Planned Growth Program for Jersey City Schools

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Introduction

The recent addition of several housing developments in the Jersey City area has led to an influx of new students. To accommodate the increased student population, two new elementary schools and one middle school will be constructed. This document will lay out the specifications of the Planned Growth Program to ensure that the district's existing technology plan will be followed.

Mission

The new schools will help fulfill the motto of Jersey City Public Schools (JCPS): to "Envision excellence and equity everywhere" (Lyles, 2015). The district's technology plan provides a blueprint for a challenging learning environment supported by a robust technological environment. Ensuring equitable access is a central component of preparing students to learn 21st-century skills. The school district strives for its students and public school community to succeed in a digital world by offering the necessary technology skills to communicate, find information, and learn to think critically to understand and evaluate data. By actively mastering the use of technology, students can acquire the knowledge necessary for living in global society. A goal is that all students in the school community should have the essential technology skills to become lifelong learners. This can be achieved while still being mindful of cost-effective and cost-saving practices that will allow the district to improve students' learning outcomes, graduation rates, and improve career readiness for innovation, implementation, evaluation, and continuous improvement (Jersey City Board of Education, 2017, p.14).

Implementation of Technology Plans Mission in New Schools

Jersey City's Long Range Facility Plan (State of New Jersey, Department of Education, 2005) called for the creation of new primary and middle schools within the district to respond to

both a growing student population and aging facilities infrastructure. The opening of these three

schools next year, two primary and one middle school, allows for the integration of a robust

technology plan to be provided from the day the doors open. The superintendents' Senior

Leadership Team, the district's Technology Plan Committee members and the Educational

Technology Department will oversee planning for and integration of technology tools to support

the district's initiatives for learning, assessment, teaching, infrastructure and productivity in these

three schools, in alignment with the goals and objectives of the plan ("Jersey City Public Schools

District Technology Plan 2016-2019," n.d., p. 14).

The JCPS technology plan breaks down how these goals and objectives will be

successful. Key to these efforts will be alignment with the curriculum offered at the grade-

appropriate level, as well as providing the necessary infrastructure and connectivity within the

building. Personalized learning opportunities should be provided to all students in the new

schools, as well as adaptive devices for special needs students.

For these three schools, implementation of the plan allow students to have improved

communication with other students and their teachers, and allow for innovative projects while

preparing them for career readiness and adulthood.

A clear goal is to provide equal access to the digital tools the public school community

requires to thrive in the 21st century. By building educational tools that will help students and

staff thrive in the digital world, students gain knowledge to master the common core while

encouraging participation in our ever-evolving global society.

The mission also states that these technologies will be updated to provide all members of

the schooling community with the latest state-of-the-art technology. A "Stakeholder's

Assurance" is located in Appendix C of the "Jersey City Public Schools District Technology

Plan 2016-2019" (n.d.), which assures that these programs will be implemented. This document

is signed by a district superintendent, principal, parent leader, teacher, technology coordinator,

student representative, school board member, community member and instructional supervisor

(p. 5).

The Educational Technology department will monitor and assist in the evaluation of the

effectiveness of these programs, while keeping all stakeholders in the school community of new

advancements in educational technology trends aligned with the district's educational technology

and mission to "Envision excellence and equity everywhere."

New Jersey School Law

The New Jersey Administrative Code is the statutory authority for establishing the New

Jersey Student Learning Standards. These standards include nine academic content areas,

including technology. The standards establish benchmarks to validate student achievement at

various grade levels from kindergarten through twelfth grades. The "Standards and Assessment"

statutes (6A N.J.A.C. 8, 2016) specifically require that districts ensure that students achieve 21st

century outcomes by "learning in meaningful, real-world contexts" and that students "access and

use quality learning tools, technologies and resources" (p. 3).

Two of the New Jersey Core Curriculum Content Standards concern Technology directly:

8.1.1   Educational Technology: All students will use digital tools to access, manage,

evaluate, and synthesize information in order to solve problems individually and

collaborate and to create and communicate knowledge. (State of New Jersey,

Department of Education, 2014a)

8.1.2   Technology Education, Engineering, Design and Computational Thinking –

Programming: All students will develop an understanding of the nature and

impact of technology, engineering, technological design, computational thinking

and the designed world as they relate to the individual, global society, and the

environment. (State of New Jersey, Department of Education, 2014b)

These core curriculum content standards are further detailed into various strands, which

each have specific standards for each grade level. For example, in the "Technology Operations

and Concepts" strand, students must demonstrate that they understand and use technology

systems. At the Pre-K level, this means the student can "use an input device to select and

navigate the screen" (State of New Jersey, Department of Education, 2014a, p. 1). Students in

grades three to five must "select and use the appropriate digital tools and resources to accomplish

a variety of tasks including solving problems" (State of New Jersey, Department of Education,

2014a, p. 1). At the high school level, students must "create a personal digital portfolio which

reflects personal and academic interests, achievements, and career aspirations by using a variety

of digital tools and resources" (State of New Jersey, Department of Education, 2014a, p. 2).

