stage of readiness mean scores for the technology and infrastructure gear, by locale



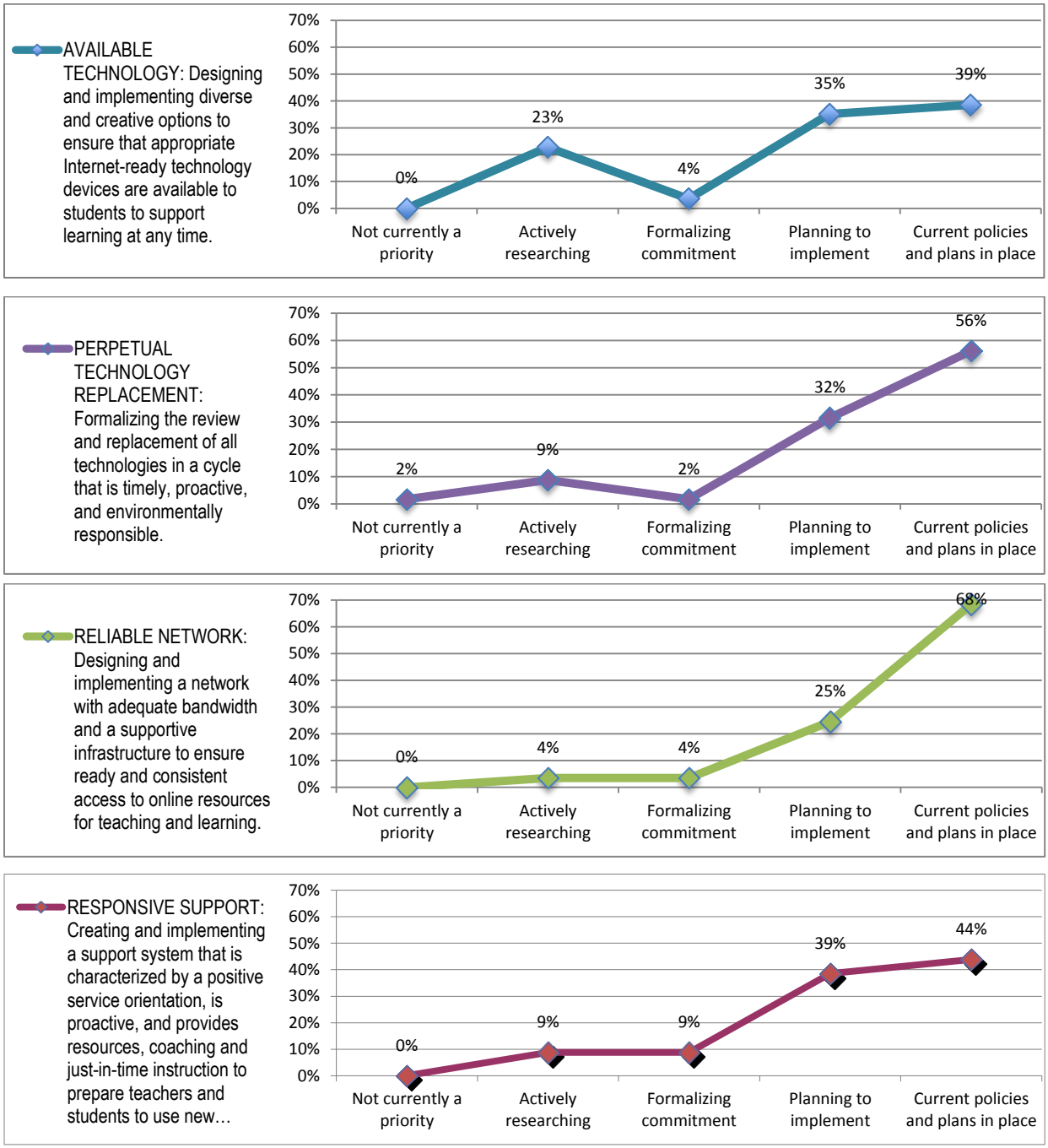
Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

The data are also disaggregated for this Gear by locale, i.e., Urban (5), Suburban/Town (25), Fringe/Distant Rural (9), or Remote Rural (18). Figure 13 shows that suburban/town districts, on average, are just in the staging phase and are ready to implement their visions for technology and infrastructure. Fringe/distant rural districts are also in the staging phase; followed by urban school districts, which are in the planning stage of implementing their technology and infrastructure visions; and remote rural districts, which, on average, are also in the planning stage of implementation.

West Virginia school districts were asked to report on their readiness to address access and infrastructure differently to accommodate digital learning. The four approaches included: options to ensure that technologies are available, perpetual technology replacement, reliable networks and responsive reports. This scale is designed to see where districts are on a continuum from "*not a priority"* to "*policies and plans in place*." (See Figure 14.)

More than half of the West Virginia districts (56%) have current policies and plans in place for technology replacement. Specifically, policies, expectations and plans are in place for formalizing the review and replacement of all technologies in a cycle that is timely, proactive, and environmentally responsible.

Figure 14: The percent of West Virginia districts in various stages of readiness in providing available technology and a perpetual technology replacement plan.



Source: Project 24 self assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

Similarly the majority of West Virginia districts (68%) have current policies and plans in place to have a reliable network, including designing and implementing a network with adequate bandwidth and a supportive infrastructure to ensure ready and consistent access to online resources for teaching and learning. Most West Virginia districts are moving toward having current plans and policies in place for a responsive support system, creating and implementing a support system that is characterized by a positive service orientation, is proactive, and provides resources, coaching, and just-in-time instruction to prepare teachers and students for the use of new technologies; with 39% planning to implement and 44% having policies and plans in place (Figure 14).

The paragraphs above summarize the data for all school districts in the state. Disaggregating the data by locale (urban, suburban/town, fringe/distant rural, and remote rural) provides additional insights into only one of the series above. In terms of *perpetual technology replacement*, the majority of fringe/distant rural districts (80%), suburban/town districts (50%), and urban districts (60%) have policies and plans in place. Seventy-eight percent (78%) of remote rural districts are one stage back in planning. Further, Table 2 shows that more than half (56%) of fringe/distant school districts have current policies and plans in place to provide available technology, whereas, in the other locales that percentage drops to under 30%.

Table 2: The percent of West Virginia districts in various stages of readiness in providing available technology, by locale

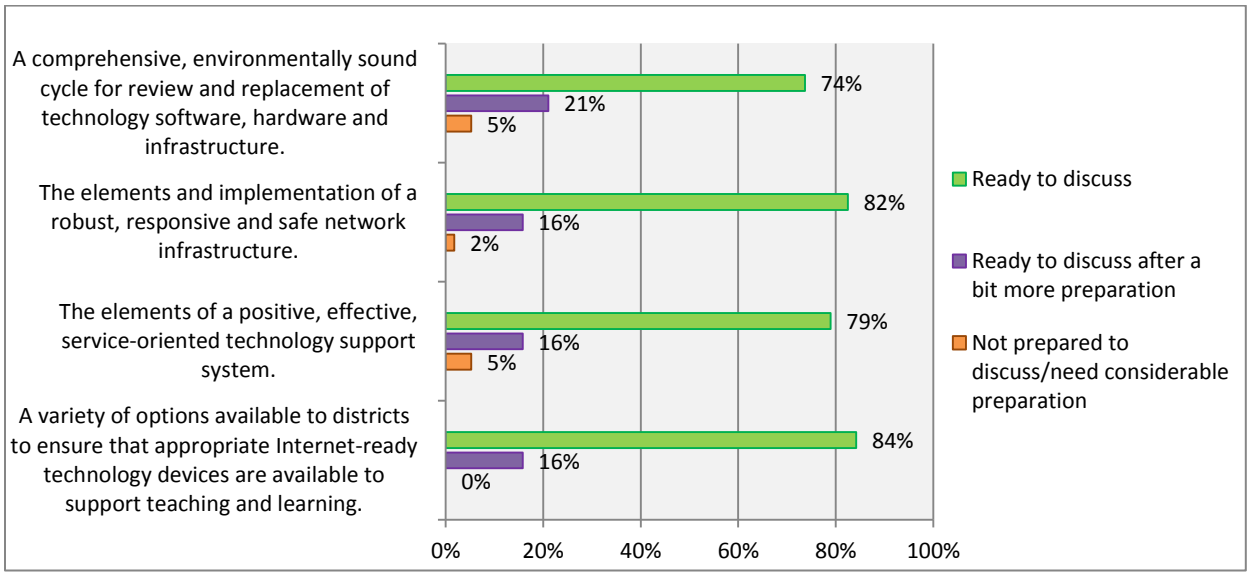
Locale	Not currently a priority	Actively researching	Formalizing commitment	Planning to implement	Current policies and plans in place
Urban (5)	0%	60%	0%	20%	20%
Fringe/distant rural (25)	0%	12%	0%	32%	56%
Remote rural (9)	0%	56%	0%	22%	22%
Suburban/Town (18)	0%	11%	11%	50%	28%

Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

Leadership teams were also queried in the Project 24 self-assessment as to their readiness for informed discussions on topics related to technology and infrastructure in K12 schools. Responses indicate that the majority of the West Virginia leadership teams are ready to discuss the topics related to technology and infrastructure. Figure 15 shows that 84% of leadership teams are ready to discuss topics related to options available to districts to ensure that internet- ready technology devices are available to support teaching and learning. Likewise when administrators were asked a similar question, 58% indicated that access to devices in their school is sufficient to meet learning needs.

According to district leadership teams, this trend of high level of readiness in access and infrastructure is consistent across all locales, urban, fringe/distant rural, remote rural, and suburban/town. This seems to further emphasize the level of preparation West Virginia districts have completed to ensure their schools have the technology and infrastructure for the advancement of digital learning. However, the results from the survey of school administrators indicate that such technology readiness is not yet universal in West Virginia schools.

Figure 15: Readiness of the 57 statewide Leadership Teams to discuss topics related to technology and infrastructure



Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

School Level Perspectives

At the school level, administrators were also asked about access to devices and the Internet. With respect to devices, the school administrators was asked to what extent their school was "*designing and implementing diverse, creative options to ensure that appropriate Internet-ready technology devices are available to students to support learning at any time."* Only 21% indicated that they had successfully implemented such a process, while a significant number (43%) said they were currently implementing such a process. Slightly less than a third said they were only now researching this idea, and 5% said it was not a priority.

School administrators were also asked the extent to which they were, "*Designing and implementing a network with adequate bandwidth and a supportive infrastructure to ensure ready and consistent access to online resources for teaching and learning*."

Table 3: Administrator perspective on the extent to which they were providing students with access

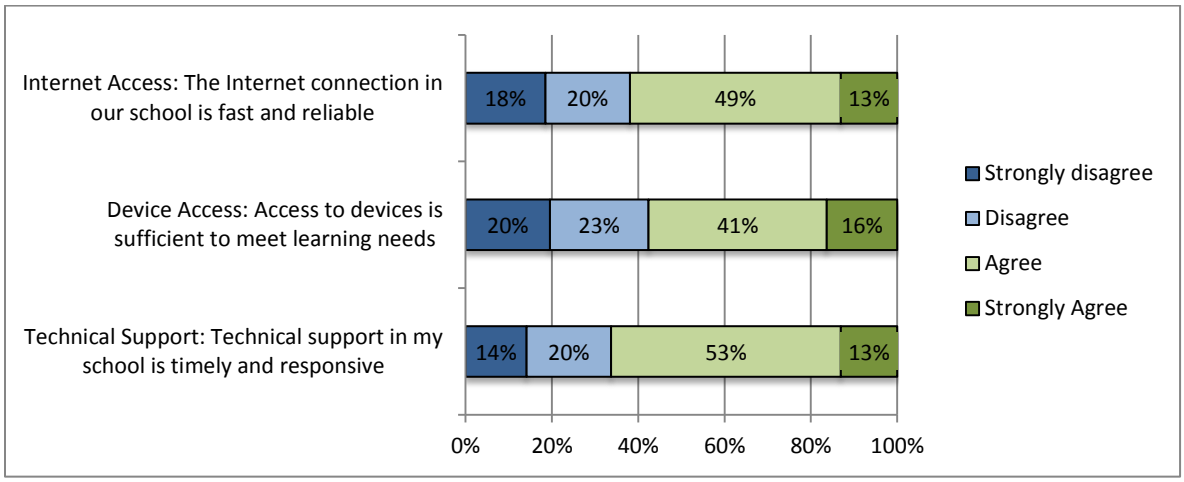
	Not currently a priority in our school	Actively researching Planning Stages	Currently Implementing	Implementation completed with success
Devices	5%	30%	43%	21%
Internet Access	2%	20%	45%	34%

Source: School Administrator Survey. n= 92 school administrators

Note: Due to rounding, some totals will not add to 100%.

School administrators verified these data when asked if they agreed with positive statements on bandwidth, device access, and technical support in their schools. See Figure 16.

Figure 16: School administrator perspectives on access and infrastructure.



Source: School Administrator Survey. n=92 school administrators

Of the 92 school administrators who responded to the survey, 62% said they agreed or strongly agreed that, "The Internet connection to our school is fast and reliable." However, nearly 40% of the school administrators disagree or strongly disagreed. When asked about devices, 57% of the school administrators said they agreed or strongly agreed with the statement, "Access to devices is sufficient to meet learning needs." The remaining 43% disagreed, with 1 out of 5 school administrators strongly disagreeing, in essence, saying that access to devices is insufficient to meet learning needs. Finally, school administrators were also asked to what extent they agreed with the statement, "Technical support in my school is timely and responsive." Nearly two-thirds (66%) of the school administrators said they agreed or strongly agreed. The remaining third did not agree, with 14% (within that 33%) strongly disagreeing. Unlike the data from the school district leadership teams (Project 24 self-assessment), the responses from school administrators differed somewhat across locales, with urban reporting the highest level of adequacy in all three categories (device, Internet bandwidth, and technical support) at the school level. Meanwhile, over 50% of school administrators in the suburban/town locale said their Internet bandwidth was not adequate, and over 50% of remote rural school administrators said their access to devices was not adequate. School administrators who completed the surveys indicate that access to devices and reliable Internet bandwidth in schools across West Virginia is not yet adequate or universal.

Teacher feedback

Data from teachers indicate there remain challenges in West Virginia related to access and bandwidth. The final question on the 2013 West Virginia Teacher Survey was an open-ended, optional question asking for final comments on digital learning. Approximately a third of the 1371 West Virginia teachers who completed the survey took the time to comment. Many of them called for increased access to up-to-date and reliable technological devices. Almost half (210) of those who commented referenced issues with devices. Many of the teachers (180) generally wanted more devices, including updated devices and programs in which each student had access to a device (1:1 programs). Some of the teachers (78) said they had devices, but these devices were unreliable and their schools lacked technical support. Below are some comments from the teachers.

"There is one iPad lab to the entire middle school. Scheduling the computer labs is difficult and undependable. I have often been booted out last minute for testing of some sort… Students need to be regularly using the programs in a variety of situations to become more familiar. They also need to see how the software can benefit them."

"Access to technology is extremely limited. There are not enough computers in the school to have access."

"When letting my students conduct research on their own, many websites are blocked from access. I also do not have access to the correct graphing calculators as a mathematics teacher."

"Many of our more remote schools need substantial assistance before we are able to adequately promote digital learning. With limited funds and limited access to up-to-date modern technology ranging from smart boards, to computers with the capability to run software required to have smart boards, to wall outlets that would even allow these technologies to function, many of these types of schools cannot promote digital learning even if the teachers are trained and enthusiastic for digital learning."

There was also a call for access to reliable Internet in schools from 77 teachers.

"I am excited about where education is going. However, I feel the state is not equipped to handle the drain on the Internet within the school system. Our progress OFTEN has us at the mercy of an Internet system that works slowly and often kicks students off while we are trying to work on schoolwork. They have issues with submission, other work, and downloads".

West Virginia Technology Datasets

The WV Department of Education maintains several datasets that provide current information on devices in schools and broadband by school and district. See Appendix B for a full description. These datasets include the Digital Divide dataset, the West Virginia High Level Capacity Analysis dataset, and the All K-12 Connections Summary data. The Digital Divide data, collected by the West Virginia Department of Education, provides information from West Virginia school districts on student computer ratio, teacher computer ratio, numbers and types of computers available, teacher technology training, counts of technology peripheral devices, and connectivity. The West Virginia High Level Capacity Analysis dataset indicates if each school has enough devices to complete the spring Online WESTEST 2 assessment. The All K-12 Connections Summary data, provided by WV school and administration, provides broadband connection information.

