MEMORANDUM   **June 18, 2015**

TO: The Honorable Chair and Members of The School Board of Miami-Dade
                 County, Florida

FROM: Alberto M. Carvalho, Superintendent of Schools

SUBJECT: TRANSMITTAL OF RESEARCH BRIEF, *STATUS REPORT: DIGITAL
                 CONVERGENCE INITIATIVE, 2014-2015*

Attached please find a copy of the Research Brief, *Status Report: Digital Convergence
Initiative, 2014-2015.* This report summarizes the status of Miami-Dade County Public
Schools' (M-DCPS) 2014-2015 Digital Convergence initiative. M-DCPS implemented
the initiative in an effort to close the digital divide by ensuring that all students have
access to mobile technology and high-speed, reliable internet service. The initiative
involved extensive pre-planning, stakeholder involvement, and partnerships with
technology providers. This Research Brief reviews project implementation procedures
and the six major components of the Digital Convergence initiative: classroom
infrastructure, digital content, distribution of mobile devices, the Bring Your Own Device
program, district-wide wireless access, and professional development.

The results of online surveys administered to Civics and World History students and
teachers are also summarized. The vast majority of respondents reported that students
used digital devices in the classroom for instructional purposes. Furthermore, most
teachers and students who responded to the survey agreed that digital devices served a
valuable instructional purpose.

If you need further information, please contact Ms. Marie Izquierdo, Chief Academic
Officer, Office of Academics and Transformation, at 305 995-1451, or Ms. Gisela Feild,
Administrative Director, Assessment, Research, and Data Analysis, at 305 995-2943.

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M1058

Attachment

cc: School Board Attorney
        Superintendent's Cabinet
        Ms. Deborah Karcher
        Ms. Gisela Feild
        Dr. Aleksandr Shneyderman

STATUS REPORT: DIGITAL CONVERGENCE INITIATIVE, 2014-2015

The Digital Convergence initiative is Miami-Dade County Public Schools' (M-DCPS) effort to close the digital divide by ensuring that all students have access to mobile technology and high-speed, reliable Internet service. Staff from the district's Innovation and School Choice office led the Digital Convergence effort, in collaboration with staff from Information Technology Services. The program brings together mobile devices, interactive whiteboards, streaming media, and digital content to increase students' engagement and technology literacy. Through implementation of the Digital Convergence initiative, M-DCPS hopes to develop independent, self-initiated learners, encourage collaboration and communication between students and teachers, and extend student learning beyond the classroom.

PLANNING

Prior to implementation of the Digital Convergence initiative, M-DCPS staff spoke with peers in school districts that had implemented technology programs, including San Diego, Los Angeles, Houston, Chicago, and Las Vegas. In addition, a team of M-DCPS staff visited the Mooresville Graded School District in North Carolina to learn about the implementation of their one-to-one technology program first hand.

STAKEHOLDER INVOLVEMENT

A Technology Advisory Committee was formed in order to obtain input and feedback from multiple stakeholders. The committee was comprised of school and district staff, community members, students, and the district's technology partners. The committee met in December 2014 and will meet twice a year, as the project continues, to garner feedback from stakeholders. Committee members are asked to give feedback on the first phase of the Digital Convergence initiative and to provide input on the upcoming second phase.

PARTERNSHIPS

The Digital Convergence initiative is a collaborative effort between M-DCPS and its technology partners. For six months prior to deploying mobile devices, district staff held planning meetings with the technology partners to formulate strategies for the mobile device deployment. Now, a year and a half into the project, staff continues to meet with partners to review progress and

Research Services
Office of Assessment, Research, and Data Analysis
1450 NE Second Avenue, Suite 208, Miami, Florida 33132
(305) 995-7512 Fax (305) 995-7522

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plan the implementation of Phase 2. The district has partnered with a number of national and regional technology providers, including:

- Hewlett-Packard for HP computer hardware;
- Promethean for interactive whiteboards;
- Microsoft for operating, network, and application support and training;
- Intel for resource assistance;
- McGraw-Hill for curriculum content alignment and delivery; and
- United Data Technologies for device and network management and support.

