ABSTRACT

Evaluating District Leaders' Perceptions of Preparedness to Transition from Traditional Personalized Learning Environments

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Gwynedd Mercy University, 2020

U.S. secondary education is in flux, evolving from the traditional teacher-centered model to a student-centered approach. Specifically, the field of education is experiencing a paradigm shift from the long-establish one-size-fits-all to a customized learning process where students are directing their own learning. Using quantitative non-experimental methods, this dissertation focuses on two questions: what is the gap in knowledge and skills that U.S. schools in the Future Ready Schools network face? And, where are these schools in making this transition? This study identifies and describes a gradual shift from teacher-centered learning to a developing conceptualization of student-centered teaching and learning environment. The participant schools and districts are also developing their understanding of the leadership responsibilities needed for this systemic change. The study's recommendations focus on the steps necessary for schools and districts to accomplish this shift including how teachers can implement student-centered learning at different grade levels and content areas and the role of administration in this change.

TITLE

EVALUATING DISTRICT LEADERS' PERCEPTIONS OF PREPAREDNESS TO TRANSITION FROM TRADITIONAL TO PERSONALIZED LEARNING ENVIRONMENTS

By

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Evaluating District Leaders' Perceptions of Preparedness to Transition from Traditional to Personalized Learning Environments

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Chapter 1: Introduction

Most public schools in the United States (U.S.) continue to follow an antiquated teacher-centered model of education created to serve a society that existed prior to the 20th century Industrial Revolution (W. R. Watson, Watson, & Reigeluth, 2015). The teacher-centered model of schooling was created at a time when the economy only needed a small portion of individuals to be educated at the postsecondary level and teachers only provided the necessary knowledge for factory and labor-intensive jobs (W. R. Watson et al., 2015). As society began to transform with the induction of technology and a more racially and ethnically diverse population, the teacher-centered approach became ineffective in both preparing students to meet the needs of a technology-rich and digitally informed workforce and in bridging the growing academic achievement gap (Chen, Tan, & Lo, 2016; Garland & Rapaport, 2017; Walker, 2017; W. R. Watson et al., 2015).

Today's educational blueprint is evolving from the traditional teacher-centered model to a student-centered approach. Specifically, the field of education is experiencing a paradigm shift from the long-established one-size-fits-all model to a customized learning process where students are directing their own learning. For centuries, we believed that there is only one way for students to learn—go to school, sit in rows of desks, do what the teacher says and everyone takes the same tests; one-size fits-all. We've operated schools as if they were industrial factories, with teaching and learning practices that mimic assembly-line manufacturing. We can no longer rely on the methods of the past. Today, schools need student-centered strategies, rather than a top-down, one-size-fits-all approach to education. Through a personalized learning process aimed at

engaging students in more relevant and rigorous learning, we are slowly turning the learner into a co-designer as schools tailor the curriculum to students' individual learning needs, skills, and interests. While this is the ideal, schools and districts continue to face barriers to these personalized learning initiatives including a poor integration of data systems, rising tensions between competency-based practices and meeting grade-level standards, and the time needed to develop personalized lessons.

Academic achievement gaps exist between the predominantly White student body and several other student groups such as racial and ethnic minorities, English language learners (ELL), students with disabilities, between genders (male vs female), and students from low socioeconomic status (SES) backgrounds (Musu-Gillete et al., 2016; National Education Association, 2018a). An academic achievement gap is not defined just by the disparities found in test scores (SAT's, ACT's. statewide standardized tests, etc.), but also by the availability of opportunities (advanced placement courses, higher education, access to educational technology), overall student attainment (high school graduation rates, college attendance and graduation rates), and employment rates (Lara, Pelika, & Coons, 2017; Musu-Gillete et al., 2016; National Education Association, 2018a).

The use of technology to create a student-centered personalized learning environment is believed to promote academic equity and 21st century skill-sets (critical thinking, problem solving, innovation and creativity, etc. (Future Ready Schools, 2019a), boost student engagement and achievement, enhance digital literacy and citizenship, and increase teacher productivity (Alliance for Excellent Education, 2016; Lara et al., 2017). Many students are still being educated with a model that no longer works for today's technological age. The 21st Century is considered the information age wherein society is

digitally connected through work, global markets, technology, and blended cultural traditions (Laar, Deursen, Dijk, & Haan, 2017). As a result of this revolution, the need for post-secondary education is increasing and many change initiatives have been implemented in education with the intention of providing students with the 21st century digital skills necessary to thrive in today's economy while individualizing the process of learning, critical thinking, problem-solving, research, and analysis (Executive Office of the President, 2014; National Education Association, 2019). Unfortunately, many of these initiatives have merely been efforts to overcome the design problems of a traditional system and have not focused on the actual transition and barriers associated with moving out of a factory (or industrial) model of education.

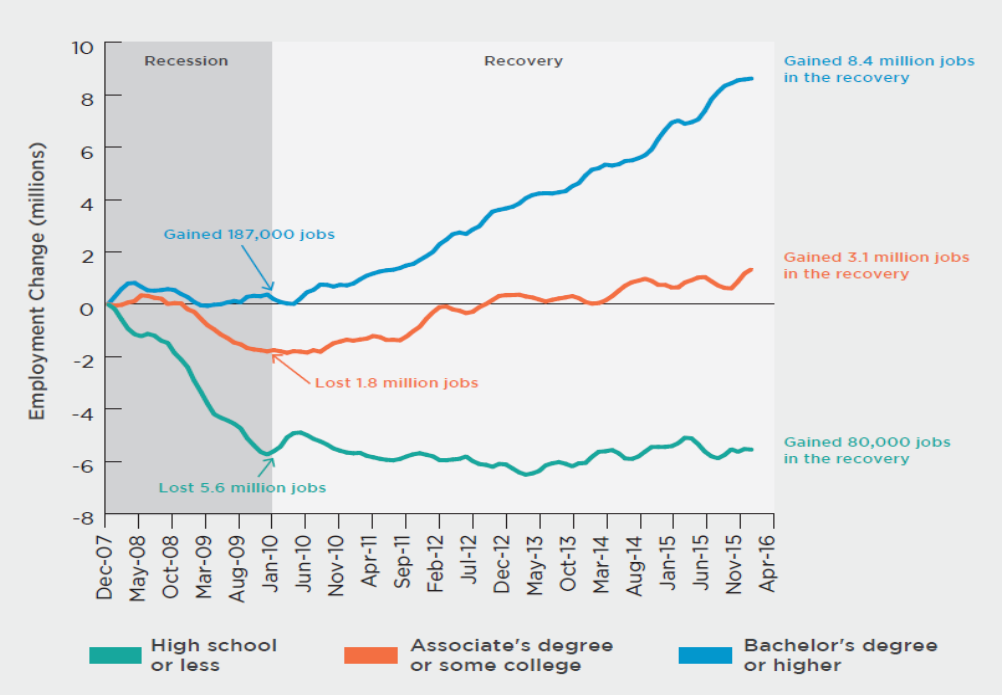
This change faces many obstacles. Many districts face a multitude of difficulties and hurdles when transitioning to a student-centered personalized learning environment. Barriers to personalized learning implementation have included the lackluster integration of data systems, tensions between competency-based practices and meeting grade-level standards, and the time needed to develop personalized lessons. Through the use of the Future Ready Schools Assessment, schools and districts are guided through a detailed systemic approach to this change, one that, when successful, will help bring long-term success for student achievement and growth. Efforts to assess the perceived levels of transition and barriers associated with the adoption of a paradigm shift to a student-centered personalized learning environment are essential to inform various stakeholders in education on how to successfully achieve transition (Executive Office of the President, 2014; Frontier & Rickabaugh, 2014; Pierce, 2015).

Background of the Study

Workforce opportunities significantly vary between those that have college degrees and those that do not. A research study conducted at Georgetown University regarding the differential workforce opportunities between those that obtained a college degree and those that did not suggest that a significant employment rift exists as illustrated in Figure 1 (Carnevale, Jayasundera, & Gulish, 2016). At the end of the 18-month Great Recession of 2007, an estimated 7.2 million jobs were lost of which the majority (78%) belonged to workers with a high school education or less. It was not until January of 2010 before the job market increased resulting in a total of 11.6 million jobs "since the recession bottomed out" (Carnevale et al., 2016, p. 1). Unfortunately, of the new jobs created since the recession, 99% went to workers with either a college degree or some college education and credentialing (Carnevale et al., 2016). An analysis published by Lumina Foundation reported that the national average of Americans earning a degree or some type of credentialing beyond high school was at 47.6% in 2017. These statistics illustrate the importance of high school students successfully matriculating and graduating from college or other credentialing programs (Lumina Foundation, 2019). In addition to a lack of post-secondary education, an academic achievement gap persists and predominantly affect low SES groups and minority populations (Musu-Gillete et al., 2016; National Education Association, 2018a). As a result of society emerging into the information age, these student groups are at further risk of being left behind (Lumina Foundation, 2019). K-12 schools face the challenge of preparing today's students with the tools necessary to succeed in an information-rich, technologically advanced world that demands and requires a highly skilled and knowledgeable workforce (Future Ready

Schools, 2019e). The incorporation of technology within the classroom is suggested to afford educators the tools necessary to create a student-centered personalized learning environment that reduces the academic achievement gap while facilitating the acquisition of 21st century skill sets for successful matriculation and graduation from post-secondary institutions (Alliance for Excellent Education, 2016; Future Ready Schools, 2019a; Lara et al., 2017). Unfortunately, barriers exist in both the implementation and acceptance of technology within the classroom and a digital divide is believed to negatively affect the equity of students in rural areas (Moore, Vitale, & Stawinoga, 2018).

Figure 1. Comparison of Employment Rates Based on Educational Attainment (Carnevale et al. 2016).



Defining Personalized Learning

It is increasingly difficult to construct a shared and common definition of personalized learning across the country because there are a multitude of ways in which to facilitate personalized learning (Peng, Ma, & Spector, 2019). The term 'personalized learning' has varying attributes from district to district based upon the local context. Future Ready Schools (FRS) defined personalized learning as:

> A student-centered approach designed to help all students develop a set of skills collectively known as the deeper learning competencies. These skills include thinking critically, using knowledge and information to solve complex problems, working collaboratively, communicating effectively, learning how to learn, and developing academic mindsets (Future Ready Schools, 2019d, p. 1).

These skills include the ability to think critically, use available resources to solve complex problems, work in collaboration and communicate effectively, the development of an academic mindset and "learning how to learn" (Future Ready Schools, 2019d, p. 1). Personalized learning encompasses six evidence-based dimensions and is attained through "active and collaborative learning activities, which are aligned with standards, chosen through ongoing assessment of students' progress and preferences, and supported by the use and creation of rich content and robust tools" (Office of Educational Technology, 2015, p. 5). Namely, personalized learning can be achieved by using rigorous and relevant learning outcomes, integrated assessments, pathways for learning, powerful learning designs, rich learning resources, and new teacher roles (Office of Educational Technology, 2015).

Regardless of the variations in nation-wide definitions, personalized learning is increasingly recognized as a promising strategy to close achievement gaps, increase student engagement and college readiness (Alliance for Excellent Education, 2016; Lara

et al., 2017), boost 21st century skill sets necessary for employment and success in college (Future Ready Schools, 2019b; Laar et al., 2017), and prepare students as they become self-directed, lifelong learners by meeting their individual needs. Leading experts share common general principles with regard to the definition of personalized learning that include "student voice and choice," customization to each student's strengths and needs, student agency, and flexibility of instruction (Hanover Research, 2014, p. 5).

Technology and Personalized Learning

Fortunately, a personalized learning pedagogy is further promoted through the integration of technology in classrooms and schools (Grant & Basye, 2014). Technology adds choice to the how, when, and where students access learning opportunities, helping to reduce many barriers that could occur. Learning becomes a personal experience, combining personal interactions with media support and online learning and communication activities (Grant & Basye, 2014; Kim & Smith, 2017; Schuler, 2009). As differentiation of instruction becomes a more widely used practice in teaching, the power of technology has become an effective tool to meet this increasing demand. The introduction of mobile devices into the classroom are suggested to offer five specific affordances which include anytime-anywhere learning, reach underserved populations, improve 21st century social interactions and skills, fit with learning environments, and enable a personalized learning environment (Schuler, 2009).

Over the course of the past decade, frameworks that embrace the role of technology in learning have been created to support teachers in the integration of technology into classroom instruction. The most notable of these frameworks is TPACK (technology, pedagogy, and content knowledge). This framework provides teachers a

way to think about effective technology integration, which is rooted in the concept that technology, pedagogy, content, and context are interdependent parts of a teacher's knowledge that is necessary to teach curriculum effectively with the support of educational tools (Hofer, Bell, & Bull, 2015). \

Future Ready Schools

Future Ready Schools purports to be "a free, bold effort to maximize digital learning opportunities and help school districts move quickly toward preparing student for success in college, a career, and citizenship" (Tech & Learning, 2017, p. 1). In recognition of the importance of technology in the classroom, the Alliance for Excellent Education created the FRS initiative in 2015. The initiative was created to potentially help school districts develop comprehensive plans to achieve successful personalized student learning outcomes by transforming instructional pedagogy and practice through the leveraging of technology (Future Ready Schools, 2019e). School districts are able to take the Future Ready pledge wherein districts are expected to start a journey toward a shared vision of preparing students for success in college, their careers, and in citizenship through the implementation of technology. Districts accomplish this through a systematic approach to change, as outlined in the Future Ready Framework. With personalized student learning and curriculum and instruction at the center, a district must align with each of the seven (7) key categories or gears of the framework in order to ensure a successful transition (Future Ready Schools, 2019c).

Statement of the Problem

This study explores the gap in knowledge and skills that exist among Future Ready School pledge schools and districts with regard to their transition from a teacher-

centered paradigm to a digital student-centered personalized learning environment. Although many districts have expressed a commitment to taking the Future Ready Schools pledge to make the digital transition, where districts are in the transition process is unknown. Further, whether any trends exist between and within states as it compares to district demographics is also unknown. The identification of trend areas could inform transition stakeholders where extra help may be needed by districts in ensuring a successful transition to a student-centered personal learning environment. The current teacher-centered paradigm is ineffective in meeting todays needs for technologically advanced skilled workers and students that are capable in successfully tackling the rigors of a post-secondary education (Carnevale et al., 2016). In order to succeed in the current economy, students must obtain a college education or some type of credentialing in order to obtain a 'good' paying job (Carnevale et al., 2016). Further, as society erupts into the information age, student groups experiencing academic achievement gaps are at an elevated risk of being left behind thereby warranting the need for an educational paradigm shift that will ensure academic equity for all (Lara et al., 2017; Musu-Gillete et al., 2016; National Education Association, 2018a). Student-centered personalized learning environments are suggested to be that paradigm shift that bridges the gap in equity while ensuring students obtain the 21st century skills necessary to succeed in today's technologically advanced world (Executive Office of the President, 2014; National Education Association, 2019). The United States economy is significantly impacted by the employability of the nation's youth suggesting this to be a national problem requiring the utmost attention (Carnevale et al., 2016).

Purpose and Significance of the Study

The purpose of this quantitative non-experimental exploratory correlational study is to assess trends in perceived transition readiness levels, common transition strengths and weaknesses, and congruency of Future Ready Schools district leaders' perceptions of their school or districts transition readiness with the actual availability of digital learning and use of technology environment elements. Further, trends between and within districts will be compared against district demographics across the United States. Finally, research studies suggest that the availability of technology in the classroom is not enough to facilitate use (Jwaifell & Gasaymen, 2013). Therefore, it is possible for Future Ready School districts to possess the necessary technological equipment to pursue a student-centered personalized learning environment but fall short of obtaining this objective because of a lack in diffusion of innovation (Jwaifell & Gasaymen, 2013). As a result, assessing where current Future Ready School Pledges are in the transition process is essential in identifying possible barriers to implementation of technology and transition to a student-centered environment. Therefore, the statistical analysis of secondary data received from FRS District Assessment survey is warranted to better understand how districts have progressed in the transition process and to identify trends in transition to inform various stakeholders.

Research findings will provide detailed analysis of district level readiness nationally and identify themes in strengths and challenges among district leaders. By identifying patterns in schools and districts progress in the transition process, educational stakeholders at all levels will be able to identify possible hinderances and barriers requiring attention. These potential snags/barriers could be further evaluated to inform

the current Future Ready Framework thereby enhancing it. Further, research findings could validity prior research regarding trends in the availability of technology in certain demographic areas also referred to as the digital divide (Moore et al., 2018).

Theoretical/Conceptual Framework

The Future Ready Framework will be the guiding framework used for this research study. The Future Ready Framework is a research-based digital learning framework tool used by districts to implement a technology driven student-centered personalized learning environment. The framework consists of seven gears or categories from which practitioners are expected to align. The seven categories or gears are illustrated in Figure 2 and consist of curriculum, instruction, and assessment, use of space and time, robust infrastructure, data and privacy, community partnerships, personalized professional learning, and budget and resources. These seven gears along with the use of collaborative leadership, district vision, and efforts to plan, implement, and assess progress are suggested to be essential in the transition from a teacher-centered paradigm to a student-centered one (Future Ready Schools, 2019c).