Standards

The state looks at three standards to gauge progress with the access and infrastructure. First, given that the state is moving to online assessment of state testing in 2014, an initial standard is technology readiness for online testing. Based on the latest data from the West Virginia Department of Education, 97% of schools are ready for online assessment.

A second standard is one set for digital learning by the State Technology Directors Association (SETDA) in their 2012 report, The Broadband Imperative. In that report, SETDA indicates that, "for connectivity to support next generation approaches to college and career readiness: schools will need external internet

connections to their Internet service provider of 100 Mbps per 1,000 students and staff by 2014-15." This translates into 100 Kbps per student. The West Virginia Department of Education finds that 68% of its schools meet that standard today.

A third standard is the connectivity standard set in the 2012 SETDA report of 1 Gbps per 1,000 students and staff by 2017-18. The West Virginia Department of Education finds that only 5% of its schools meet that standard today.

Ratio of Students to Computers

The West Virginia Department of Education compiles information from West Virginia school districts on student computer ratio, teacher computer ratio, numbers and types of computer available, teacher technology training, counts of technology peripheral devices, and connectivity. According to the digital divide data compiled by that state agency as of September 2013, the statewide ratio of students to computers is less than 2:1 (1.72 students to each computer). As noted in Table 4, the remote rural schools have a significantly lower ratio than do the fringe/distant rural, suburban/town, and urban schools. That means that the remote rural schools are closer to 1:1 computing (i.e., a ratio of 1 computer for each student) than the other locales. Those data also indicate that 95% of West Virginia schools have some wireless connectivity.

Table 4: Student to computer ratio by locale

Locale with district count	Student/ Computer Ratio
Urban (5)	1.70
Fringe/distant rural (25)	1.73
Remote rural (9)	1.46
Suburban/Town (18)	1.72

Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

West Virginia High Level Capacity Analysis dataset

West Virginia is a member of the Smarter Balanced Assessment Consortium (SBAC). As a member, it plans to participate in the state's online assessment of Common Core State Standards. According to the West Virginia High Level Capacity Analysis, 97% of West Virginia schools have sufficient numbers of Internet-ready devices that meet the SBAC standards to complete the spring 2014 Online WESTEST 2 assessment. This dataset also indicates that all West Virginia schools have sufficient network bandwidth to handle current online assessment bandwidth demands. This SBAC Internet bandwidth standard for online assessment is a ratio of Kbps per simultaneous test taker, (i.e., the largest number of students that will be simultaneously taking the online tests). This is different from the 100 Kbps per student (all students) established by SETDA, which is mentioned above.

All K-12 Connections Summary data

The All K-12 Connections data were updated December 9, 2013. They indicate that 510 schools of the 749 (68%) schools with student enrollments met the 2014 State Educational Technology Directors' Association (SETDA) recommendations that by the 2014-15 school year, all schools should have 100 Mbps per 1,000 students. That means that 32% have not yet met this criterion. Furthermore SETDA

standards recommend that by 2017-18 all schools should have 1 Gbps (1,000 Mbps) per 1,000 students and staff. If that standard were applied today, only 6% (52) of the 870 schools would qualify.

In summary, the statistics from the state department related to access and bandwidth are current based on self-reports from the school district. Those data suggest that the state has met its targets in technological readiness for online testing and is progressing toward reaching the national standards necessary for comprehensive digital learning.

The various datasets collected, accessed, analyzed, and synthesized provide multiple and diverse perspectives from different constituent groups. The school administrators' and teachers' voices from the surveys provide further insights into the devices and bandwidth statistics from the state. They suggest further inquiry into the following questions:

- What does the juxtaposition between the vision for deeper, anywhere anytime learning and the profile of the computers/devices available for instruction indicate? Are the types of computers and devices the students and teachers need to meet learning demands currently available in the inventories described by the state and school districts?

- When districts are reporting adequate bandwidth levels that meet current standards for online testing and digital learning, why are significant numbers of school administrators and teachers finding the access to be unreliable and inadequate?

GEAR 4

Assessment, data, and data analytics are critical aspects of digital learning. A personalized, learner-centered environment uses technology to collect, analyze, and organize student data to improve the effectiveness and efficiency of learning. Data are the building blocks of diagnostic, formative, and summative assessments – all of which are key elements in a system where learning is personalized, individualized, and differentiated to ensure learner success. This gear is defined by the subset of topics included below.

Gear 4: Data and Assessment

- Culture of evidence-based decision making
- Online assessment and data systems support for the data culture
- Data- and assessment-literate staff
- Adaptive learning-analytics inform instruction

The image above represents statewide vision statements for data and assessment. Examples of data and assessment visions articulated by West Virginia district leadership teams:

> ***"Our teachers and school administrators are led by assessment coaches through a data analysis system 3 times a year. Our vision is to continue implementing this data analysis system to a level of county wide immersion."***
>
> ***-Fringe/Distant Rural District***

> ***"[We are] focused on making effective use of data in working with students. Transitioning to Smarter Balanced Assessment will allow opportunities to better assess student learning."***
>
> ***-Suburban/Town District***

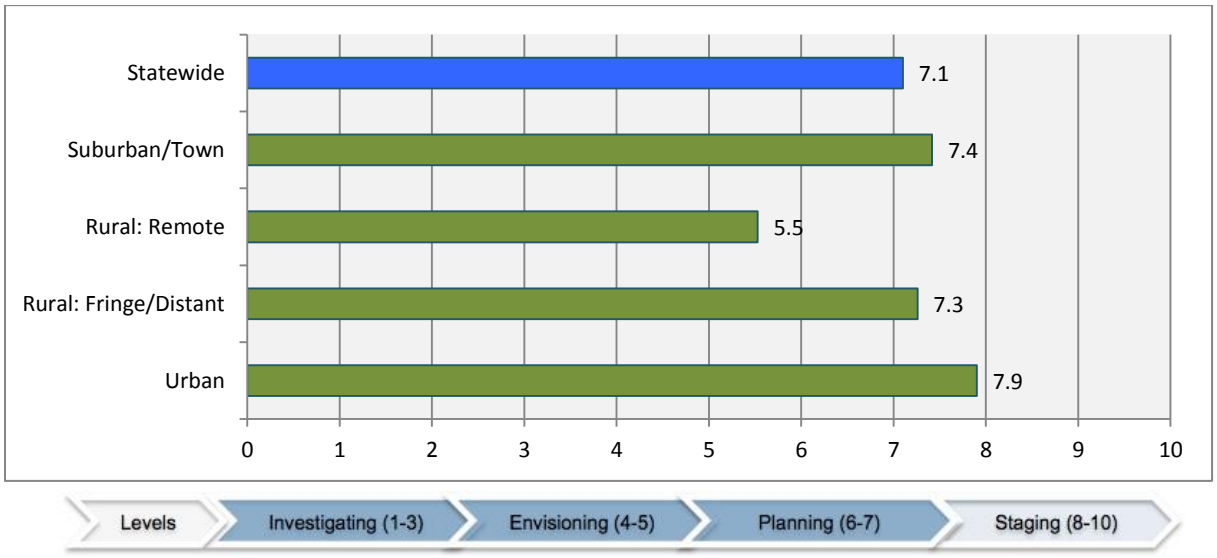
District Leadership Team Perspectives

The Project 24 self-assessment rates the readiness of school districts for successful implementation of digital learning. The four stages are: investigating, envisioning, planning, and staging.

The results from the Project 24 survey indicate that most West Virginia districts are in some part of the planning phase (Levels 6-7) of readiness in terms of data and assessment, with a mean score of 7.1. The planning stage means that district leaders have established indicators of success based on the vision, set a baseline, and conducted a gap analysis. Further, they have forged a plan for closing identified gaps and are identifying key strategies for making progress toward those targets.

The data are also disaggregated for this Gear by locale, i.e., Urban (5), Suburban/Town (25), Fringe/Distant Rural (9), or Remote Rural (18). Suburban/town, fringe/distant rural and urban districts are, on average, in the planning stage of implementing their vision for data and assessment, with the urban districts closest to being at the staging phase. The remote rural districts are still in the envisioning stage for Gear 4, about to move into planning: data and assessment. The envisioning phase includes meetings with stakeholders to elicit their perspectives on how the district will look as a strong data culture, district leaders envisioning how the online assessments and data systems will operate in the context of other district reforms, and district leaders creating data-driven decision-making scenarios.

Figure 17: Stage of readiness mean scores for the data and assessment gear, by locale

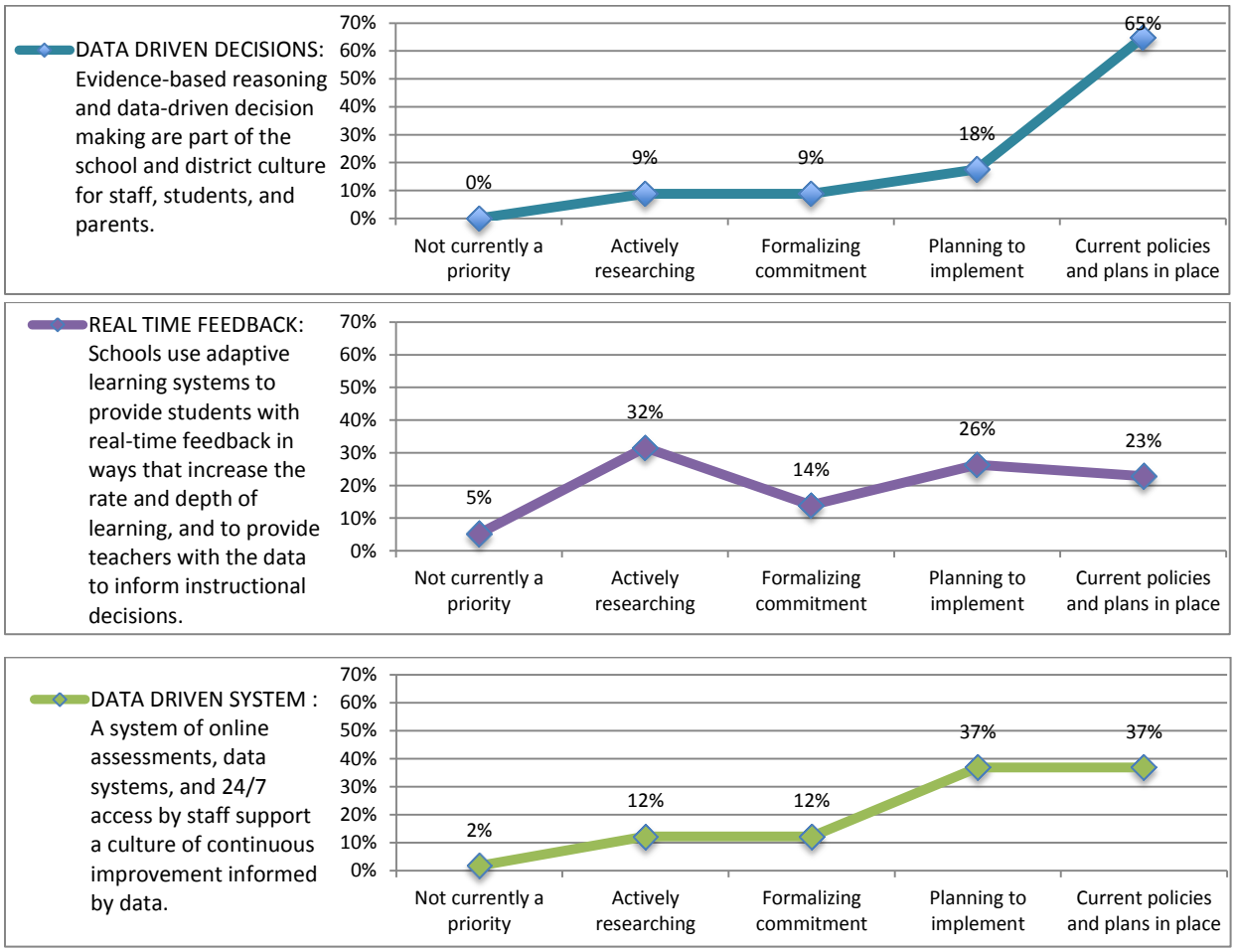


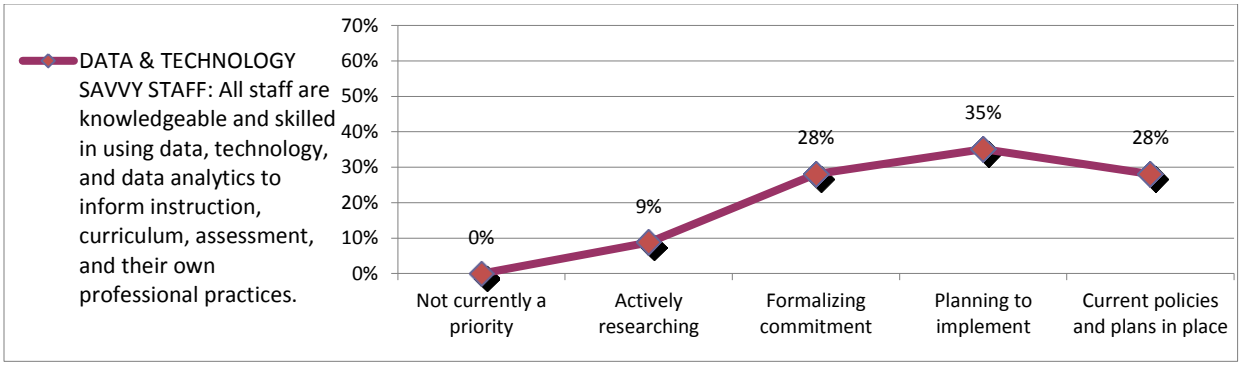
Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

West Virginia school districts also were asked to report on their readiness to address data and assessment differently to accommodate digital learning. The four subtopics included: data driven decisions, real-time feedback to students and teachers, data driven system, and data and technology savvy staff. This scale used in these questions was designed to see where districts are, on a continuum from "*not a priority"* to "*policies and plans in place*."

Figure 18 shows that 65% of the West Virginia districts have current policies and plans in place to make data driven decisions. As noted above, the visions from West Virginia school district leadership teams indicated their intent for evidence-based reasoning and data-driven decision making to be part of the school and district culture for staff, students, and parents. These data indicate that their stages of progress vary considerably for the subtopics of: *providing real time feedback*, *using adaptive learning systems* (i.e., learning systems that adjust questions presented to students based on how students answered previous questions), *in providing students with real-time feedback* in ways that increase the rate and depth of learning, and in *providing teachers with the data to inform instructional decisions* (see below).

Figure 18: The percent of West Virginia districts in various stages of readiness in making data-driven decisions and provide real time feedback via adaptive learning systems.





Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

Thirty-two percent (32%) of districts are actively researching adaptive learning systems to provide real time feedback, and 26% are planning to implement such systems. Similar varying levels of readiness for West Virginia districts are found on the topics of: *having data driven systems* and *data and technology savvy staff* (See Figure 18). For *data driven systems*, an equal percent of districts (37%) are planning to implement and have current policies and plans in place. Having data driven systems often involves a system of online assessments, data systems, and 24/7 access by staff to support a culture of continuous improvement informed by data. Thirty-five percent (35%) of districts are planning to implement strategies to provide professional learning that results in all staff being knowledgeable and skilled in using data, technology, and data analytics to inform instruction, curriculum, assessment, and their own professional practices.

Disaggregating the results by locale results in similar trends. See Table 5. For instance, 33% of suburban/town districts have current policies and plans in place *for real time feedback* yet 39% are still actively researching the subtopic.

