Evaluation of the Convergence Academies Initiative
Final Report

Rockman et al
Research & Evaluation

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Acknowledgements

About Rockman et al

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Citation for this report: Moylan, A. & Allen, A. (2016). *Evaluation of the Convergence Academies Initiative.* San Francisco, CA: Rockman et al.

CONTENTS

FIGURES AND TABLES

Executive Summary

This report describes impact and implementation findings from a two-year study of the Convergence Academies model, which emphasizes participatory, inquiry learning and schoolwide integration of digital media and technology. The Convergence Academies model was developed and pilot tested in two high need public schools in Chicago, one Pre-K–8 school and one high school. The Convergence Academies initiative was the result of a partnership between the Center for Community Arts Partnerships (CCAP) at Columbia College Chicago and Chicago Public Schools, which received a three-year development award from the Investing in Innovation (i3) program of the U.S. Department of Education's Office of Innovation & Improvement. The initiative strove to improve student achievement in reading and math, increase student knowledge and skills about media and technology, and improve their 21st century competencies and college and career readiness skills.

Rockman et al (REA) conducted an external evaluation of Convergence Academies, studying both impact and implementation during the two years that it was piloted in the two neighborhood schools. The impact study focused on evidence of student improvement on key indicators of achievement and college and career readiness. The implementation study assessed the extent that fidelity of implementation was achieved at each school and it examined how stakeholders perceived implementation and resulting outcomes.

Impact Study

The impact study investigated several confirmatory research questions:

1. Does the implementation of Convergence Academies change the elementary school's average student reading and math achievement levels?

2. Does the implementation of Convergence Academies change the high school's average reading and math achievement?

3. Does the implementation of Convergence Academies change the high school's average 9th grade On Track Rate for graduation?

4. Does the implementation of Convergence Academies change the high school's average graduation rate?

5. Does the implementation of Convergence Academies change the high school's average college enrollment rate?

The impact study involved two sets of analyses—one at the elementary school level with a one-group pre-post design, and another at the high school level with a single interrupted time series design. Neither design included a comparison group since they were the only two schools to test the intervention. In other words, with only one school at each educational level (elementary and high school), possible effects of the

intervention cannot be disentangled from school effects. Standardized tests used in Chicago Public Schools served as our indicators for achievement (elementary: NWEA Measures of Academic Progress, high school: ACT's Educational and Planning Assessment System).

At the elementary school, the evidence pointed to there being statistically significant improvements in reading and math achievement (grades 2–8) after both one and two years of Convergence Academies. After year 1 of Convergence, overall achievement at the high school level in reading and math achievement (grades 9–11) did not improve to a statistically significant extent compared to the extended baseline average. Unfortunately, only 11th grade achievement data was available to investigate effects after two years. The average 11th grade achievement in reading and math after year two of Convergence did not significantly deviate from the extended baseline average.

The CPS On Track Rate is a measurement of whether 9th grade students are on track to graduate high school. Students are on-track at the end of their freshman year if they accumulated at least five course credits and failed no more than one semester course in a core subject. After both one year and two years of Convergence, the freshman on track rate did not significantly deviate from the extended baseline trend. Likewise, there was not a statistically significant deviation from the baseline trend in the school's graduation rate in either year 1 or year 2 of Convergence. Lastly, after one year of Convergence implementation, there was no statistically significant change in the percentage of graduates at the school who subsequently enrolled in a college during the subsequent fall semester compared to an extended baseline average.

Implementation Study

The overriding research question for studying implementation was: *What is the overall level of implementation fidelity?* Formal assessment of implementation with fidelity was guided by a scoring system. The researchers used the system to judge fidelity of implementation for the three key components of the program outlined in the Convergence logic model: the Convergence Academies instructional framework in digital media, professional learning supports, and connected learning supports. Through surveys, interviews, and observations, the researchers examined the extent and quality of implementation, developed understanding about the schools' experiences with the professional development sessions and professional learning communities, learned about the digital media specialists' and integration specialists' support for each school, and investigated improvements in teacher capacity to deliver high quality instruction that integrates technology and digital media into curricula and practices that promote student-centered learning.

As enacted in the two schools, Convergence Academies fundamentally involved three major components. First, the instructional framework of the Convergence model centered on engaging, participatory learning. Teachers were supported to create

opportunities for participatory learning through three programmatic elements: A professional learning cycle that includes the 3 C's (Connect, Create, Consume) and 6 Pillars of Instructional Design (Authentic Participation, Choice of Expression, Collaboration, Critical Response, Iterative Learning, & Play); templates and rubrics for digital media learning units; and guidance on implementing units and tracking student work. Second, through their expertise in connected learning theory, digital media specialists and integration specialists played instrumental roles as coaches for teachers, administrators, and students. Third, as a production-oriented, student-centered space, the Digital Atelier made it possible for small groups of students to both pursue personal interests and passions, and to more fully engage in inquiry-based learning projects that heavily relied upon digital media tools and technology.

Overall, fidelity of implementation was achieved in the Pre-K–8 school during both years of Convergence implementation. At the high school, fidelity fell short on one of the three key components of the intervention, professional learning supports, during both years of implementation. In particular, the school as a whole did not meet the threshold for one of the three fidelity indicators for professional learning supports—adequate teacher attendance at the summer institute. Unfortunately, many of the teachers had conflicting commitments to other professional learning activities during the days preceding each school year. Based upon the perspectives of multiple stakeholder groups, somewhat divided school priorities or a lack of cohesion between major initiatives at times presented a challenge to the implementation of Convergence. However, through the high level of implementation of ongoing professional development sessions and the support from digital learning coaches and integration specialists, there were extensive and important opportunities available to teachers during the year to potentially make up for lost opportunity at the summer institute.

Convergence Accomplishments and Benefits

- Convergence learning opportunities increased engagement and enthusiasm for learning, students became more confident in their learning activities and in what they could create or accomplish, and they also took advantage of new opportunities to pursue their interests.

- Through the professional learning and multiple experiences applying Convergence approaches, teachers made exciting and ambitious advances in offering students challenging, problem-based learning projects that integrate digital media. In both years of implementation, teachers developed and implemented numerous, exciting Convergence learning units integrated with digital media for their students. These projects built on students' interests and experiences to engage them in fun, memorable learning experiences and impressive outputs that fostered student pride and self-efficacy. Key features of these projects typically involved sustained inquiry, authentic/real world challenges, student choice and voice, and embedded opportunities for feedback and reflection.

- Gains in confidence over time encouraged teachers to provide leadership to others about the new practices they were learning through Convergence Academies. Some teachers collaborated together with the aid of online digital platforms to create broad, interdisciplinary Convergence projects that engaged students across the school day as they moved from class to class. Teachers enjoyed the exchange of expertise and felt energized by the deep collaboration with their peers.

- Students in the Convergence Academies used digital tools and platforms to facilitate collaboration and communication and to self-regulate their learning. Through the learning process, students improved their abilities to cyclically pre-plan, self-monitor project implementation, and reflect on progress. With the support of the digital media and integration specialists, teachers developed assessment rubrics that further encouraged students to push their expectations of what they could accomplish. New competencies in self-regulation supported students in taking risks in confronting new, difficult tasks such as interviewing adults from their community. Students continued to envision possibilities for building on their learning and work products.

- The Digital Atelier provided access to advanced digital media tools for challenging, engaging projects, and they created opportunities for students to connect formal and informal learning activities. The Atelier also served as a professional learning space for teachers where they learned about new digital tools and production processes and collaborated with one another on designing Convergence units. Over time, teachers enhanced their confidence in using the Atelier as an instructional space.

Chapter1: Introduction

In 2012, the Convergence Academies project of the Center for Community Arts Partnerships (CCAP) at Columbia College Chicago was awarded a development grant from the Investing in Innovation Fund (i3) of the U.S. Department of Education. As the independent evaluator for the Convergence project, Rockman et al (REA) conducted both an impact study and an implementation study. The Convergence project collaborated closely with Chicago Public Schools (CPS) to implement a whole-school reform model that centers on integrating digital media arts and technology throughout the school following a connected learning approach and with a heavy emphasis on inquiry based learning.

A key component of the Convergence model is a developmentally scaffolded framework for integrating digital media learning into curriculum design and unit planning that aligns with the Common Core State Standards (a model of the Convergence framework is provided in Appendix D). A variety of professional development activities (one week summer institute, monthly modified lesson study sessions, grade level learning community meetings) and onsite 1:1 coaching from artists support teachers in their efforts to integrate digital media learning inside and outside the classroom, including in specially designed digital "atelier" spaces (or maker spaces) that were infused with technologies for hands-on learning. Digital media coaches and teachers create and implement project-based units that infuse digital media into core academic coursework using an instructional framework involving six pillars: collaboration, authentic participation, choice of expression, critical response, and iterative learning.