The Future Ready Framework guided the research questions by providing the foundation for the creation of the Future Ready School District Assessment survey which is the secondary data used in this research study. The Future Ready Framework is based on the premise that student-centered personalized learning is essential in achieving educational equity and providing students the necessary 21st century skill set to succeed in college and the workforce as shown in Figure 1.

Figure 2. Future Ready Framework (Future Ready Schools, 2019)

Based on this premise, if implemented properly, the framework is suggested to resolve these issues and addresses current issues in the educational system regarding the transition from a teacher-centered paradigm to a student-centered one (Future Ready Schools, 2019c).

Nature of the Study

The proposed quantitative non-experimental correlational study aims to assess secondary data collected by FRS using the Future Ready District Assessment survey. District demographic information was also collected at the time of the initial survey. Access to secondary data was obtained by contacting the Director of Innovation of Future

Ready Schools, Mr. Thomas C. Murray and requesting permission in writing. There are several design methods associated with quantitative studies and include experimental, quasi-experimental, correlational, causal-comparative, and descriptive. Of the design methods available, the correlational design is best suited to answer the research questions (Cozby & Bates, 2015). This methodology and design were best suited because of the use of quantifiable secondary survey data and intent to explore the correlation of survey trends with demographic data and between districts and states. Further, the research questions do not require manipulation of the independent variable nor the implementation of an experimental control or randomization as required in an experimental study. Neither a quasi-experimental design nor a causal-comparative design was warranted because of the lack of random assignment of pre-existing groups or the need to establish a cause-and-effect relationship. Finally, the research questions require more than a descriptive design aimed at describing a phenomenon under study. Therefore, a correlational design which is used to explore statistical relationships between multiple variables without establishing s cause-and- effect relationship is warranted. Specifically, the study aims to assess the trends and patterns associated with Future Ready school and district pledges.

Research Questions

This study aims to analyze secondary data for patterns in school districts' preparedness to transition to a student-centered personalized learning environment as measured by the Future Ready District Assessment survey. The study will also explore trends in survey responses and school/district demographics. Finally, the association between district leaders' perceptions of preparedness to effectively transition to a digital learning environment and their self-reported availability of digital learning environment

elements will be explored. The following research questions were formulated from the preliminary literature review and the Future Ready District Assessment survey scales.

RQ1: What, if any, similarities/differences exist in district perceived readiness to implement student-centered learning based on demographic characteristics including:

1. North, South, Midwest and Western states.
2. Student/teacher ratio levels.
3. Number of minority students within the district.

RQ2: What are the common strengths in schools/districts readiness aligned to the FRS framework, that allow leaders to be prepared to effectively transition to a digital learning environment?

RQ3: What is the relationship between the number of digital learning environment and technology use elements and the perceived readiness among district leadership teams?

Research Assumptions

The study was conducted with the following limitations:

1. Targeted Demographics: Participants of this study were collected using convenience sampling. Future Ready School districts were self-selecting and therefore had a predisposed interest in digital learning as they are a part of the FRS network. As a result, not all states are represented within the data set thereby potentially limiting generalizability of the research findings.
2. Survey Instrument: The Future Ready Needs Assessment was created by the Alliance of Excellent Education organization and distributed to participating districts

in a Google Doc. The survey was piloted with teachers and administrators willing to participate from the original group of districts that took the initial needs assessment. The study was limited by the honesty of the subjects' responses during their participation in the survey and needs assessment.

Definition of Kay Terms

The following assumptions were considered in this study:

1. The responses were offered honestly and without bias.
2. The responses of the participants were representative of their own classrooms and schools.
3. Definition of Key Terms

Collaboration: This is an instructional strategy in which everyone in the learning group performs a unique role to accomplish common tasks. Each learner works individually on the same topic and then share with the group what he or she learned in order to deepen everyone's understanding (Naussbaum-Beach & Hall, 2012).

One-to-one Technology Implementation: Within a one-to-one environment, a device is provided for each individual student (Management Association, 2016).

Blended learning: Combines face-to-face, classroom instruction with an online learning environment allowing students, in part, to control time, pace, and place of their learning (Tucker & Umphrey, 2013).

Flipped classroom: The lecture and homework elements of a class are reversed. Short lectures are converted into video format to be viewed by students prior to the class session Class time is then utilized for student collaboration, independent practice, or in-depth projects (Educause, 2012).

Personalized Learning: Tailored learning for each student's strengths, needs and interests–including enabling student voice and choice in what, how, when and where they learn–to provide flexibility and support to ensure mastery of the highest standards possible (Abel, 2016)

Alliance for Excellent Education: A Washington, DC-based national policy and advocacy organization dedicated to ensuring that all students, particularly those who are traditionally underserved, graduate from high school ready for success in college, work, and citizenship (Alliance for Excellent Education, 2019).

FRS: Created to help school districts develop comprehensive plans to achieve successful student learning outcomes by (1) transforming instructional pedagogy and practice while (2) simultaneously leveraging technology to personalize learning in the classroom (Future Ready Schools, 2019d).

Student-Centered Learning: The instructional method that is personalized, competency-based, happens anytime and/or anywhere, and students have ownership in their learning. Student-centered learning engages students in their own success—and incorporates their interests and skills into the learning process (Nellie Mae Education Foundation, 2018).

Teacher-Centered Learning: A teaching method where the teacher is in actively involved in teaching while the learners are in a passive, receptive mode listening as the teacher teaches (Nellie Mae Education Foundation, 2018).

Summary

Current trends in the economy suggest that a more highly skilled workforce is necessary to advance society in a technologically advanced world. The rate of Americans

obtaining post-secondary degrees is significantly lower than the number of individuals with degrees obtaining 'good' paying positions suggesting a rift in employment levels between the have and have-nots 1 (Carnevale et al., 2016). In addition, the academic achievement gap persists thereby ensuring no equity for all student groups. These variables in conjunction with a technologically advanced society suggest that a new educational paradigm is needed to create equity for all student groups and ensure the necessary skill sets are acquired to ensure student success in post-secondary education and the dynamic workforce. The use of technology to create a student-centered personalized learning environment is suggested to be the solution (Alliance for Excellent Education, 2016; Lara et al., 2017). However, the transition from a teacher-centered paradigm to a student-centered one using technology is a difficult transition requiring a collaborative leadership team and changes in a multitude of areas for success. Although many school districts are eager and pledge to make the transition, the process appears to be slow and cumbersome. Therefore, the need to identify where school districts are in the transition process and identification of the patterns and trends associated with them is essential in identifying areas in the transition process that may need improvement to ensure success.

Chapter 2: Literature Review

The purpose of the proposed research study is to assess transition readiness and identify possible barriers to the implementation of a personalized student-centered environment facilitated through the use of technology in the classroom in FRS. The literature review consisted of peer-reviewed journal articles as well as essays on personalized learning. Relevant and peer-reviewed literature was primarily obtained from scholarly search engines such as SAGE journals, Science Direct, the Education Resources Information Center (ERIC), EBSCOhost, ProQuest, and Psych INFO. Researched terms included but were not limited to the following: *achievement gap, equity in public schools, digital divide, personalized learning, technology in classrooms, bridging the achievement gap, educational disparities,* and *Future Ready Schools.* Articles were only included in the literature review if they were written in English and published between 2015 till the present. If an article was found to meet the inclusion criteria, the references were further screened for inclusion. In addition, a search of the literature was also conducted on methods and designs of quantitative research.

This non-experimental quantitative secondary analysis study proposed to explore the transition readiness of Future Ready School pledges by analyzing survey data collected by FRS. Research findings should illustrate patterns and trends in various districts' transitioning progress thereby affording the researcher the ability to pinpoint districts experiencing hinderances or barriers in the transitioning process. Future research studies could then analyze these districts to identify possible issues for remediation. The major headings explored in the literature review include the employment rift, educational disparities, the academic achievement gap, traditional teaching constructs, and FRS.

Theoretical Framework

The Future Ready Framework is a research-based digital learning framework tool used by districts to implement a technology driven student-centered personalized learning environment. The framework consists of seven gears: (1) curriculum, instruction, and assessment, (2) use of space and time, (3) robust infrastructure, (4) data and privacy, (5) community partnerships, (6) personalized professional learning, and (7) budget and resources. These seven gears along with the use of collaborative leadership, district vision, and efforts to plan, implement, and assess progress are suggested to be essential in the transition from a teacher-centered paradigm to a student-centered one that is leveraged by the use of technology within the classroom (Future Ready Schools, 2019c). Districts are assessed and placed into one of four categories based on their level of readiness in each subcategory for each of the seven gears. In the curriculum, instruction, and assessment gear, districts are assessed on their level of 21st Century skills integration, personalized learning, collaborative, relevant, and applied learning, the leveraging of technology, and the use of analytics to assess and inform instruction as illustrated in Appendix A1. The four categories of level of readiness are the investigating stage (0-3), envisioning stage (4-5) planning stage (6-7) and staging (8-10) (Future Ready Schools, 2019b). Each subcategory that makes up each gear is assessed by these four categorical levels of readiness. It is suggested that based on these assessments, the level of a districts transition readiness can be determined and assessed. The seven gears and the subcategories assessed for district levels of readiness are depicted in Table 1.

Table 1. Gears with Corresponding Subcategories (Future Ready Schools, 2019c)

Gear	Subcategories
Curriculum, Instruction, and Assessment	21st Century Skills/Deeper Learning
	Personalized Learning
	Collaborative, Relevant, and Applied Learning
	Leveraging Technology
	Assessment-Analytics Inform Instruction
Use of Space and Time	Flexible Learning; Anytime, Anywhere
	New Pedagogy, Schedules, and Learning Environment for Personalized Learning
	Competency-Based Learning
	Strategies for Providing Extended Time for Projects and Collaboration
Robust Infrastructure	Adequacy of Devices; Quality and Availability
	Robust Network Infrastructure
	Adequate and Responsive Support
	Formal Cycle for Review and Replacement
Data and Privacy	Data and Data Systems
	Data Policies, Procedures, and Practices
	Data-Informed Decision Making
	Data Literate Education Professionals
Community Partnership	Local Community Engagement and Outreach
	Global and Cultural Awareness
	Digital Learning Environments as Connectors to Local/Global Communities

	Parental Communication and Engagement
	District Brand
Personalized Professional Learning	Shared Ownership and Responsibility for Professional Growth
	21st Century Skill Set
	Diverse Opportunities for Professional Learning Through Technology
	Broad-Based, Participative Evaluation
Budget and Resources	Efficiency and Cost Savings
	Alignment to District and School Plans
	Consistent Funding Streams
	Learning Return on Investment

Employment Rift

An employment rift is suggested to exist between those that have a college education and those that do not (Carnevale et al., 2016). The extent of this rift is significant and prevalent providing support for the importance of ensuring students are able to graduate high school and prepared to successfully navigate college and enter the workforce (Carnevale et al., 2016; Lumina Foundation, 2019). A survey by the National Center for Education Statistics (NCES) on young adults between the age of 25 to 34 was conducted to explore employment rates by gender and educational attainment. Research findings revealed that young adults who had obtained a college degree were more likely to be employed (86%) than those that had not graduated from high school (59%). Further, unemployment rates between the two groups revealed that those without a high school degree had higher rates of unemployment as opposed to their counterparts (National Center for Education Statistics, 2018).

High school graduation rates are reported to vary between states and ethnic groups (National Center for Education Statistics, 2019a). An aggregate high school graduation rate across the U.S. revealed an 85% overall graduation rate. However, Asian/Pacific students had the highest graduation rate (91%) followed by Whites (89%), Hispanics (80%), Blacks (78%), and then American Indians/Alaska Natives (72%) (National Center for Education Statistics, 2019a). In addition to a lower high school graduation rate and subsequent matriculation to college, ethnic minorities and low SES groups experience an academic achievement gap between themselves and their White counterparts (Musu-Gillete et al., 2016; National Education Association, 2018a).

Educational Disparities

The academic achievement gap is prevalent within the public-school system and carries over into student's abilities to graduate, matriculate, and succeed in college (Carnevale et al., 2016; Lumina Foundation, 2019; Musu-Gillete et al., 2016; National Assessment of Educational Programs, 2015). Achievement gaps exist between White students and multiple student groups such as ethnic minority students, English language learners (ELL), and low socioeconomic status (SES) groups (National Education Association, 2018a). Hence, the following section will consist of journal articles examining the academic achievement gap specifically for these three groups.

Racial and Ethnic Minorities

While the number of White and Black children (5-17 years old) decreased by 9% and 1%, respectively from 2000-2013, the percentage of Hispanic students increased by 8% (Musu-Gillete et al., 2016). As a result, the Hispanic population is suggested to be the fastest growing minority demographic in the United States. Further, the National

Education Association suggested that the number of ethnic minorities is projected to grow significantly within the public school setting between 2011 to 2022 composing a total of 50% of the student population (National Education Association, 2018b). Although the achievement gap narrowed between fourth grade White and Black students by six points in both reading and mathematics from 1990 to 2013, by 12th grade the reading gap increased by six points while remaining stagnant in mathematics (Musu-Gillete et al., 2016). Regarding the Hispanic population, no measurable difference was found between reading or mathematics achievement gaps from fourth to 12th grade between 1990 and 2013. These results suggest that the achievement gap between Whites and Hispanics was stagnant during K-12 education (Musu-Gillete et al., 2016). Unfortunately, the disparity in achievement carries through into college where student groups experiencing the academic achieving gaps in primary and secondary education are less prepared and equipped to apply, matriculate, and graduate from college (National Education Association, 2018b).

Low Socioeconomic Status Groups

Racial and ethnic minority groups are primarily from low SES backgrounds or low-income families (McFarland et al., 2018). As a result, using the National School Lunch Programs free or reduced-priced lunch (FRPL) data, the NCES was able to compare the number of low-income students against the schools racial and ethnic minority population. The NCES then categorized schools into one of four groups based on the percentage of students that qualify for FRPL. The categories consisted of high-poverty, mid-high poverty, mid-low poverty, and low-poverty schools as illustrated in Table 2. When the four categories were compared against the racial and ethnic

background of the student population, high and mid-high school categories had a higher prevalence of minority students as compared to the mid-low and low school categories.

Table 2. Categories for School Poverty (McFarland et al., 2018)

School Poverty Category	Students Eligible for FRPL (%)
High	>75
Mid-High	50.1-75
Mid-Low	25.1-50
Low	<25

Specifically, the high and mid-high category schools consisted of primarily Black (74%) and Hispanic (73%) student populations with only 33% of the student population consisting of Whites (McFarland et al., 2018). These research findings suggest that proposed academic achievement gaps suggested to be associated with race/ethnicity are compounded by those suggested to be associated with low SES groups and impoverished school systems. School systems with minimal funding or excessive budgetary restraints are unable to offer students in low SES areas the same academic resources afforded their more affluent counterparts. For example, a report exploring the differences in the distribution of academic resources between high and low poverty schools in Virginia revealed that teachers had less experience teaching, lower annual incomes, and the schools were less likely to offer essential courses in building math competencies (likelihood of offering: Physics (43%), Calculus (57%), AP (Advanced Placement) or IB (International Baccalaureate) classes (71%), middle school Algebra I (75%)) or the

availability of advanced placement courses (Duncombe, 2017). As a result of these challenges, the achievement gap remains prevalent.

English Language Learners (ELL)

In the U.S. in 2015, a reported 4.8 million K-12th grade students (9.5%) participated in the ELL program. Of the 4.8 million that participated, about 77% or 3.7 million were of Hispanic descent (McFarland et al., 2018; Musu-Gillete et al., 2016). The second largest ethnic group to participate in an ELL program were Arabic students (2.4%), followed by Chinese (2.1%), Vietnamese (1.7%), English (1.7%), Somali (0.7%) and so forth (McFarland et al., 2018). As a result, the Hispanic student population was associated with both the highest prevalence of low SES and enrollment in the ELL program (McFarland et al., 2018). These research findings suggest that the proposed causes of academic achievement gaps are multidimensional and compounded by barriers associated with race/ethnicity, low SES, and English as a second language. Hence, the research findings suggest that achievement gaps persist because of both out-of-school and school-based factors as well as the psychological effects created by institutionalized racism and oppression (Hachfeld, Hahn, Schroeder, Anders, & Kunter, 2015; Peters, Margolin, Fragnoli, & Bloom, 2016; Pezzetti, 2017; Public-Impact, 2018). Several school-based factors are suggested to be associated with the academic achievement gap and include the traditional teaching construct, the teacher-student racial congruency, and the associated consequences of an impoverished school system.