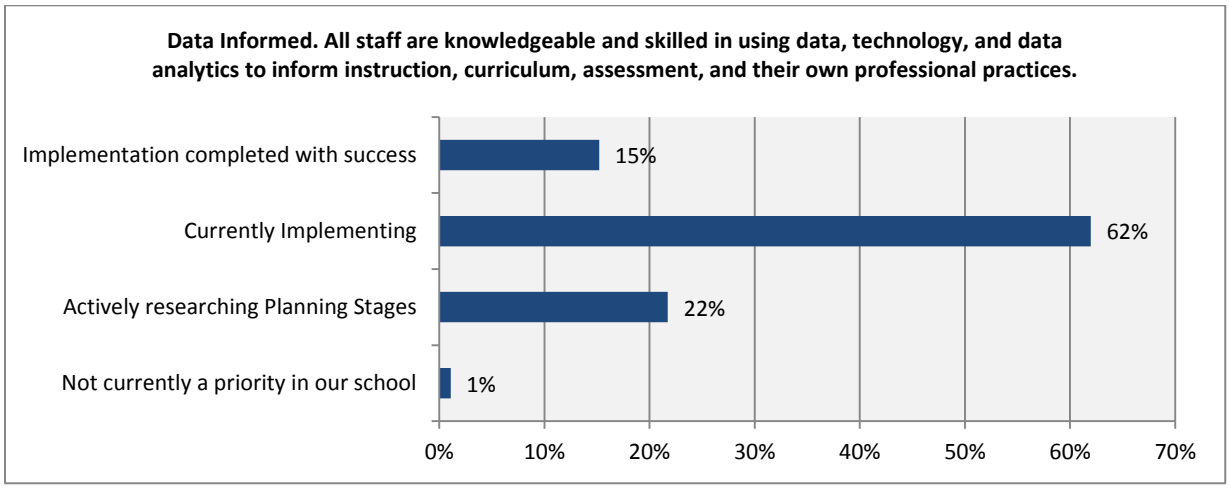
Table 5: The percent of West Virginia districts in various stages of readiness in providing real time feedback via adaptive learning systems, by locale

Locale and District Count	Not currently a priority	Actively researching	Formalizing commitment	Planning to implement	Current policies and plans in place
Urban (5)	0%	0%	40%	40%	20%
Fringe/distant rural (25)	8%	28%	8%	32%	24%
Remote rural (9)	11%	44%	11%	33%	0%
Suburban/Town (18)	0%	39%	17%	11%	33%

Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

When the administrators reported their perceptions about their schools' phases of planning or implementation related to *having data informed staff*, 62% indicated they are currently implementing strategies to ensure their staff are knowledgeable and skilled in using data, technology, and data analytics to inform instruction, curriculum, assessment, and their own professional practices. See Figure 19

Figure 19: Administrators rating of the stage of planning or implementation their school is on the following:



Source: School Administrator Survey. n= 92 school administrators

When the data from the chart above is parsed by locale, the results are relatively consistent except that urban schools are slightly more progressive. Seventy percent (70%) of school administrators in the urban schools said they were currently implementing strategies to *ensure they have a data informed staff* (in comparison to the overall 62% across locales). Similarly, 20% of school administrators have completed implementation with success, versus the 15% over all locales.

A similar question was asked in the self-assessment of school district leadership teams. As the table below shows, 40% of urban districts have current policies and plans in place in regard to having all staff knowledgeable and skilled in using data, technology, and data analytics to inform instruction, curriculum, assessment, and their own professional practices. See Table 6.

Table 6: The percent of West Virginia districts in various stages of readiness in strategies to have data and technology savvy staff

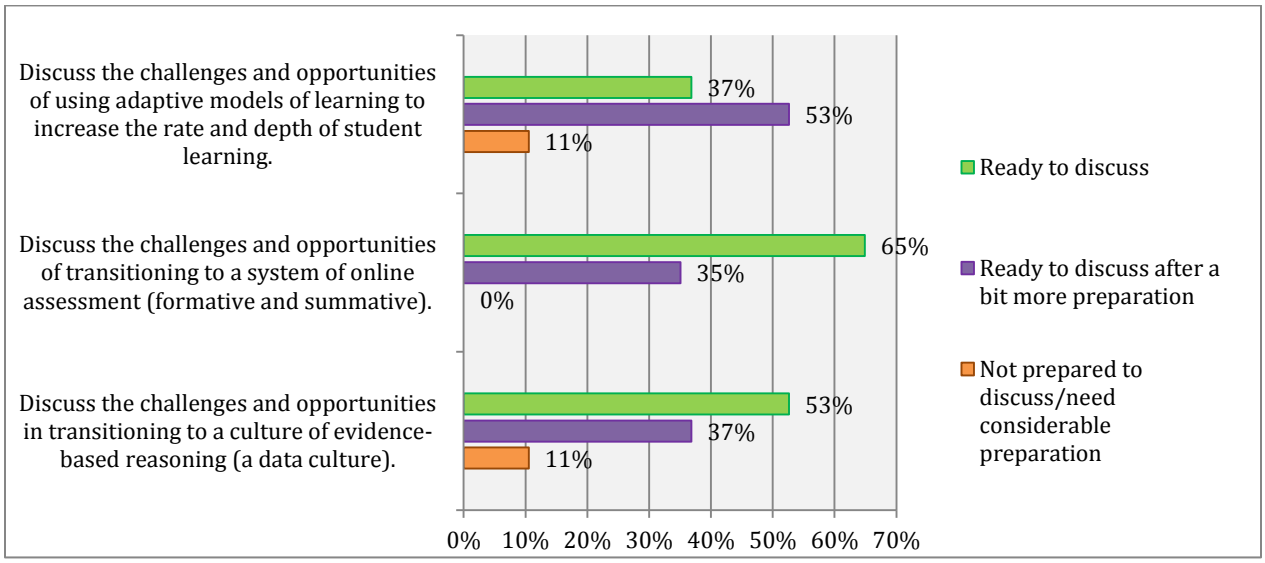
Locale and district count	Not currently a priority	Actively researching	Formalizing commitment	Planning to implement	Current policies and plans in place
Urban (5)	0%	0%	40%	20%	40%
Fringe/distant rural (25)	0%	4%	36%	32%	28%
Remote rural (9)	0%	33%	33%	22%	11%
Suburban/Town (18)	0%	6%	11%	50%	33%

Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

In that same self-assessment audit, school district leadership teams were asked about their readiness to discuss the challenges and opportunities of transitioning to a system of online assessment (formative and summative). As shown in Figure 20, 65% of district leadership teams report they are ready to discuss the subtopics associated with data and assessment, with another 35% reporting that they could be ready with some preparation. This correlates to the chart in Figure 18 on data driven systems, where 74% of districts

are planning to implement or have current policies and plans in places regarding a system of online assessments, data systems, and 24/7 access by staff to support a culture of continuous improvement informed by data.

Figure 20: Readiness of the 57 statewide Leadership Teams to discuss topics related to data and assessment



Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

Parsing the data by locale reveals significant differences in readiness related to data and assessment. This trend of more than half of districts being ready to discuss challenges and opportunities of transitioning to a system of online assessment (formative and summative) and transitioning to a culture of evidence-based reasoning (a data culture) can be seen in urban districts, fringe/distant rural districts, and suburban/town districts (Table 7). More than half of remote rural districts could discuss these topics after a bit more preparation.

Table 7: Percent of districts that are ready to discuss challenges and opportunities related to the following aspects of data and assessment, by locale

Locale and Count	In transitioning to a culture of evidence-based reasoning (a data culture).	Of transitioning to a system of online assessment (formative and summative).
Urban (5)	80%	80%
Fringe/distant rural (25)	52%	64%
Remote rural (9)	33%	33%
Suburban/Town (18)	56%	78%

Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

Interview findings

As noted in a prior section (see also methodology in Appendix B), interviews were conducted with 14 stakeholders in West Virginia to provide a context for this study. Several commented on accountability

measures, recommending stronger accountability measures, while identifying declining dropout rates and improving graduation rates as indicators that West Virginia schools have achieved student engagement in digital learning. Many believed that increasing digital awareness in students would increase student engagement, resulting in fewer disruptions and dropouts. There was also a suggestion to have students become active in developing portfolios of digital work, emphasizing the importance of such portfolios to students' success beyond school in today's digital world.

Respondents recommended eliciting feedback from graduating classes and graduates on their K-12 preparation, their "college and career" readiness, and their technology readiness.

During discussions on policy initiatives in West Virginia related to digital learning in schools, there was positive mention of Tech Steps, a K-8 program where students use office products and complete six projects each year that are tied to technology.

Teacher feedback

In 2013, 1371 teachers completed the online teacher survey on digital learning. When teachers were asked the degree of influence various uses of technology have on student learning related to assessment in their classroom, 49% indicated they have not used electronic student portfolios and only 28% indicated electronic student portfolios have a positive influence. Of those teachers who do not use electronic student portfolios, 32% said it is because electronic student portfolios are not applicable to their classroom, 41% indicated it is applicable, but not a high priority to acquire, and 26% indicated that electronic student portfolios are applicable and essential, but they currently do not have access to them. Although, 75% of teachers did indicate that having timely access to assessment data has a positive influence on student learning in their classroom, some teachers expressed frustration with the amount of time spent in mandatory assessments or learning programs. They commented that these assessments took valuable instruction time and computer lab time away from the deeper learning activities teachers wanted to provide for students.

GEAR 5

Academic supports include the context, culture, and learning environments that are provided with the intent of increasing student learning. These supports include both the formal structures within the school day, and the informal structures that may extend learning beyond the typical school day on school ground or beyond into the home and community. This gear is defined by the subset of topics included below.

Gear 5: Academic Supports

- Expectations for learner-centered environments
- Community engagement and outreach
- Digital learning environment
- Collaboration and teamwork
- Parental communication and engagement

Examples of West Virginia academic supports visions include:

"[We] see the implementation of the Next Generation Standards[1] as an opportunity to increase collaboration among the school and home and to provide educators with opportunities to learn and practice the instructional shifts necessary to create learner-centered schools."

-Urban District

"Amount of time in an instructional day to implement learner-centered practices and enabling student-centered learning is a challenge. Training of teachers and school administrators as instructional leaders is going to be fundamental to the success of any student-centered learning. Technology is a great tool for facilitating collaboration between students with e-mail, twitter, blogs or chat rooms. Website, e-mail, blogs and twitter will be useful for communicating with parents and community".

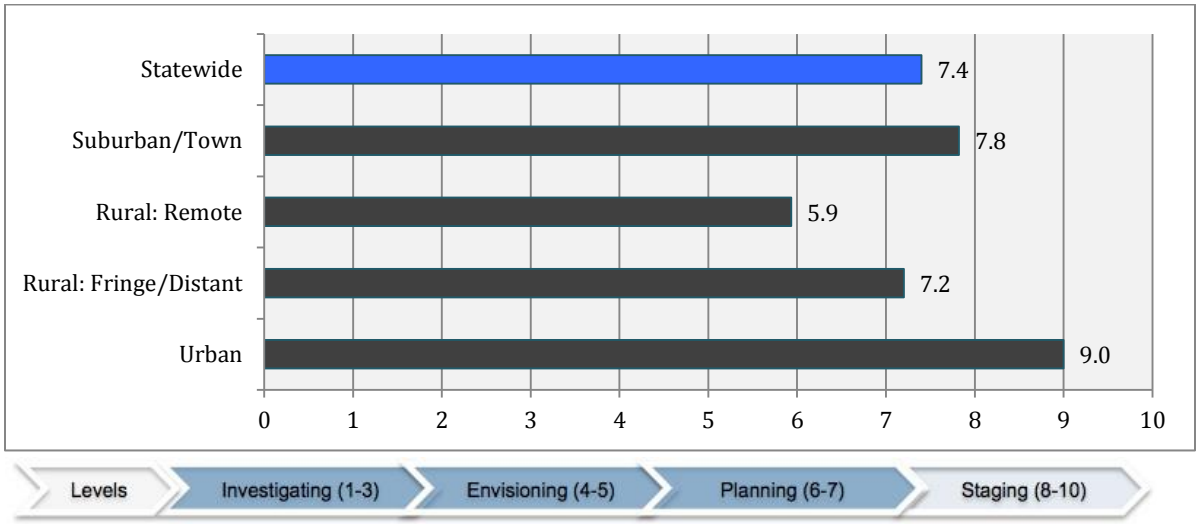
-Suburban/Town District

[1] Next Generation Standards are standards that focus on content as well as deeper learning and 21st Century skills.

District Leadership Team Perspectives

The Project 24 self-assessment rates the readiness of school districts for successful implementation of digital learning. The four stages are: investigating, envisioning, planning, and staging. Results indicate that most West Virginia districts are in the planning phase of readiness in terms of academic supports to advance digital learning, with a mean score of 7.4. The planning stage for this gear indicates that district leaders are developing strategic plans to establish learner-centered environments, advance community engagement and outreach plans, build digital learning environments, enable collaboration and teamwork procedures, and establish parental communication and engagement.

Figure 21: Stage of readiness mean scores for academic supports gear, by locale.



Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

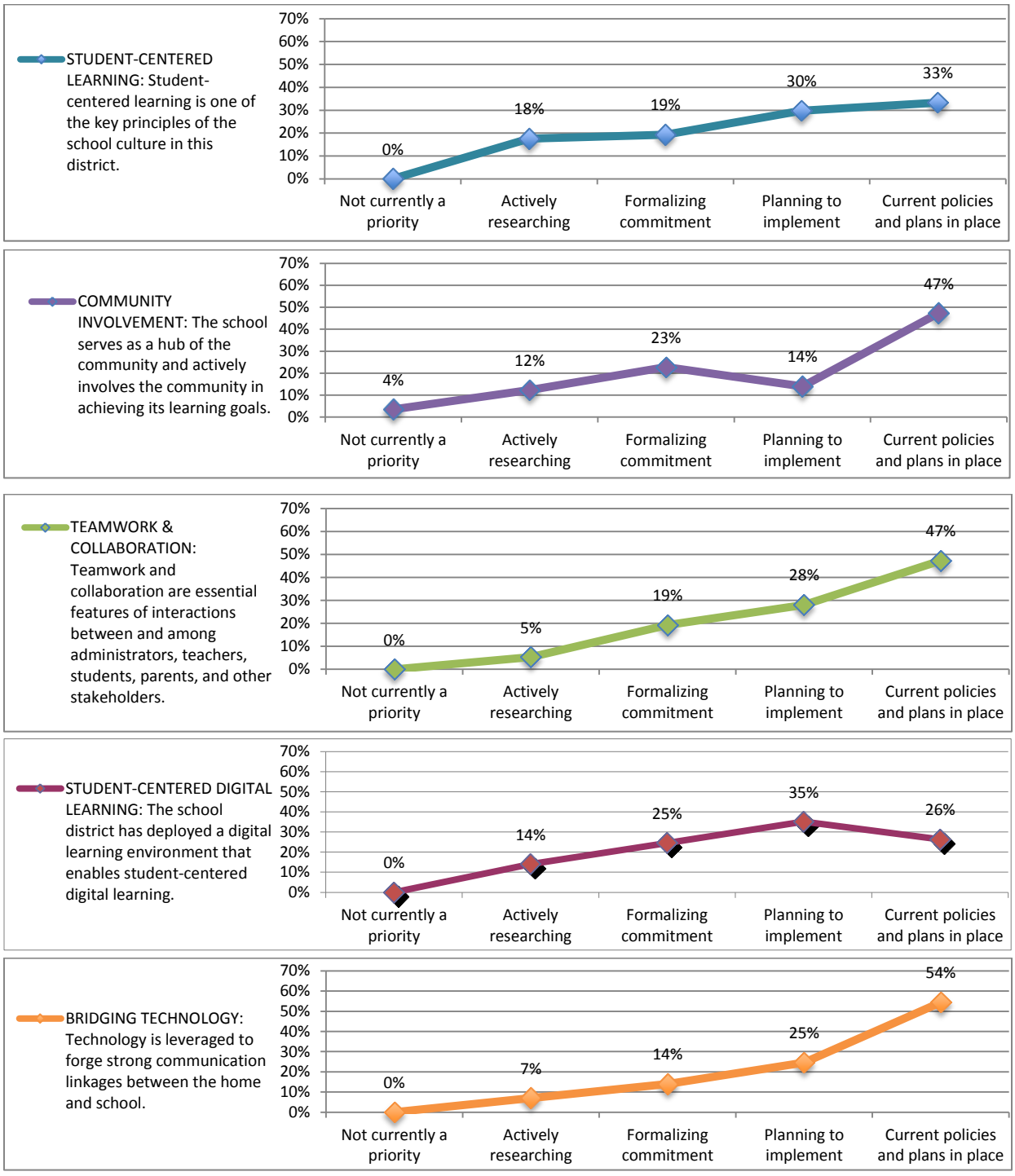
Disaggregation by locale shows variations in the progress districts are making related to academic supports.