Over two school years, the project implemented Convergence Academies (CA) at two high need public schools in Chicago, one Pre-K–8, Morrill Math & Science Specialty School, and one high school, Tilden Career Community Academic High School. The goals of the project were to increase student achievement, particularly in reading and math; increase student knowledge and skills about media and technology; and to improve students' 21st century competencies and college and career readiness skills, including media literacy, critical thinking, and collaboration.

Research Design and Methods

Sample

The two schools receiving the intervention were recruited by the CCAP team from a pool of persistently low-performing schools in the CPS district that match several criteria, including the possession of an adequate infrastructure to support the information technology needs of the project, which involves providing access to students and teachers to digital media hardware and software. The school leaders and

teachers also had to demonstrate a high level of readiness and commitment to implementing the convergence academy, as assessed through an extensive application process involving an initial written application. For a smaller pool of sites invited to continue beyond the first phase, there were multiple site visits and school site teachers participated in a brief participatory workshop. Selected sites had to demonstrate an adequate level of principal and teacher buy-in—as demonstrated by at least 85% of teachers through a survey—and must complete a memorandum of understanding. All educators at the two sites were recruited for the study and there were no exclusion criteria. There was no *selection* of students for participation in the outcome evaluation. Since the analysis was based on school level means for multiple years, the aggregated scores of all students grades 3–12 with test scores (on ISAT assessment for grade 3–8 students and on EPAS assessments (EXPLORE-9, PLAN-10, and ACT-11/PSAE) for high school students) were included in the study.

Research Questions

The impact study addressed five major research questions:

1. Does the implementation of Convergence Academies change the elementary school's average student *reading* and *math* achievement levels?

2. Does the implementation of Convergence Academies increase the high school's average *reading* and *math* achievement?

3. Does the implementation of Convergence Academies change the high school's average graduation rate?

4. Does the implementation of Convergence Academies change the high school's average college enrollment rate?

5. Does the implementation of Convergence Academies change the high school's average 9th grade On Track Rate for graduation?

Key research questions for the implementation study included the following:

1. What is the extent and quality of implementation across grades and classrooms?

2. What are the key features of the logic model and other project models?

3. What is the level of participation in and perceived value of the project's professional development and the professional learning communities?

4. How well is the teacher-digital media mentor model scaled across each grade?

5. Is there an increase in teacher capacity to deliver high quality instruction that integrates technology and digital media into curricula and practices that promote student-centered learning?

Impact Study

This section of chapter 1 outlines the design, measures, and analytic approaches for the two-year impact study of Convergence Academies.

Design

The impact study investigated the extent that Convergence Academies (CA) had an effect on student achievement in reading and mathematics for all students in grades 3–11 and on college readiness of all 9th and 12th graders after exposure. The study included both schools where Convergence was implemented during the i3 grant period. The study employed a short interrupted time series (SITS) design with no comparison group to investigate the impact of the Convergence model, with the exception of a pre-post design to examine the newly administered achievement tests for grades 3–8. The use of an extended baseline phase and posttest phase can produce a more stable estimate of pre-implementation levels of student achievement than a simple pre-post design. The design did not include a comparison group since there was only one school at each level (elementary and high school) implementing the intervention, resulting in a confound in which any observed effects cannot be disentangled from the effects of school (i.e., an N=1 problem).

Measures

All measures for the impact study involved school-level extant data about student outcomes. There was no state achievement test for grades Pre-K–2 or grade 12. The Illinois Standards Achievement Test (ISAT) was the state test for elementary students in grades 3–8, but the test was discontinued during the study, so the examination of elementary achievement relied upon the NWEA MAP test performances, which became the required annual achievement test in CPS in 2013. Reading and math achievement for high school students in grades 9–11 was examined using test scores from the Educational Planning and Assessment System (EPAS), which involves 3 different assessments, one for each grade: the EXPLORE-9, PLAN-10, and ACT-11. The EPAS tests are aligned to the ACT College Readiness Standards, are designed to measure learning growth from year to year, and are reported as composite scaled scores. Changes in educational attainment among 12th graders were assessed by graduation and college enrollment rates, while educational attainment of 9th graders was tested with the CPS On Track Rate metric. According to CPS, freshman students are on-track for graduating from high school if they accumulated at least five course credits and failed no more than one semester course in a core subject (English, math, social science, or science) during the school year.

Analyses

Two levels of analyses were conducted, one for elementary grades (3-8) and one for high school (9-12). To combine school and grade level mean scores on the standardized tests, REA acquired the school-level test means for each grade by year.

Norming data from national studies (no state level norms were available) of the achievement tests were used to compute a z-score for each test per grade. The standard score of a raw score x is:

$$z = \frac{x - \mu}{\sigma}$$

Where: x = school mean
           μ = state mean score for the specific grade
           σ = standard deviation for the national level distribution of scores for a specific grade

The within-year score for each time point (i.e., each year) will be an average of the z-scores across grades 3–8 for elementary and 9–12 for high school.

Our basic regression model was:

$Y_i = \beta_0 + \beta_1 Post + e_i$, where

Y_i is the mean school-level score (e.g., aggregated across grades) in year i;

β_0 is the mean of the average scores in the years before implementation;

$Post_i$ equals 1 if Convergence Academies is implemented in year i, zero otherwise; and

e_i is the random error, the difference between the actual and predicted school means in year i.

Implementation Study

During both school years of the Convergence Academies initiative, REA studied the intervention as conducted. The primary purpose of the research was to investigate the fidelity of implementation for all key components of the intervention. The study also explored the influence of Convergence on intermediate outcomes and school culture overall, as depicted in the logic model (see Figure 1).

Logic Model

The logic model of the Convergence Academies identifies expected outcomes for students, teachers, and the collective school culture. These are divided into intermediate and final outcomes. At the intermediate level, the proximal outcomes specified for teachers are that they will (a) increase skills to integrate digital media, and

Figure 1. Convergence Academies Logic Model

Convergence Academies Logic Model

Convergence Academies
Connect · Consume · Create

Key Components
Inputs

Key Elements of Components
Activities

Outcomes

Short-term | Intermediate | Final

CA Instructional Framework

- Professional Learning Cycle (Six Pillars, 3 Cs)
- Unit Plan Template/Rubric
- Documentation Guide

Teachers increase ability to design student-centered learning experiences and curricular units.

Professional Learning Supports

- Teacher Summer Institute
- Formal PD Sessions
- Informal mentoring by digital learning coaches

Teachers increase ability to integrate digital media into instructional practices

Students increase engagement in their own learning

Students increase knowledge and skills in media/text analysis and creation.

Students increase achievement in reading and math

Students increase readiness for college and careers

Students graduate from high school and enroll in college

Connected Learning Supports

- Digital Atelier design
- School community blogs
- School leadership meetings
- Strategic partnerships

Schools increase capacity to establish a connected learning environment*

* A connected learning environment is one where schools connect academic knowledge with student interests and peer networks

(b) increase student-centered teaching practices. The intermediate level outcomes for students are that they will (a) increase engagement in their learning, and (b) increase knowledge and skills in media creation and analysis. Final/distal outcomes for students are: (a) students will increase reading and math achievement, (b) students will increase readiness for college and careers (which includes achievement of benchmarks in reading and math), and (c) students will graduate from high school and enroll in college. Lastly, it was expected that the Convergence intervention would influence the school culture's support for its community of learners to be measured by self-report instruments administered by CPS to students and educators. The impact study focused on testing changes in the student outcomes, while changes in school culture were studied within the implementation study.

Measurement of Fidelity of Implementation

In comprehensive school reform research, the level of implementation fidelity is commonly a primary determinant of whether a particular model positively impacts student achievement. In collaboration, REA and CCAP developed a system for measuring fidelity that allows for a single measure of fidelity of implementation of the intervention (see Fidelity Matrix in Appendix A). It aligns with the key components of the logic model, specifying the essential constructs and corresponding indicators. Values and thresholds for adequate implementation are also in the matrix. Systematic measurement of program implementation relied heavily on quantifiable outputs, such as the number of professional development participation hours; however, for the overall implementation study, the quality of implementation was also of interest and important to answering research questions. Both the plan for measuring fidelity and the research questions evolved over time as the evaluators and project staff members developed understanding about the intervention.

Data Sources

There were multiple sources of data used in the implementation study. Our primary assessment of implementation fidelity relied upon the indicators and scoring system specified within the fidelity matrix (see Fidelity Matrix). The sources for data listed in the matrix primarily involved records, such as attendance records and logs of project staff about their support of teachers. Plans for the timing of data collection and additional details are within the fidelity matrix.