The Academic Achievement Gap: School Based Factors

The cause and solution to bridging academic achievement gaps is multidimensional (Hachfeld et al., 2015; Peters et al., 2016; Pezzetti, 2017; Public

Impact, 2-18). There are factors outside of the school and school-based factors that significantly contribute to the gap in achievement seen between Whites and other student groups. In addition, research has suggested various psychological effects created by institutionalized racism and oppression that have significantly contributed to gaps in achievement (Hachfeld et al., 2015; Peters et al., 2016; Pezzetti, 2017; Public-Impact, 2018). Unfortunately, out-of-school factors that adversely affect a student's overall well-being, personal health, and academic success and preparedness are not within a teacher's or administration's control (Public-Impact, 2018). However, it is important to note that out-of-school factors are suggested to be strongly influenced by race and SES (Pezzetti, 2017; Public-Impact, 2018). Factors outside of the school or external factors consist of variables such as level of parental engagement (reading at home and helping with homework, etc.), primary language spoken at home (determines level of exposure to English and the English vocabulary), physical and mental health, housing conditions (unsafe, overcrowding, etc.), and access and use of technology/computers at home greatly influence a student's academic achievement and success (Dolan, 2016; Peters et al., 2016; Pezzetti, 2017; Public-Impact, 2018). Because factors outside of the school are difficult to control, educators should do what they can with school-based factors that lead to achievement gaps. The following section explores research findings regarding biased teacher perceptions, incongruency between teacher-student racial/ethnic ratios, and the effects of impoverished school systems on achievement. These ever-present variables all have been documented hurdles in the pursuit for continuous student

growth and achievement in schools. By attempting to personalize the learning experience for individual students experiencing these situations there is potential to move past these hurdles that are often hard to change but not impossible to overcome.

Equity in Course Offerings

A quantitative cross-sectional design research study was conducted in Illinois on secondary data obtained from the Illinois State Board of Education. The study explored the relationship between ACT scores (n=145,560), academic statistics, and demographics in order to examine the gap in achievement between demographic groups (Colgren & Sappington, 2015). The data consisted of ACT scores from 2012-2013, student's race/ethnicity, SES, and AP courses. The student population was predominantly White (56%) with the second largest ethnic group consisting of Hispanic (20%), Black (17%), and other ethnic/racial groups (7%). A total of 40% of the sample were considered low-income based on their participation in the National School Lunch Program. An analysis of variance (ANOVA) was used to compare differences between student groups to answer five research questions. Research findings suggested that offering AP courses to minority students would not be enough to narrow the academic achievement gap because White students outperformed their minority counterparts when both were enrolled in AP courses. As a result, other school-based factors must be addressed to successfully narrow the academic achievement gap. The researcher of the study suggested that traditional school constructs are formulated around the predominantly White student body thereby creating an inherent or built-in

advantage for White student populations thereby facilitating achievement inequity. Other factors suggested to create inequities in achievement include teacher-student racial congruencies and the availability of school resources. Through the exploration of personalized learning experiences for students, there is an opportunity for them to master content through individual experiences that are interesting and relevant to them.

Teacher-Student Racial Congruence

According to the NCES, public school teachers are predominately White (80%) females (77%) which is not representative of the current and projected student population (National Center for Education Statistics, 2019b, 2020). As of 2019, the percent distribution of students enrolled in public elementary and secondary schools by race/ethnicity consisted of a more diverse student population with 46.6% reported as White, 27.4% Hispanic, 15.4% Black, and 5.7% Asian/Pacific Islander (National Center for Education Statistics, 2020). The racial incongruence between teaching faculty and the student population is suggested to contribute to academic achievement gaps. Ultimately, research studies have suggested that the benefits associated with having same-race teachers included opportunities for mentorship of minority students, instilling cultural context, a reduction in racial bias against non-minority educators, a decrease in drop-out and suspension rates of minority students, and a suggested increase in attendance and test scores of minority students (Dee, 2005; Egalite, Kisida, & Winters, 2015; Holt & Gershenson, 2015; Lindsay & Hart, 2017). Unfortunately, the research also suggested that several barriers exist in the successful recruitment and retention of minority teaching

faculty suggesting that progress will continue to be slow in developing a racially and ethnically diverse teaching workforce (Gist, 2018).

Impoverished School Systems

Impoverished school systems are suggested to lack the monetary resources necessary to ensure the latest advancements and practices in education (Duncombe, 2017). Furthermore, schools located in areas with a high concentrations of poverty have a higher concentration of minority students and are suggested to be more racially segregated between and within the districts (Reardon, Kalogrides, & Shores, 2017). An extensive quantitative study exploring the correlation between 200 million standardized test scores in math and reading across the U.S. for years 2009-2013 suggested that high levels of racial/ethnic segregation within and between districts was significantly correlated with poor test scores (Reardon et al., 2017). Another study suggested that intra-district inequalities persist wherein government funding is unequally distributed by school districts. Namely, it was suggested that school districts disproportionately allocate more funding to low-poverty school systems (Webb, 2017). A large factor suggested to contribute to funding disparities within school districts is attributed to how teaching positions are allocated. Namely, that more experienced teachers have the flexibility to move to more 'desirable' schools resulting in an overrepresentation of less experienced teachers in low-performing or high-poverty schools. As teachers gain more experience, it is suggested that they most often move to a more desirable settings which are usually more affluent high-performing schools (Webb, 2017). As a result, impoverished school systems are suggested to have less student resources, opportunities, and less skilled teaching staff (Dolan, 2016).

Summary

An employment rift exists between those that have obtained a post-secondary education and those that have not. Further, those that have not completed a high school degree suffer from higher unemployment rates than their counterparts. Disparities in academic achieving between student groups is a persistent multidimensional issue (Public-Impact, 2018). Traditional school constructs are suggested to contribute to inequality regardless of equity in course offerings between student groups.(Colgren & Sappington, 2015) and is suggested to be significantly devoid of the 21st Century skill sets necessary for students to thrive within a 21st Century workforce (Future Ready Schools, 2019d). In addition, an incongruence between the number of racial and ethnically diverse teaching faculty (National Center for Education Statistics, 2020) and the disparities associated with impoverished school systems are suggested to significantly contribute to the academic achieving gap (Duncombe, 2017; Webb, 2017) and adoption of skill sets that will prepare students for graduation from high school, matriculation to college, and successful entry into the workforce. The FRS Framework to create student-centered personalized learning environments with a focus on the acquisition of 21st Century skills through the incorporation of technology within the classroom could address some of the challenges described (Future Ready Schools, 2019d).

FRS: Personalized Learning and Technology in the Classroom

In 2015, the Alliance for Excellent in Education created the FRS initiative. The initiative was set up to help school districts develop comprehensive plans to create

student-centered personalized learning environments to bolster achievement through the transformation of instructional pedagogy and practice by leveraging technology (Future Ready Schools, 2019d). The FRS district pledge was designed to solidify districts' commitment to incorporating the FRS framework which bolsters a shared vision of equity in preparing students for success in college, career, and citizenship (Future Ready Schools, 2019c). Districts accomplish this through a systematic approach to change, as outlined in the FRS Framework as seen in Figure 2. The FRS framework holds personalized student learning through technology at the center, a district must align with each of the seven key gears in order to ensure a successful digital conversion. The following section will discuss four of the seven gears in detail. Namely, the curriculum, instruction, and assessment gear, use of space and time gear, robust infrastructure gear, and personalized professional learning gear will be discussed.

Curriculum, Instruction, and Assessment

The curriculum, instruction, and assessment gear of the Future Ready Framework consists of five subcategories which include (a) the incorporation of 21st learning within the classroom (Schrum & Levin, 2015), (b) personalized learning (Wolf, 2010), (c) collaborative, relevant, and applied learning (Honig, 2003), (c) the leveraging of technology (Clark, Tanner-Smith, & Killingsworth, 2016), and (d) the use of analytics to assess and inform instruction (Future Ready Schools, 2019a; Kidron & Lindsay, 2014a). Twenty-first learning skills include "critical thinking, problem solving, creativity and innovation, collaboration, communication, self-direction, visual learning, information literacy, and global and cultural awareness" (Future Ready Schools, 2019a, p. 1). FRS are expected to incorporate 21st century skills within their curriculum, instruction and

assessment with the intent of creating a personalized student-centered learning environment (Future Ready Schools, 2019a).

A longitudinal qualitative multiple case design study was conducted on the development of digital literacy skills in a cohort of students in 2004 and 2014 (Léger & Freiman, 2016). The researchers interviewed junior high school students in 2004 that were a part of a laptop initiative to foster the learning of universal skills such as critical thinking, improve communication, and organization, and leveraging the use of information and communication technology (ICT)). After ten years, the same participants from 2004 were interviewed again to assess the development of digital literacy skills and in particular, the retention of these skills over time. Research findings suggested that three types of digital literacy skills were developed and maintained as a result of this samples early exposure and use of laptops in junior high school. Namely, technological resourcefulness, open-mindedness toward technology, and digital self-efficacy (Léger & Freiman, 2016).

Use of Space and Time

In order to facilitate student-centered personalized learning environments, the way time is used for instruction and how the learning space is construed are essential (Byers, Hartnell-Young, & Imms, 2018; Future Ready Schools, 2019d). This FRS gear consists of four subcategories to include (a) flexible learning referred to as anytime, anywhere, (b) a new pedagogy, schedules, and learning environment, (c) competency based learning, and (d) strategies for providing extended time for projects and collaboration (Future Ready Schools, 2019d).

Anytime, anywhere learning consists of leveraging technology to learn at any time of the day and anywhere (Lopez & Caspe, 2014). There are several practices recommended within the literature on how to attain an anywhere, anytime student-centered learning environment. Recommended practices include the blended learning model (mix of face-to-face and internet instruction), the Bring Your Own Device or Bring Your Own Technology (BYOD/BYOT) approach, cloud computing (network access to a shared pool of devices), flipped learning (type of blended learning where instruction moves from group to individual space), gamification (use of gaming elements to non-game settings), maker spaces (usually a physical space wherein students participate in creating things in a DIY or DIWO environment) (Harron & Hughes, 2018), online distance education, open educational resources (teaching, learning, and research resources), project-based learning (students work on solving a complex question), and universal design for learning (curriculum development approach based on principles that foster learners with equal opportunities) (Green & Donovan, 2018).

Blended and online programs are suggested to both promote personalized student learning environments and boost academic achievement. However, having a highly qualified teacher is still essential in facilitating the effectiveness of blended and online programs (J. Watson et al., 2014). Hence, the creation of a new pedagogy, schedules, and learning environments that foster student-centered personalized learning through the use of technology requires instructors use of time to be both adaptable and flexible to meet individual student needs. Further the use of competency-based learning curriculum as opposed to meeting the requirements of the Carnegie Unit are also essential (Silva, White, & Toch, 2015). Competency-based learning is suggested to incorporate the

student's choice and is based on academic proficiency. The student is the main focus and their learning pace dictates how long and how much attention needs to be spent on a certain topic. Therefore, timely support and a flexible learning pace is essential for student growth (Future Ready Schools, 2019d; Worthen & Pace, 2014). Finally, research suggests that providing students with extended, flexible learning times to work through complex projects is suggested to significantly contribute to the development of personalized student learning and academic achievement (Future Ready Schools, 2019d; Kidron & Lindsay, 2014b; Pane, Steiner, Baird, Hamilton, & Pane, 2017).

Robust Infrastructure

A robust infrastructure is defined by the FRS framework as those elements that foster an anytime, anywhere, student-centered personalized focus on learning. The subcategories for this gear consist of (a) adequacy of devices; quality and availability, (b) robust network infrastructure, (c) adequate and responsive support, and (d) formal cycle for review and replacement (Future Ready Schools, 2019d). As a result of many school districts not having the monetary resources necessary to afford each student with a 1-to-1 device-student ratio, many schools have implemented the BYOD policy wherein students can bring their own devices from home for learning purposes (Green & Donovan, 2018). This practice is suggested to be an extension of the mobile learning movement and a feasible way for impoverished schools to provide a more technology-rich environment for the student population. Prior research studies suggest that the practice of BYOD to school significantly increases student engagement, digital and IT skills, increases collaboration and communication, "social and interpersonal skills," and promotes student-centered learning (Green & Donovan, 2018, p. 245; McLean, 2016).

The International Society for Technology in Education initiated a collaborative project referred to as Project RED to develop a practical resource for educators to revolutionize educational practices through effective leveraging of technology. The project defined technology-informed intervention classes as classes wherein "technology plays an integral role in learning" (Greaves, Hayes, Wislon, Gielniak, & Peterson, 2012, p. 16). The goal of the project was to determine what implementation strategies were needed for the effective use of technology within the classroom and to outline them for other schools. The second goal of the research study was to determine if the implementation of technology within the classroom had a positive financial impact and third to determine the effects of 1-to1 computer access on student's performance. Major research findings suggested that proper implementation of educational technology "can substantially improve student achievement" while positively affecting revenue (Greaves et al., 2012, p. 1). Also, that continuous access to technology for students could lead to bolstered academic achievement and financial benefits if the technology is properly implemented by the teachers and administration (Greaves et al., 2012; Harper & Milman, 2016; Parker, Stylinski, Bonney, Schillaci, & McAuliffe, 2015).

Personalized Professional Learning

Equally as important as it is to create a personalized student learning environment is the assurance of a professionally competent teaching staff. Namely, the extensive use of technology and a digital learning environment requires instructors to be well informed of the resources available for their professional growth and students' academic achievement. There are four subcategories that ensure the fostering of personalized professional learning. Namely, (a) shared ownership and responsibility for professional

growth, (b) 21st Century skill set, (c) diverse opportunities for professional learning through technology (d) broad-based, participative evaluation (Future Ready Schools, 2019c).

Research studies exploring the use of electronic workbooks as technology-based instruction with at-risk students suggested that the way technology is used within the classroom significantly impacts its effectiveness in bolstering achievement (Darling-Hammond, Zielezinski, & Goldman, 2014). Multiple studies have suggested that regardless of the technology introduced into a classroom, if the innovation is not implemented properly by the instructor, it will have little to no benefit to the students (Dolan, 2016; Greaves et al., 2012; Harper & Milman, 2016).

Community Partnerships

Another important yet often forgotten gear in the shift towards digital student-centered personalized learning is building community partnerships. While schools and districts might realize these are possible, making these connections often takes significant time and effort and is often left incomplete. Community partnerships include the formal and informal local and global community connections, collaborative projects, and relationships that advance the school's learning goals. Digital communications, online communities, social media, and digital learning environments often serve as connectors for these partnerships (Future Ready Schools, 2019).

Budget and Resources

A critical component to any initiative is having the budgetary funds to support whatever the school or district determines that needs to be accomplished to properly roll out and implement an initiative. The shift towards student-centered personalized learning

is no different. As another gear in the framework, the budget and resources gear is critical because 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, personalized vision for learning, with consistent funding streams for both recurring and non-recurring costs to ensure sustainability. During the transition, school and district leaders should strive for cost-savings and efficiencies through effective uses of technology (Future Ready Schools, 2019).

Data and Privacy

Data privacy and security are foundational elements of digital learning. The school or district ensures that sound data governance policies are enacted and enforced to ensure the privacy, safety, and security of confidential data sets. Such policies and procedures ensure that access to authorized persons is secure. Education professionals have a range of resources, trainings, and services available to build their awareness and capacity to implement such policies and procedures with precision (Future Ready Schools, 2019).

Summary

The FRS framework is centered on creating a digital student-centered personalized learning environment by leveraging technology within the classroom to create academic equality between and among student groups while bolstering academic achievement and fostering the 21st century skills necessary to succeed in college and the workforce (Future Ready Schools, 2019c; Laar et al., 2017; National Education Association, 2019; Schrum & Levin, 2015). The theoretical framework consists of seven gears each with multiple evidence-based subcategories suggested to bolster a student-

centered personalized learning environment (Future Ready Schools, 2019d). Educational disparities found in certain student groups are compounded by school-based factors (Chen et al., 2016; Colgren & Sappington, 2015; Musu-Gillete et al., 2016; National Center for Education Statistics, 2019a). The implementation of personalized student learning environments leveraged through the use of technology is suggested to either partially or fully mitigate some of these compounding variables resulting in an overall improvement in academic achievement across all student groups (Darling-Hammond et al., 2014; Department of Education, 2017; Garland & Rapaport, 2017; Grant & Basye, 2014; Green & Donovan, 2018; Harper & Milman, 2016; Kim & Smith, 2017; Schrum & Levin, 2015; Walker, 2017). Through a student-centered curriculum, instruction, and assessment, robust infrastructure, use of space and time, and personalized professional learning development for instructors, research findings suggest that educational equity and the acquisition of 21st Century skill sets to facilitate students graduation, matriculation, and success in the workforce is possible (Future Ready Schools, 2019d; Garland & Rapaport, 2017; Greaves et al., 2012). However, the trends in transition readiness between Future Ready schools and district pledges is unknown and warrants further investigation.

Chapter 3: Research Methods

The current teacher-centered paradigm is ineffective in meeting today's needs for technologically advanced skilled workers and students that are capable of successfully tackling the rigors of a post-secondary education (Carnevale et al., 2016). Based on today's economy and market place, students must obtain either a college education or specialized credentialing in order to obtain a 'good' paying job (Carnevale et al., 2016). In addition, an educational paradigm shift that will ensure academic equity is imperative for student groups experiencing academic achievement gaps because they are at an elevated risk of being left behind (Lara et al., 2017; Musu-Gillete et al., 2016; National Education Association, 2018a). The research literature suggests that a student-centered personalized learning environment is that paradigm shift able to bridge the achievement gap and ensure students obtain the 21st century skills necessary to succeed (Executive Office of the President, 2014; National Education Association, 2019). Several districts across the nation have become Future Ready School pledges because they want to incorporate a student-centered learning environment within their districts with the hopes of improving all students' academic performance and lifelong success. However, a gap in knowledge exists regarding the level of readiness current Future Ready School pledges face in their transition from a teacher-centered paradigm to a digital student-centered personalized learning environment. Namely, where districts are in the transition process is unknown. In addition, it is unknown if there are any trends between and within states or regions as it compares to district demographics. Identifying trend areas is important so that districts can respond appropriately to transitional challenges and ensure continuation on the path to a student-centered personal learning environment.