Figure 21 shows that urban districts, on average, are in the staging phase and are ready to implement their visions for academic supports including context, culture, and learning environments, provided with the intent of increasing student learning. They have established clear expectations that schools/classrooms will transition to learner-centered environments, have established schools-community partnerships, and they have finalized the technical specifications for a digital learning environment. Suburban/Town districts are, on average, nearing the staging phase of implementation. Fringe/distant rural districts are, on average, in the planning stage, and remote rural districts are, on average, only now progressing from the envisioning stage into the planning stage.

West Virginia school districts were asked to report on their readiness to address academic supports differently to accommodate digital learning. The four approaches included: student-centered learning, community involvement, teamwork and collaboration, and student-centered digital learning. This scale is designed to see where districts are on a continuum, from "*not a priority"* to "*policies and plans in place*." Figure 22 shows that nearly half (47%) of districts have current policies and plans in place to implement strategies relating to community involvement and teamwork and collaboration. Nearly the same percent of districts are planning to implement and have current policies and plans in place. Also 48% of

administrators prioritized student-centered learning as one of the top two items they hope to accomplish through digital learning (70% prioritized it in the top three on a seven point scale).

Figure 22: The percent of West Virginia districts in various stages of readiness on the following strategies for student-centered learning, community involvement, and teamwork and collaboration



Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

More than half of districts (54%) have current policies and plans in place to bridge technology between the home and school, ensuring there are strong communication linkages between the two locations. The level of readiness for deploying a digital learning environment that enables student-centered digital learning varies across the districts, with the highest percent (35%) planning to implement these digital learning environments. Furthermore, 60% of urban districts have current policies and plans in place for student-centered learning, and the remaining 40% are planning to implement strategies for student-centered learning (Table 8). Farther behind on the readiness continuum are the 44% of remote rural districts that are actively researching these strategies.

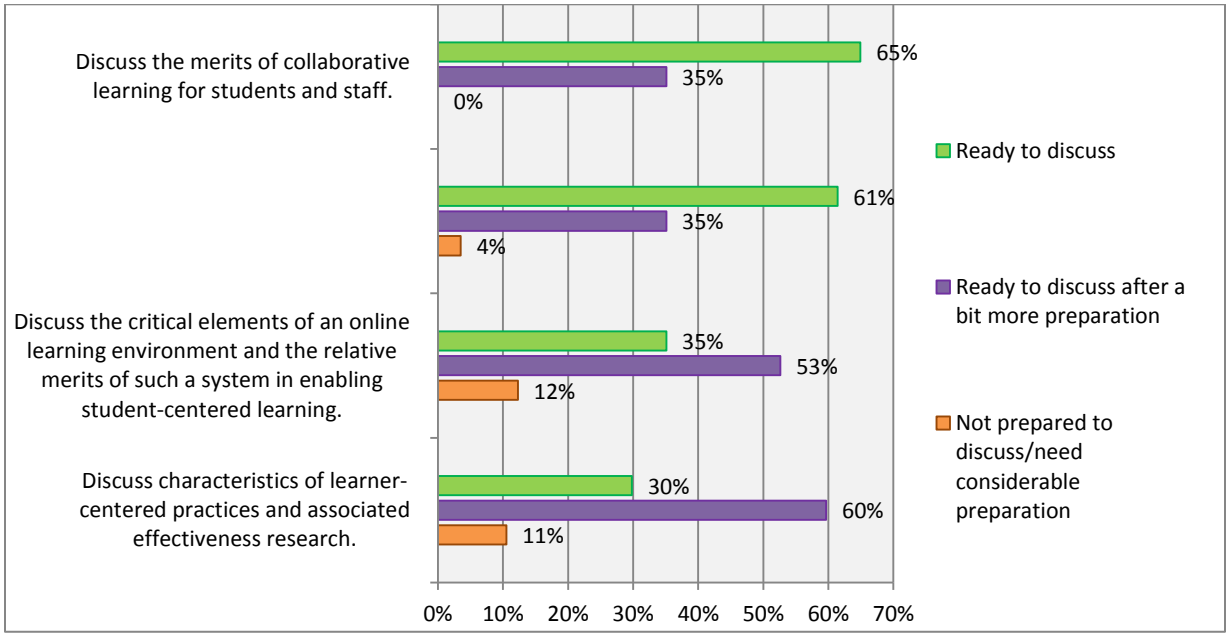
Table 8: The percent of West Virginia districts' stages of readiness in implementing student-centered learning, by locale

Locale	Not currently a priority	Actively researching	Formalizing commitment	Planning to implement	Current policies and plans in place
Urban (5)	0%	0%	0%	40%	60%
Fringe/distant rural (25)	0%	16%	20%	32%	32%
Remote rural (9)	0%	44%	22%	33%	0%
Suburban/Town (18)	0%	11%	22%	22%	44%

Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

The majority of leadership teams are ready to discuss the merits of collaborative learning for students and staff (65%) and discuss how technology can facilitate collaboration between and among students, staff, the home, and the community (61%). More than half of leadership teams are ready to discuss the critical elements of an online learning environment and the relative merits of such a system in enabling student-centered learning as well as the characteristics of learner-centered practices and associated effectiveness research after more preparation (Figure 23).

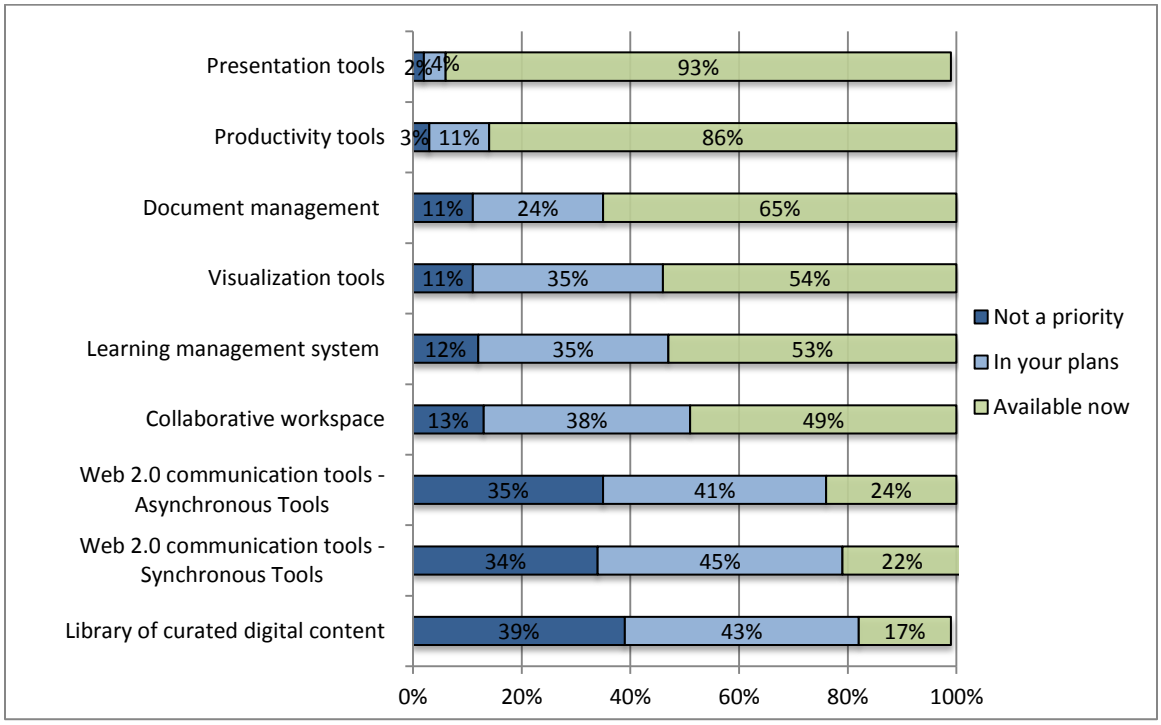
Figure 23: Readiness of the 57 statewide Leadership Teams to discuss topics related to academic supports



Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

The school administrators survey on digital learning asked participants about their schools' learning environments. Nearly 50% or more school administrators reported having these elements in their current environments: presentation tools (93%), productivity tools (86%), document management (65%), visualization tools (54%), learning management system (53%), and collaborative workspace (49%). While slightly less than 25% of school administrators currently include Web asynchronous or synchronous communication tools, over 40% of school administrators said they were currently planning to acquire and deploy. More than one-third of schools said these tools were not a priority. Lastly, while only 17% of school administrators say they currently include a library of curated digital content in their learning environment, 45% said they planned to acquire such a library, while 39% said it was not a priority.

Figure 24: School administrators' rating of their schools' use of the following elements of a digital learning environment



Source: School Administrator Survey. n=92 school administrators
Note: Due to rounding, some totals will not add to 100%.

Next, 72% of school administrators say their school uses digital content now. Of those administrators, only 17% report that their digital content in curated and hosted online in their school's learning environment. Finally, the vast majority of school administrators (86%) indicated that teachers in their school are monitoring student progress in attaining deeper learning/21st century competencies.

Interview findings

As noted in a prior section (see also methodology in Appendix B), interviews were conducted with 14 stakeholders in West Virginia to provide a context for this study. One of the interviewees reported that West Virginia state law has directly advanced digital learning citing Senate Bill 359, which they report

endorses the direction toward digital learning that is addressed in this report. In general, interviewees feel that state laws for technology are effective in their advancement of technology use in schools. All respondents thought that the state seemed to be moving toward more digital learning, but it is an ongoing process with much yet to be accomplished.

Interviewees felt that cultural beliefs about schooling were significant hindrances to digital learning --- and especially 24/7 learning. Many communities, including parents, are unfamiliar with emergent models of learning such as flipped classroom models. Students will have to shift from thinking that they are done with school when they finish their homework. Finally all of the respondents thought that the schools and districts in West Virginia had not yet achieved 24/7 learning and that many had yet to set a vision in this direction. One solution proposed for this is to lengthen the school year to minimize the loss of knowledge that occurs during summer break.

Teacher Feedback

Through the statewide teacher survey, a few teachers (43) expressed doubts as to student readiness for digital learning. Sixteen teachers discussed the lack of student buy-in, digital citizenship, and computer skills and questioned student readiness for digital learning, flipped classrooms, or blended learning. Teachers called for students to have basic technology classes to teach digital citizenship classes, as well as typing, and word processing skills.

> ***Our county has begun to use a computer program in our math curriculum. It has been riddled with technological problems. We did not have the bandwidth to support the program, the students know more about computers than many of our teachers, so the students can "sabotage" many computers and it is difficult to track who it was. Many teachers use the computer as a "free day" for them as instructors. It is difficult to police 29 students in a classroom on computers. It is difficult to assign homework online because many of our students do not have access to computers at home (WV mountains are a problem at times!) My county superintendent told us (teachers) to tell students and parents that they can go to the county library for computer use...many of my students do not have gas money to get to the library. (These are not just excuses; they are real-life problems). Many times on my "computer day" the computers are down all over the county or state...this wastes valuable instructional time. The mobile labs have been a disaster at my school; our county IT person calls them a "money pit". Computers are a wonderful tool, but they should not be viewed as a replacement for quality educators. What looks good on paper does not always work in the classroom.***

GEAR 6

Technology and digital learning can increase professional learning opportunities by expanding access to high-quality, ongoing, job-embedded resources to improve student success and to create a broader understanding of the skills that comprise success in a digital age. Professional learning communities, peer-to-peer lesson sharing, and better use of data and formative assessment, combined with less emphasis on "sit and get" professional development sessions eliminate the confines of geography and time. These ever-increasing resources offer teachers vast new opportunities to collaborate, learn, share, and produce best practices with colleagues in school buildings across the country. In addition, educators must be engaged in more collaborative, goal-oriented approaches to the evaluation of their own teaching to serve as a personal model for the experiences that they might bring to students. This gear is defined by the subset of topics included below.

Gear 6: Professional Learning

- Digital Age skill set
- Diverse opportunities for professional learning
- New responsibilities for collaboration
- Broad-based, participative evaluation

The following examples represent the voices of West Virginia leadership teams on professional learning.

Our district will provide live and online professional development, which will focus on authentic uses of technology in the classroom to promote deeper learning and communication between school and home.

- Fringe/Distant Rural School District Leadership Team

Professional learning is the cornerstone of a technology-rich environment. Training will focus on instructional strategies that support a digital-age skill set in line with the teaching of 21st Century Skills. Professional development models will offer a variety of technology-supported systems and approaches, providing differentiated training to meet the needs of individual teachers. Teacher evaluation will involve self-assessment, goal setting, and professional collaboration.

- Suburban/Town District Leadership Team

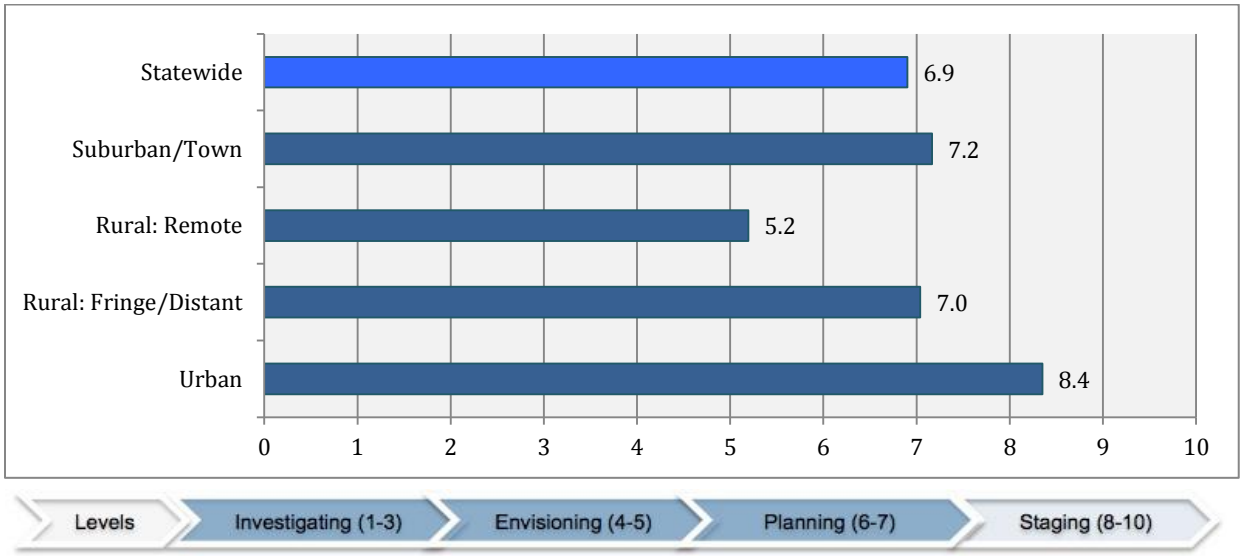
District Leadership Teams Perspectives

The Project 24 self-assessment rates the readiness of school districts for successful implementation of digital learning. The four stages are: investigating, envisioning, planning, and staging.

Based on data from the 57 leadership teams, the overall readiness score for *Gear 6: Professional Learning* is 6.9 out of 10. That places most of the state's school districts in the planning stage. It suggests that district leaders have established indicators of success for this Gear based on the vision, set a baseline, and conducted a gap analysis. They have forged a plan for closing identified gaps and identifying key strategies for making progress toward those targets. They have projected benchmarks and milestones and created timelines, associated work plans, management plans, and budgets.

Disaggregating the data for this gear by locale (urban, suburban/town, fringe/distant rural, and remote rural) shows that remote rural school districts are, on average, significantly lagging beyond districts in other locales with respect to professional development related to digital learning.