As an accompaniment to the systematic measurement of implementation represented in the fidelity matrix system, there were several other key measures in the implementation study (see Table 1). Surveys and interviews provided the richest data for learning about the experiences of stakeholders at each school site. Direct site observations by REA researchers informed the development of surveys and interview protocols as well as advanced understanding about implementation in and outside the classroom. The Digital Atelier offered an autonomous digital media space for students to work on their

projects, and so it provided an important setting to learn how digital media was being used outside the formal classroom.

Student Survey. The evaluation included baseline and end-of-year surveys administered to students at both Convergence Academies to assess possible changes in students' perceptions about themselves and about school, and about their behaviors related to school and their use of digital media and technology. Convergence sought to increase student engagement in learning, to increase student knowledge and skills in media creation and analysis, and to enhance the school culture.

Table 1. Implementation Study Measures and Methods

Measure	Methods
Teacher experience with professional development and coaching/in-school support	Teacher survey Teacher focus group Principal interview
Teacher confidence to integrate technology and digital media	Teacher survey Teacher focus group Principal interview
PD attendance	Record review
PD content and process	Observation and review of materials
K-12 digital media learning curriculum development	Review curriculum materials and tracking data Teacher focus group Teacher team observations
Curriculum implementation	Teacher survey Teacher focus group Principal interview

The format of the surveys involved rating items with Likert agreement scales and frequency scales. There were multiple versions of the student survey that reflected different grade level spans: grades K–1, 2–3, 4–7, 8, and 9–12. The younger grades tended to have fewer items and the wording of items across all versions varied to aid readability. In addition, Spanish forms were available for the grade 2–3 and 4–7 versions. Students across grades K–12 at the Convergence Academies completed surveys initially in the Fall of 2013 to establish baseline measurements, and again at the end of spring 2014 and spring 2015. The K–1 version was not administered a third time.

Teacher Survey. Teachers at Morrill and Tilden responded to baseline and end-of-year surveys. These surveys assessed self-efficacy towards digital media, perceived value of

digital media, and frequency of digital media integration within classrooms. Brief descriptions of the three teacher scales follow.

Teacher Self-Efficacy for Digital Media Integration

A scale of 32 items was used to assess teachers' self-efficacy for digital media integration. Teachers were prompted: How confident are you that you can do each of the following activities? The 4-point response scale was as follows: *(1) Not at all confident, (2) Somewhat confident, (3) Confident, (4) Very confident. Two example activities were*: 'Design curriculum to use digital media tools to enhance content, instruction, and student engagement'; and 'Choose digital media tools and technologies that enhance lesson content'.

Perceived Value of Digital Media Integration

A set of 9 rating items was used to measure the perceived value of digital media integration among teachers. Teachers were asked: How important are each of the following activities? The 4-point response scale was as follows: *(1) Very Unimportant, (2) Unimportant, (3) Important, (4) Very important.* Example items included: 'Using digital media for improving student achievement', and 'Designing constructive opportunities for students to make mistakes'.

Frequency of Digital Media Integration

The frequency of teachers' integration of digital media into their practice was assessed with a set of 21 rating items. For one subset of items, teachers were prompted to 'Indicate how often you do the following activities'; while for the other subset of items teachers were asked: 'How often do you use digital media and technology to facilitate student learning in each of the following ways?'. Both subsets of items were rated on a 4-point response scale: *(1) Never, (2) Sometimes, (3) Fairly Often, (4) Frequently. An example item for the first subset was* 'Incorporate digital media into lesson plans'. An example for the second subset was 'Facilitate group collaboration and structure'.

Focus Groups. REA conducted separate focus groups with students and teachers at both Morrill and Tilden in the spring of 2014 and 2015. In this report, we share findings gathered at the end of the initiative in 2015. Focus group questions for teachers covered curriculum unit planning, support and implementation, professional development, and student engagement and impact. Questions for students focused on experiences with Convergence units, digital media and digital media tools, motivation to learn, and the school's climate and culture.

Site Observations. The site observations at the Convergence Academies included classroom observations to gather insights about the implementation of Convergence instructional units. REA observed and documented the Convergence Academies professional learning activities, unit planning and implementation, and looked for trends

in the use of digital media in learning tasks, student and teacher engagement, and the structure and interactions in the classroom.

Principal Interviews. At the end of the second school year of implementation, REA interviewed the principal at each school to learn about their perspective of the initiative. The high-level topics for the interviews were:

- Overall impressions of the initiative's implementation and impact at their school

- Priorities for their school

- Most important outcomes of the initiative

- Specific supports of the initiative that were aimed at improving reading and math learning

- Observed and anticipated impacts on students for specific areas (e.g., student engagement, knowledge and skill in digital media creation and analysis, collaboration and communication)

- Access and use of digital media tools and technology

- Independent learning opportunities involving digital media and technology through the Digital Atelier and other means

- Expectations for sustained efforts at the school

- Suggestions for improving Convergence Academies

Chapter 2: Impact Findings

Achievement

Morrill

To understand the one- and two-year impacts on achievement at the Convergence Pre-K–8 school, we examined pre-post scores for the district-mandated NWEA Measures of Academic Progress (MAP) Tests. The NWEA MAP in reading and mathematics (grades 2-8) are computer-adaptive tests required each Spring in grades 2–8 by CPS since 2013. The district uses these scores to compare achievement in reading, math, and other subject areas from year-to-year.

To aid interpretation of test results, average scale scores for reading and math are shown in Tables 2 and 3 and Figures 2 and 3. However, to statistically compare baseline and post-intervention scores in reading and math on the MAP, we used data from a NWEA 2011 norming study[1] (see Table 4) to compute z-scores for Morrill's grade-level scores (see Tables 5 and 6). There were no state-level MAP scores since it is not a state-mandated assessment, so we relied upon national norms. We conducted separate paired samples t-tests of the reading and math averages across grades.

Table 2. Average Convergence Reading Achievement by Grade, Grades 2–8

Grade	2013 Baseline		2014 Year 1		2015 Year 2	
	n	*M*	*n*	*M*	*n*	*M*
Grade 2	38	166.9	55	176.4	52	181.8
Grade 3	62	193.4	54	193.7	84	195.3
Grade 4	82	196.7	66	203.0	69	210.3
Grade 5	72	208.0	72	205.5	72	210.1
Grade 6	74	206.5	64	212.8	71	207.8
Grade 7	70	211.3	71	212.8	67	216.4
Grade 8	57	210.5	64	220.7	73	220.0
Grade 2–8	455	199.0	446	203.6	488	206.0

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[1] Northwest Evaluation Association. (2011). *RIT Scale Norms: For Use with Measures of Academic Progress (MAP®) and MAP® for Primary Grades.* Portland, OR: Author.

Table 3. Average Convergence Math Achievement by Grade, Grades 2–8

Grade	2013 Baseline		2014 Year 1		2015 Year 2	
	n	M	n	M	n	M
Grade 2	38	174.9	52	181.2	52	182.0
Grade 3	61	197.4	54	202.4	84	203.0
Grade 4	81	204.0	66	210.0	69	219.2
Grade5	71	215.5	72	216.0	72	219.8
Grade 6	75	217.8	64	224	71	220.3
Grade 7	77	218.7	71	224.7	67	228.7
Grade 8	57	223.3	64	230.9	73	230.5
Grade 2–8	460	207.4	443	212.7	488	214.8