The purpose of this quantitative non-experimental exploratory correlational study is to assess trends in perceived transition readiness levels, common transition strengths and weaknesses, and congruency of Future Ready School district leaders' perceptions of their districts transition readiness with the actual availability of digital learning environment elements. In addition, district demographics and trends between and within districts will be compared across the United States. Research findings could serve several purposes such as (a) advancing the Future Ready Framework, (b) identifying transitional trends and patterns within and between districts, (c) identify possible barriers to transition, and (d) providing further support for existing literature regarding the digital divide (Moore et al., 2018).

The remaining chapter will discuss the research methodology and design, population, sample, materials, study procedure, data analysis, assumptions, limitations, delimitations, and ethical considerations. The research study used secondary data acquired from the FRS Organization. Therefore, this section will not discuss detailed data collection procedures for procurement of the initial data set.

Research Methodology and Design

A non-experimental quantitative methodology and exploratory correlational-study design was selected to answer the research questions. The research study used secondary quantitative data obtained from FRS. Quantitative methodology is based on the premise that the variables being measured are quantifiable numerically (Creswell & Creswell, 2018; Mertler, 2016). This methodology usually consists of a large sample size wherein numerical information can be tested for correlations among sample attributes. As a result, this type of research method is usually generalizable. Namely, the results can be applied

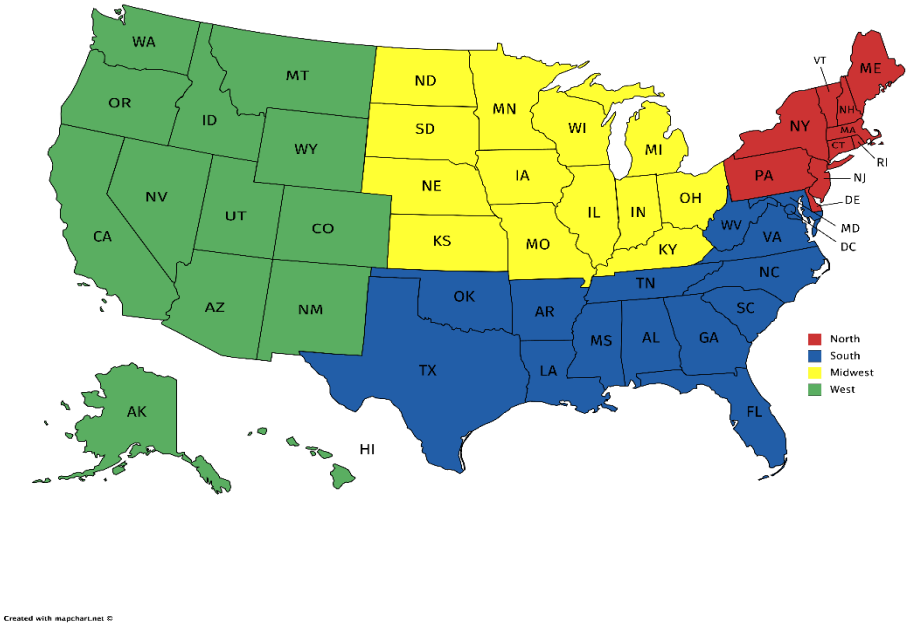
to the general public. Quantitative research methods are best used to answer quantifiable research questions (Creswell & Creswell, 2018). Therefore, this research design is predetermined and structured with the goal of controlling, confirming, and testing hypothesis design characteristics (Creswell & Creswell, 2018; Mertler, 2016). In this method, data is collected using an external research instrument usually in the form of a Likert-type scale survey, tests, or other quantifiable measurement tools such as secondary data. Research designs for quantitative methodology include experimental, non-experimental (survey, causal comparative, and correlational), and quasi-experimental designs (Creswell & Creswell, 2018; Mertler, 2016; Yin, 2011). Based on the research questions for this study and the use of quantifiable secondary data, the quantitative methodology and correlational study design were best suited to answer the research questions.

Population and Sample for Secondary Data Analysis

The sample consisted of FRS pledges located across the United States. The districts that participated in the initial collection of the research data were FRS pledges and therefore self-identified. No additional information on the sampling procedures used to collect the initial data set were provided to the PI.

In total, n=944 responses were obtained from school districts across the United States. Eighty-five (9.0%) responses did not include the district name or state and were therefore excluded from analysis to avoid unintentional misclassification or duplication of responses. A final sample size of n=859 records were analyzed which represented 649 unique school districts. Districts were grouped into four geographical regions (North, South, Midwest, and West) according to the state in which each is located as illustrated in

Figure 3. District Regions: North, South, Midwest, and West



Secondary Data Measures

The study used secondary data collected by NCES regarding FRS pledges level of readiness as measured by seven Likert-type scale surveys. The seven surveyed gears consisted of (a) budge and resources, (b) community partnerships, (c) curriculum, instruction and assessment, (d) data and privacy, (e) professional learning, (f) robust infrastructure, and (g) use of space and time (Future Ready Schools, 2019c). All data was provided to the PI by FRS. The two excel spreadsheets had district answers to the survey questions and had each districts demographics. Each of the gear surveys consisted of several subsections referred to as elements. The survey gears and elements are illustrated in Table 1. Each survey varied in the number of Likert-type scale responses available but ranged from 3 to 5-points. Most 5-point Likert-type scales consisted of 1 = strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree, and 5 = strongly agree

(Future Ready Schools, 2019a, 2019d). An example of the FRS gear survey can be found in Appendix C. Demographic data was also provided to the PI from NCES.

Study Procedure

Before commencing with the study, IRB approval was obtained from the primary investigator's University. Further, permission to use the secondary data was also obtained by the primary investigator (PI) from FRS and can be found in Appendix B. The PI contacted the Director of Innovation at FRS via e-mail to ask permission to use their secondary data. After a duration of three months, the PI received the permission letter found in Appendix B and a password protected thumb drive with the FRS secondary data.

Data Analysis

Multiple methods will be used to statistically analyze the secondary data. Likert scale responses will be coded where the 'least ready' option = 1 and the 'most ready' option = the highest value. All tests will be considered significant if $p < 0.05$. The following analysis will be performed: states will be grouped by region and average readiness scores will be calculated. A one-way ANOVA will be used to determine if readiness scores differed based on region. Remaining demographics (student to teacher ratio, and proportion of minority students) will be compared to overall level of readiness for each of the seven gears. Correlation analysis will be used to determine the impact of each demographic on readiness, where demographic variables are the independent variables and readiness is the dependent variable. Specifically, analysis for each research question is listed below:

RQ1. What, if any, similarities/differences exist in district perceived readiness to implement student-centered learning based on demographic characteristics including:

1. One-way ANOVA with gear score as the dependent variable and North, South, Midwest, and West as a fixed factor (this is coded with four geographic locations).
2. Correlation with gear scores with student/teacher ratio.
3. Correlation with gear scores with minority percentage.

RQ2. What are the common strengths in schools/districts readiness aligned to the FRS framework, that allow leaders to be prepared to effectively transition to a digital learning environment? (using gear scores to measure readiness).

1. Descriptive statistic tables: Examination of the four gear scores.

RQ3. What is the relationship between the number of digital learning environment elements and level of preparedness (perceived knowledge and skills) among district leadership teams?

1. Correlation with number of digital elements and each gear score.
2. Correlation with technology use elements and each gear score.

Assumptions

Assumptions are those variables that the researcher believes to be true without evidence when beginning the study and interpreting the data for the conclusion (Ellis & Levy, 2009). Ellis and Levy (2009) suggested that explicitly identifying researcher assumptions is essential to establish credibility of the research findings and to

"demonstrate that the research proposal has been thoroughly considered" (Ellis & Levy, 2009, p. 331). Hence, the following assumptions were present in this study:

1. The secondary data was collected ethically while using the highest quantitative research standards.
2. Participants were not coerced into participating in the study and acted on their own volition.
3. Participants answered the survey questions honestly.
4. Participants did not withhold information when answering survey questions in an attempt to protect their own reputation or the district from which they work.
5. Participants chose to participate in the study because they are genuinely interested in creating a student-centered learning environment in their respective districts.
6. Participants made every effort to complete the survey in its entirety.

Limitations

Every study has inherent limitations which are the potential weaknesses of the study (Ellis & Levy, 2009). Limitations threaten the internal validity of a study. Therefore, it is essential to explicitly state the limitations of a study so that future researchers can both determine the validity of the current research findings and as a means to expound on the current research design (Ellis & Levy, 2009). The present study has the following limitations:

1. Response bias in research is always a threat to validity.
2. Lack of an in-depth description of the variables under study as a result of a quantitative methodology as opposed to a qualitative.
3. The use of secondary data limits the PIs ability to control the "framing and wording

of survey items" as well as the timeframe from which the data was collected (Vartanian, 2010, p. 15).

4. Secondary data is often older or outdated which limits the applicability of the research findings.

Delimitations

The researcher recognizes certain delimitations of the study. Delimitations refer to the boundaries of the research or "what the researcher is not going to do" (Ellis & Levy, 2009, p. 332). Delimitations outline the specific variables left out of the study to better define the studies scope. The following delimitations were employed in this study:

1. Participants within the study were delimited to only FRS pledges.
2. As a result of the participants only being FRS pledges, the study is delimited to the United States.

Summary

Current research suggests that a student-centered personalized learning environment is essential in both bridging the achievement gap and ensure students obtain the 21st century skills necessary to succeed in college and the workplace (Executive Office of the President, 2014; National Education Association, 2019). Several districts across the nation have become FRS pledges with the intent of incorporating a student-centered learning environment to improve all students' academic performance and lifelong success. However, it is not known where FRS pledges are in the transition process. As a result, the research study used a non-experimental quantitative methodology with an exploratory correlational design to determine where FRS pledges are in the transition process and to explore associations between transition status and district demographics. Secondary data from FRS was used in the study. The following

chapter (chapter 4) will detail the statistical analysis of FRS secondary data followed by a discussion of implications for the research findings, limitations, and recommendations for practice and future research in chapter 5.

Chapter 4: Results

Demographics

The sample consisted of 859 responses from 649 different school districts that participated in the Future Ready Schools survey across the U.S as depicted in Figure 3. The largest proportion of districts were located in the Midwest (n=224; 34.5%), followed by the North (n=215; 33.1%), South (n=116; 17.9%), and West (n=93; 14.3%). One district (0.1%) was located in Guam and was excluded only from analyses using region as a variable. Overall, almost half (n=292; 45.1%) of school districts were located in suburban areas and more than one-fourth of districts (n=167; 25.8%) were in rural areas. Districts in cities (n=95; 14.7%) and towns (n=83; 12.8%) comprised the remainder of the sample. The mean number of students per district was 8,535 and ranged between 21 and 354,840 students. Minority students accounted for an average of 36.7% of the student population across districts and the mean student-teacher ratio was 14.8 students per teacher. Districts differed significantly in their demographic characteristics depending on the region in which they were located as illustrated in Table 3. Notably, Western districts reported a higher student-teacher ratio than other districts, Western and Southern districts a higher proportion of minority students, and Southern districts a higher mean number of students per district.

Table 3. Demographic Comparison of School Districts by Region

Location	North n = 215	South n = 116	Midwest n = 224	West n = 93	Total* n = 649	P value
Rural	39 (18.1%)	41 (35.3%)	73 (32.7%)	14 (15.0%)	167 (25.8%)	
Town	12 (5.6%)	22 (19.0%)	36 (16.1%)	13 (14.0%)	83 (12.8%)	
Suburb	148 (68.8%)	26 (22.4%)	86 (38.6%)	32 (34.4%)	292 (45.1%)	
City	15 (7.0%)	25 (21.5%)	22 (9.9%)	33 (35.5%)	95 (14.7%)	
Unknown/missing	1 (0.5%)	2 (1.7%)	6 (2.7%)	1 (1.1%)	11 (1.7%)	
Total number of students (mean)	3,166	26,218	3,676	9,615	8,535	.000
Student/teacher ratio (mean)	12.0	15.1	15.4	21.9	14.8	.000
Proportion of students that are minority (mean and range)	35.2%	54.6%	22.6%	51.4%	36.7%	.000

*Includes one school district in Guam.

Similarities and Differences in Districts' Perceived Readiness: RQ1

When comparing districts' perceived readiness to implement student-centered learning, districts' regions were found to be significantly associated with the mean overall gear score [$F(3, 644)=12.25$, $p< .001$], as well as for each of the seven gears as illustrated in Table 4. The mean overall gear score for the total sample was $M=42.54(12.44)$. School districts within the Northern region reported the highest overall

gear score (M=46.50; SD=12.02) and those within the Midwestern region reported the lowest overall gear score (M=39.79; SD=11.70). Post-hoc *t*-tests indicated that districts in the North did, in fact, score significantly higher than the South (t(329)=3.05, p< .001), Midwest (t(437)=5.93, p<.001), and West (t(306)=3.92, p<.001). However, the difference between the: (a) Midwestern region and the South (t(338)=1.64, p=.05) (b) Midwestern region and West (t(315)=0.61, p=0.73), and (c) South and West regions (t(207)=0.80, p=0.21), were not statistically significant because their p values were not below .05.

Among the total sample, the gear which received the highest score was robust infrastructure (M=7.25, SD=2.23), followed by data and privacy (M=7.09; SD=2.03), and personalized professional learning (M=6.08; SD=2.35) as shown in Table 4. These three gears fell into the "planning" stage of readiness (6-7), according to NCES guidelines. The gear which received the lowest score across regions was use of space and time (M=4.57; SD=2.24), which fell into the "envisioning" stage of readiness (4-5). None of the seven gears scored in the lowest stage of readiness (0-3), "investigating," or the highest stage

Table 4. Mean Gear Scores and Standard Deviation by Region

Gear		North	South	Midwest	West	Total	F statistic
1	**Curriculum, instruction and assessment**	6.66 (2.03)	5.67 (2.02)	5.33 (1.83)	5.51 (1.95)	5.86 (2.03)	19.09
2	**Use of space and time**	5.26 (2.22)	4.39 (2.41)	4.18 (2.02)	4.11 (2.23)	4.57 (2.24)	11.04
3	**Robust infrastructure**	7.79 (2.00)	6.83 (2.47)	7.02 (2.30)	7.12 (2.08)	7.25 (2.23)	17.85*
4	**Data and privacy**	7.34 (1.88)	7.24 (2.26)	6.76 (2.08)	7.16 (1.81)	7.09 (2.03)	3.35
5	**Community partnership**	6.13 (2.25)	6.08 (2.37)	5.23 (2.03)	5.55 (2.20)	5.72 (2.22)	7.55

6	**Personalized professional learning**	6.60 (2.18)	6.13 (2.54)	5.84 (2.31)	5.38 (2.38)	6.08 (2.35)	7.12
7	**Budget and resources**	6.70 (2.53)	5.75 (2.66)	5.42 (2.55)	5.83 (2.76)	5.96 (2.64)	9.53
	Overall	46.50 (12.02)	42.09 (13.35)	39.79 (11.70)	40.67 (11.84)	42.54 (12.44)	12.25

*Due to unequal variance among regions, the Kruskal-Wallis H test was used for this gear instead of ANOVA.

(8-10), "staging." Districts located in the Northern region scored significantly higher on all seven gears than other districts, as expected after comparing the overall gear scores. Although districts in the Midwest did often report the lowest individual gear scores, some variations were observed in the lowest scoring regions.

The mean student-teacher ratio for the study sample was 14.8 students per teacher, with a range of 2.31 – 54.70. Spearman correlations (ρ) were used to measure the strength of the association between mean gear scores and student-teacher ratio or proportion of minority students per district as illustrated in Table 5. Student-teacher ratio was negatively correlated with the overall gear score (r_s = -0.20; p = .001), as well as each of the seven individual gear scores. In other words, as the student-teacher ratio increased, the gear score decreased. While all associations were significant, they fell within the "very weak" to "weak correlation" range of 0.00 to ±0.39. The proportion of minority students enrolled in the district were only significantly correlated with two individual gear scores, data and privacy (r_s=0.10; p=0.01) and community partnership (r_s=0.09; p=0.02). As minority enrollment increases, so did the scores for these two gears. However, both of these associations were weak.

Table 5. Spearman's Correlations (ρ) Between Student-Teacher Ratio and Proportion of Minority Students Enrolled per District

Gear		Student-teacher ratio		Proportion of minority students	
		R_s	P value	R_s	P value
1	**Curriculum, instruction and assessment**	-0.18	<.001	0.04	.29
2	**Use of space and time**	-0.22	<.001	0.02	.62
3	**Robust infrastructure**	-0.15	<.001	-0.05	.17
4	**Data and privacy**	-0.09	.03	0.10	.01
5	**Community partnership**	-0.12	<.001	0.09	.02
6	**Personalized professional learning**	-0.16	<.001	0.00	.95
7	**Budget and resources**	-0.15	<.001	0.02	.60
	Overall	-0.20	<.001	0.03	.45

Common Strengths and Weaknesses Among Districts: RQ2

To further explore districts' readiness to implement student-centered learning, mean scores and 95% confidence intervals (CIs) were calculated for each element as illustrated in Table 6. Elements with the highest mean scores among districts included robust network infrastructure (M = 8.34; 95% CI: 8.14 – 8.54) and data policies, procedures, and practices (M = 8.21; 95% CI: 8.00 – 8.42). These elements were classified as within the "staging" category of readiness (8-10). Sixteen elements (53.3%) scored within the "planning" category (6-7) and three (10.0%) within the "envisioning" category (4-5). The two elements with the lowest mean scores, which fell within the 'investigating' category of readiness (0-3), were global and cultural awareness (M=3.91; 95% CI: 3.68 – 4.14) and strategies for providing extended time for projects and collaboration (M=2.97; 95% CI: 2.73 – 3.20). Figure 4 displays the mean element scores from strongest to weakest.