The Jersey City Board of Education has developed an extensive technology plan which

includes information about the existing technology available in the schools as well as

technological initiatives which will help move the district forward toward its goals. Additional

investment in hardware and bandwidth has been necessary to prepare for the Partnership for

Assessment of Readiness for College and Careers (PARCC) exams, which have been mandated

by the State of New Jersey as a graduation requirement. Despite this focus on assets, the district

has shifted its focus to student learning outcomes as a more meaningful measure of the success

of its technology programs ("Jersey City Public Schools District Technology Plan 2016-2019,"

n.d., p. 6).

Long-Term Vision

The long-term vision for the three new schools in Jersey City is that the new buildings will represent the pinnacle of technology in a public school in New Jersey. The "Jersey City Public Schools District Technology Plan 2016-2019" (n.d.) describes its vision of a world where students, parents, educators, and community members have the access and technological skills to thrive in the 21st century. At present, the plan acknowledges that the foundation to enhance learning with technology has been built. The goal of these technological initiatives is to engage and challenge students, as well as to improve learning outcomes and improve graduation rates (p. 7).

The District Technology Plan includes action plans to enhance the state of technology in its existing schools. As the three new schools under discussion are built, each should be constructed and outfitted to these standards. For example, the plan suggests that each student have at least one internet-capable device for use in-school and out-of-school. It also addresses the need for broadband access both at home and in school. The plan suggests that teachers should be comfortable with technology so they can enhance the student learning experience and become effective instructors, both online and in-person. The plan focuses on leveraging the power of technology to deliver excellent learning experiences at any time or place ("Jersey City Public Schools District Technology Plan 2016-2019," n.d., p. 14).

Improvements to the speed of the broadband connections at schools throughout the district are being considered. The three new schools should be constructed with these specifications, including a 1 GBPS Fiber Wide Area Network (WAN). The Wi-Fi network for the schools should also allow for a "Community Hot Spot" outside the building to improve Wi-

Fi access for the local area ("Jersey City Public Schools District Technology Plan 2016-2019,"
n.d., p. 9 – 10).

Technology Resources

The infrastructure objectives of the "Jersey City Public Schools District Technology Plan
2016-2019" (n.d.) specifically delineate that, "all students and educators will have access to a
comprehensive infrastructure for learning when and where they need it." Recommended actions
in that technology plan include ensuring that students and teachers have sufficient and reliable
broadband access, at least one internet-connected device per student and teacher, access to open
source educational resources, as well as an evaluation metric to ensure "meaningful use" (p. 17).

In order to fulfill the vision of the Jersey City School District, six categories of
technology resources will be necessary in order to adequately outfit the district's three new
schools with appropriate educational technology: network equipment, network software
applications, WAN applications, computers, peripherals, and telephone systems.

Before any new technology initiative can proceed, it is important to note the need for
reliable and fast network connectivity in order to unify such devices, and in order for all the
technology resources to be able to connect to the internet. To achieve those ends, a series of
servers, switches, and wireless access points will be necessary to ensure optimal connectivity.
The increasing number of devices in the classrooms, particularly in light of the district's 1:1
technology initiatives and ambitions, emphasizes the need for a consistent wireless experience
throughout the school campuses. This is also critical because high-stakes standardized testing has
moved online. Both student and teacher devices must be able to maintain a reliable internet
connection at all times. To address this need, every classroom should be equipped with its own
wireless access point. Larger spaces, such as gymnasiums and cafeterias, will need multiple

access points. There will also be several access points installed outside the building to support

the outdoor wireless initiative discussed earlier. WAN applications tie into the networking

equipment initiative by ensuring a reliable, continuous stream of information into and out of the

local area network.

The second facet of the district's technology needs involve network software applications.

A powerful firewall and filtering suite will deliver quality, educationally-rich materials; block

inappropriate content; and transmit testing materials securely. Additionally, filtering software

will help identify problematic or potentially problematic behavior by monitoring student email,

web searches, and other internet activity.

Next, and arguably the most financially burdensome facet of the district's plan, is the

selection of computer hardware. The district, mirroring the overall trend in education, is to

transition from classroom-based desktop computers towards 1:1 initiatives, where each student

has his or her own computer, whether or not that hardware is taken home on a daily basis. The

selection of a portable, powerful, yet economical laptop computer, such as Acer Chromebooks,

will fit this criteria. As powerful as Chromebooks are, however, they are seldom powerful

enough to fulfill the instructional and administrative needs of teachers. Though there is a

growing number of cloud-based software products compatible with the Chrome platform, many

software packages are only available on Windows or Mac platforms. To meet this need, teachers

will be equipped with MacBook Pro laptops to supplement their instruction.