Figure 2. Average Convergence Reading Achievement by Grade, Grades 2–8
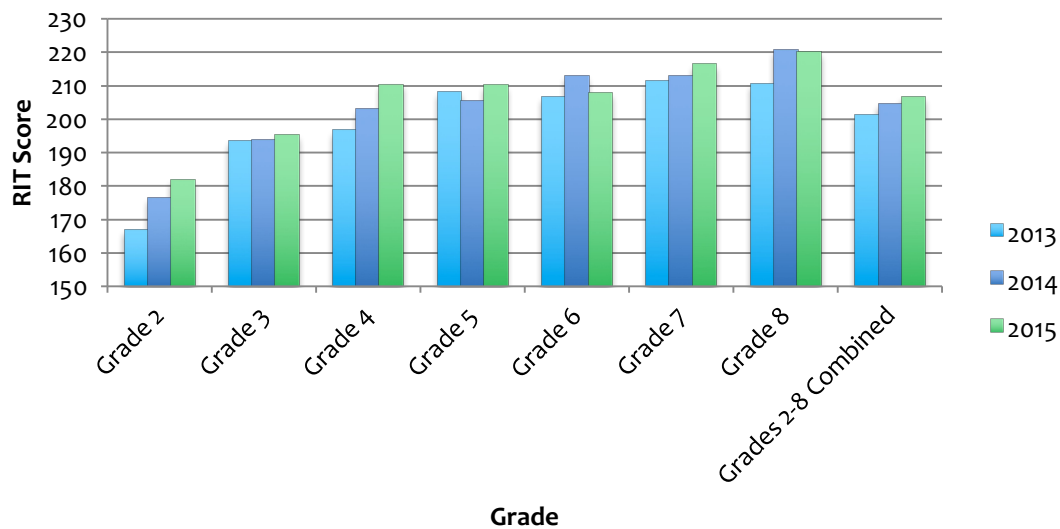
Figure 3. Average Convergence Math Achievement by Grade, Grades 2–8
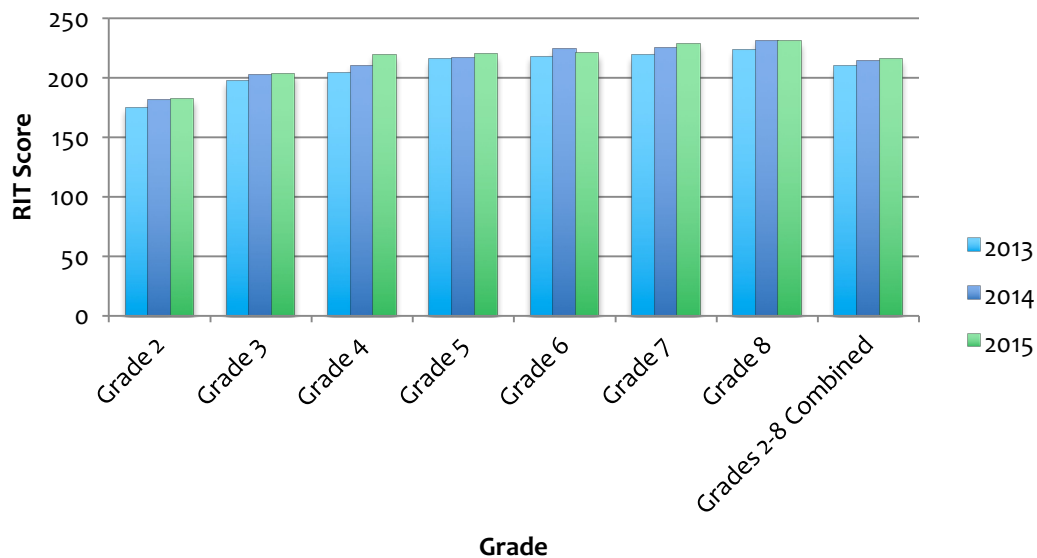
For the MAP reading test, cross-grade averages significantly increased from a z-score of -.7148 measured during the prior spring to -.4071 in the spring of Year 1 of the Convergence initiative ($t_{(6)}$=2.483, *p*=.048). The negative z-scores indicate that the values fell below the national means. For example, a z-score value of -1 is one standard deviation below the mean. Thus, the MAP reading average at Morrill across grades 2–8 was over one-half standard deviation lower than the national average prior to Convergence. However, after Year 1 of Convergence, average reading performance had risen to within a half standard deviation below the national average (standardized effect size = .94). After Year 2, the cross-grade average MAP scores in reading had significantly increased further from baseline ($t_{(6)}$=3.9193, *p*=.019; effect size = 1.21).

Compared to the improvement in reading achievement, there was an even larger improvement in math achievement on the MAP from spring 2013 (baseline) to spring 2014 (Year 1), moving from an average z-score of -.6455 to -.2872 ($t_{(6)}$=6.248, *p*=.001; effect size = 2.36). After two years of the Convergence initiative, the cross grade average MAP scores in math had significantly increased further from baseline ($t_{(6)}$=4.485, *p*=.004; effect size = 1.70).

Table 4. NWEA 2011 Norming Study Spring Test Norms

	Reading		Math	
	M	*SD*	*M*	*SD*
Grade 2	189.6	14.9	191.3	12.5
Grade 3	199.2	14.4	203.1	13.0
Grade 4	206.7	14.1	212.5	14.1
Grade 5	212.3	14.3	221.0	14.8
Grade 6	216.4	14.6	225.6	16.0
Grade 7	219.7	14.3	230.5	17.5
Grade 8	222.4	14.8	234.5	17.7

Source: Northwest Evaluation Association. (2011). RIT Scale Norms: For Use with Measures of Academic Progress (MAP®) and MAP® for Primary Grades. Portland, OR: Author.

Table 5. Z-scores for Convergence Reading Achievement by Grade, Grades 2–8

Grade	Baseline (2013)	Year 1 (2014)	Year 2 (2015)
Grade 2	-1.523489933	-0.88590604	-0.523489933
Grade 3	-0.40221914	-0.381414702	-0.270457698
Grade 4	-0.710227273	-0.262784091	0.255681818
Grade 5	-0.301754386	-0.477192982	-0.154385965
Grade 6	-0.678082192	-0.246575342	-0.589041096
Grade 7	-0.585774059	-0.481171548	-0.230125523
Grade 8	-0.801886792	-0.114555256	-0.161725067
M	-.7148	-.4071	-.2391
SD	.1502	.0942	.2776
n	7	7	7

Table 6. Z-scores for Convergence Math Achievement by Grade, Grades 2–8

Grade	2013 Baseline	2014 Year 1	2015 Year 2
Grade 2	-1.310951239	-0.807354117	-0.743405276
Grade 3	-0.438799076	-0.053887606	-0.007698229
Grade 4	-0.60455192	-0.177809388	0.476529161
Grade5	-0.370869858	-0.337154417	-0.08091706
Grade 6	-0.486284289	-0.099750623	-0.33042394
Grade 7	-0.673131774	-0.33086138	-0.102681118
Grade 8	-0.634201586	-0.20385051	-0.226500566
M	-.6455	-.2872	-.1450
SD	.3133	.2528	.1389
n	7	7	7

Tilden

The Educational Planning and Assessment System (EPAS) series of linked tests measure college readiness in terms of academic preparation in several domains, including reading and math. The EXPLORE is administered to 9th graders in the Fall, the PLAN is administered to 10th graders in the Spring and the ACT is administered in the Spring to 11th graders. Together, these tests assess academic progress and college readiness from year to year. Unfortunately, CPS did not release the 2015 Explore and Plan test scores because the administered tests had been previously released to students by NWEA as practice tests, thus invalidating the tests. Achievement outcomes for the high school level were therefore limited to grades 9–11 for Year 1 and to only grade 11 for Year 2 (see Tables 7–10 for average scores, including z-scores, by year and test/grade level).

Table 7. Average Convergence Reading Attainment, Grades 9–11

Test	Baseline						Year 1 2014	Year 2 2015
	2009	2010	2011	2012	2013	Avg.		
Explore	11.1	11.7	11.1	10.6	12.6	11.4	11.2	NA
Plan	12.9	12.6	12.9	13.0	13.4	13.0	14.1	NA
ACT	13.6	14.3	13.0	12.7	14.5	13.6	15.0	14.5
Avg.	12.5	12.9	12.3	12.1	13.5	12.7	13.4	

Explore: grade 9, Plan: grade 10, ACT: grade 11
NA = Data not available

Table 8. Average Convergence Math Attainment, Grades 9–11

| Test | Baseline | | | | | | Year 1 2014 | Year 2 2015 |
	2009	2010	2011	2012	2013	Avg.		
Explore	11.1	11.7	12.8	11.8	13.5	12.1	12.5	NA
Plan	12.8	12.7	12.8	13.1	14.3	11.4	11.2	NA
ACT	15.2	15.2	15.0	15.0	15.7	15.2	15.2	15.0
Avg.	12.5	12.9	13.0	12.5	13.7	12.9	13.0	

NA = Data not available

Table 9. Z-scores for Convergence Reading Attainment, Grades 9–11

| Test | Baseline | | | | | | Year 1 2014 | Year 2 2015 |
	2009	2010	2011	2012	2013	Avg.		
Explore	-1.0238	-0.8810	-1.0238	-1.1429	-0.6667	-0.9476	-1.0000	NA
Plan	-0.7917	-0.8542	-0.7917	-0.7708	-0.6875	-0.7792	-0.5417	NA
ACT	-1.3750	-1.2583	-1.4750	-1.5250	-1.2250	-1.3717	-1.1417	-1.2250
Avg.	-1.0635	-0.9978	-1.0968	-1.1462	-0.8597	-1.0328	-0.8944	