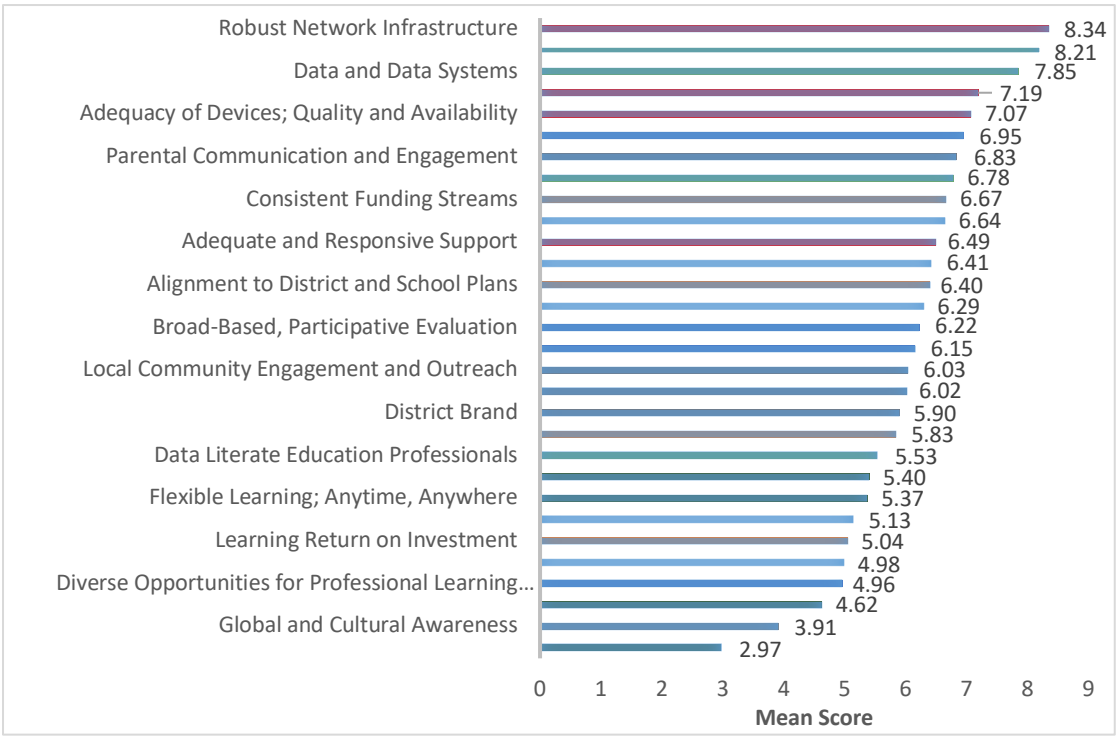
Table 6. Means and 95% CIs for Element Scores Among Total Sample

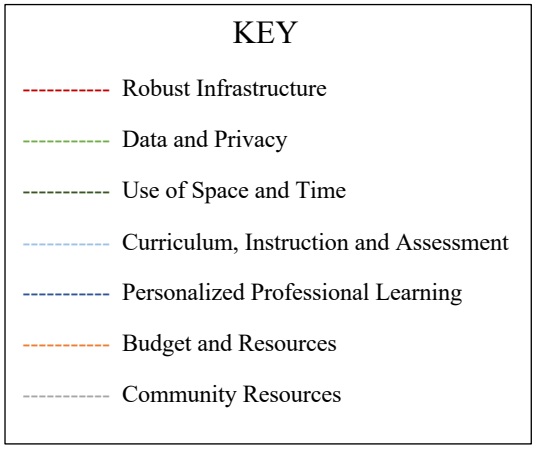
Gear	Elements	Mean	95% CI
Curriculum, Instruction, and Assessment	21st Century Skills/Deeper Learning	6.41	6.20 – 6.62
	Personalized Learning	4.98	4.76 – 5.19
	Collaborative, Relevant, and Applied Learning	5.13	4.93 – 5.34
	Leveraging Technology	6.29	6.08 – 6.49
	Assessment-Analytics Inform Instruction	6.64	6.41 – 6.86
Use of Space and Time	Flexible Learning; Anytime, Anywhere	5.37	5.12 – 5.63
	New Pedagogy, Schedules, and Learning Environment for Personalized Learning	4.62	4.40 – 4.84
	Competency-Based Learning	5.40	5.15 – 5.65
	Strategies for Providing Extended Time for Projects and Collaboration	2.97	2.73 - 3.20
Robust Infrastructure	Adequacy of Devices; Quality and Availability	7.07	6.83 – 7.30
	Robust Network Infrastructure	8.34	8.14 – 8.54

	Adequate and Responsive Support	6.49	6.27 – 6.72
	Formal Cycle for Review and Replacement	7.19	6.95 – 7.42
Data and Privacy	Data and Data Systems	7.85	7.63 – 8.07
	Data Policies, Procedures, and Practices	8.21	8.00 – 8.42
	Data-Informed Decision Making	6.78	6.57 – 7.00
	Data Literate Education Professionals	5.53	5.34 – 5.72
Community Partnership	Local Community Engagement and Outreach	6.03	5.80 – 6.27
	Global and Cultural Awareness	3.91	3.68 – 4.14
	Digital Learning Environments as Connectors to Local/Global Communities	6.02	5.77 – 6.26
	Parental Communication and Engagement	6.83	6.59 – 7.07
	District Brand	5.90	5.64 – 6.15
Personalized Professional Learning	Shared Ownership and Responsibility for Professional Growth	6.95	6.72 – 7.17
	21st Century Skill Set	6.15	5.94 – 6.36
	Diverse Opportunities for Professional Learning Through Technology	4.96	4.71 – 5.21
	Broad-Based, Participative Evaluation	6.22	5.95 – 6.49
	Efficiency and Cost Savings	5.83	5.59 – 6.07

Budget and Resources	Alignment to District and School Plans	6.40	6.15 – 6.65
	Consistent Funding Streams	6.67	6.41 – 6.90
	Learning Return on Investment	5.04	4.79 – 5.29

Figure 4. Mean Element Scores Among Total Sample





Relationship Between Number of Digital Learning Elements and Perceived Readiness: RQ3

The mean number of digital learning elements in use at school districts was 8.04 (95% CI: 7.82 – 8.25) with a range of 0-11, while the mean number of technology use elements was 9.08 (95% CI: 8.82 – 9.33) with a range of 0-13. Spearman correlations revealed that the number of both digital learning and technology use elements were significantly and positively associated with each of the seven gear scores, as well as the overall gear score as illustrated in Table 7. Most correlations were of moderate strength (r_s between 0.3 and 0.5). However, the correlation between the number of digital learning elements, the number of technology use elements and data and privacy gear were just below the acceptable threshold for a moderate association and therefore was considered a weak association for both (r_s=0.26; p=0.001) (r_s=0.27; p=0.001).

Table 7. Spearman's Correlations (ρ) Between Number of Digital and Technology use Elements and Gear Scores

Gear		Number of digital elements		Number of technology use elements	
		R_s	**P value**	**R_s**	**P value**
1	**Curriculum, instruction and assessment**	0.37	<.001	0.37	<.001
2	**Use of space and time**	0.30	<.001	0.30	<.001
3	**Robust infrastructure**	0.39	<.001	0.35	<.001
4	**Data and privacy**	0.26	<.001	0.27	<.001
5	**Community partnership**	0.35	<.001	0.39	<.001
6	**Personalized professional learning**	0.37	<.001	0.39	<.001

7	**Budget and resources**	0.33	<.001	0.31	<.001
	Overall	0.43	<.001	0.43	<.001

Chapter 5: Discussion

Conclusions and Implications

> Neither more stringent standards nor more attractive opportunities to learn are more likely to alter their engagement in school until educators and others recognize, accept, and address the circumstances underlying this basic rejection of even being a student in the first place. (Corbett & Wilson, 1995, p. 13)

Chapter Overview

In this chapter, the conclusions have been derived from the findings that came from the study on the gap in knowledge and skills that exist among participating Future Ready Schools districts and schools with regard to their transition from a teacher-centered paradigm to a digital student-centered personalized learning environment. The conclusions were based on the purpose of the study, the research questions and the results of the study. The implications of these findings and the resultant recommendations will also be explained. The recommendations were based on the conclusions and purpose of the study.

This was a quantitative non-experimental exploratory correlational study used to assess the trends in the perceived transition of readiness levels, common transition strengths and weaknesses, and congruency of Future Ready School district leaders' perceptions of their districts transition readiness with the actual availability of digital learning environment elements.

The Future Ready Framework was the guiding framework used for this research study. The framework is a research-based digital learning framework tool used by districts to implement a technology driven student-centered personalized learning

environment. The framework consists of seven gears. The seven categories or gears are illustrated in Figure 2 of the study and consist of:

- Curriculum, Instruction, and Assessment
- Use of space and time
- Robust infrastructure
- Data and privacy
- Community partnerships
- Personalized professional learning
- Budget and resources

These seven gears along with the use of collaborative leadership, district vision, and efforts to plan, implement, and assess progress are suggested to be essential in the transition from a teacher-centered paradigm to a student-centered one (Future Ready Schools, 2019c).

The Future Ready Framework guided the research questions by providing the foundation for the creation of the Future Ready School District Assessment survey which is the secondary data used in this research study. The Future Ready Framework is based on the premise that student-centered personalized learning is essential in achieving educational equity and providing students the necessary 21st century skill set to succeed in college and the workforce. Based on this premise, if implemented properly, the framework is suggested to resolve these issues and addresses current issues in the educational system regarding the transition from a teacher-centered paradigm to a student-centered one.

Summary of the Results

The following research questions were considered in this study:

RQ1: What, if any, similarities/differences exist in district perceived readiness to implement student-centered learning based on demographic characteristics including:

4. North, South, Midwest and Western states.
5. Student/teacher ratio levels
6. Number of minority students within the district

RQ2: What are the common strengths in schools/districts readiness aligned to the FRS framework, that allow leaders to be prepared to effectively transition to a digital learning environment?

RQ3: What is the relationship between the number of digital learning environment elements and the number of technology use elements and the perceived readiness among district leadership teams?

Summary of the Findings

RQ1: What, if any, similarities/differences exist in district perceived readiness to implement student-centered learning based on demographic characteristics including:

1. North, South, Midwest and Western states.
2. Student/teacher ratio levels
3. Number of minority students within the district

North, South, Midwest and Western States

Districts' perceived readiness to implement student-centered learning was analyzed by each the mean scores of the seven gears within the Future Ready Framework. The seven gears consist of the following:

- Curriculum, Instruction, and Assessment
- Use of space and time
- Robust infrastructure
- Data and privacy
- Community partnerships
- Personalized professional learning
- Budget and resources

The schools and districts were separated into the four geographic regions of the United States which consist of the Northern, Southern, Midwestern and Western regions. The mean overall gear score for the total sample of schools and districts was a mean of 42.54 and a standard deviation of 12.44.

Overall, the schools and districts within the Northern region reported the highest overall combined gear score with a mean of 46.50 and a standard deviation of 12.02. This was followed by the schools and districts in the Southern region with a mean score of 42.09 and a standard deviation of 13.35, Western schools and districts with a mean score of 40.67 and a standard deviation of 11.84 and those schools and districts within the Midwestern region with the lowest reported overall gear scores with a mean of 39.79 and a standard deviation of 11.70.

In order to accurately assess the perceived transition of readiness levels for all schools and districts taking the Future Ready Schools survey a rubric was created in accordance with the NCES (National Center for Educational Statistics) guidelines. The following categories make up the rubric framework in Figure 5:

Table 8. Future Ready Schools Readiness Rubric

Future Ready Schools Readiness Rubric

Investigating (0-3.99)
District leaders are becoming more deeply informed about emerging research, trends, best practices, and added value related to digital learning. They are supported in their investigation through conference attendance, webinars, and in-depth discussions at district leadership meetings to ensure deep understating that informs their vision of digital learning

Envisioning (4-5.99)
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 working in tandem with key stakeholders, established a common vision of the future

Planning (6-7.99)
District leaders have established indicators of success based on the vision, set a baseline, and conducted a gap analysis. They have forged a plan for closing the gaps and identified key strategies for making progress toward those targets. They have projected benchmarks and milestones and created timelines, associated work plans, management plans and budgets

Staging (8-10)
District leaders have enacted policies, established new structures, identified budgets and assigned roles and responsibilities that collectively stage the district well for achieving the outcomes described in the vision. Where appropriate, they have undertaken pilots to document the efficacy of the elements of the plan. Once the district reaches the staging level, it is ready to begin full implementation.

Among the total sample of schools and districts across all four regions, the FRS framework gear which received the highest score was *robust infrastructure* with a mean score of 7.25 and a standard deviation of 2.23. This was followed by the *data and privacy* gear with a mean of 7.09 and standard deviation of 2.03, and the *personalized professional learning* gear with a mean of 6.08 and a standard deviation of 2.35. All three of these gears fell into the "planning" stage of readiness (6-7.99), according to NCES guidelines.

The FRS framework gear which received the lowest score across the four geographic regions was *use of space and time* with a mean score of 4.57 and a standard deviation of 2.24. This score indicated that it fell into the "envisioning" stage of readiness

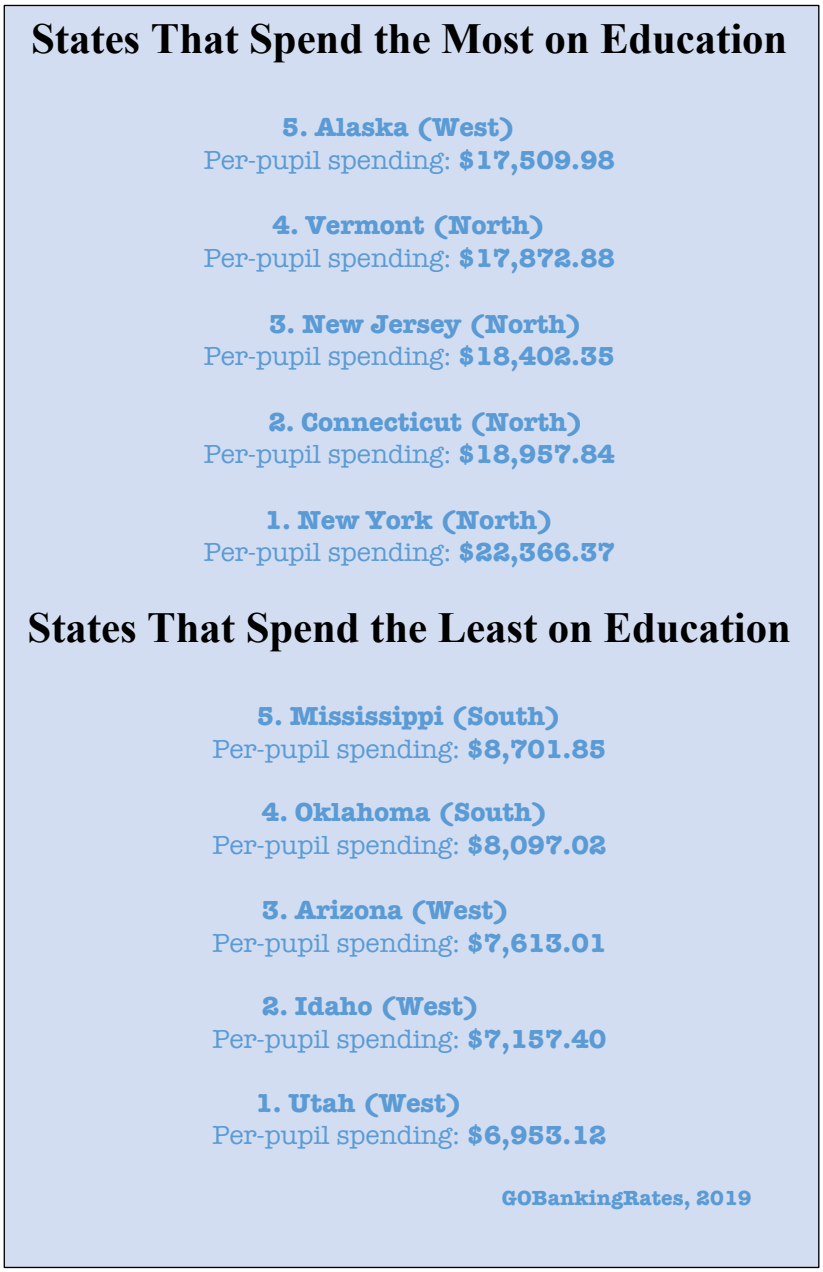
(4-5.99). This was followed by *community partnerships* with a mean of 5.72 and standard deviation of 2.22 and *curriculum, instruction and assessment* with a mean of 5.86 and a standard deviation 2.03. Both of these gears fall into the "envisioning" stage of readiness (4-5.99) as well.