Another category of technology needs is peripherals, meaning hardware that does not fall

into the two categories of networking or computers. Mobile storage carts for student laptops,

printers, projectors, interactive whiteboards, and interactive tables are all part of the district's

plan for the three new buildings. In addition to classrooms, the school's Media Center will also

be equipped with an interactive whiteboard, and additional facilities throughout the building such as the cafeteria, gymnasiums, and conference rooms will be equipped with projector facilities for both instructional and administrative uses. Each classroom, as well as all administrative offices, and the media center will be equipped with at least one color laser printer for teacher, student, and administrative use.

Finally, Voice over Internet Protocol telephone systems will ensure that the school is enabled for the 21st century by eliminating the need for traditional copper phone lines, increasing the quality and efficiency of audio and video conferencing, and giving teachers the ability to have nearby telephone access for both peer-to-peer as well as school-to-home communications.

<div align="center">Technology Management</div>

A systems-based approach to managing educational technology can take on several forms. Phaal, Farrukh, and Probert (2001) describe a five-pronged framework for technology management. The five components are identification, selection, acquisition, exploitation, and protection.

The identification component of the framework seeks to identify technologies that have important future potential in the institution. That identification is made by reviewing best practices, reading current research, visiting other schools, and attending conferences. This process does not necessarily select technologies that will ultimately be implemented, but rather is a sort of "wish list" for the institution.

The second component of the technology management framework is selection. Selection is a much more deliberative and careful process in which technologies are assessed, piloted, and examined from a financial perspective. Selection is followed by the third component of the

technology framework, which is acquisition. The acquisition component involves either a request for bids, depending on the magnitude of the purchase, and or the production of purchase orders from selected vendors, and ultimately the execution of those orders and receipt of products.

The fourth component is exploitation. Exploitation, according to Phaal, Farrukh, and Probert (2001), involves putting those technologies to work. In this case, exploitation would involve installation, professional development training, development of curricular objectives to incorporate the technology, pedagogy, and, ultimately, practical usage by students.

The fifth and final component of the technology management process framework is protection. Protection involves not only physical protection of the hardware infrastructure, but also a robust assessment and support system that will consistently seek to evaluate the impact the technology is having on the school and to troubleshoot any encountered issues as implementation progresses.

The National Center for Education Statistics (2002) suggests similar guidelines to Phaal, Farrukh, and Probert. The NCES (2002) lays out four indicators for technology assessment and management in schools: reliability of equipment and infrastructure, preventive maintenance procedures, update and replacement procedures, and diagnostic and repair resources. The NCES (2002) notes the number maintenance incidents and their causes, average downtime, average number of trouble tickets submitted, average time until issue response, and average time to resolve the issue should all be considered. A preventative maintenance schedule, preventative maintenance checklist, and a system of reference materials are also suggested by the NCES guidelines (2002). The reference materials should specifically address frequently asked questions, operating manuals, backup procedures, and disaster recovery procedures.

Procedures for updating and replacing technology must be considered also. The NCES (2002) emphasizes the need for a replacement or upgrade schedule for both hardware and software. The Jersey City Public Schools' District Technology Plan already includes item obsolescence criteria and time frames: three to five years for computers, five years for printers, five years for servers routers and switches, five to eight years for operating systems, 10 years for software, and five years for other peripheral devices. The plan also notes the potential for premature discontinuation, should the technology become subject to the cessation of support by the manufacturer provider ("Jersey City Public Schools District Technology Plan 2016-2019," n.d., p. 11).

Procedures

Districts and schools are complex organizations that are different from businesses and other types of organizations. Despite these differences, a systems approach can be applied to both business and school setting. There is, however, a sharp contrast to the end product of the two and this is where the variation can be seen. The Jersey City Public Schools recognizes the complexity of the organization and has chosen to take a systems approach to managing the organization. Systems approach in education is a management tool that views the organization as a whole and the impact of decisions coupled with resources to solve problems within the organization (Gupta & Gupta, 2013). The notion of this approach is that no one element operates on its own and is tied to other components of the system.

This approach to coordinating and controlling the system began with the leadership theory supported by Peter Senge. Senge's work highlights the following areas: personal mastery, shared vision, mental models, and team learning these elements are the prerequisites for what he calls the "fifth discipline" or "systems thinking" (Senge, 2006). The superintendent is currently

building a culture of teamwork that avoids operating in a vacuum. The Systems Information Specialist, along with his team, coordinates the management of the district's technology. There is collaboration between departments and schools for providing access to technologies that support student learning, staff learning, administrative functions, help desk management, and hardware/software purchase and support.