NA = Data not available

Table 10. Z-scores for Convergence Math Attainment, Grades 9–11

| Test | Baseline | | | | | | Year 1 2014 | Year 2 2015 |
	2009	2010	2011	2012	2013	Avg.		
Explore	-1.4444	-1.2778	-0.9722	-1.2500	-0.9444	-1.1778	-1.0556	NA
Plan	-1.3830	-1.2553	-1.3830	-1.4894	-1.0638	-1.3149	-1.3617	NA
ACT	-1.2677	-1.2677	-1.3071	-1.3071	-1.1693	-1.2638	-1.2677	-1.3071
Avg.	-1.3650	-1.2669	-1.2208	-1.3488	-1.0592	-1.2522	-1.2283	

NA = Data not available

A baseline means regression model was used to examine post Year 1 scores in comparison to the extended baseline scores. Specifically, multiple regression was used to predict post-year status and grade level.

$$\hat{Y} = \beta 0 + \beta 1\, postyear + \beta 2 grade9 + \beta 3 grade10 + \varepsilon$$

In the test for impacts on reading achievement after one year (see Table 11), postyear status (1=postyear 1, 0=baseline year) was not a significant predictor of test scores (t=1.6000, p=.132). The overall regression model was found significant ($F_{(3,14)}$=20.180, p < .001), with an R^2 of .812; thus, accounting for over 80% of the variance in EPAS reading test scores. Both grade 9 status and grade 10 status were significant predictors of reading score (t=4.777, p<.001; t=7.524, p<.001).

Table 11. Descriptive Statistics for Year 1 Reading Achievement: Tilden

Time	n	M	SD
Baseline	15	-1.0	0.3
Post year 1	3	-0.9	0.3

For EPAS math scores, we used the same regression approach, and again did not find support for an effect of one year of treatment on test scores (see Table 12). The regression model for math test scores was not significant ($F_{(3,14)}$=1.273, p=.322), with an R^2 of .214, and all three predictors were not significant (postyear: t=.251, p=.806; grade9: t=1.237, p=.236; grade10: t=-.673, p=.512).

Table 12. Descriptive Statistics for Year 1 Math Achievement: Tilden

Time	n	M	SD
Baseline	15	-1.3	0.2
Post Year 1	3	-1.2	0.2

To test impacts on achievement after two years of Convergence, a simple linear regression model was used since the only Year 2 test scores were for the 11th graders. Table 13 shows the average scores for grade 11 at baseline and at the end of Year 2. For reading scores, the model did not fit the data ($F_{(1,4)}$=1.046, p=.364, with an R^2=.207. Year 2 status was not a significant predictor of reading scores (t= 1.023, p=.364). Likewise, for math achievement after two years of Convergence, the model did not fit the data ($F_{(1,4)}$=.492, p=.522, with R^2=.110. Year 2 status not a significant predictor of math test scores (t=-.7015, p=.522). In summary, our analyses of test scores in reading and math for Tilden did not find statistically significant effects of Convergence after either one or two years of implementation.

Table 13. Descriptive Statistics for Year 2 Reading and Math Achievement: Grade 11

		Reading		Math	
Time	n	M	SD	M	SD
Baseline (grade 11)	5	-1.4	0.1	-1.3	0.1
Post year 2 (grade 11)	1	-1.2	-	-1.3	-

College Readiness and Attendance

To assess possible changes in college-readiness among high school students in the Convergence Academies initiative, we examined Tilden's progress on three indicators used by CPS to track college-readiness. Specifically, we examined the freshman on-track rate (FOT), the annual high school graduation rate, and the average number of students who enroll in college the fall after graduation. In addition, we also explored attendance rates over time at Tilden.

Freshman On-Track

The FOT indicates the percentage of first-time freshman students that are on-track to graduate high school. At the end of the 9th grade, a student is considered on-track if they have earned at least five credits and failed no more than one semester of a core subject course that year.

To examine on-track rates at Tilden, we relied on the FOT data that CPS calculated in 2015 using a new method designed to increase accuracy. This data went back to the 2010–2011 school year. As can be seen in Figure 4, there has been considerable fluctuation from year-to-year in the on-track rates. Compared to the three-year average before Convergence, there was an increase by the end of Year 1 of over 10 percentage points in 9th graders being on-track to graduate. Unexpectedly, the FOT rate declined from Year 1 to Year 2, but the rate still showed gains over baseline average. However, regression tests showed there to be no statistically significant changes in FOT in either Year 1 or Year 2 when compared to the baseline average.

Figure 4. Freshman On Track Rate at Tilden Overtime
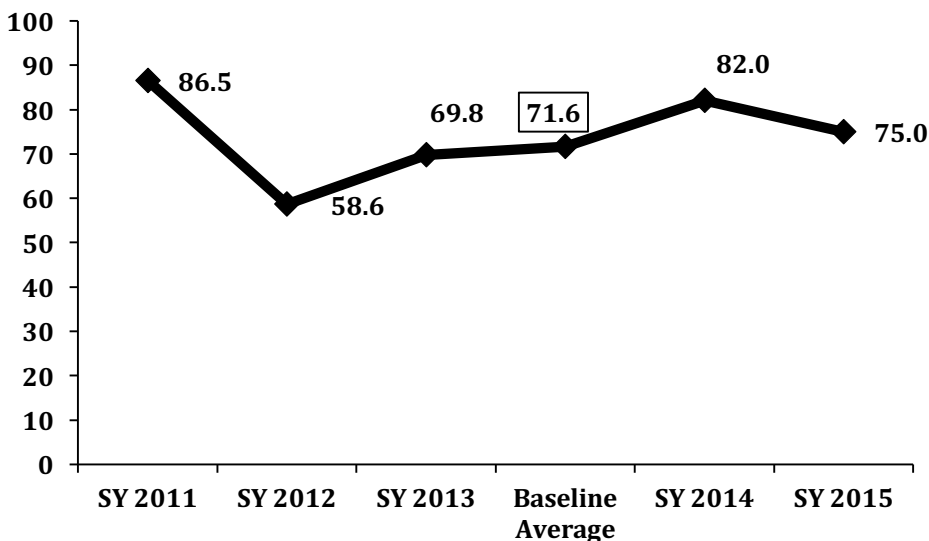
Graduation Rate

In CPS, one of the ways that the district monitors graduation rates by calculating the percent of first-year 9th graders who graduate within five years. To investigate possible changes in graduation rates during the Convergence initiative, we relied upon data that CPS calculated using a new 2015 method designed to more accurately verify out-of-district transfers. Verified out-of-district transfers are removed from the ninth grade cohort. The five-year cohort graduation rate divides the number in the adjusted ninth grade cohort that graduate within five-years by the total number within the cohort.

Figure 5 shows that the graduation rate at Tilden improved by about 10 percentage points from roughly 43% to 53% after Year 1 of Convergence. After Year 2, there was an additional increase of almost 2 percentage points. However, regression analysis showed that changes in graduation rates between baseline and either post year were not statistically significant.

Figure 5. Five-Year Cohort Graduation Rate: Tilden
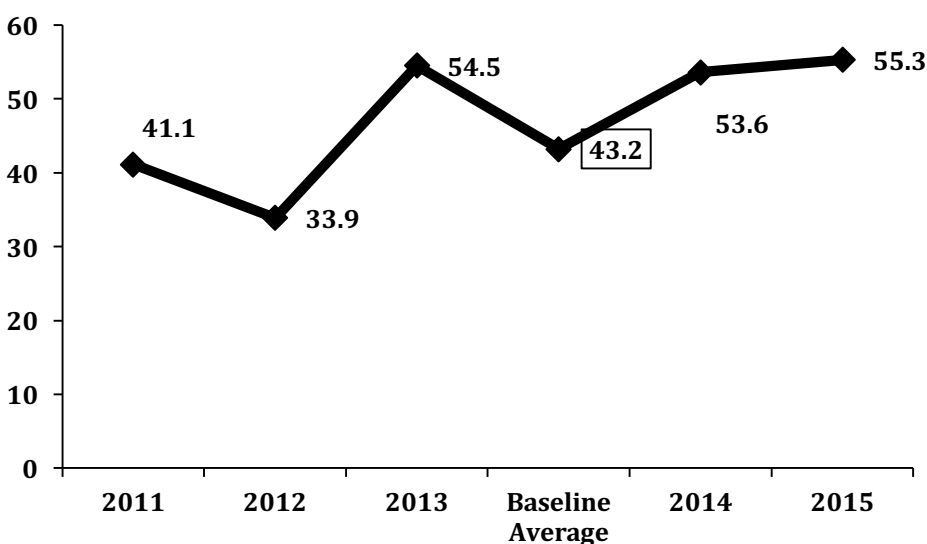
College Enrollment

Due to delays in the availability of college enrollment data, only Year 1 college enrollment rates were available for analysis. The college enrollment rate is the percentage of graduates enrolled in a college by the fall of their graduating year. For example, a 2014 graduate is a student who graduated between October 1, 2013 and September 30, 2014.