Figure 25: Readiness scores for gear 6, professional learning, statewide and by locale



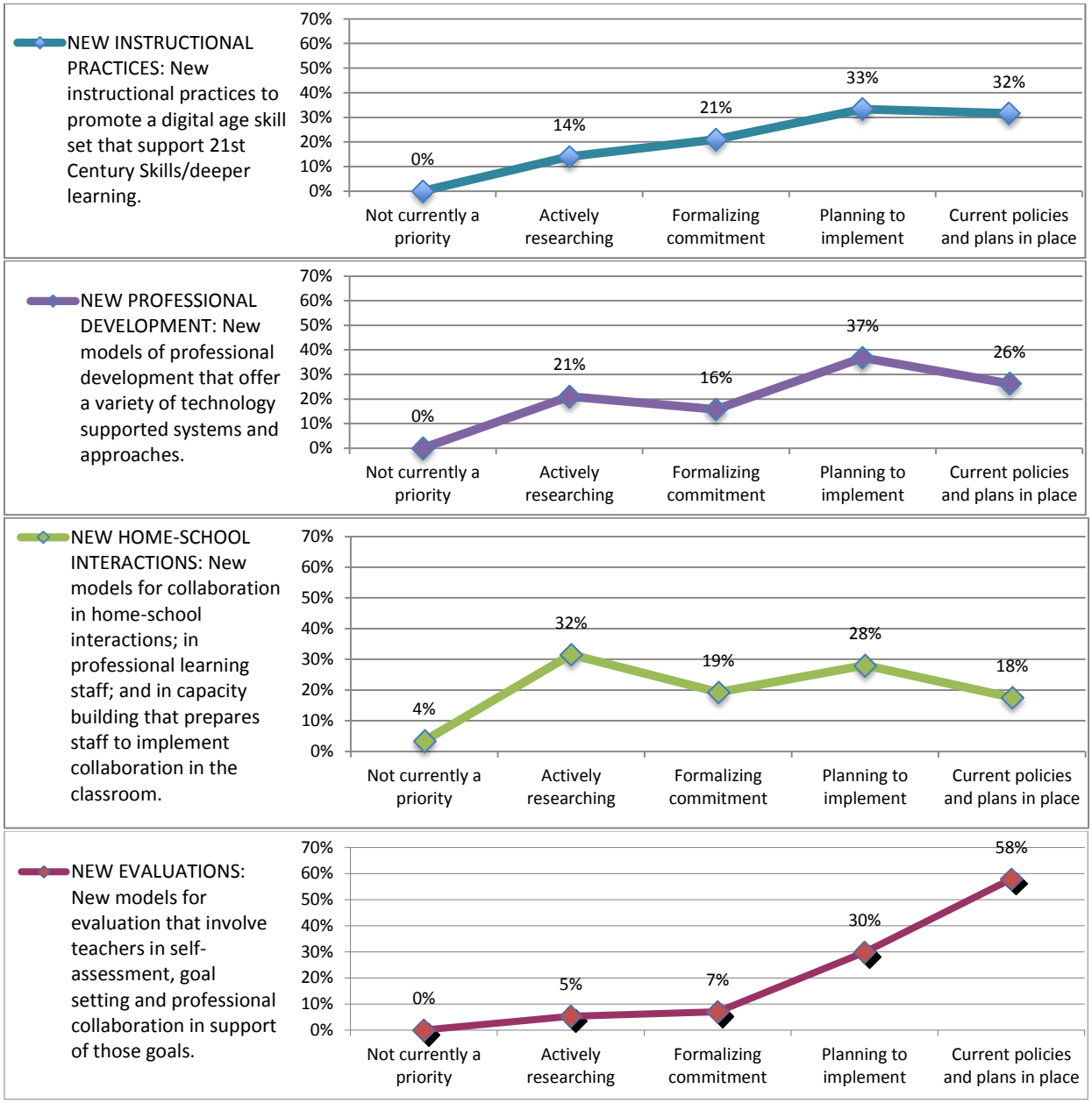
Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

West Virginia school districts were asked to report on their readiness to provide professional learning related to technology and digital learning. The four approaches included: new instructional practices, new models of professional development, new home-school interactions, and new evaluations. See Figure 26.

Based on responses from the school district leadership teams (Figure 26), it appears that 58% of school districts are beginning to implement teacher evaluation systems that involve self-assessment, goal setting and professional collaboration. Meanwhile, new models of professional development are in the planning stages (37%), but only 25% of districts are ready for implementation of such models. Nearly a third (32%) of districts report high readiness to implement new instructional practices related to deeper learning/21st Century Skills, with another third (33%) in the planning stages. On the topic of home-school

connections through technology, most school districts are in the "*actively researching*" and "*formalizing commitment*" stages, with less than 20% of the districts ready to use technology to improve home-school connections.

Figure 26: The percent of West Virginia districts in various stages of readiness on various strategies related to professional learning



Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

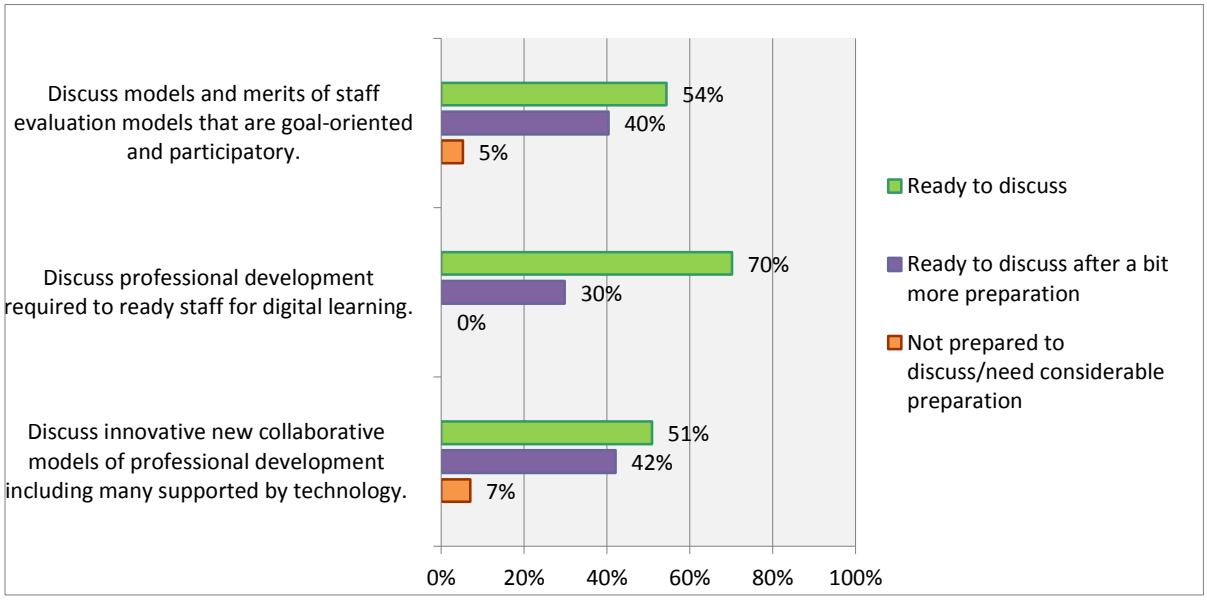
The district leadership teams were asked to rate their level of confidence to enter into informed discussions on three subtopics related to professional learning in support of digital learning:

- Discuss models and merits of staff evaluation models that are goal-oriented and participatory.

- Discuss professional development required to ready staff for digital learning.
- Discuss innovative new collaborative models of professional development including many supported through technology.

Overwhelmingly, school district leadership teams (70%) said they were ready to discuss the second topic (readying staff for digital learning). In addition, approximately 50% of the teams said they were ready to discuss the first and third topics, (i.e., new models and merits of teacher evaluation, and innovative collaborative models for professional development). See Figure 27.

Figure 27: Readiness of the 57 statewide Leadership Teams to discuss topics related to professional learning



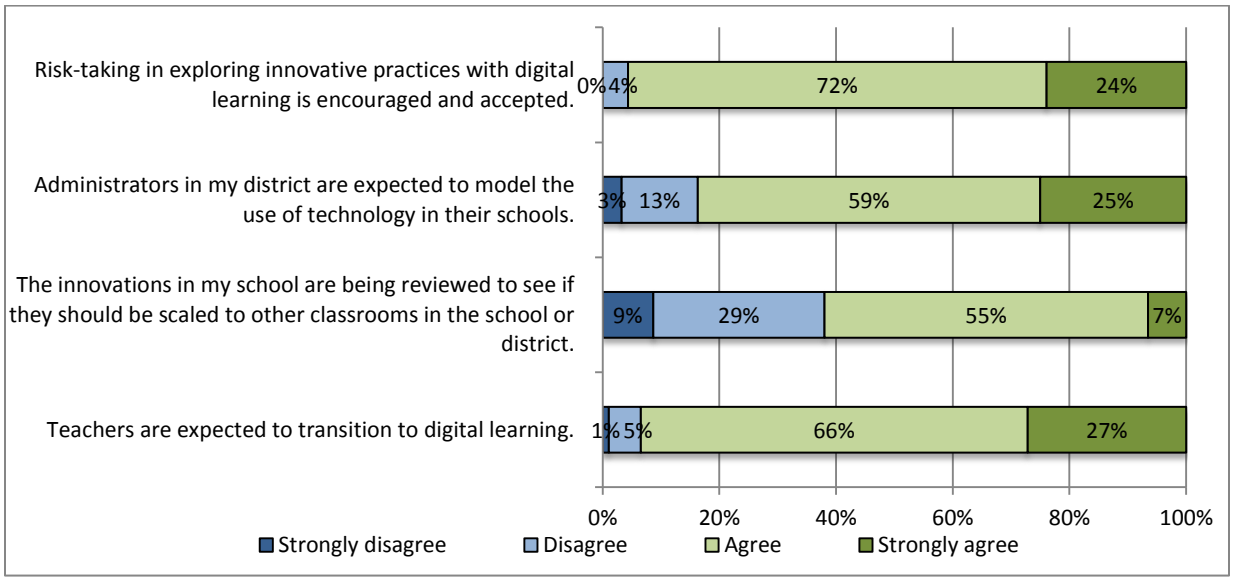
Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

School Level Implementation: Stages of Readiness in Access and Infrastructure

As noted in Gear 5 (Academic Supports), 62% of school administrators who participated in the survey indicated they are currently implementing strategies to ensure that their staff are knowledgeable and skilled in using data, technology, and data analytics to inform instruction, curriculum, assessment, and their own professional practices.

In a 2013 survey, school administrators were asked questions on their expectations related to digital learning. See Figure 28. School administrators (93%) overwhelming reported that they expect their teachers to implement digital learning. A slightly lower percentage of school administrators (88%) said that administrators in their districts are expected to model the use of technology in their schools.

Figure 28: School administrators' characterization of the culture of change related to deeper learning and technology



Source: School Administrator Survey. n= 92 school administrators
Note: Due to rounding, some totals will not add to 100%.

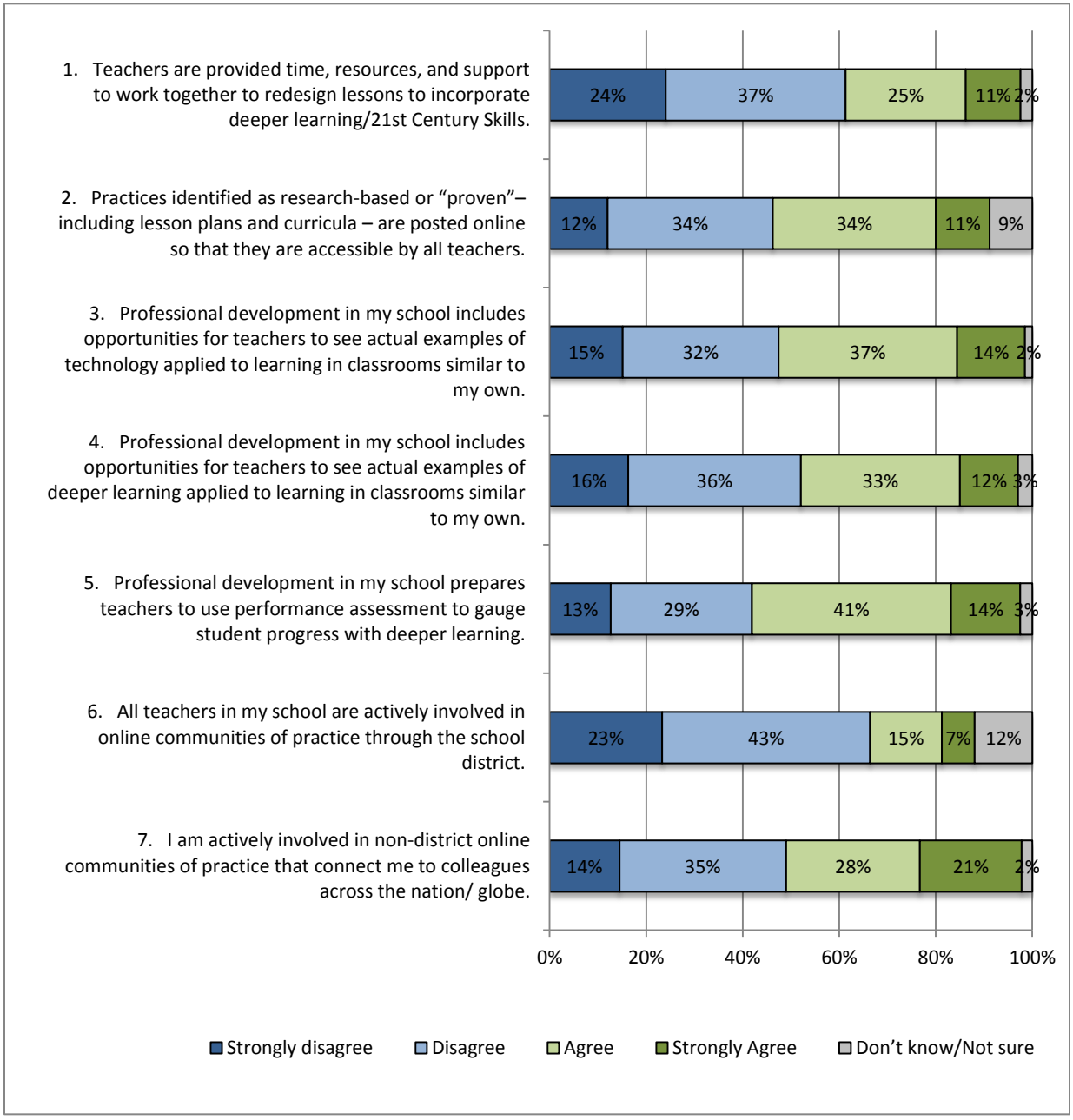
The set of responses from the school administrators in the chart above provides an important context to the professional learning discussion. It is clear from this data that high expectations exist in West Virginia for the transformation of classrooms and schools to digital learning. This will require large-scale, personalized professional learning to ensure that teachers apply what they learn to their own classrooms.

In a parallel survey, teachers were asked if the professional learning that is offered to them through their districts is building their capacities to transition to digital learning. First, teachers were asked about the change culture within their schools. Over 88% of teachers said they were ready "to integrate strategies to promote deeper learning outcomes into curriculum and instruction (i.e., critical thinking, problem solving, effective communication, and peer collaboration)." And, 80% of teachers said they were, "ready, as a teacher, to integrate technology seamlessly in the teaching and learning process while assuring that the use of technology adds value to learning."

In general, the teachers' perceptions align with the school administrators' perceptions of the expectations for change. However, it is important to note that while the teachers say they are ready for the transition to deeper learning/21st Century Skills, 37% of the teachers say their schools do not have the capacity to redesign curriculum and instruction to move toward digital learning.

Teachers were also presented with a series of statements about professional learning (Figure 29), and asked to indicate the degree to which they agreed with the statements on high quality professional development. Over 61% of teachers indicated that they disagree or strongly disagree that teachers are provided time, resources, and support to work togther to redesign lessons to incorporate deeper learning/21st Century Skills. Asked whether they agreed that professional development in their schools included opportunities to see actual examples of technology applied to learning in classrooms like theirs, 47% said they disagreed. Similarly, 52% indicated that they were not provided opportunities during professional development to see examples of deeper learning applied to classrooms similar to theirs.

Figure 29: Teachers' ratings of the extent to which they agree with the statements.