None of the seven framework gears scored in the lowest stage of readiness (0-3.99), "investigating," or the highest stage (8-10), "staging." Overall, schools and districts located in the Northern region of the United States scored significantly higher collectively on all seven gears than other schools and districts in the other regions of the United States. Out of the seven gears, Northern states had the highest mean score on each one. Southern states had the second highest mean score on five of the seven gears while Midwestern and Western states were third or fourth on five of the seven gears. Although districts in the Midwest did often report the lowest individual framework gear scores, some variations were observed across the lowest scoring regions.

Robust technology environments enable anytime, anywhere learning based on competency and mastery with empowered, caring adults who are guiding the way for each student to succeed (FRS, 2018) Today, more than ever, schools and districts are making a huge push for the purchase of individual electronic devices to best prepare for personalized student-centered learning environments in their schools and districts. Districts' have perceived their readiness to implement student-centered, personalized learning environments by having a robust infrastructure for technology and individual devices for each student. High quality, high speed technology and infrastructure systems within a school or a district are crucial to the continued advancement of digital learning for all students.

In order for these environments to truly have the seamless use of technology on a daily basis, and the ubiquitous access to broadband at school and at home it takes a significant financial commitment from a school or district. According to 2018 data from GOBankingRates.com, four of the top five states in the United States for per-pupil spending in schools were from the Northern region of the country. New York topped the list at $22,366.37 spent per student. Conversely, three of the five lowest states in per-pupil spending were from the Western region of the United States with Utah being the lowest at $6, 953.12.

Figure 5. State Education Spending



Along with a robust infrastructure for the use of instructional technology, schools and districts must follow strict local, state and federal guidelines guaranteeing the protection of student, school and district data. Data policies, procedures and practices need to be in place and up to date with the ongoing implementation and use of instructional technology. A personalized, student-centered environment uses technology

to collect, analyze, and organize data to provide continuous cycles of feedback to students, teachers and other education professionals, with the intent of increasing the complexity and efficiency of learning. Because of this continued focus, schools and districts need clear access to data and relevant data systems while providing the professional learning environment to foster data literate educators that focus on data-informed decision making.

Student/Teacher Ratio Levels

Districts' perceived readiness to implement student-centered learning was analyzed by each the mean scores of the seven gears within the Future Ready Framework in comparison to the mean student/teacher ratios for the Future Ready schools and districts in the study.

The overall mean student/teacher ratio for the Future Ready schools and districts in the study was 14.8 students per teacher, with a range of 2.31 – 54.70.

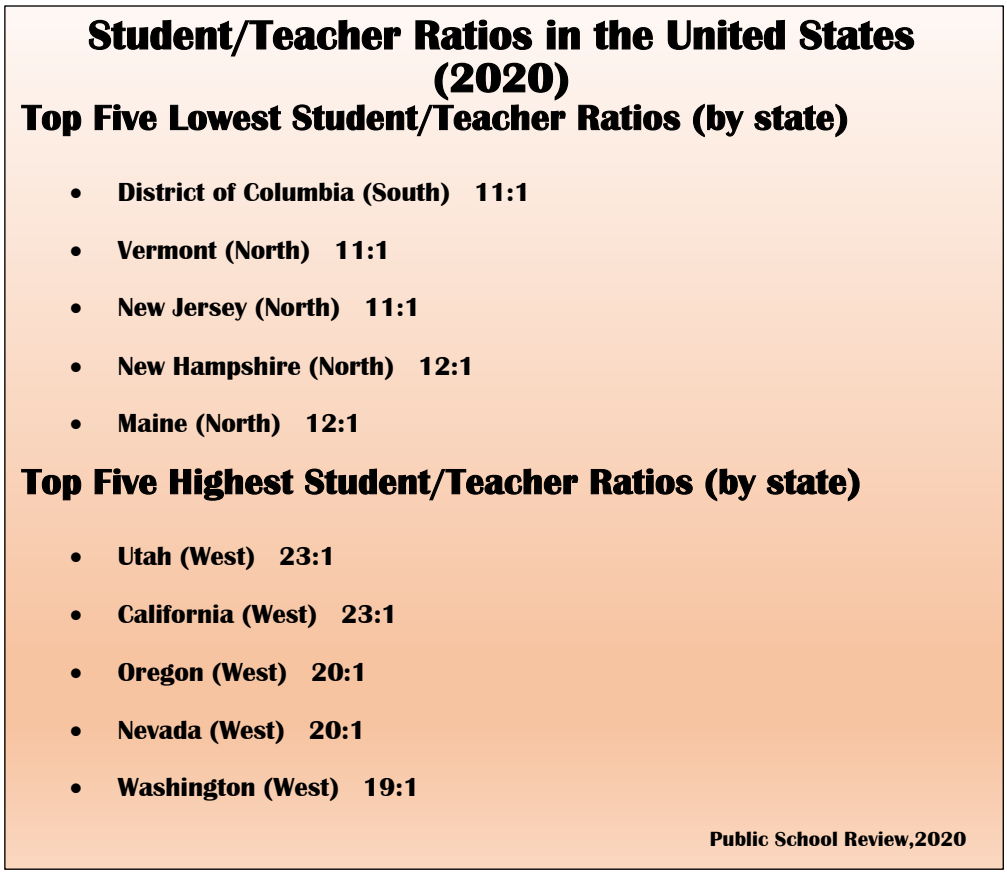
The results are illustrated in Figure 5. The data shows that the student/teacher ratio was negatively correlated with the overall gear score of -0.20, as well as each of the seven individual Future Ready gear scores. The data showed that as the student/teacher ratio increases, the gear score ended up decreasing. While the associations between the scores were found to be significant, they fell within the "very weak" to "weak correlation" range of 0.00 to ±0.39 which means that as one variable increases, or decreases, there is a lower likelihood of there being a relationship with the second variable, in this case, the gear score. Additionally, the statistical significance of these scores does not mean this has practical importance. It is possible that there is statistical

significance because the sample size of Future Ready schools and districts is large enough to make it be significant.

Class size, student/teacher ratio and student achievement has always been linked in an ongoing debate in schools and districts of all demographics and sizes. There is a long-standing belief that the larger the class size and higher the ratio of students to teachers, the less student achievement will occur. With the Future Ready gears focused on a technology driven student-centered personalized learning environment for all learners it is possible that the smaller the student/teacher ratio, the greater the chance the gears can be implemented in a meaningful way, which will potentially move the school or district towards the desired environment.

According to the organization, the Public School Review, which provides detailed profiles of public schools in the United States and evaluates the schools relative to each other from several key criteria like student/teacher ratios, the national average public school student/teacher ratio is approximately 16:1 (Public School Review, 2020). In their national rankings of student/teacher ratio averages by state as seen in Figure 7, four of the top five states (Vermont, New Jersey, New Hampshire and Maine) with the lowest student/teacher ratio are in the Northern region of the United States while the bottom five states (Utah, California, Oregon, Nevada and Washington) all are located in the Western region of the United States.

Figure 6. Student/Teacher Ratios in the United States



Number of Minority Students Within the District

Much like the analysis for the student/teacher ratios and gear scores, the analysis for the number of minority students within the district was performed with the same methods. The proportion of minority students enrolled in a school or district was only significantly correlated with two individual gear scores, data and privacy with a correlation coefficient of r_s =0.10 and community partnership, r_s =0.09. As minority enrollment increased, so did the scores for these two gears. However, both of these associations were weak. The other gears also had weak positive correlations which would indicate the relationship is not very strong.

RQ2: What are the common strengths in schools/districts readiness aligned to the FRS framework, that allow leaders to be prepared to effectively transition to a digital learning environment?

The data indicates through the mean scores of the gear elements that schools and districts are on the cusp of a full implementation of the Future Ready Framework and a move towards a digital student-centered personalized learning environment but there is a significant way to go to make this monumental shift the norm for all.

Across the 649 unique schools and districts only two gear elements had a mean score (put name of those two gears here) to in the "staging" category of the NCES Readiness Rubric which means that school and district leaders have enacted policies, established new structures, identified budgets and assigned roles and responsibilities that collectively stage the district well for achieving the outcomes described in the vision (Future Ready Schools, 2019; NCES, 2019). Where appropriate, these schools and districts have developed pilots to document the effectiveness of the elements of the plan. Once the school or district reaches the "staging" level, it is ready to begin full implementation of a digital student-centered personalized learning environment. Robust network infrastructure and data policies, procedures, and practices are the gear elements that have become the cornerstones indicating a stronger likelihood for future growth with digital student-centered personalized learning. With a robust network infrastructure, schools and districts have implemented adequate bandwidth and a supportive technology network infrastructure to ensure ready and consistent access to online resources for teaching and learning. District-level technology departments properly monitor usage, identify possible network issues and focus on privacy, safety and security prior to them

affecting teaching and learning (Future Ready Schools, 2019). In terms of data policies, procedures, and practices, schools and districts are properly using the Family Educational Rights and Privacy Act (FERPA) creating and implementing up-to-date policies, procedures, and practices that address legal, ethical, and safety issues related to the privacy and security of data, and the usage of data, technology, and the Internet. These policies, procedures and practices address the collection, storage, analysis, reporting, transmission, and archiving of data, as well as the usage of data, the Internet, and technology by students and education professionals such as teachers and administrators in the course of teaching, learning, communications, and the management of school services (Future Ready Schools, 2019).

Simply put, the schools and districts that have bought technology for students, built a network that will allow uninterrupted access for staff and students while creating and implementing policies, procedures and practices that protect data and promote safety are beginning to lay the foundation to shift the paradigm towards a digital student-centered personalized learning environment.

In addition to the two foundational common strengths in schools and districts that indicate their readiness, there are sixteen gear elements that are on the cusp of transitioning from "planning" to "staging." During this "planning" stage, school and district leaders have established indicators of success based on the vision of the district, set a baseline of expectations for the stakeholders in the district, and conducted a gap analysis of what it will take to implement the particular gear element (Future Ready Schools, 2019). Additionally, the schools and districts have developed a comprehensive plan for closing the gaps and identified key strategies for making progress toward those

targets. They have projected benchmarks and milestones have been projected and timelines have been created, along with management plans and comprehensive budgets that stretch out over multiple years.

While different elements from different gears in this data set are trending towards moving from "planning" to "staging" several gears overall are close to having all of their elements at the "staging" level. Robust Infrastructure, Data and Privacy and Personalized Professional Learning have all of their gear elements at the "staging" or "planning" stage and can be considered the common strengths for schools and districts readiness to transition to the digital student-centered personalized learning environment.

The findings and novel data collected and analyzed about Future Ready schools and districts across the United States between January 2017 and December 2019. is the first of its kind. No reports have collectively identified schools and districts levels of readiness within each gear and element necessary to transition to a digital student-centered personalized learning environments. Currently, Future Ready Schools does not have a summary report for all of the schools and districts that have taken the Future Ready Schools District assessment survey. While there is individual reporting for each school and district that takes the assessment there are currently no summative reports discussing the trends and findings to date.

RQ3: What is the relationship between the number of digital learning environment elements and the number of technology use elements and the perceived readiness among district leadership teams?

Technology in schools and districts is increasingly being used to personalize learning and give students more choice over what and how they learn and at what pace,

preparing them to organize and direct their own learning for the rest of their lives. Historically however, learner's educational opportunities have been limited by the resources found within the walls of a school or district. Technology-enabled learning allows learners to tap resources and expertise anywhere in the world, starting with their own communities (partnership for 21st century learning, 2013).

By calculating the mean scores and determining the connection between the number of digital and technology use elements and the gear scores in the Future Ready Framework a clear picture was created on the perceived readiness among district leadership teams. The mean number of digital learning elements in use at Future Ready schools and districts in this data set was M=8.04, 95% CI: 7.82 – 8.25 with a range of 0-11, while the mean number of technology use elements was M=9.08, 95% CI: 8.82 – 9.33 with a range of 0-13. Spearman correlations revealed that the number of both digital learning and technology use elements were significantly and positively associated with each of the seven gear scores, as well as the overall gear score as illustrated in Table 7. Most correlations were of moderate strength (r_s between 0.30 and 0.50). However, the correlation between the number of digital learning elements, the number of technology use elements and data and privacy gear were just below the acceptable threshold for a moderate association and therefore was considered a weak association for both (r_s=0.26, p=0.001) (r_s=0.27, p=0.001). This data clearly shows that schools and districts that are moving towards the "staging" phase in their shift towards a more digital student-centered personalized learning environment with respect to their gear scores are most likely to also possess a large number of digital and technology use elements for their staff and students.

Figure 7. Digital Learning Environment Elements

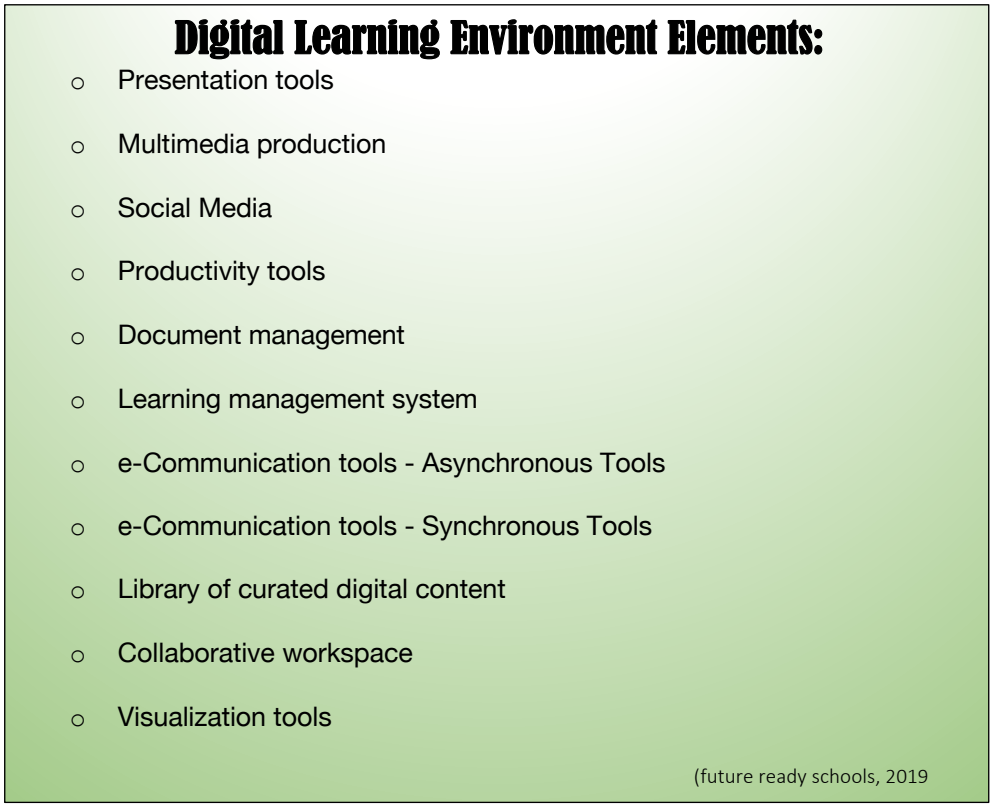
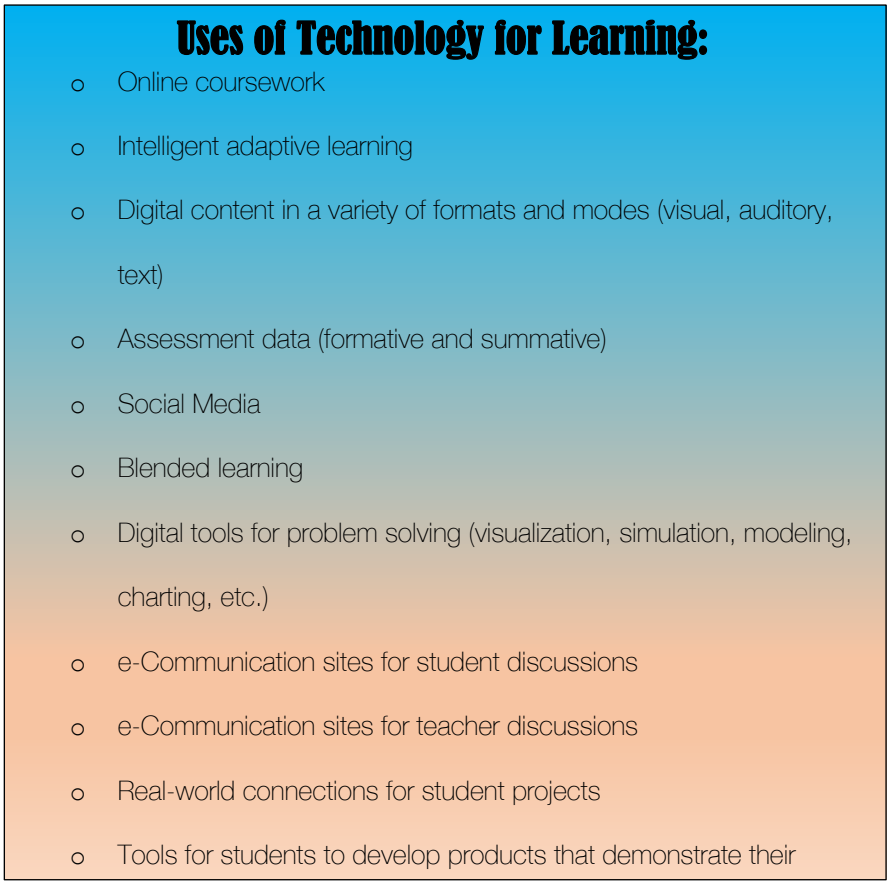


Figure 8. Uses of Technology for Learning Elements



Implications

The results of this study assessed trends in the perceived transition readiness levels of advancing the Future Ready Framework in schools and districts that took the Future Ready School District Assessment. The results have implications for those companies and organizations that are looking to support the readiness of schools and districts in their pursuit of a transition from a traditional teacher-centered learning environment to a student-centered personalized learning model influenced by instructional technology. These implications are not about the actual schools and districts themselves. The assessment results indicated how far along schools and districts believed

they were in their shift towards student-centered personalized learning. Several areas stood out where schools and districts feel they are most prepared at this point in time. There has been an initial push to create a robust technology infrastructure for staff and students that helps anticipate learning needs and facilitates access to anywhere and anytime learning while striving to exceed standards for safety, privacy and security. Additionally, the data indicated that demographically, certain regions of the United States are more prepared than others to make this shift.