The four-year average at Tilden before Convergence was 35%, but the rate after Year 1 increased to 40% (see Figure 6). Regression analysis revealed no statistical difference

between baseline and Year 1 enrollment rates. Notably, the rate in SY 2013 immediately prior to Convergence was also approximately 40%.

Figure 6. College Enrollment: Tilden
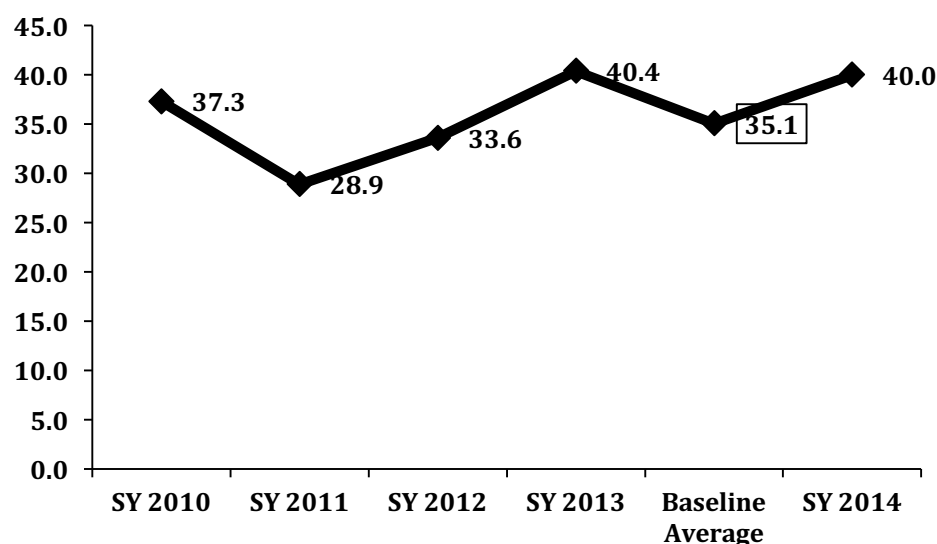
Attendance

Attendance data available from CPS extended back to 2003. Attendance rates at Tilden increased from the extended baseline average of about 74% to about 81% both in Year 1 and in Year 2 (see Figure 7). While the rate in Year 1 to Year 2 remained essentially the same, the stability in attendance contrasts with the observed fluctuations from year-to-year observed at Tilden during the years prior to the Convergence initiative. Regression analysis revealed no statistical difference between the baseline attendance rate and either Year 1 or Year 2 attendance rates.

Figure 7. Attendance: Tilden
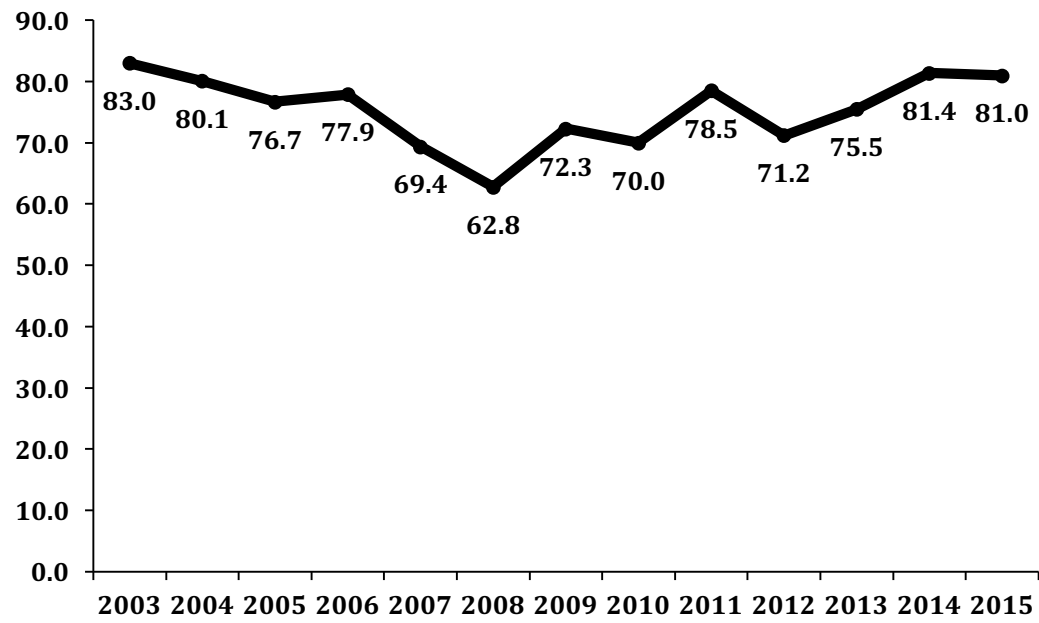
Chapter 3: Implementation Findings

Chapter 3 discusses the implementation of the Convergence Academies as it was conducted over two school years (2013–2014 and 2014–2015) and provides findings for fidelity of implementation.

Overview

Through the Convergence Academies initiative, extensive professional learning sessions and coaching helped K–12 teachers to develop and apply connected learning opportunities in their schools. To accomplish this, the innovative model has implemented three key components:

- The instructional framework for the Convergence model centers on engaging, participatory learning. Teachers were supported to create opportunities for participatory learning through CCAP's implementation of three programmatic elements: 1) a professional learning cycle that includes the 3 C's (Connect, Create, Consume) and 6 Pillars of Instructional Design (Authentic Participation, Choice of Expression, Collaboration, Critical Response, Iterative Learning, & Play); 2) templates and rubrics for digital media learning units; and 3) guidance on implementing units and tracking student work.

- Through their expertise in connected learning theory, digital media specialists and integration specialists played instrumental roles as coaches for teachers, administrators, and students.

- As a production-oriented, student-centered space, the Digital Atelier made it possible for small teams of students to both pursue personal interests and passions, and to more fully engage in inquiry-based learning projects that relied heavily upon tools and resources in digital media.

At both Tilden High School and Morrill Elementary, Convergence learning opportunities increased engagement and enthusiasm for learning, and students became more confident in their learning activities and in what they could create or accomplish. The observed examples of students sharing their work with peers and receiving peer feedback highlighted the kinds of important characteristics of connected learning supported through the initiative.

As a Convergence Academy, Morrill teachers made exciting and ambitious advances in offering students challenging, problem-based learning projects that integrate digital media. These projects built on students' interests and experiences to engage them in fun, memorable learning experiences and impressive outputs that fostered student pride and self-efficacy. Key features of these projects typically involved sustained inquiry, authentic/real world challenges, student choice and voice, and embedded opportunities for feedback and reflection. Morrill teachers also made large gains in curriculum

mapping across grade levels. These mapping efforts provide a robust framework for both veteran and new teachers to increase the school's capacity for coordinated, intentional instruction across grade levels.

Over the two years of the project, Morrill teachers developed and implemented numerous, exciting Convergence learning units integrated with digital media for their students. The projects spanned multiple months and embodied an iterative approach to how they developed over time. One particularly powerful development through the Convergence Academies was that teachers collaboratively created extensive, interdisciplinary Convergence projects that engaged students across the school day as they moved from class to class. To jointly plan and monitor these projects, teachers relied upon a hybrid strategy of using face-to-face time and online platforms. Teachers enjoyed the exchange of knowledge and felt energized by the deep collaboration with their peers.

Through these and other Convergence opportunities at Morrill, students used digital tools and platforms to facilitate collaboration and communication and to self-regulate learning. Through the learning process, students improved their abilities to cyclically pre-plan, self-monitor project implementation, and reflect on progress. Teachers at Morrill developed assessment rubrics that further encouraged students to push their expectations of what they could accomplish. New competencies in self-regulation supported students in taking risks in confronting new, difficult tasks such as interviewing adults in their community. Furthermore, at the end of these Convergence projects, Morrill students continued to envision possibilities for building on their work and improving upon past efforts.

At Tilden, excitement was high among students, teachers, and administrators as they created and engaged in challenging learning projects, established the Digital Atelier, and used digital tools to create, explore, and communicate. Students at Tilden advanced their confidence to confront challenging learning tasks and freedom to pursue personal interests. Through the professional learning and multiple experiences applying Convergence approaches, teachers at Tilden acquired confidence to create ambitious projects and to strategically choose digital tools to enhance instruction and learning. Gains in confidence over time encouraged teachers to provide leadership to others about the new practices they were learning through Convergence Academies.