Source: Teacher Survey. n=1371 teachers
Note: Due to rounding, some totals will not add to 100%.

When asked about online communities of practice, 49% of teacher survey participants said that they were not actively involved in non-district online communities of pratice that connect them to colleagues across the nation/globe.

Teacher feedback

The last question on the teacher survey was an open-ended question where teachers were provided the opportunity to provide input. Many (126 teachers) indicated a need for further professional learning about technology and digital learning. Some teachers (69) specifically asked for, or pointed out the lack of professional learning opportunities. A few teachers (27) commented on the lack of time teachers have for preparation, collaboration, and professional learning. Finally, 49 teachers exhibited a lack of buy-in to technology initiatives, commonly countering the idea of "digital learning" with "technology as a tool." Some teachers seemed to equate digital learning or deeper learning with technology integration. Among some teachers there was an undercurrent of frustration with digital learning initiatives that were not accompanied by adequate devices, reliable Internet bandwidth, technical support, and time and support for associated professional learning opportunities.

Comments from two teachers:

> ***I am a proponent of digital learning; however, the lack of access to technology at our school makes it very difficult to complete things like digital portfolios. We need more computers or tablets so that students can create these kinds of projects, and the Wi-Fi to handle it. It is difficult to work as a department on these types of activities due to the lack of available technology for multiple classes at the same time of the day. We are told we cannot assign these types of things to be done at home, since some students do not have access to the Internet at home, or come up with alternate assignments, which lose the focus of the original. I also feel that every student should be assigned an access email account when they register for school in this state. It should not be a piece-meal procedure that is done class-by-class, teacher-by-teacher, as needed. Also, every school should have a TIS [Technology Integration Specialist) and a tech. Teachers should not have to wait weeks for technology troubleshooting or repairs, and the assistance that a TIS can give in incorporating these digital learning projects and methods that the state is encouraging or requiring is invaluable. Our county does not have TISs that do not have a full time teaching assignment, so we are on our own to slowly figure things out, [inefficient] when a TIS already knows how to do them. Many teachers who are not as comfortable with technology would be more willing to learn new strategies if a TIS were available to help them and their students.***

> ***As a teacher [my professional] learning should be [focused on] about the student. I often do not have the tools, the equipment, or the time to do the things that my students need or should be doing. I am told what to teach, how to teach, and when to teach it. Most decisions that are made are out of my hands... I am at a high needs school that has been identified as a support school. I have had 4 major schedule changes so far this year. I have so many people coming in and out of my room that it has become quite disruptive. I have not received the professional development from the state or my district that I personally need in 15 years. I request to attend the professional development I know I need to help me become a more effective teacher and I am turned down. I present at both state and national conferences and am well connected globally on a different educational perspective. I spend more than $5,000 a year on the needs of my students and my classroom and on top of that I often spend an additional $3,000-$5,000 per year to attend the conferences that I need out of my own pocket. I have asked to not have to do needless book studies or attend professional development that I have already had in order to help offset my own costs but have been refused...***

Gear 7

The transition to digital learning will require strategic short-term and long-term budgeting and leveraging of resources. All budgets at the district and the school should be aligned to the new vision, with consistent funding streams for both recurring and non-recurring costs. During the transition, district leaders should strive for cost-savings and efficiencies through effective uses of technology. The financial model should include the metrics and processes to ensure accountability for learning returns on investments. This gear is defined as the combination of several sub-categories.

Gear 7: Budget and Resources

- Efficiency and cost savings
- Alignment to district- and building-level strategic and tactical plans
- Consistent funding streams
- Learning return on investment

School district leadership teams in West Virginia are envisioning changes in budget and resources to accommodate digital learning. Two school district visions on this topic are provided below.

All areas of the school system must be in collaboration so hardware, software, support and resources can be supported and not duplicate resources or services.

- Urban school district leadership team

Our district is committed to using all available resources to support digital learning. These resources include Federal monies, Levy monies, technology, and county funds, which are braided together to provide our staff and students with the best technologies and trainings available to ensure access to digital learning.

- Fringe/Distant rural school district leadership team

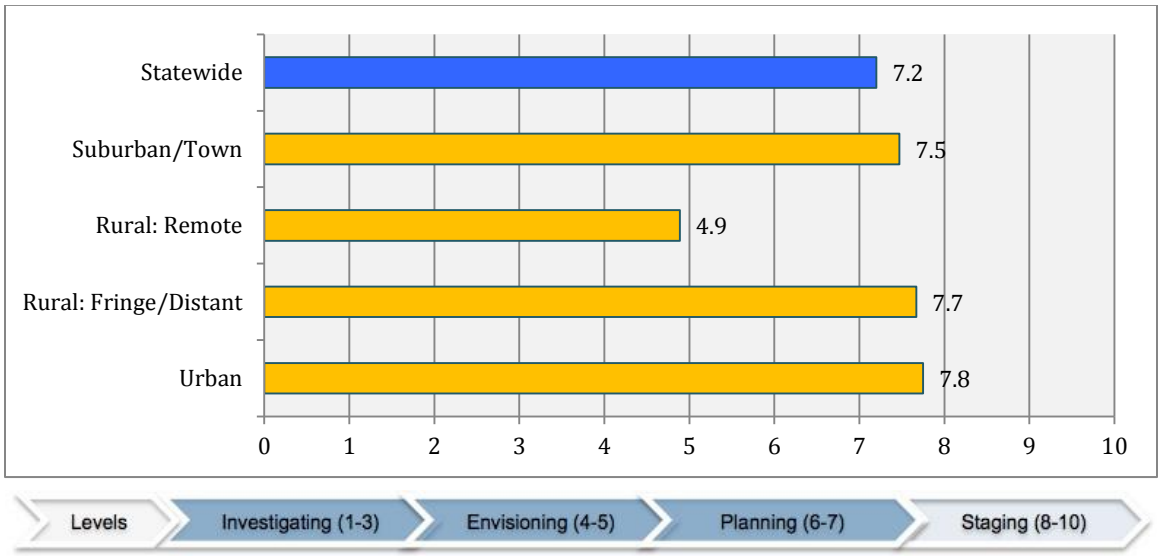
Input from District Leadership Teams

The Project 24 self-assessment rates the readiness of school districts for successful implementation of digital learning. The four stages are: investigating, envisioning, planning, and staging.

Based on data from the 57 school district leadership teams, the readiness score for *Gear 7: Planning and Resources* is 7.2 out of 10. That places most of the state's school districts in the planning stages. It suggests that district leaders have established indicators of success for this Gear based on the vision, set a baseline, and conducted a gap analysis. They have forged a plan for closing identified gaps and identifying key strategies for making progress toward those targets. They have projected benchmarks and milestones and created timelines, associated work plans, management plans, and budgets.

Disaggregating the data for this gear by demographics shows that remote rural school districts are, on average, significantly lagging behind other district locales.

Figure 30: Readiness scores for gear 7, budget and resources, statewide and by locale



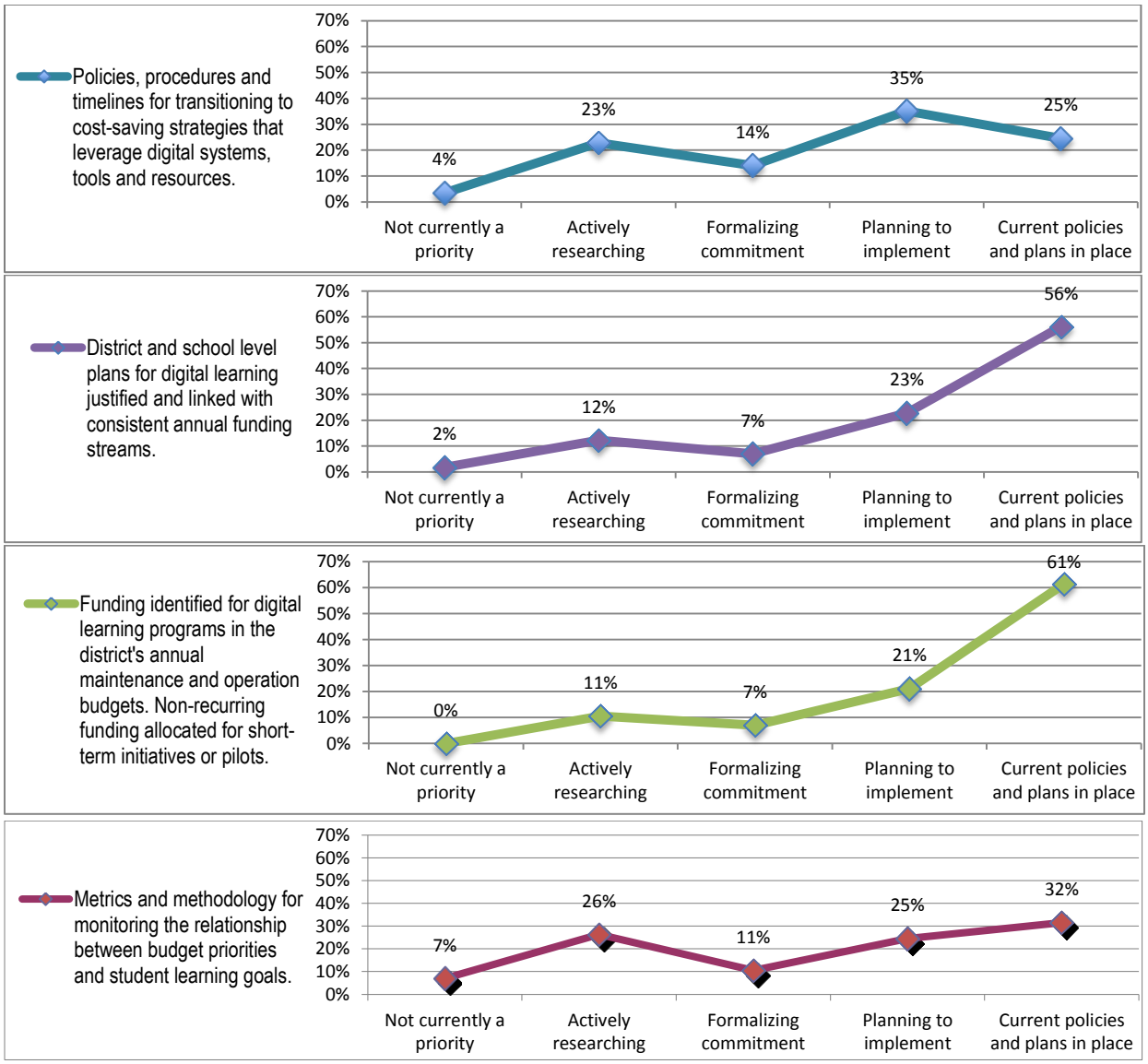
Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

West Virginia school districts were asked to report on their readiness to use budget and resources differently. The four approaches include: policies and procedures that leverage cost-savings through digital systems, linking of plans with dedicated funding, recurring and non-recurring costs funding, and monitoring return on investment. This scale is designed to see where districts are on a continuum from "*not a priority"* to "*policies and plans in place*." See Figure 31.

Based on responses from the school district leadership teams, it appears that 62% of school districts have dedicated funds for digital learning, while 56% have established maintenance and operation funds and non-recurring costs for digital learning. West Virginia school districts have made less progress on policies and metrics for transitioning to cost saving strategies that leverage digital systems, and monitoring return on investment in terms of student learning. In the case of the latter two, approximately 25% of school

districts in West Virginia report they are in the "actively researching" stage and have yet to develop strategic fiscal strategies for those two areas.

Figure 31: The percent of West Virginia districts in various stages of readiness on various strategies related to budget and resources



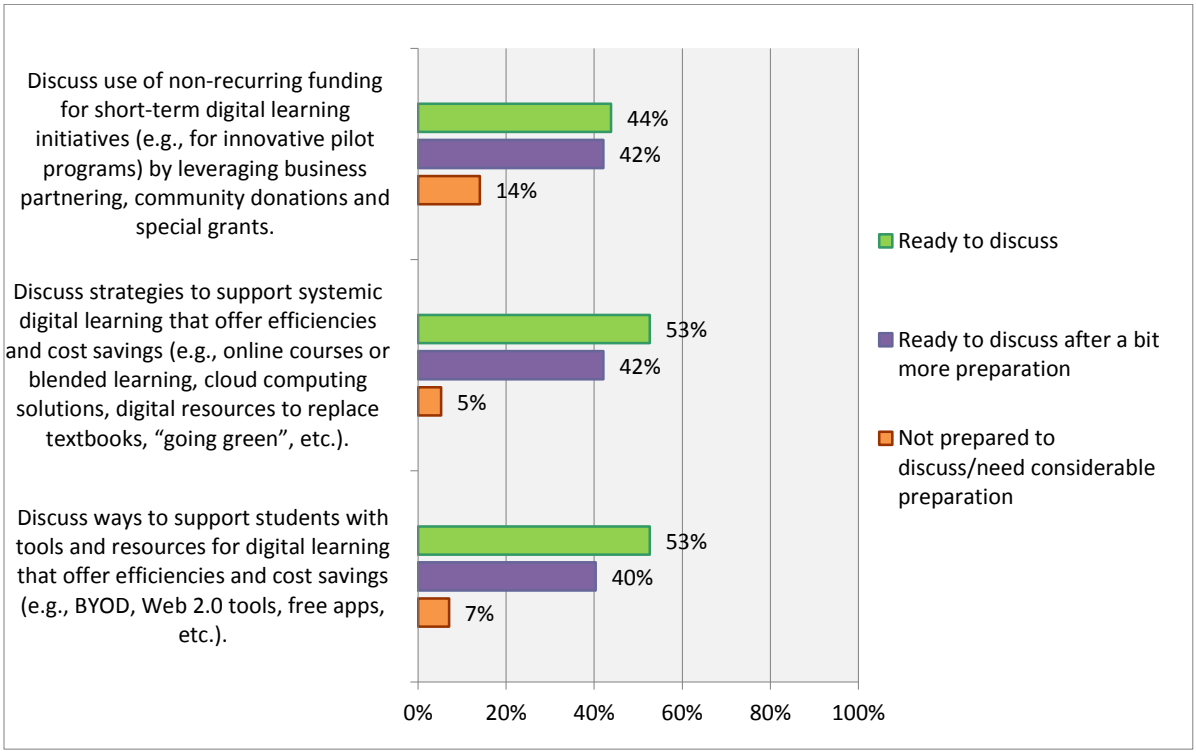
Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)
Note: Due to rounding, some totals will not add to 100%.

The leadership teams were asked to rate their level of confidence to enter into informed discussions on three subtopics related to budgets and resources for digital learning:

- Discuss ways to support students with tools and resources for digital learning that offer efficiencies and cost savings (e.g., BYOD[2], Web 2.0 tools, free apps, etc.).
- Discuss strategies to support systemic digital learning that offer efficiencies and cost savings (e.g., online courses or blended learning, cloud computing solutions, digital resources to replace textbooks, "going green", etc.).
- Discuss use of non-recurring funding for short-term digital learning initiatives (e.g., for innovative pilot programs) by leveraging business partnering, community donations and special grants.

While over 50% said they were ready to discuss the latter two topics, (i.e., strategies that support systemic digital learning that offer cost savings and use of non-recurring costs for short term digital learning initiatives), they were slightly less confident in their readiness to discuss the first topic (ways to support digital learning that offer efficiencies and cost savings) (See Figure 32).

Figure 32: Readiness of the 57 statewide Leadership Teams to discuss topics related to budget and resources



Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

School Level Implementation: Stages of Readiness in Budgeting and Resources

In the 2013 survey of school administrators in West Virginia, participants were asked about funding for digital learning. They were asked about progress in identifying funding for digital learning programs in their district's annual maintenance and operation budgets, and non-recurring funding for short-term initiatives. Statewide, nearly 1 in 5 school administrators said it was not a priority, a third said they were

[2] BYOD is an acronym for Bring Your Own Devices, where students are encouraged, or in some cases expected to purchase and bring their own devices to school for use in learning.

actively researching/planning on the topic, nearly 40% said they were currently implementing associated plans, and 10% said they had implemented these ideas successfully.