IMPLEMENTATION PRODEDURES

M-DCPS staff created a *Mobile Device Project Implementation Guide* and a *Parent/Student Resource Guide* to educate school administrators and parents about the benefits of using technology in the classroom and the rules and procedures with which students are expected to comply. The implementation guide provides administrators with information regarding the goals of the Digital Convergence initiative and the benefits of using technology in school. The resource guide outlines student and parent responsibilities and provides guidelines on the use and care of mobile devices. The *Mobile Device Project Implementation* Guide is available at http://digital.dadeschools.net/pdfs/Mobile_Device_Guide_01152015.pdf. The *Parent/Student Resource Guide* is available at http://digital.dadeschools.net/pdfs/Mobile~11.pdf.

The district's Acceptable Use Policy (AUP) addresses responsible and acceptable use of the network as a tool for learning in the district. The policy addresses inappropriate materials, unacceptable activities, cyberbullying, and disciplinary actions for improper use. District staff are currently in the process of amending the AUP, and it is anticipated that student and parent signatures will be required annually under the revised policy. The AUP is included as Appendix F in M-DCPS' *Mobile Device Project Implementation Guide* and may be viewed at http://digital.dadeschools.net/pdfs/Mobile_Device_Guide_01152015.pdf.

In addition to reading the AUP, student and parental signatures were required on a *Mobile Device Agreement.* M-DCPS required that the agreement be signed by all students who received a district-issued mobile device, as well as by their parents. The agreement outlines students' and M-DCPS' rights and responsibilities regarding district-issued devices and lists technology recovery fees for devices that were damaged or lost. The agreement also notifies students and parents that students will be selected at random to provide their device for inspection for restricted images and settings, as well as the overall care and condition of the device, charger, and other accessories. The *Mobile Device Agreement* may be viewed at http://digital.dadeschools.net/pdfs/Parent_Contract.pdf.

M-DCPS uses an Internet content filter that prevents students from accessing inappropriate websites even while off campus. To the extent possible, the filter monitors all Internet sites that students attempt to access and blocks inappropriate sites; however, staff warn that no filtering software is 100% accurate and may not block all information that parents find offensive or unsuitable. District staff has therefore urged parents to monitor their children's Internet access while at home.

M-DCPS currently does not require students to take a digital citizenship course; however, digital citizenship resources have been made available to students and teachers via the Digital Convergence initiative. The district's website provides resources to help teachers guide students on using the Internet and social media ethically and responsibly, such as Sample Etiquette-Netiquette Rules, an Online Stranger Danger quiz, and Digital Citizenship Public Service Announcements. Resources and activities can be integrated into classroom instruction as starting points for implementing awareness of digital citizenship. Digital citizenship resources are available at http://digital.dadeschools.net/digital_citizenship.asp.

MOBILE DEVICE TRACKING AND SECURITY

The district uses a web-based system called the Asset Tracking Management System (ATMS) to keep track of tablets and laptops that were issued to students and staff. The ATMS links mobile device serial numbers to student identification numbers. Schools use the ATMS to check out devices to students and to keep track of devices that were sent for repair or reported as lost or stolen. The ATMS will also be used at the conclusion of the school year to check in devices that were issued to students earlier in the school year.

All district-issued devices are etched to identify them as the property of M-DCPS. Additionally, the desktop wallpaper contains the M-DCPS logo and Quick Response code containing the device's serial number. Student mobile devices have been configured to lock if unauthorized users attempt to hack into the device. Attempts to use the device without the proper password authorization will render it unusable, locking all software applications and the operating system.

Students and parents are not permitted to make any alterations to district-issued devices or to add attachments, hardware, or software to devices. Tablets issued by M-DCPS to students in 7th and 9th grades were installed with a program that prevents modification of the devices or installation of additional software. These safeguards make it virtually impossible for students to reconfigure or reimage their district-issued devices.

COMPONENTS OF THE DIGITAL CONVERGENCE INITIATIVE

The Digital Convergence initiative consists of six major components:

1. **Classroom infrastructure.**

   M-DCPS used funds from its November 2012 bond initiative to purchase additional classroom technology at all of its schools. Classrooms that did not have interactive and projection technologies were outfitted with interactive whiteboards and projection systems.

   Approximately 330 schools received classroom infrastructure updates. The district provided schools with Promethean's Active Touch Boards with a soundbar. The boards are 88 inches wide, durable, and use the latest touch technology. The ultra-short throw projectors included as part of this upgrade have longer bulb life.

2. **Digital content.**

Digital content was purchased for classroom instruction and home use, and digital applications were acquired for student work and file storage. M-DCPS preloaded 9th graders' World History digital textbooks onto their mobile devices.