The Digital Atelier at Tilden is an important example of infrastructure that affords the whole school access to advanced digital media tools for challenging, engaging projects and creates opportunities to connect formal and informal learning. Teachers incorporated the space into their Convergence projects; and because of their experiences, they gained confidence in using the Atelier as an instructional space. The Atelier also served as a professional learning space for teachers where they learned about new digital tools and production processes and collaborated with one another on designing Convergence units.

To What Extent was Convergence Implemented as Designed?

As discussed in Chapter 1, the plans for systematically assessing fidelity of program implementations are outlined in a fidelity matrix, which is shown in Appendix A. Fidelity of implementation is judged in reference to the three key components of the intervention: the Convergence Academies instructional framework in digital media, professional learning supports, and connected learning supports.

In both years of implementation, REA researchers computed separate implementation scores for each school (see Table 14). Overall, the level of implementation was high. In fact, fidelity of implementation was achieved in both years at the K–8 school for all three components of the program model. However, at the high school level, fidelity was high yet fell short on one component, professional learning supports, in both years. In particular, the school as a whole did not meet fidelity for one of the indicators for professional learning supports—they had low teacher attendance during the summer institute. The school was challenged to fully participate in the summer sessions due to commitments with other initiatives. For example, the school was involved in another schoolwide initiative led by the University of Chicago's Network for College Success.

To further describe the experiences of the Convergence Academies, in the following subsections, we highlight findings from data gathering efforts among key stakeholders at each school: the principals, teachers, and students.

Principals

In a summative interview, the principal of Morrill Elementary, Mike Beyer, described why the Convergence initiative had so much success at his school in comparison to numerous prior efforts to turnaround instruction and learning:

> *In the projects and initiatives I've encountered in my time at CPS, this is by far probably the most successful. I think largely because they invested in human resources, professional development, boots on the ground, and those sorts of things. I think it's probably the most successful implementation of any project or initiative I've worked with. And I'm not just saying that because I like them, I genuinely believe that.*

Beyer shared two primary reasons why Convergence was so successful. The first reason for success was that he believed the school "had been primed for this kind of work". The school had already started a new process of reforming their instruction and during the prior school year. This had involved some exploration of Understanding by Design[2] and teacher engagement in unit mapping and planning. Without that level of readiness, he felt Convergence would have failed.

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[2] Wiggins, G., & McTighe, J. (2011). *The Understanding by Design guide to creating high-quality units*. Alexandria, VA: ASCD.

Table 14. Fidelity of Program Implementation by Year and School

Components of Convergence Implementation	Key Indicators For Each Component	Fidelity Score Year 1		Fidelity Score Year 2	
		Morrill	**Tilden**	**Morrill**	**Tilden**
1. Convergence Academies Instructional Framework	1. Unit Plan Template and Rubric	1	1	1	1
	2. Documentation Guide	1	1	1	1
	3. Professional Learning Cycle (Six Pillars of Instructional Design & 3 C's (Connect, Consume, Create))	1	1	1	1
	Component-level status (fidelity is ≥ 2)	3, Met	3, Met	3, Met	3, Met
2. Professional Learning Supports	1. Teacher Summer Institute	2	0	2	0
	1. Formal PD Sessions	2	2	2	2
	2. Informal mentoring by digital learning coaches	2	2	2	2
	Component-level status (fidelity is ≥ 5)	6, Met	4, Unmet	6, Met	4, Unmet
3. Connected Learning Supports	1. School leadership meetings	1	1	1	1
	1. Digital Atelier design: **SY1 only:** Digital Atelier Design Process; **SY2 only:** Digital Atelier Space	1	1	1	1
	2. School community blogs	1	1	1	1
	3. Strategic partnerships	2	2	2	2
	Component-level status (fidelity is ≥ 4)	5, Met	5, Met	5, Met	5, Met

The second reason was the professional development and the fact that Convergence put "boots on the ground", and by this, he meant that the initiative provided continual, onsite support to the school throughout the year via high quality specialists. He felt the specialists were highly effective in implementing Convergence, and unlike what he typically has observed in other initiatives, these individuals were really effective from the start of the project. He viewed the DMMs as the key component to scaling the Convergence model, and he also believed that a revised version of the model, one that required less resources and was focused on several grade levels rather than the entire school could also be successful.

According to the principal, the biggest change since Convergence was that it had become rare at Morrill to see teacher-centered instruction anymore, which had been widespread at the school in prior years. All classrooms now had at least some student-centered approaches. He said, "I don't feel like any teachers are old school method

anymore", which he characterized as "skill and drill" and lecture-driven. He attributed the school's shift to using problem-based learning (PBL) to Convergence, and that PBL enabled cross-disciplinary experiences. Convergence expanded and enhanced instruction in science and social studies because it drove the need for the content within Convergence challenge units.

A priority of the school was to have professional learning be more teacher-led. He felt Convergence had changed the culture among the teachers so that they became more collaborative, sharing practices and mapping the curriculum, and they became more willing to take on leadership roles.

From his perspective, the most important outcome of Convergence was the enhancement of teacher capacity and change in teachers' mindset, because of its potential for long lasting impacts after the grant-related efforts cease. He believed that Convergence created a context where teachers now viewed it possible to, for example, introduce robust, project-based learning, which they previously considered unallowable due to high-stakes testing pressures. Beyer also viewed the Convergence process of curriculum development, which was teacher-driven and supported by DMMs, as responsible for a deeper approach to addressing learning standards in their curriculum and instruction.

Principal Beyer observed key ways the Convergence initiative had immediate impacts on students at his school. Principal Beyer found that Convergence was tremendously helpful in supporting the school's efforts to help students develop "social emotional skills", such as collaboration, communication, and problem solving. Student engagement was greatly impacted, too. When he first had arrived as principal at the school two years prior to Convergence, he would commonly find over half of the students in all classrooms off-task. After Convergence, however, he said: "*…now I can safely say you can walk into about any classroom and you'll see about the entire class engaged. Again, that's in my experience a rarity in a public neighborhood school…like ours…because* [the students are] *not just engaged—they are engaged in high-level or very rigorous open-ended problems.*

Another key change for students at Morrill Elementary involved the access and engagement with creative technologies.

> *I can say almost never* [did] *you* [previously] *see students using technology in a creative fashion. So there wasn't anything like that happening at Morrill prior to Convergence. With Convergence, now you have students who have their own websites, they have their own blogs, they are creating presentations on websites and using video software, and Adobe, and all these programs in a creative way to create their own product and project. So, it's a much, much higher level…* [The students are] *much more tech savvy in an academic manner and that's entirely because of Convergence.*

The principal highlighted an example of an independent learning opportunity that he attributed to the Convergence initiative:

> The students created something called the Happy Project where they wanted …to make an app that encouraged happiness. And so they came up with this idea entirely on their own through brainstorming, through project development, and they took this project and they worked on it in drama, library, art, and technology. And so it was completely student-driven and the teachers were merely the facilitators.

In summary, according to the principal, Convergence was beneficial at multiple levels:

> The biggest benefit for me is that it takes a lot off my plate to where I don't have to be the only instructional leader. So that's the biggest for me. The biggest benefit for the students is that it enables them to learn in authentic…ways they may not have been privy to. For the teachers, the biggest benefit has been building their capacity and understanding of what problem based and project based learning is.

Although Tilden High School was a very different context then Morrill Elementary for implementing Convergence, the end-of-project interview with the principal of Tilden, Maurice Swinney, hit on many of the same themes/perspectives shared by his colleague at Morrill. According to Principal Swinney, there were two major changes at Tilden since the start of Convergence. First, teachers saw students' curiosity about technology firmly take hold as the initiative progressed. The second major change was that the technology gave students access to learning and helped them learn about digital media and technology.

Convergence greatly increased the opportunities for students to share their stories within their academic work, and the principal witnessed a change in student voice. He observed evidence of these changes in students' writing, their design projects, and their community-based projects. He explained that the increase in visual communication through digital tools improved teachers' ability to determine strengths and needs in order to support learning. He also felt that the creation of the Digital Atelier provided a powerful space for learning for both students and teachers. He found it to be particularly advantageous to and utilized by students with lower academic grades.

As was true at Morrill, the DMMs at Tilden were viewed as the key component for making Convergence work. They developed supporting relationships with teachers and students and provided instrumental contributions to the professional learning communities.

Among the key priorities for Tilden that Convergence supported were efforts to improve students'' college readiness and have the Digital Atelier available to students and teachers. A chief emphasis concerning college readiness was for the school to support students in becoming better writers and provide them with increased opportunities to write. Convergence helped the school advance digital learning and expanded the

amount and types of writing generated by students. Principal Swinney found that the school had an easier transition in using Convergence units to support reading learning in comparison to math learning. He observed that students were reading and writing more often, and that writing was more often on a college level than in prior years. He noted that teachers had developed a greater understanding of "how to tap into the 'smartness' of students". One way teachers did this was through more creative and hands-on work.