When those data were disaggregated across locales, there were significantly more urban school administrators placing their districts in the implementation stages for funding and resources than school administrators from the other demographic categories. Also of interest is that the ratio of 1 out of 5 school administrators placing their district in the "not currently a priority" column was consistent across locales.

Figure 33: The percentage of school administrators who placed their districts in various stages of implementation on funding for digital learning (i.e., progress in identifying funding for digital learning programs in their district's annual maintenance and operation budgets, and non-recurring funding for short term initiatives), statewide and by locale.

Locale (count of administrators)	Not currently a priority	Actively researching/planning	Currently implementing	Implementation completed with success
Statewide (92)	18%	34%	38%	10%
Urban (10)	20%	0%	60%	20%
Fringe/distant rural (41)	17%	37%	37%	10%
Remote rural (9)	22%	44%	33%	0%
Suburban/Town (32)	19%	38%	34%	9%

Source: School Administrator Survey. n=92 school administrators
Note: Due to rounding, some totals will not add to 100%.

This report that approximately 20% of the districts say funding and resources for digital learning as "not a priority" is verified by the results from another question in the school administrator survey. Sixteen percent (16%) of school administrators disagreed with the statement "Administrators in my district are expected to model the use of technology in schools."

> ***In a small county it is very difficult to budget for adequate and timely repair and support.***
> ***-Fringe/Distant School District Leadership team***

Comments from Other Stakeholders

An interview process was conducted with representative stakeholders from West Virginia. A recurring theme in all the interviews was responding support for West Virginia's transition to digital learning. In addition, many interviewees mentioned the importance of aligning effective technology use to the overall goals of the state.

Another consistent theme was the perceived inadequacy and inconsistency of the funding models for digital learning. Multiple respondents felt that the level and consistency of funding for digital learning from the legislature was currently inadequate and that consistent funding was a key for successful digital learning. When queried about potential sources of funding to support digital learning, interviewees mentioned the economic downturn, commenting on the fierce competition within the state for scarce resources. Several also mentioned the need for zero-based budgeting that would turn attention to repurposing funds rather than relying on new funds, and to seek new partnerships with communities and business and industry for potential economies of scale. There was a comment that the business

community does not yet fully realize the critical need for digital learning and its strong connections to the economic viability of the state and nation. Meanwhile, other interviewees said that districts should not expect additional funds from the legislature for technology and digital learning.

An interviewee made a suggestion that, as districts are expected to establish flexible and adaptable systems of learning for students, their own flexibility and adaptability in decision making will be critical. To that point, several stressed the value of lifting burdensome administrative policies and state code provisions that currently restrict local decision-making and control of technology purchasing. They explained that if districts are not limited to certain hardware and software providers, educators would have more flexibility to make decisions about what technology they need in their classroom. One stakeholder making this suggestion indicated that as the responsibility for technology decisions shift from the state to the district and school, so should the authority and budget.

Key Findings and recommendations

Finding 1: vision gap

While West Virginia schools districts are beginning to formulate visions for digital learning, a definitive, collective shared vision has not yet emerged statewide. Thus, there is not a collective understanding across the education, business, and community sectors. The economic, social, and educational rationale for digital learning and urgency for change have yet not been established among these sectors.

Recommendations:

1.1 Develop a Digital Learning Framework for the state that formalizes the vision at the state level. Use a community-based outreach process to develop it. Further develop the vision to provide clarity and deep understanding of what that vision looks like in practice and the principles and essential elements of the K12 learning system that will be required to achieve this vision. Ensure that students' voices are incorporated into the vision.

1.2 Establish the case for digital learning as it leads to deeper learning from an economic, social, and educational perspective. Involve students as co-creators and communicators.

1.3 Create urgency and energy for digital learning by building the capacity of all constituent groups to understand fully the economic, social, and educational case for digital learning and deeper learning.

Finding 2: Transition/Transformation Gap

The process by which school districts, schools, parents, students, teachers, administrators, and other education professionals and stakeholders will transition (or transform) the current system to reach the vision of personalized, deeper, anywhere anytime learning is not yet clear for some districts.

Recommendations:

2.1 Establish a West Virginia commission to investigate what type of learning models advance personalization of learning, deeper learning, anywhere, anytime learning, and digital learning. Establish definitive new models of learning that will advance the vision. Create scenarios of these new models in action, perhaps through collaborative involving students, communities, parents, teachers, administrators, etc.

2.2 Support innovation by districts and schools that leads to highly effective digital learning. Build on the findings from recommendation 2.1. Offer options to West Virginia school districts to implement new models of learning that support the vision, providing waivers where necessary. As this is launched, consider innovative partnerships, innovative approaches to funding, and criteria that result in innovative proposals. Conduct case studies and study examples of successful models, both within and outside the state, to document the transition processes and the results. Publish those cases with lessons learned and consider implications for scaling up statewide.

2.3 Establish the metrics the state will use to track the progress of districts and schools in achieving digital learning over time. Build on the Project 24 initiative by developing/identifying school-based self-assessments that would enable schools to gauge their readiness for digital learning as well as identify any existing gaps between their status and the vision.

2.4 Provide guidelines for the strategic planning districts and schools should take to advance digital learning and close identified gaps from 2.3. And then, provide guidance as to the steps schools/districts might consider in closing those gaps. Use a decision matrix to provide direction, and develop a number of tools to guide West Virginia regions, districts, schools, departments, parents, students, and teachers as they navigate toward the vision through digital learning. Use online communities of practice, social media, online learning and other methods of hosting/facilitating sharing sessions that enable these groups to exchange ideas, form partnerships, and learn together. Facilitate peer critique processes among districts for their strategic plans that also serve as professional learning sessions.

2.5 Create structures that support digital learning in schools. Determine what those are through a continuous feedback loop with regional offices of education, schools, and districts. Identify existing barriers and collectively create systems to help districts and schools to transform the barriers into breakthroughs. Determine what those are through a continuous feedback loop with schools and districts. Examples:

- As schools expand student-centered projects, they may need to tap a service that puts them in touch with a mentor, coach or business partner that could enable real-world aspects to the project.
- Small districts may not have the capacity to create collections of high quality digital content selected for particular standards, lessons, curricula, or learning preferences. If this case, consortia might be formed to conduct this work collectively/collaboratively, facilitated by the regions or state in ways that achieve an economy of scale and add value in the process.

Finding 3: Alignment Gap

Moving to digital learning will require learning standards, curriculum, pedagogy, and assessment that are aligned to the vision. It will also require flexible, adaptable systems to accommodate deeper learning, 21st Century skills, authentic learning, anywhere/anytime learning, and competency-based learning.

In the area of curriculum and instruction, West Virginia districts fall across a spectrum of readiness, from actively researching new topics, formalizing commitments to digital learning, beginning the planning process and setting the stage through policies and plans. While 39% of school district leadership teams say they are in that last stage for 21st Century skills and effective uses of technology, only 14% and 18%, respectively, are there in the categories of personalized learning and real-world learning.

Ninety percent (90%) of school administrators report they have formative and summative assessments available for decision making and 73% say their schools use performance assessments to measure deeper learning. However, only 15% of school administrators say such assessment programs have been successfully implemented, with most (62%) in the planning stages. In addition, a significant number of schools are not yet using technology tools that could be used in the demonstration of student work.

Digital learning suggests that learning and teaching resources will be increasingly in digital format and will be needed to support new designs in learning. Seventy-two percent (72%) of West Virginia school administrators say they are using digital content, but only 17% of them report that their school's digital content is curated (organized, indexed, aligned to standards, and made accessible) within their school's learning environment

Recommendations:

3.1 Identify the shifts in standards, guidelines, and the changes in rules and regulations related to each of the Project 24 gears that will be necessary to achieve the vision, to scale the learning models, and to support districts in their transition to digital learning (see 2.1). Redesign and update standards, guidelines, rules, and regulations accordingly. This would include, for example, curriculum redesign to support deeper learning, transitioning from seat-time requirements to mastery and competency-based learning, etc.

3.2 Simultaneously, investigate and consider the range of technologies required to leverage formative assessment feedback loops through learning analytics, adaptive assessments, and embedded assessments to improve diagnostic, formative and summative assessment, and, where appropriate, encourage the use of embedded assessment that reduces explicit use of instructional time for assessment.

3.3 Analyze field (school district) input to determine if there is a need to facilitate state or regional actions or policies related to digital resources. This could take the form of a state-licensed digital learning environment, statewide professional development related to aspects of digital learning, or a state repository of vetted, high-quality digital resources.

3.4 Develop a state plan for scaling up the models of learning that were found to support personalized learning, deeper learning,

Finding 4: Policy gap

While the vision embodies flexibility and adaptability, some current state policies may restrict the local decision making and local flexibility necessary to reach the vision

Recommendations:

4.1 Identify and investigate the policy changes/updates required to advance the vision (e.g., competency-based learning; state guidance and capacity-building in making informed choices with learning resources, etc.). Consider enabling policy waivers to districts as an interim solution for removing barriers.

4.2 Conduct a formal policy review and consider immediate and long-term actions to update, create, or possibly sunset policies.

Finding 5: device and access gap

As the technology inventory increases in the state, the technology needs of students and educators are also evolving. The life cycle of devices and increasing demands for bandwidth in this transition to digital learning must continuously be reviewed and accommodated. The West Virginia Department of Education reported the state to be 97% technology readiness for online assessment, 68% compliance with national bandwidth standards for digital learning statewide, with fiber to every school in the state (through a federal grant), and below a 2:1 ratio in students to computers. Yet, a significant number of teachers and principals report unreliable bandwidth and a lack of adequate access to up-to-date computers/devices.

Recommendations:

5.1 Investigate community approaches and economies of scale for procurement, systems operations, virtual technical support systems, and long-term partnerships. Consider innovative approaches that address the need for 24/7 access.

5.2 Facilitate a short term study with representatives from the state, regional offices, school districts, higher education, government, private sector, and communities to understand the bottlenecks in the current K12 infrastructure, what approaches other states are taking to ensure systems are up-to-date, reliable, safe and secure, and cost effective.

5.3 Advance adequate, equitable access to technology through guidance, partnerships, incentives, and funding. Use state policy and state funds to encourage and perhaps jumpstart innovative

approaches to achieving sufficient access to meet learning needs. Work with entrepreneurs to design or identify ways to connect schools, communities, and homes to enable 24/7 learning.

Finding 6: Professional Learning gap

Given the magnitude of this transition and the remoteness of many West Virginia districts, the scope and the medium for the professional learning required for this transition will require new models of professional learning. Sixty-one percent of teachers report that they are not currently offered the time, resources or support to work together to redesign their lessons to advance deeper learning and 21st century skills.

Recommendations:

6.1 Advance the use of professional learning networks and communities of practice among West Virginia education professionals for professional learning purposes.

6.2 Convene current professional learning service providers in West Virginia. Build their capacity to design and offer blended and online professional learning opportunities that strategically support the transition to digital learning that is aligned to the state's Digital Learning Framework while offering services statewide.

6.3 Investigate how to improve online professional learning and facilitation to increase the quality of the videoconferencing, webinars, communities of practice and other virtual networking. Implement means for conducting activities, events and processes to reduce travel and level the playing field through all participants being online.

Finding 7: Funding gap

Funding dedicated to technology and digital learning varies considerably across locales.

Recommendation:

7.1 Create urgency in the state for digital learning by providing 3-year non-recurring grants for advancing across the stages described in this document. Offer these to regional offices, consortia, and school districts to jumpstart the process.

7.2 Build the capacity of school district personnel to do transformative, rather than additive budgeting for technology. Assist districts in identifying efficiencies and innovations that could free up funds to be dedicated to digital learning.

7.3 Consider the needs of remote rural schools, which are lagging behind other districts statewide as funding is allocated.

Appendix A: Glossary

Adaptive learning. An approach that uses technology to engage students in interactive learning activities, which are customized to meet each individual's learning needs, based on continuous feedback and data analytics.

Authentic learning. A general model for designing learning activities that are rigorous, in-depth and have value beyond the classroom. The work assigned in authentic learning environments often mirrors the type of work done in the real world.

Blended learning. Blended learning describes models of learning where a student learns at least in part at a supervised brick-and-mortar location away from home and at least in part through online delivery with some element of student control over time, place, path, and/or pace; often synonymous with hybrid learning. (Horn and Staker, 2011)

BYOD. BYOD is an acronym for Bring Your Own Devices, where students are encouraged, or in some cases expected to purchase and bring their own devices to school for use in learning.

21st Century Skills. 21st Century Skills are essential skills that children need to succeed as citizens and workers in the 21st Century. They include core subjects, 21st century content, learning and thinking skills, ICT literacy, and life skills.

Competency-based. A type of learning where the student advances in mastery of a set of competencies at a pace, and often in an order, determined by the student.

Data culture. An educational environment characterized by the effective use of data and evidence-based reasoning.

Deeper learning. Deeper learning prepares students to know and master core academic content, think critically and solve complex problems, work collaboratively, communicate effectively, and be self-directed and able to incorporate feedback. It enables graduating high school students to be college and career ready and to make maximum use of their knowledge in life and work.

Digital Citizenship. Understanding the safety concerns, rights and responsibilities necessary to access and participate in online communications or communities.

Digital Learning. Digital learning is any instructional practice that effectively uses technology to strengthen a student's learning experience. It emphasizes high-quality instruction and provides access to challenging content, feedback through formative assessment, opportunities for learning anytime and anywhere, and individualized instruction to ensure all students reach their full potential to succeed in college and a career. Digital learning encompasses many different facets, tools, and applications to support and empower teachers and students, including online courses, blended or hybrid learning, or

digital content and resources. Additionally, digital learning can be used for professional learning opportunities for teachers and to provide personalized learning experiences for students.

Performance-based. Learning activities that require complex performances as demonstrations of knowledge.

Personalized Learning. An approach to learning that is student-centric, where the needs, interests, strengths, and preferences inform the learning, and where students have a significant degree of control and choice in what, when, and how they learn.

Appendix B: Methodology

Methodology

To investigate digital learning in West Virginia, data were utilized from three surveys, twelve interviews with stakeholders identified by state leaders, and three West Virginia Department of Education technology datasets.

Surveys

The three surveys that informed this report were: 1) the Project 24 Digital Learning Readiness Survey, which gauges districts' readiness to begin implementing digital learning; 2) a West Virginia school administrator survey, and 3) a West Virginia teacher survey. The Project 24 survey assesses how well a school district is staged to begin to successfully implement digital learning. The teacher and school administrator surveys were designed to gain insights as to the implementation of such plans, i.e., the current uses of digital learning in schools. Together the three constitute a report of digital learning in the state.

All 57 school districts (55 county school districts and 2 state school districts) completed the Project 24 Digital Learning Readiness Surveys at the request of the West Virginia Department of Education. The surveys were completed between April 29, 2013 and July 12, 2013 by each of the school district leadership teams. Typically, the survey questions are distributed to members of the team prior to a scheduled two-hour discussion session. The leadership team discusses the questions, reaches consensus, and enters the data into a single online survey. Once submitted, a customized report is available for the district online. The West Virginia Department of Education secured permission from each school district to extract the data to use in this report.

The school administrator and teacher surveys were contracted by the Alliance for Excellent Education. The West Virginia Department of Education sent invitations to participants through a department listserv for all West Virginia school administrators and teachers in the state. This educator listserv is only used for official WVDE communications. The email was prefaced with "The state wants to hear your insights on the readiness of West Virginia K12 schools for digital learning."

In total, 1371 teachers and 92 school administrators completed online surveys and all 57 districts (55 county school districts and 2 state school districts) in West Virginia completed the Project 24 Digital Learning Readiness Survey. Though all administrators and teachers were invited to participate in the survey, the final self-selected sample was representative of the overall population. There was equal representation from middle school teachers (grades 6–8) and high school teachers (grades 9-12), with

higher participation from elementary school teachers (grades PreK-5). This pattern of participation is comparable to the composition of West Virginia schools. The majority of the 92 school administrators who completed the survey are principals (70%), followed by assistant principals (21%), and technology coordinators (2%). Due to the low rate of participation, there may be a potential for self-selection bias. The following table outlines the survey participation by locale. In all three surveys, frequencies of quantitative data were computed across the state and disaggregated by locale. Further, the researchers looked for parallel questions to compare districts' readiness for implementing digital learning, from the Project 24 Digital Learning Readiness Survey, in comparison to current use of digital learning tools and strategies by administrators and teachers. The research team coded the qualitative data from the administrator and teacher surveys for emergent themes, across the state, and disaggregated by locale.