Students are required to save all of their work in the district-provided cloud applications, such as OneDrive or My Big Campus. In order to protect students' privacy, M-DCPS has an agreement with its mobile device provider and with their subcontractors that prohibits them from selling, sharing, or mining student information.

3. **Distribution of mobile devices.**

During the 2013-2014 school year, M-DCPS deployed 9,322 devices to students. During 2014-2015, the district deployed 51,406 devices. All devices were purchased by the district. The district secured a low-interest $63 million loan called a Master Equipment Lease from Banc of America to make the purchase.

Elementary and middle schools implemented an in-school model in which students only used the devices in their classrooms. High schools implemented a take-home model in which students were assigned a mobile device to use at home and in school. High schools were provided with a 5% spare pool of tablets. These devices were used when students forgot their district-issued device at home or when devices were broken.

At elementary schools, students received mobile devices through one of three district programs:
  o M-DCPS distributed laptops and laptop carts to any elementary school that had a student-to-computer ratio higher than 3:1. Schools were given the flexibility to decide at which grade levels laptops would be used. Devices were available for in-school use only.

  o The Connect@Home program provided laptops to fifth grade students at nine high-needs, Title 1 elementary schools. The Connect@Home project used a take-home model - students were able to use laptops at school and at home.

  o Jumpstart, a companion program to Connect@Home, provided laptops to 11 high-needs elementary schools. Laptops were deployed to students in the 3rd through 5th grade using a take-home model.

In middle schools, 7th grade Civics classrooms were given carts of HP Elitepad tablets for in-school use. Initially, high schools received devices for at least 75% of their 9th grade student population, taking into account BYOD student participation. Tablets were provided to all ninth grade students enrolled in World History who opted to check out a district-owned tablet. High school students received a ruggedized case, USB keyboard, USB dongle, and charger, along with their tablets. Selection of grade levels to receive tablets at middle and senior high schools coincided with the adoption of new social

studies materials. Tablets came with Windows 8.1 and were preloaded with the district-adopted social studies textbook and other web tools such as OneNote and OneDrive.

In order to provide all students with equitable educational experiences, all elementary schools received the same make and model of laptop computers. At middle and senior high schools, all 7th and 9th grade students had access to the same brand and model of tablets.

The district imposed an annual technology fee for all 9th grade students who opted to take a tablet home. The fee was used for non-warranty repair and replacement of mobile devices and accessories. During the 2014-2015 school year, the fee was $20 for students on regular price lunch, $10 for students on reduced price lunch, and $5 for students on free lunch.

Students and parents are responsible for any loss or damage to mobile devices (beyond normal wear and tear). Students are expected to return their devices in the same condition in which they were issued. If the mobile device is lost, stolen, destroyed, damaged, or if it is not returned to M-DCPS, parents and students are held responsible for the device's repair or replacement. Students who mistreat the equipment are subject to fines. Students are issued a financial obligation for the cost of the device when they report that a device is broken, lost, or stolen. The *Mobile Device Agreement* signed by students and parents at the beginning of the school year lists the student costs for various repairs, such as a cracked screen, damaged battery, or broken keyboard.

Student devices will be collected during the last two weeks of the school year and will be refreshed by school site technicians for use by the next group of students. Procedures are currently being developed for schools to follow.

4. **Bring Your Own Device program.**

The Bring Your Own Device (BYOD) program allows students to bring their own mobile computing device to school and use it at specified times during the school day. A device is defined as a laptop computer, a smartphone or cellular phone, or any other electronic device that may access the school's network. Examples of the types of devices that can be used are Windows laptops and tablets, Mac laptops, Android tablets, and iPads. Although the BYOD program provides students with access to their personal devices, this access is not guaranteed in every classroom situation. Teachers have the final say on when students can use their devices in the classroom. Participation in the BYOD program is voluntary - students are not required to bring a device to school. Students enrolled in a 7th grade Civics course or a 9th grade World History course have the option of using a personal device or a district-issued device.

Parents were provided with technology specifications for mobile devices to ensure that their children's personal devices would be comparable to district-provided devices. Parents were also given a list of commonly used district applications and the operating system requirements for mobile devices to ensure that BYOD devices would be able to

access district programs. Minimum specifications and commonly used applications and programs are provided on M-DCPS' website (http://wifi.dadeschools.net/minimum_specs.asp).