This information can be crucial to companies and organizations that want to assist schools and districts in becoming more prepared in this transition. These companies and organizations can now use this information to shift their business focus away from areas of strength such as the integration of technology in schools and districts, the creation of robust technology infrastructures, and data policies and procedures that protect staff and students. In their place, time and research can now shift to areas that schools and districts are merely achieving at the "investigating" stage in this transition. By looking at areas such as the use of space and time, companies and organizations can work on developing student-centric personalized learning training and resources that focus on how schools and districts can change the way instructional time is used along with developing new opportunities for utilizing in-school and out-of-school time. Additional support around competency-based learning and the creation of technologies to meet the needs, pace, interests, and preferences of the learner would make this transition possible to a larger population.

Additionally, companies and organizations dedicated to facilitating more personalized learning focused opportunities, also need to provide frameworks and

trainings that take a deep look at working to identify new designs for community partnerships where formal and informal local and global community connections, collaborative projects, and relationships are developed and help advance the schools and districts learning goals. Funding and training for digital communications, online communities, social media, and digital learning environments will most often serve as connectors for these partnerships. Funders and philanthropists that continue to financially support the need for student-centered personalized learning can confidently shift their focus to put their money behind these two large areas for growth with the Future Ready schools and districts.

Recommendations for Future Research

Although this research provides a starting point for investigating the transformation to student-centered personalized learning using the Future Ready Schools District Level Assessment and the Future Ready Framework, opportunities for future research remain. Several additional questions arose from this study and the importance of future research on the transformation to student-centered personalized learning, and educational reform:

- What are the experiences of teachers implementing student-centered personalized learning based on different grade levels and content areas?
- What are the experiences of teachers implementing student-centered personalized learning based on years of experience?
- What is the role of administrators as student-centered personalized learning is implemented?
- How will personalized learning look inside classrooms post COVID-19?

Effect of Grade Level

This study focused on the Future Ready Framework, the gears and elements that make up the framework and the school or district as an entire entity. Do teachers at the high school or elementary school levels have similar experiences to those of the middle school teachers who participated in this study? Would similar themes emerge at different grade levels? Investigations into these questions could help the educational community better prepare for the transformation to student-centered personalized learning at a district level.

Years of Experience

Second, what are the experiences of teachers implementing student-centered personalized learning, based on years of experience? It is possible the participants had developed practices in the traditional classroom they were able to transfer into a student-centered personalized learning classroom. Would studying teachers with less experience produce similar themes? Could teachers newer to the profession have more difficulties because best practices are not well established, or would it benefit the teachers to not fall back on past practices?

Role of Administrators

A third question that could be investigated involves the role of administrators as student-centered personalized learning is implemented. Would teachers who had more direction be able to implement student-centered personalized learning, or would the practice of delineating the implementation harm the transformation?

This study was merely a starting point for investigating student-centered personalized learning using a tool like the Future Ready Schools Framework. The themes

might also apply to other educational reforms. Change in education has a reputation for being difficult (Jorgenson, 2006). Perhaps better understanding the perceptions of teachers who have experienced transformation will contribute to altering the status of change in education.

Role of Personalized Learning Post-COVID-19

A final question that should be investigated focuses on how schools will transition past this historic pandemic and the way personalized learning will look moving forward. In a personalized learning environment, each student has a personalized learning experience tailored to their unique needs. For schools and districts that have moved towards implementation, they will be well-equipped to meet the challenges of providing a meaningful education to students in a post-COVID world.

Recommendations for Future Practice/Conclusion

As schools transform on the surface from rows and desks to collaborative spaces, underneath the surface, teachers need to become learners, and students need to become advocates for their own learning. Through this transformation from the traditional classroom to a student-centered personalized learning environment, there can be much to discover. The traditional model of education prepared students for a workforce wherein they were told what tasks to perform and how and when the tasks were to be done. Student-centered personalized learning transforms the model of teaching and learning to allow students to utilize creativity, innovation, and self-regulation to express understanding with the overall objective of students being able to adapt to the changing workforce. Although the personalized learning journey might be long and strenuous, the transformation of teachers could also be described as invigorating and rejuvenating. The

themes from this study showed that by providing a robust infrastructure, making data-informed decisions, and implementing ongoing personalized professional development opportunities for all staff members helps begin the process of transforming classrooms into learning environments suitable for every student.

Personalized Learning Post-COVID-19

While the far-reaching impacts of the COVID-19 pandemic are affecting almost every aspect of life, one area hit particularly hard has been the education sector. With millions of students learning at home for the first time, it is clear that this crisis will have innumerable effects on teaching and learning during the 2020–2021 school year and beyond, regardless of when schools and districts reopen and what type of remote learning practices remain in place.

COVID-19 has unquestionably changed the way public schools will look forever. As the pandemic continues to spread around the globe and the threat of a financial recession materializes, most schools and districts are focused properly on the immediate task at hand—how to best prepare to teach and support students moving forward. The response to the coronavirus has demonstrated how technology can help transform how we teach and learn. But the push for change started long before the pandemic struck, and it will go on long after the threat subsides. The small silver lining is that many schools in the United States and internationally have been slowly transitioning over the last few years to more of a personalized learning approach for all learners.

For years, politicians have been investigating new transformative approaches to K-12 education that go far beyond just online lessons at home. The days of all students working simultaneously from the same page in the same book in a structured way has

slowly been a thing of the past. Many students now have access to a wide variety of technology that helps instruct, evaluate, adapt and challenge them at their own unique level. This structure of independent, personalized experiences for our students fits perfectly in our post-COVID 19 world.

Whether it is remediation or acceleration, every student should be able to move through their curriculum at a pace that is appropriate to their learning needs. While a class of students are working through a learning module at their own pace, teachers need to recognize when a student has a misconception or when a student needs to move on to a more advanced skill. This approach will continue to push learning beyond two covers of a book, four walls of a classroom, eight period school days and one hundred and eighty days of instruction.

During the time of remote learning because of the pandemic, it has become apparent that mastery is no longer something students must wait on to be granted to them when their teacher grades a worksheet or essay, but rather something they can see in real-time from anywhere as their progress is accurately tracked with the use of technology. With all of the data that students, parents, and teachers now have at their fingertips from these personalized learning technologies, students can make more informed decisions about their study habits; parents can make better decisions about the need for academic support; and teachers can provide instruction in small groups that is highly meaningful to each and every student in the class.

The most transformational part about this approach is, students do not have to sit in crowded classrooms to use these tools. While the teacher is still a critically important element of the system, the core instruction can happen at home, in a library, or in learning

environments that are spread out. When used correctly, students are able to engage in meaningful learning experiences from either a device in their home, a learning space outside of the home or in their classroom while working in very small groups with their peers or teachers performing learning tasks without an electronic device.

In this time of change driven by the COVID-19 pandemic, the implementation of personalized learning strategies in schools and classrooms gives students meaningful access to instruction from anywhere in the world while significantly decreasing the size of learning groups. Students are more accurately grouped by ability for each individual skill rather than arbitrarily working with large groups of students or crowded classrooms.

Regardless of the environment schools set up after returning from the quarantine, parents must evaluate and decide for themselves when they feel is the right time to send their kids back to school. Embracing a personalized learning approach in our schools will allow students to go further, faster without having to worry about the fear of interruption from a global pandemic.

Summary

While great strides have been made towards a focus on digital student-centered personalized learning in K-12 schools in the United States there is still a lot of room for growth. Understanding how to "draw outside the lines" and transform the traditional model of school that most people envision can be easier said than done. The data in this study confirms that while schools and districts are ahead of the curve in purchasing technology, providing a robust infrastructure for uninterrupted access and putting policies in place that protect student and staff data and privacy there is a tremendous gap in the use of space and time, the building of community partnerships, and aspects of

personalized professional learning. As we attempt to move from traditional teacher-centered environments that still fit within the standard seven-hour school day and have very limited connections to business and industry, companies and organizations need to focus their support on the right areas. The Alliance of Excellent Education and specifically, Future Ready Schools have helped lead the way in guiding schools and districts in the right direction when shifting their learning environment. By providing a clear framework, needs assessments, research-based solutions and robust professional learning opportunities, schools and districts can feel supported as they go through this transformation.

Allowing teachers to learn through the process empowers the experts of education to incorporate best teaching practices to customize learning for students. As members of the educational community consider the transformation to student-centered personalized learning, teachers will need time to make the necessary changes for implementation. The days of preparing lesson plans weeks ahead and presenting lessons at a fixed time and place fade away with this personalized learning environment. This adaptation of learning requires collaboration, data review, and support from peers and administrators. The requirements for preparing classrooms are changing day to day, and even hour to hour. Although a perfect equation or solution for the implementation of student-centered personalized learning does not yet exist, educators can apply their expertise to mold classrooms, ultimately keeping in mind that kids come first.

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Appendix A: Tables

Table A1

Curriculum, Instruction, and Assessment District Level Readiness Categories

Subcategories	Investigating (0-3)	Envisioning (4-5)	Planning (6-7)	Staging (8-10)
21st Century Skills/Deeper Learning	District leaders familiarize themselves and staff with new state learning standards and with research-based principles and strategies for 21st Century skills/deeper learning. Attention is given to the assessment of these skills as well.	21st Century skills/ deeper learning outcomes are explicitly referenced and defined in the district's vision of the college and career ready student. Guidance documents and templates for curricula based on these standards are developed.	Instructional leaders formally integrate 21st Century skills/deeper learning into all curriculum documents. District leaders develop explicit plans for building the capacity of the system to develop 21st Century skills/deeper learning skills in students. In addition, they develop plans for assessing these skills/ outcomes on an equal footing with content skills.	District leaders communicate new expectations for college and career readiness that incorporate 21st Century skills/deeper learning. They begin awareness trainings to orient educators to new curricular scope and sequences, guides to 21st Century skills/deeper learning, and upcoming series of associated professional development. They pilot programs that incorporate the new vision for learning.
Personalized Learning	District leaders research personalized learning and document the characteristics	A common vision for personalized learning is written and communicated	District leaders develop plans for promoting and/or expanding opportunities	District leaders prepare a plan for implementing personalized learning at all

	of personalized learning environments and the requirements for building these characteristics.	and includes rich scenarios of practice in multiple grade levels and content areas.	for personalized learning. Policies and access to technology are supportive of these plans.	levels. This plan includes organizational tools, professional development, and examples of practice aimed at multiple levels and content areas.
collaborative, relevant, and applied learning	District leaders review the research related to rich, authentic learning, including variants, such as project- and problem-based learning. Teams have also gathered research and best practices on promoting and leveraging collaboration.	The concept of student work as collaborative and authentic is noted as central to the district's vision. District leaders gather examples of teaching and learning, meeting these criteria through research and piloting. A framework for collaborative, relevant and applied learning is created and communicated to all stakeholders.	Instructional leaders review all curricula for opportunities for rich, authentic, and collaborative learning and document these opportunities. Initial plans for the adoption and implementation of these curricula are made that include necessary staff training and support.	Instructional leaders finalize a plan and assign responsibilities for implementing rich, collaborative authentic work that includes unit designs and templates, professional development, and support for teachers as they scale up new instructional practices.
leveraging of technology	District technology and curriculum staff members collaborate with other key stakeholders in an investigation of	District leaders and key stakeholders establish a common vision for building and sustaining a	Instructional leaders review all curricula for opportunities to apply current technologies to improve teaching and	Instructional leaders prepare a plan for proactively integrating technology into teaching and learning practices

	the latest research and best practices related to technology-enabled learning.	digital learning environment that clearly defines the role technology plays in supporting these new learning environments.	learning in ways that align with research and best practices. They then align and integrate these technologies into all curriculum documents.	throughout the district. This includes professional learning plans and communities of practice. They pilot robust and effective integration of learning technologies within the curriculum.
use of analytics to assess and inform instruction	District leaders are becoming more deeply informed about the type of assessments they will need to evaluate student progress in content and process standards as well as 21st Century competencies. They continue to investigate and confirm findings.	District leaders have identified the type of assessments that will be required to track progress over time but have yet to establish a common vision around specific indicators, metrics, or instruments.	District leaders have established an initial plan using data to guide choices related to curriculum, content, and instructional strategies. They have identified indicators, metrics, and/or instruments for use in determining student progress over time. They have identified diagnostic assessments, formative, and summative assessments. Policies, budgets, and access to necessary technologies necessary to	With policies, budgets, and access to necessary technologies necessary to support these assessments in place district leaders have established a series of diagnostic, formative, and summative assessments. They have established analytics and mapped reports to expected learning outcomes. Education professionals are prepared to use the data generated by these assessments

			support these assessments have been identified.	to track student progress over time, identify gaps, and make changes to improve results.

Appendix B: FRS Permission Letter

September 2019

Future Ready Schools®
Alliance for Excellent Education
1201 Connecticut Avenue NW
Suite 901
Washington, D.C., 20036

To Whom It May Concern:

The purpose of this letter is to share our willingness and partnership with Matt Friedman. We have granted Matt access to the data set from the Future Ready Dashboard (*dashboard.futurereadyschools.org*) for his dissertation and to support our internal data analysis efforts.

When published, no identifiable district data should be released. For example, school district names should never appear, and no data should be made publicly available in a way that could be traced back to an individual school district. The purpose of this analysis is to see large trend areas in different states and throughout the nation.

If you have questions, please let me know.

Respectfully submitted,

Thomas C. Murray
Director of Innovation, Future Ready Schools®
Washington, D.C.
tmurray@all4ed.org

Future Ready Schools®, 1201 Connecticut Avenue NW, Suite 901, Washington, D.C. 20036

Appendix C: FRS Gear Survey Sample

Future Ready District Assessment

Welcome to the Future Ready District Assessment. This assessment will gauge your district's readiness to begin implementing digital learning. It includes a series of questions designed to help you frame a vision for digital learning, recognize the elements of the Future Ready Framework, specify how technology can help align these efforts to achieve higher college-and career-ready standards, and understand the type of digital leadership required to stage your district for success. The assessment includes an Introduction plus 8 sections, one for each gear in the Future Ready Framework, and one focused on leadership.

Before participating in this assessment, please ensure that you have reviewed the "getting ready" checklist on the Alliance for Excellent Education website http://dashboard.futurereadyschools.org/, together with your team members, and then complete this digital learning assessment. (Plan to spend 1.5 to 2.5 hours depending on the size of your team and the depth of your discussions.) Upon completion of the assessment, you will receive a report that analyzes your district's readiness for each element of the Future Ready Framework, with links to event, activities, and resources.

IMPORTANT: Your team can start and stop taking the assessment, picking up from where you left off, but ONLY if you select SAVE and copy (and use later) the link provided.
To get started, click the NEXT button below.

Is this assessment being entered on behalf of a leadership team?

- ❍ Yes
- ❍ No

Please enter your district, school, or organization's name exactly as you want it to appear on your report (e.g., Lincolnshire School District).

District or organization _____ State _____

Demographics _____

Demographic Types
City, Large: Territory inside an urbanized area and inside a principal city with population of 250,000 or more.
City, Midsize: Territory inside an urbanized area and inside a principal city with population less than 250,000 and greater than or equal to 100,000.
City, Small: Territory inside an urbanized area and inside a principal city with population less than 100,000. **Suburb, Large:** Territory outside a principal city and inside an urbanized area with population of 250,000 or more.
Suburb, Midsize: Territory outside a principal city and inside an urbanized area with population less than 250,000 and greater than or equal to 100,000.
Suburb, Small: Territory outside a principal city and inside an urbanized area with population less than 100,000.
Town, Fringe: Territory inside an urban cluster that is less than or equal to 10 miles from an urbanized area.
Town, Distant: Territory inside an urban cluster that is more than 10 miles and less than or equal to 35 miles from an urbanized area.
Town, Remote: Territory inside an urban cluster that is more than 35 miles from an urbanized area.
Rural, Fringe: Census-defined rural territory that is less than or equal to 5 miles from an urbanized area, as well as rural territory that is less than or equal to 2.5 miles from an urban cluster.
Rural, Distant: Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an urban cluster.
Rural, Remote: Census-defined rural territory that is more than 25 miles from an urbanized area and is also more than 10 miles from an urban cluster.