Locale	Project 24 survey	Teacher survey	Administrator survey
Urban	5	243	10
Fringe/distant rural	25	469	41
Remote rural	9	79	9
Suburban/town	18	580	32
Total	**57**	**1371**	**92**

Interviews

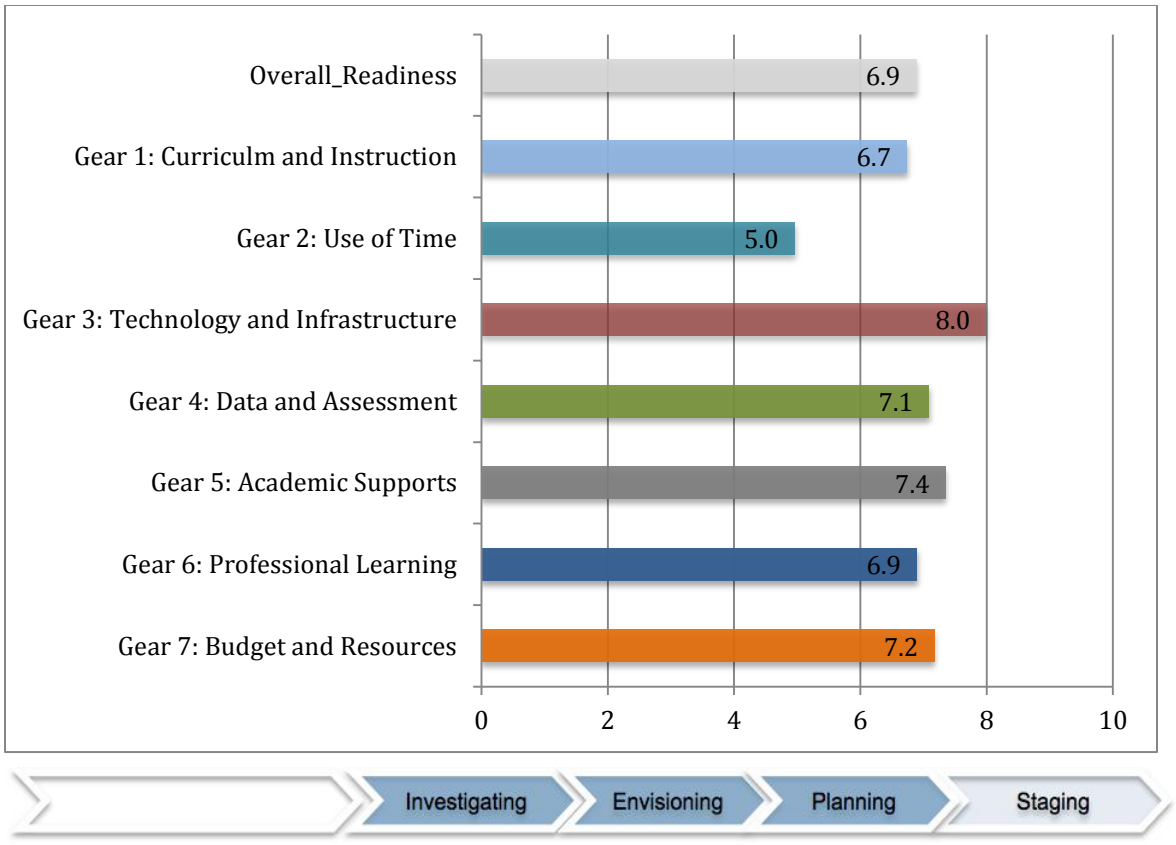
To further our understanding of digital learning in West Virginia schools the researchers interviewed 12 stakeholders, including a teacher, two district curriculum directors, one state curriculum director, two district superintendents (one from a rural district and one from an urban district), a representative from the governor's office, the Chief Technology Officer from the state education agency, a state board member, a RESA Technology Leader, a business leader, and a state senator. Interview feedback was coded for emergent themes, across the state and disaggregated by locale. At the request of the state board member, a faculty member at Carnegie Mellon University was also interviewed. He is working in West Virginia to redesign sections of the preservice programs.

West Virginia technology use datasets

The researchers also utilized West Virginia technology datasets to obtain a complete picture of digital technologies and infrastructure in West Virginia. These datasets include the Digital Divide dataset, the West Virginia High Level Capacity Analysis dataset, and the All K-12 Connections Summary data. The Digital Divide data, collected by the West Virginia Department of Education, provides information from West Virginia school districts on student computer ratio, teacher computer ratio, numbers and types of computers available, teacher technology training, counts of technology peripheral devices, and connectivity. The West Virginia High Level Capacity Analysis dataset indicates if each school has enough devices to complete the spring Online WESTEST 2 assessment, The All K-12 Connections Summary data, provided WV school and administration, provides broadband connection information.

Appendix C: Gear Scores by Locale

The 57 districts in West Virginia, consisting of 55 county school districts and 2 state school districts, convened district leadership teams to contemplate the Project 24 leadership issues and complete the online audit. Each team received a customized report based on their responses. The Metiri Group has summarized those data statewide to produce the charts below.

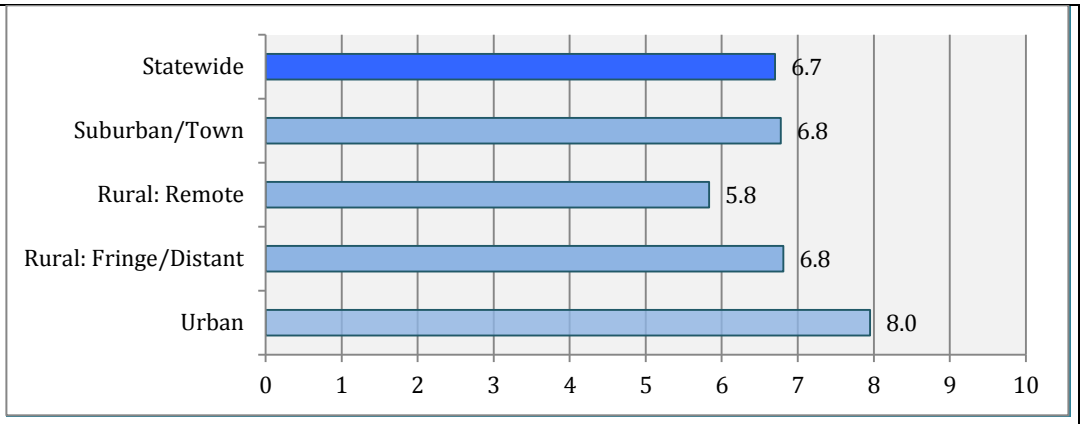
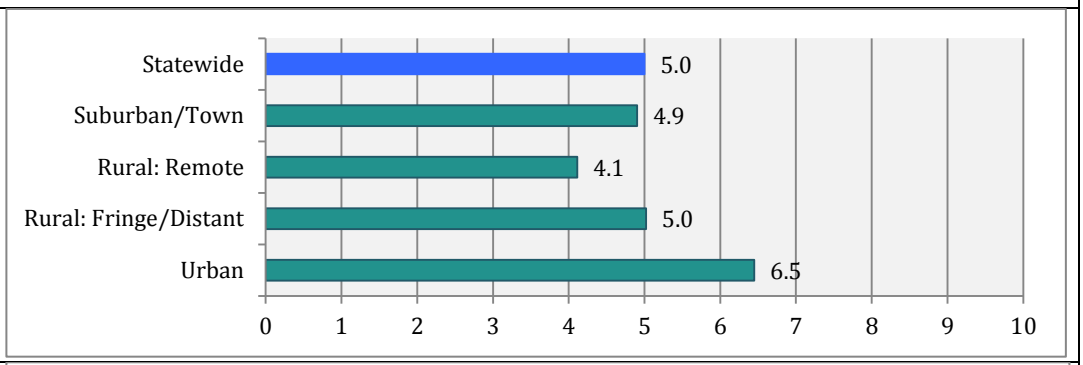
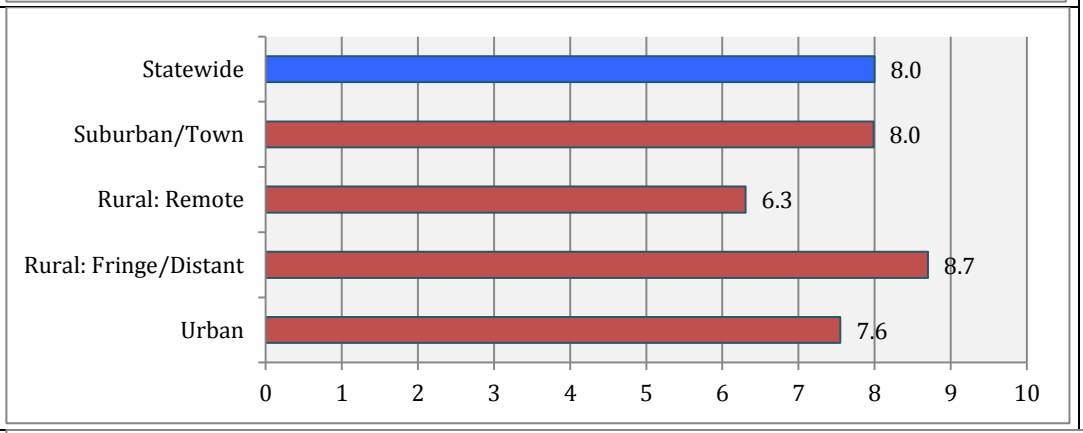
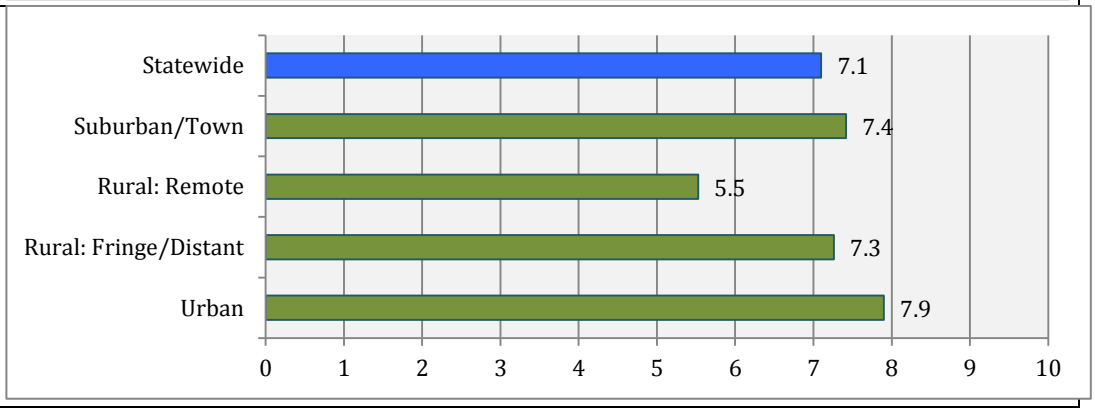


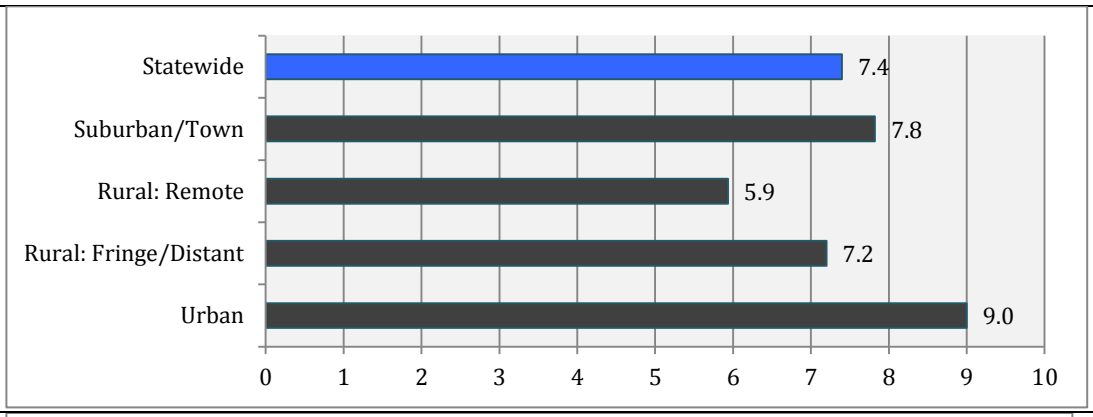
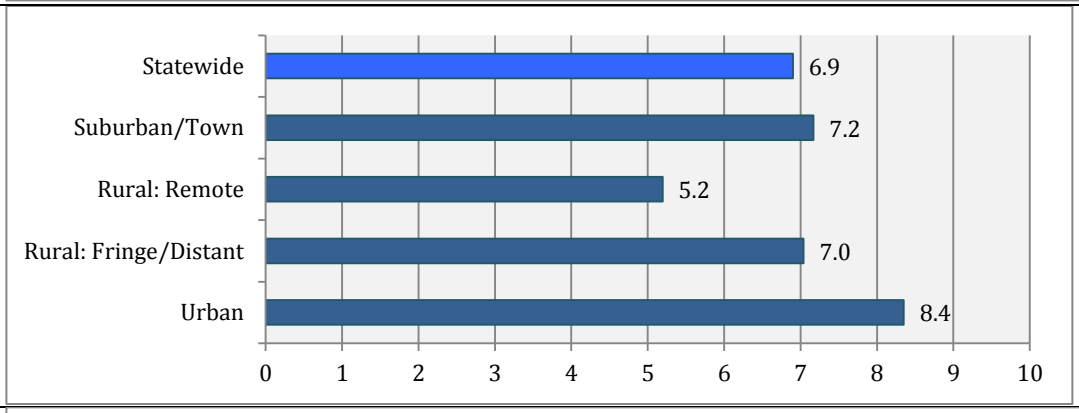
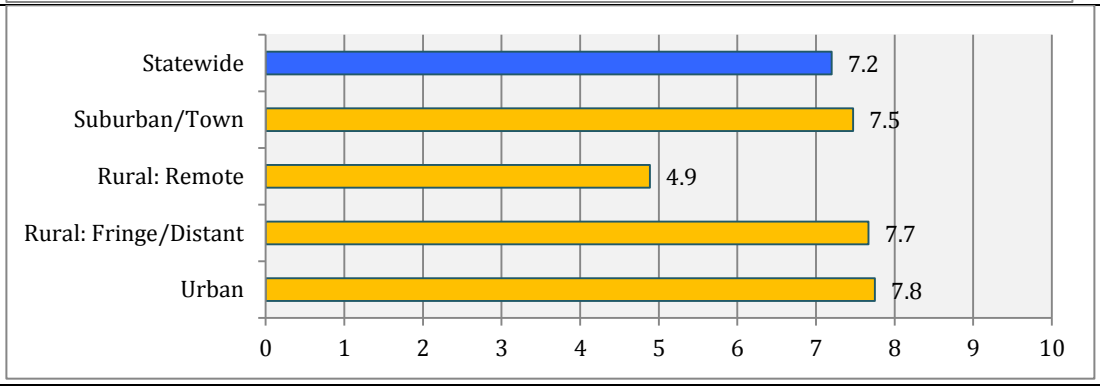
Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)

Each of the Gear scores and associated evidence is included in the preceding sections of the report. While the Gear scores are strictly determined by the input into the P24 reports from the school district leadership teams, the evidence base is multi-dimensional, including the perspectives of teachers, school administrators, and a range of other stakeholders from the state.

In addition, the Gear reports disaggregated by demographics are included in the tables on the following page. A visual analysis should reveal any significant differences in the Gear scores across those groups.

Figure 34: Gear scores statewide and by locale

Gear 1: Curriculum and Instruction	
Gear 2: Use of Time	
Gear 3: Access and Infrastructure	
Gear 4: Assessment Data	

Gear 5: Academic Supports	
Gear 6: Professional Learning	
Gear 7: Budget and Resources	

Source: Project 24 self-assessment. n=57 school district leadership teams (representing 55 county school districts and 2 state school districts)