Students and parents are required to sign a permission form before their children bring their own devices to school. The *Personally Owned Computing/Network Device Acceptance of Responsibility and Device Use Agreement Permission Form* requires parents to acknowledge that the purpose of allowing their children to use their own devices is to participate in teacher-approved activities in support of the M-DCPS curriculum and that use of devices for unrelated activities is prohibited. Students must agree to adhere to the Acceptable Use Policy guidelines and utilize their device only for instructional purposes while at any M-DCPS school or on the M-DCPS network. They must also agree that they will only use the M-DCPS filtered network (not private cellular service) for Internet access while on M-DCPS property. The permission form specifies that M-DCPS is not responsible for personally owned devices that are damaged, lost, or stolen and that parents are responsible for ensuring that devices use security applications to protect them from computer infections and from spreading infections. The permission form is included as Appendix G in M-DCPS' *Mobile Device Project Implementation Guide* (http://digital.dadeschools.net/pdfs/Mobile_Device_Guide_0115 2015.pdf).

5. **District-wide wireless access.**

    Wireless access with BYOD capabilities was completed at all of M-DCPS' schools prior to implementation of the Digital Convergence initiative. M-DCPS allocated $100 million from the General Obligation Bond (GOB) for technology upgrades, including the completion of the wireless system, upgrade of the network backbone, and purchase and installation of interactive boards. The district's bandwidth was updated and increased to 10Gbps. Network equipment was updated in schools and at the network core and wireless coverage was expanded to ensure building-wide and district-wide coverage. All M-DCPS schools now have sufficient bandwidth to support the Digital Convergence initiative and the substantial increase in mobile computing devices.

    Wi-Fi is required for student mobile devices to access the Internet and for other applications. M-DCPS students using district-issued devices had access to M-DCPS' network and the Internet through the district's Wi-Fi. The district also provided free Wi-Fi for students who chose to participate in the BYOD program. In the event that 9th grade World History students who were permitted to take their tablets home did not have access to the Internet when they were not on M-DCPS property, they were still able to access their digital textbooks, which M-DCPS preloaded onto students' devices.

6. **Professional development.**

    Professional development has been provided to teachers from the inception of the Digital Convergence initiative. The training has included best practices, device functionality, software programs, and use of interactive whiteboards. Training enabled

teachers to hone their technology skills and learn strategies for integrating new technologies into classroom instruction.

Principals were trained on digital citizenship on the February 2015 District Professional Development Day and were asked to return to their schools and train their teachers.

ONLINE SURVEY RESULTS

Staff from Assessment, Research, and Data Analysis administered surveys to gather input from Civics and World History teachers and students on the use of digital devices. Seventh grade Civics students and their teachers, and ninth grade World History students and their teachers had an alert posted on their portals with the survey link. The links to the surveys were posted on the Teacher and Student Portals for two weeks. In an effort to boost survey participation, the window for responding to the surveys was then extended for an additional two weeks. It should be noted that response rates, especially among students, were not very high. Therefore, caution should be used when generalizing these results to all Civics and World History teachers and students who participated in the Digital Convergence initiative.

CIVICS

- **Teachers**

  The response rate for Civics teachers was 48%. The vast majority of survey respondents (97%) reported that their students used digital devices in their classrooms for instructional purposes. Of those, 90% of teachers agreed that the use of digital devices in their Civics classrooms served a valuable instructional purpose. Teachers who reported that students in their Civics classrooms used digital devices for instructional purposes stated that students used the devices an average of 4.5 hours per week.

- **Students**

  The response rate for students enrolled in seventh grade Civics classes was 27%. Most respondents (86%) reported that they used a district-issued digital device in their Civics classrooms, while 12% reported using their own personal digital device, and 2% said they did not use any digital device. Of those students who reported using a digital device in their Civics classroom, 55% said they mostly used an electronic textbook on a digital device and 45% said they mostly used a paper textbook. Students reported that they used a digital device in their Civics classrooms an average of 3.2 hours per week.

  Among those students who reported mostly using an electronic textbook on a digital device in their Civics classrooms, 63% said they preferred using the electronic textbook over paper textbooks in other classes, 17% said they preferred paper textbooks, and 20% said they liked electronic and paper textbooks equally.

  Of those students who reported using district-issued digital devices in their Civics classrooms, 87% said they thought their device was valuable to their studies.