All facets of technology integration, implementation, communication, and support are coordinated through the district's technology department. The superintendents' team of cabinet members work together to ensure that resources are appropriately utilized to support student learning and the operation of the organization. Structuring the organization this way lessens the confusion about who is responsible for specific areas of technology, and it creates a central location for the flow of data that is used in the management of the organization.

<div align="center">Evaluation</div>

With increasing emphasis on school accountability, evaluating the investment in our technology plans in the three new schools is crucial (Frazier, p. 151). This effort goes beyond traditional surveys of whether staff and students are using and becoming comfortable with technology in the classroom and looks for summative assessments that can measure increases in learning due to technology. The Educational Technology Department will impanel members from the three schools for this effort into a committee and issue a report back to the administrators, Board of Education, community members, and state agencies. This effort can assist in continuing improvement of these schools technology program and technology roll out in future facility expansion programs.

Evaluation will be centered on the Five Goals in the district's Three Year Technology Plan Inventory Table ("Jersey City Public Schools District Technology Plan 2016-2019," n.d., p.

20-40) and will be conducted by administrators, educators, students, and community members.

Responsible parties within the district and community will be identified as stakeholders

connected with evaluating the technology plan success for each goal. Table 1, below, describes

each of the five goals from the district's technology plan and how each will be evaluated.

Table 1

District Goals and Evaluation

Goal	Instrument for Evaluation
Engage and empower	Agendas, Sign in sheets, Meeting notes, professional learning evaluations, rating sheets, purchase orders, documentation from Board of Education, student data, writing curriculum rubrics, school budgets, Stem reports, school data team analysis reports
Measure what matters	Evaluation and student data, NJ Student Growth Models. Data Governance, NJ Smart, Professional Development Plan. In District Training Certificates. Moodle Course on Simulations, Digital Games and Social Networking, NCES Guides to Protect Student Data
Prepare and Connect	Professional development, NETS implementation, Wiki, ISTE Online Courses Technology Survey Teacher/ staff satisfaction surveys, Student Tech Squad Open Source. TSSA resources
Access and Enabled	Member of the Educational Technology staff, Business office and School Administrators as to the availability of technology
Redesign and Transform	After the data is gathered, it will be analyzed to make recommendations about future technology purchases and initiatives. The process will be ongoing throughout a three year period after the school's open and will provide the data to determine if there was a student improvement in learning

Data-Driven Decision Making

Accountability mandates stemming from the Every Student Succeeds Act (ESSA) has

drawn attention to the need to use student data to improve schools. School districts and schools

may struggle with managing, accessing, interpreting, and manipulating data (Wayman, 2005).

This creates a potential problem for building administrators and teachers to have available data that is needed at the classroom level. To avoid a possible conflict the Jersey City Public Schools will use computer technologies that will support the use of data at the district, building, and classroom level to support, inform, and impact instruction. These user-friendly tools will make it easier to access data at various educational levels to support reflective practices that will help to improve student achievement.

Recognizing the need for a streamlined process for managing student data, the Jersey City Public Schools will adopt the use of Performance Matters from the company Unify. Performance Matters is a web-based data management system. The Jersey City Public Schools will use this platform in two ways, namely: to house student performance data and to create student assessments within the platform. This approach will avoid the siloed effect of data management and will allow all student data to be stored and managed in one place. District and building-level stakeholders will have the ability to access students' PARCC scores, district benchmark assessments, teacher-created assessments, attendance, and behavior data on one convenient platform. Cross-tabulating data will be simple. Performance Matters will also allow teachers to generate technology-enhanced items and standards-based assessment items. This further supports the district's move toward reaching diverse student learners while supporting a standards-based approach to learning.

The Jersey City Public Schools is confident that this approach to data management and learning will help to support each student and set the district on a positive trajectory of high academic performance. Furthermore, this method will better equip teachers to focus on their teaching strategies and content. Student data can now be disaggregated from the student level all the way up to the district level. District and building administrators will be empowered to make

instructional decisions based on data that will impact instruction, instructional programs, and professional development. With this shift, we hope to see a more significant impact on PARCC performance, student attainment of the New Jersey Student Learning Standards, and delivery of instruction. Since research has demonstrated that teacher involvement in the use of data positively correlates with increased student achievement, the Jersey City Public Schools want to make use of data as easy as possible (Wayman, 2005). The Jersey City Public Schools will ensure that teachers are armed with student data needed to improve learning outcomes.

<div align="center">Conclusion</div>

The Jersey City Public Schools Planned Growth Program presented here showcases the ways that the new school buildings will fulfill the existing technology plan. By following the guidelines that were carefully thought out, JCPS feels confident that the students attending these new schools will be supported in their academic endeavors. District and building leaders, as well as teachers, will be supported in this implementation, and students will reap the rewards of their hard work and planning.

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