Which of the following are explicitly included in your district vision for students? (Check all that apply.)

- ❑ Personalization of learning
- ❑ Student-centered learning
- ❑ 21st Century Skills/deeper learning
- ❑ College and career readiness
- ❑ Digital citizenship
- ❑ Technology skills
- ❑ Anywhere, anytime learning

Indicate which of the following elements of a digital learning environment are either available now in your district or are included in your district plan.

	Available now	In your plans	Not a priority
Presentation tools	❍	❍	❍
Productivity tools	❍	❍	❍
Document management	❍	❍	❍
Learning management system	❍	❍	❍
eCommunication tools - Asynchronous Tools	❍	❍	❍
eCommunication tools - Synchronous Tools	❍	❍	❍
Library of curated digital content	❍	❍	❍
Collaborative workspace	❍	❍	❍
Visualization tools	❍	❍	❍
Multimedia production	❍	❍	❍
Social Media	❍	❍	❍

Indicate which of the following uses of technology are either available in your district now or are included in your district strategic plan or technology plan.

	Available now	In your plans	Not a priority
Online coursework	❍	❍	❍
Blended learning	❍	❍	❍
Digital tools for problem solving (visualization, simulation, modeling, charting, etc.)	❍	❍	❍
eCommunication sites for student discussions	❍	❍	❍
eCommunication sites for teacher discussions	❍	❍	❍
Real-world connections for student projects	❍	❍	❍
Tools for students to develop products that demonstrate their learning	❍	❍	❍
Digital student portfolios	❍	❍	❍
Online research	❍	❍	❍
Intelligent adaptive learning	❍	❍	❍
Digital content in a variety of formats and modes (i.e., visual, auditory, text)	❍	❍	❍
Assessment data (formative and summative)	❍	❍	❍
Social Media	❍	❍	❍

Please type your vision for students engaged in digital learning.

_____

_____

Curriculum, Instruction, and Assessment (Gear 1 of 7)
The following set of questions will gauge your district's readiness to implement digital learning through innovations in curriculum, instruction, and assessment.

Indicate the confidence level of your leadership team in discussing the following strategies for Gear 1, Curriculum, Instruction, and Assessment.

	The team would not be prepared to discuss this strategy at this time and would need considerable preparation to do so.	With additional minutes of time and research, the team could conduct a comprehensive discussion.	The team is confident that it could enter into a comprehensive discussion on this topic at this time.
Discuss strategies for building college and career readiness through digital learning.	❍	❍	❍
Discuss leveraging diverse resources accessible through technology to personalize learning for all students.	❍	❍	❍
Discuss providing students with the opportunity and specific skills to collaborate within and outside of the school, in the context of rich, authentic learning.	❍	❍	❍
Discuss instituting research-based practices for the use of technology in support of learning.	❍	❍	❍
Discuss transitioning to a system of digital and online assessment (diagnostic, formative, adaptive, and summative) to support	❍	❍	❍

continuous feedback loops improvement informed by data			

Indicate your status for each of the following strategies for Gear 1, Curriculum, Instruction, and Assessment.

	Not currently a priority for our district.	We are actively researching this strategy.	We are formalizing or have formalized our commitment to this strategy.	We are developing or have developed plans to implement.	District policies, expectations and plans are in place for this strategy.
Integrate strategies to promote 21st Century skills/deeper learning outcomes into curriculum and instruction for all students.	❍	❍	❍	❍	❍
Design curriculum and instruction that leverage technology and diverse learning resources to enable all students to personalize their learning with choices and control.	❍	❍	❍	❍	❍
Develop 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.	❍	❍	❍	❍	❍
Integrate technology seamlessly in the teaching and learning process while assuring that the use of technology adds value to learning for all students.	❍	❍	❍	❍	❍
Provide opportunities	❍	❍	❍	❍	❍

for all schools to use digital and online assessment systems that provide all students and teachers with real-time feedback in ways that increase the rate and depth of learning, and that enable data-informed instructional decision making.					

Based on your discussion of the strategies above, write a brief vision statement that describes your team's position on curriculum, instruction, and assessment for digital learning.

NOTE: This sample vision statement (for the Curriculum, Instruction, and Assessment Gear) is provided as a model:

Curriculum, instruction, and assessment practices 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/deeper learning across the disciplines.

Use of Time (Gear 2 or 7)

The following set of questions will gauge your district's readiness to advance digital learning through innovative uses of time.

Indicate the confidence level of your leadership team in discussing the following strategies for Gear 2, Use of Time.

	The team would not be prepared to discuss this strategy at this time and would need considerable preparation to do so.	With some additional minutes of time and research, the team could conduct a comprehensive discussion.	The team is confident that it could enter into a comprehensive discussion at this time.
Discuss options for providing students with online and digital learning options for anywhere, anytime learning.	❍	❍	❍
Rethink the use of instructional time and school schedules to provide students with extended time for projects and collaboration, and to provide the flexibility required for personalized, student-centric learning.	❍	❍	❍
Discuss the merits of allowing students flexibility in the time it takes them to complete a course or attain a standard (competency-based learning).	❍	❍	❍

Indicate your status for each of the following strategies for Gear 2, Use of Time.

	Not currently a priority for our district.	We are actively researching this strategy.	We are formalizing or have formalized our commitment to this strategy.	We are developing or have developed plans to implement.	District policies, expectations and plans are in place for this strategy.
By leveraging technology and media resources, students have options to learn any time of day, from home, school and/or community.	❍	❍	❍	❍	❍
Teachers are transitioning to more student-centric environments, leveraging flexible uses of time to enable personalized learning for their students.	❍	❍	❍	❍	❍
Student progress is measured by performance and mastery, rather than attendance/seat time (competency-based learning).	❍	❍	❍	❍	❍
The district has moved away from rigid schedules and short class periods, toward instructional time allocations that are flexible, enabling extended work time for complex projects.	❍	❍	❍	❍	❍

Based on your discussion of the topics above, write a brief vision statement that describes your team's position on use of time to support digital learning.

Technology, Networks, and Hardware (Gear 3 of 7)
The following set of questions will gauge your district's readiness to advance digital learning through new technologies, networks, and hardware.

Indicate the confidence level of your leadership team in discussing the following strategies for Gear 3, Technology, Networks, and Hardware.

	The team would not be prepared to discuss this strategy at this time and would need considerable preparation to do so.	With some additional minutes of time and research, the team could conduct a comprehensive discussion.	The team is confident that it could enter into a comprehensive discussion at this time.
Discuss a variety of options available to districts to ensure that appropriate Internet-ready technology devices are available to support teaching and learning.	❍	❍	❍
Discuss the elements and implementation of a robust, responsive and safe network infrastructure.	❍	❍	❍
Discuss the elements of a positive, effective, service-oriented technology support system.	❍	❍	❍
Discuss a comprehensive, environmentally sound cycle for review and replacement of technology software, hardware and infrastructure.	❍	❍	❍

Indicate your status for each of the following strategies for Gear 3, Technology, Networks, and Hardware.

	Not currently a priority for our district.	We are actively researching this strategy.	We are formalizing or have formalized our commitment for this strategy.	We are developing or have developed plans to implement.	District policies, expectations and plans are in place for this strategy.
Designing and implementing diverse and creative options to ensure that appropriate Internet-ready technology devices are available to students to support learning at any time.	❍	❍	❍	❍	❍
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.	❍	❍	❍	❍	❍
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.	❍	❍	❍	❍	❍

Formalizing the review and replacement of all technologies in a cycle that is timely, proactive, and environmentally responsible.	❍	❍	❍	❍	❍

Based on your discussion of the strategies above, write a brief vision statement that describes your team's position on technology, networks, and hardware to support digital learning.

Data and Privacy (Gear 4 of 7)

The following set of questions will gauge your district's readiness to advance digital learning through innovative data systems with assurances of privacy.

Indicate the confidence level of your leadership team in discussing the following topics for Gear 4, Data and Privacy.

	The team would not be prepared to discuss this strategy at this time and would need considerable preparation to do so.	With some additional minutes of time and research, the team could conduct a comprehensive discussion.	The team is confident that it could enter into a comprehensive discussion at this time.
Discuss data governance policies and procedures that ensure privacy, safety, and security in data collection, analysis, storage, retrieval, exchanges, and archiving, to meet standards and legal requirements (i.e., FERPA and CIPA).	❍	❍	❍
Discuss the data systems, security procedures, and support systems required to ensure that a range of accurate, reliable data sets and associated reports are available, on demand, to authorized users.	❍	❍	❍
Discuss the challenges and opportunities in transitioning to a culture of evidence-based reasoning (a data culture) using accurate, reliable, and accessible data.	❍	❍	❍

Indicate your status for each of the following strategies for Gear 4, Data and Privacy.

	Not currently a priority for our district.	We are actively researching this strategy.	We are formalizing or have formalized our commitment to this strategy.	We are developing or have developed plans to implement.	District policies, expectations and plans are in place for this strategy.
The district has up-to-date policies, procedures, and practices that address the privacy and security of data, and the use of data, technologies, and the Internet that meet or exceed legal requirements and federal guidelines.	❍	❍	❍	❍	❍
The district is operating digital data systems that enable secure data collection, analysis, reporting, storage, exchanges, and archiving for authorized users.	❍	❍	❍	❍	❍
Evidence-based reasoning and data-driven decision making are part of the school and district culture for staff, students, and parents.	❍	❍	❍	❍	❍
All staff are knowledgeable and skilled in using data, technology, and data analytics to inform instruction, curriculum, assessment, and their own professional practices.	❍	❍	❍	❍	❍

Based on your discussion of the strategies above, write a brief vision statement that describes your team's position on data and privacy to support digital learning.

Community Partnerships (Gear 5 of 7)

The following set of questions will gauge your district's readiness to advance digital learning through community partnerships.

Indicate the confidence level of your leadership team in discussing the following strategies for Gear 5, Community Partnerships.

	The team would not be prepared to discuss this strategy at this time and would need considerable preparation to do so.	With some additional minutes of time and research, the team could conduct a comprehensive discussion.	The team is confident that it could enter into a comprehensive discussion at this time.
Discuss how teaching and learning can be enriched through local community partnerships (i.e., increased access, relevance, opportunities for public exhibitions of student work, etc.).	❍	❍	❍
Discuss community partnerships that can build global and cultural awareness in students.	❍	❍	❍
Strategies for ensuring that digital/online learning environments serve as vehicles to enable local and global community partnerships.	❍	❍	❍
Discuss home-school communication that are enhanced and enriched through technology.	❍	❍	❍
Discuss district creation of a "brand," that positions the district as a positive, 21st Century force in the lives of students and the community.	❍	❍	❍

Indicate your status for each of the following strategies for Gear 5, Community Partnerships.

	Not currently a priority for our district.	We are actively researching this strategy.	We are formalizing or have formalized our commitment to this strategy.	We are developing or have developed plans to implement.	District policies, expectations and plans are in place.
The school serves as a hub of the community and actively involves the community in achieving its learning goals.	❍	❍	❍	❍	❍
Students' global and cultural awareness is deepened through face-to-face and online community partnerships.	❍	❍	❍	❍	❍
The school district has deployed a digital learning environment with education programs that facilitate safe online peer-to-peer, student-teacher, and student-expert interactions.	❍	❍	❍	❍	❍
The district has designed and deployed a robust digital communication system that is responsive to individual families as staff use it to draw parents into frequent interactions about	❍	❍	❍	❍	❍

their child's education.					
The district has built a brand that conveys preferred messaging with students' families, the community, and beyond.	❍	❍	❍	❍	❍

Based on your discussion of the strategies above, write a brief vision statement that describes your team's position on community partnerships to advance digital learning.

Professional Learning (Gear 6 of 7)

The following set of questions will gauge your district's readiness to advance digital learning through innovative models of professional learning.

Indicate the confidence level of your leadership team in discussing the following strategies for Gear 6, Professional Learning.

	The team would not be prepared to discuss this strategy at this time and would need considerable preparation to do so.	With additional minutes of time and research, the team could conduct a comprehensive discussion.	The team is confident that it could enter into a comprehensive discussion on this topic at this time.
Discuss models of shared ownership of professional development, where district policy encourages and supports teachers and administrators in self-directed uses of online, social media for professional growth.	❍	❍	❍
Discuss the pedagogical shifts and associated professional development required to ready staff for 21st Century digital learning.	❍	❍	❍
Discuss the models and merits of staff evaluation models that are goal-oriented, participatory, and focused on metrics directly related to 21st Century digital learning.	❍	❍	❍

Indicate your status for each of the following strategies for Gear 6, Professional Learning.

	Not currently a priority for our district.	We are actively researching this strategy.	We are formalizing or have formalized our commitment to this strategy.	We are developing or have developed plans to implement.	District policies, expectations and plans are in place.
Shared ownership and shared responsibility for professional growth of education professionals.	❍	❍	❍	❍	❍
New instructional practices and professional competencies necessary to support 21st Century Skills/deeper learning.	❍	❍	❍	❍	❍
Alternative, personalized models of professional development are enabled through technology and social media (i.e., EdCamps, Twitter Chats, etc.), and encouraged and supported through coherent district policies.	❍	❍	❍	❍	❍
New models for evaluation that involve education professionals in self-assessment, goal setting and professional collaboration in support of those goals.	❍	❍	❍	❍	❍

Based on your discussion of the topics above, write a brief vision statement that describes your team's position on professional learning to support digital learning.

_____

_____

Budget and Resources (Gear 7 of 7)

The following set of questions will gauge your district's readiness to advance digital learning with budget & resources.

Indicate the confidence level of your leadership team in discussing the following strategies for Gear 7, Budget and Resources.

	The team would not be prepared to discuss this strategy at this time and would need considerable preparation to do so.	With additional minutes of time and some additional research, the team could conduct a comprehensive discussion.	The team is confident that it could enter into a comprehensive discussion on this topic at this time.
Discuss ways to support students with tools and resources for digital learning that offer efficiencies and cost savings (e.g., BYOD, 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.	❍	❍	❍

Indicate your status for each of the following strategies for Gear 7, Budget and Resources.

	Not currently a priority for our district.	We are actively researching this strategy.	We are formalizing or have formalized our commitment to this strategy.	We are developing or have developed plans to implement.	District policies, expectations and plans are in place for this strategy.
Policies, procedures and timelines for transitioning to cost-saving strategies that leverage digital systems, tools and resources.	❍	❍	❍	❍	❍
District and school level plans for digital learning justified and linked with consistent annual funding streams.	❍	❍	❍	❍	❍
Funding identified for digital learning programs in the district's annual maintenance and operation budgets. Non-recurring funding allocated for short-term initiatives or pilots.	❍	❍	❍	❍	❍
Metrics and methodology for monitoring the relationship between budget priorities and student learning goals.	❍	❍	❍	❍	❍

Based on your discussion of the strategies above, write a brief vision statement that describes your team's position on use of budget and resources to support digital learning.

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Empowered, Innovative Leadership (Across the Gears)
The following set of questions will gauge your district's readiness to advance digital learning through progressive, innovative leadership.

Indicate the confidence level of your leadership team in discussing the following strategies for Empowered, Innovative Leadership.

	The team would not be prepared to discuss this strategy at this time and would need considerable preparation to do so.	With additional minutes of time and some additional research, the team could conduct a comprehensive discussion.	The team is confident that it could enter into a comprehensive discussion on this topic at this time.
Discuss the district's strategy for developing, communicating, implementing, and evaluating a shared, forward-thinking vision for digital learning.	❍	❍	❍
Discuss strategies to establish a culture of collaborative innovation, where leaders at all levels are informed, trusted, empowered, and ready to lead.	❍	❍	❍
Discuss the high expectations that will be required of all students, education professionals, and family/community if the district is to realize continuous, sustainable progress toward the vision.	❍	❍	❍
Discuss the coherent strategic, tactical, and budgetary policies and planning required to achieve the vision.	❍	❍	❍

Indicate your status for each of the following strategies for Empowered, Innovative Leadership.

	Not currently a priority for our district.	We are actively researching this strategy.	We are formalizing or have formalized our commitment to this strategy.	We are developing or have developed plans to implement.	District policies, expectations and plans are in place for this strategy.
The district has involved the community in establishing a shared, forward-thinking vision for personalized, digital learning.	❍	❍	❍	❍	❍
The district and schools have established a culture where leaders are informed, collaborative, and empowered to innovate.	❍	❍	❍	❍	❍
The district leadership team has established high expectations for transformation at all levels.	❍	❍	❍	❍	❍
District leaders have coherent policies, plans, and budgets for achieving the vision.	❍	❍	❍	❍	❍

Based on your discussion of the strategies above, write a brief vision statement that describes your team's vision of leadership.

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Please enter the email address of the district point of contact.
NOTE: The report generated from this assessment will be emailed to this address.

Email address _____

Thank you! Please click "Reports" in the menu to review the results of your district's assessment.

Should you have any questions please email Dr. Avril Smart, Research and Engagement Manager for Future Ready Schools (asmart@all4ed.org).