<u>**WORLD HISTORY**</u>

- <u>**Teachers**</u>

  The response rate for World History teachers was 37%. Seventy-nine percent of responding teachers stated that they taught both Regular (including Honors) and Advanced Placement World History courses, 13% reported that they taught only regular (including Honors) World History courses, and 8% said they taught only Advanced Placement World History courses. Because the percentages of respondents who reported teaching only regular or only Advanced Placement courses were small, survey results are reported for all respondents combined.

  Most respondents (91%) reported that their students used digital devices in their classrooms for instructional purposes. Of those, 78% agreed that the use of digital devices in the classroom served a valuable instructional purpose. World History teachers who said their students used digital devices in the classroom stated that their students used digital devices for instructional purposes an average of 3.9 hours per week.

- <u>**Students**</u>

  The response rate for students enrolled in ninth grade World History classes was 15%. Over half of responding students (61%) reported that they used a district-issued digital device in their World History classrooms, while 34% reported using their own personal digital device, and 5% said they did not use any digital device. Of those students who reported using a digital device in their World History classroom, 72% said they mostly used an electronic textbook on a digital device and 28% said they mostly used a paper textbook.

  Among students who said they mostly used an electronic textbook in class, 52% said they preferred using an electronic textbook on a digital device to a paper textbook used in other classes, 25% said they preferred a paper textbook, and 23% said they liked electronic and paper textbooks equally.

  Among students reporting that they used a digital device in their World History classrooms, students said they used the device an average of 3.2 hours per week. They also reported spending an average of 3.2 hours per week using a digital device at home to prepare for their World History class.

  Over half of students who responded to the survey (59%) said that they used district-issued digital devices in subjects other than World History. Of those, students said they used the devices in other subjects an average of 4.4 hours per week. They also reported using district-issued digital devices at home to prepare for classes in other subjects an average of 3.7 hours per week.

  Of those students who reported using district-issued digital devices in their World History classrooms, 86% said they thought their device was valuable to their studies. Sixty-three

percent of all respondents said they planned on checking out a district-issued digital device next year, if offered.

LOOKING FORWARD

When asked if M-DPCS experienced any unexpected challenges during implementation of the Digital Convergence initiative, staff in Innovation and School Choice stated:

"Since the project started, district staff has held weekly planning meetings with technology partners continuously for over a year and a half; as much as possible, challenges to the implementation of the initiative were brainstormed and discussed with possible solution scenarios. When devices were distributed, most of the challenges that arose (wireless, student login issues) had been anticipated and dealt with. A couple of unexpected challenges arose regarding access to online textbooks and charging issues. District staff and technology partners visited the school sites to witness the issues first-hand. Solutions were found and information was shared through weekly briefings. Additionally, information regarding challenges and troubleshooting solutions are shared through principal trainings and region office meetings."

The next phase of the Digital Convergence initiative is an expansion of the mobile technology deployment to additional grades and content areas. During the 2015-2016 school year, mobile deployment will focus on 8th grade U.S. History and 10th grade language arts classes.

Additionally, in an effort to build a wider coalition of teachers willing to integrate technology into classroom instruction, the district will be offering mobile devices to select middle school math and science teachers during the 2015-2016 school year. Teachers will receive professional development on how to use the devices in their classrooms prior to the beginning of the school year.

SUMMARY

This report summarized the status of M-DCPS' 2014-2015 Digital Convergence initiative. M-DCPS implemented the initiative in an effort to close the digital divide by ensuring that all students have access to mobile technology and high-speed, reliable Internet service. The initiative involved extensive pre-planning, stakeholder involvement, and partnerships with technology providers. Implementation and security procedures were summarized. The six major components of the Digital Convergence initiative were also reviewed: classroom infrastructure, digital content, distribution of mobile devices, the Bring Your Own Device program, district-wide wireless access, and professional development.

Online surveys were administered to Civics and World History students and teachers. Response rates, especially among students, were not very high, so the results should be interpreted with caution.

The vast majority of respondents reported that students used digital devices in the classroom for instructional purposes. Most teachers and students who responded to the survey agreed that digital devices served a valuable instructional purpose. Most students who responded to the survey said they used a district-issued digital device rather than their own personal device. The

majority of students reported that they liked using electronic textbooks on digital devices more than paper textbooks.

Teachers reported that students used digital devices an average of 4.5 hours per week in Civics and 3.9 hours per week in World History. Students' estimates of the amount of time they used their devices in class were slightly lower (3.2 hours per week in both Civics and World History). Ninth grade students, who were permitted to take district-issued digital devices home with them, reported that they used the devices at home to prepare for World History class an average of 3.2 hours per week.