The principal at Tilden highlighted multiple examples of how Convergence was benefitting students and teachers. For example, he described Convergence as allowing for learning that is more authentic for students. Another beneficial effect was the emphasis on opportunities to build better problem solving skills through challenges that allowed for more than one solution and that showed students what they could accomplish for their communities. Convergence efforts also helped enhance students' interpersonal and communication skills. For example, it helped students with academic talk that improved their ability to work with peers to get their point across without offending others. Overall, the principal believed Tilden students were taking greater responsibility for their learning and exhibiting greater confidence academically.

Principal Swinney also observed that students who used technology were more engaged in classroom activities then those not using technology. Students who had track records of poor attendance were reversing that trend and they tended to use the Digital Atelier during lunch and afterschool. As a struggling high school, one of the most important priorities is to boost freshman enrollment, and Swinney partly attributed the school's increase in enrollment to Convergence.

Teachers

Morrill Teacher Focus Group

During the spring of 2015, seven teachers from Morrill participated in a focus group to discuss their experiences as a Convergence Academy. Key themes are outlined below along with examples and quotes from teachers.

Priorities for the school, and whether those priorities have shifted during the year

- Curriculum building was a schoolwide focus throughout the year.
- An emergent priority during the year was a recognition that the school and curriculum building needed to expand beyond academic achievement to also include social emotional needs of the students. The teachers characterized this shift as needing to attend to the whole child in order to continue making progress in improving academic achievement for all students. The teachers formed an equity council in response to this new or broader priority, which was identified as the focus for the following school year.

- Another priority for the school was to encourage teachers to act as leaders and to be active stakeholders in decisions about academics and social emotional needs. Teachers were "able to form groups and alliances in order to effect change. It hasn't been all in the hands of the administration."

- The professional learning communities in the school fostered teacher leadership roles. For example, the school was focused on improving students' ability to access complex texts, so they strategically relied upon the various areas of expertise that different teachers possessed to address how they accessed complex texts in those areas.

- A key to their success and the opportunities to pursue these priorities was that the principal supported and encouraged the teachers:

    He supports it, he encourages it and I think that's why at the end of this year we're as strong as we are and ready to move forward and do some more effective work.

  So that was viewed as a key ingredient for others to be successful in similar endeavors.

- The success experienced with the above priorities—building teacher leadership, strengthening professional learning communities, and focusing on social emotional development in addition to academic development—developed a robust foundation and strong teacher agency, which would serve the school really well as they tried to sustain their success and focus on continued growth under the leadership of new principal in the coming year.

    We're very organized… it's critical that we as a staff are on the same page and that we have the same vision, because if we do, then we are going to be able to continue this work. So it's almost like if we could sit the new principal down as a group and have this conversation with the new principal and say this is the work we've done. We expect to continue, this is what we need the support on, and then I see no reason why it wouldn't…So that's why we've invested so much and we have ownership. So when you distribute that leadership, we feel like we own this work, and we will really stand up for it to make sure it continues.

- The interdisciplinary studio model that was enacted in the 6th and 7th grades created so much excitement among students and teachers that they were planning to expand it to the 5th and 8th grades in the coming year.

- Teachers were planning to continue their process of curriculum mapping to outline all the Convergence units (which some teachers preferred to refer as project based learning). This was highlighted as part of the organization that was going to help them sustain their convergence influenced efforts.

- One teacher summed up her feelings about the question of sustaining Convergence as:

I think the worst thing we could do is drop the ball with Convergence, when you're talking about getting students ready for 21st century learning. And when you talk about students with social and emotional problems and then they don't get exposure to this. You talk about leaving no child left behind, your leaving a large group of them behind. So exposure to the learning, exposure to the project based learning in my opinion gets them ready for what's ahead of them. So if we drop the ball, we drop the ball on them, that's just my personal opinion. And as hard as it was for me to really converge with Convergence, I now understand now even more just how important it is for kids that don't have that type of exposure. Without it we're leaving them behind and that's a travesty in my mind.

Highlights of the Second Year of Convergence

- Teachers shared their highlights about Convergence in its second year of implementation. Here is what two different teachers had to say:

   I would say that reflecting back on the year all the things; the moments I'm proud about that happened in my classroom really are connected to the project based learning. Getting there though, like Monica says is not necessarily easy. And there is this tension that you get as an educator because we're under a lot of pressure to get these test scores up and at the same time you feel like your putting your students at risk by sort of trying something new out on them that hasn't been tested and worked out. And the first year your going to do something like that is going to be more inefficient and you're going to make some wrong turns and have to reroute, but then getting to that end point does really make it all seem worth it and definitely make me not want to give up on that. It would be nice to be able to go back and do a project having been through all the trial and error and knowing where it can go and how it can get better.

   I had made a slide show for my kindergarten presentation for parents and it looked awesome because of the project-based learning. And if I didn't have all those moments in there it would never been what it was. Our school looked fun, the kids looked so happy and it's because of the work that we did because of Convergence. It was fun because of that work and because play was a main pillar of ours and we pushed the limit and did things we wouldn't. Your so right, we're taking this risk and I know this is right to do, I know play is right, but then I hear other stories of oh these kids are here and these kids are here at these higher levels, but I'm like once I stop and put that over here I see my kids will never get there with these high scores if they don't know how to play.

Increased Levels of Student Engagement

- For students, one of the greatest benefits of Convergence, according to teachers, were the increased levels of student engagement.

  > *Just providing more opportunities for engagement. Like you really get all of the students and in these project based learning they get to kind of find what their niche is and what area they really enjoy working on in the collaboration process, in play, in critical response.*

- According to teachers, a key to the increase in student engagement was teachers' focus on making learning meaningful and personally relevant to students. Convergence units provided opportunities for students to explore and choose topics of personal interest. One teacher explained:

  > [Convergence] *helped us in recognizing the importance of bringing our student's personal experiences into our curriculum. So, when we think about community a lot when we do a lot of our work and think about their background, and their strengths, and how we can empower them through the work we do in the classroom from Kindergarten on up. I think that has been brought to our attention very much so, so that we plan accordingly.*

- Another aspect about Convergence that influenced engagement was the attention to building in feedback, reflection, and iterations into project based work. The Convergence units that teachers developed did not necessarily have to culminate in a final product. When students realized this, "it was a big light bulb moment for them". Teachers shared examples of how students were motivated by their project work to continue with it beyond the formal endpoints in the classroom. They asked themselves what they could do different next time. One teacher explained:

  > [It] *was real exciting to hear students who are thinking about their summer and thinking how might my educational project continue to look over the course of my summer. I mean you really couldn't ask for anything better than that, right?*

Expanded Use of Digital Media Tools

- Teachers at Morrill felt that being a Convergence Academy meant that they could take on the risks of introducing cutting edge technology into their classrooms because they were supported in their efforts.

- A teacher described how she now did writers' workshop almost entirely in digital format. This allowed students to engage in an efficient system for providing and responding to feedback about each other's writing. They no longer were bound to merely working with the student sitting next to them.

- Another teacher explained how powerful it was during science instruction to have given students Internet access in the classroom so that they could seek answers

to their own questions. The teacher explained that she often did not know the answer to questions raised by students, so it was empowering to the students to access expertise outside of the classroom. She witnessed growth in the students as they began to exchange information and ideas about what they were learning through their online searches.

- Yet another teacher explained:

  Our 4th grade students basically tracked and documented their own learning they did this year. They each designed their own websites. So each student in the 4th grade had a website where they used that to kind of reflect on their learning and talk about their group experiences. And literally they were web designers, using Weebly, so that just blew me away too. Not only are they documenting their information, but they - that whole writing piece they were learning to write for an audience and learn about how to make their website more accessible and more fun by adding images. So that was really an integral part that I loved about the technology piece.

Enhanced Collaboration and Connections

- According to teachers, a key area that requires a lot of attention to be successful in to implementing Convergence approaches to instruction is developing student collaboration skills. Teachers explained how not all groups worked as effectively as others and that students needed special skills, as is true for adults, to work collaboratively with others when there are interpersonal conflicts. Many of the teachers described how they explicitly attended to social skill development within their Convergence projects, and helped students expand their ability to work together. The school planned to continue their progress in this area.

- Collaboration among teachers was highlighted as one of the greatest benefits of being a Convergence Academy. It promoted a large increase in planning and improvement work both within and across grade levels.

  What I've loved about Convergence is the opportunity for teachers to collaborate. I think what changed our thinking were the pillars and how we thought about framing the projects that we present to our students. The 4th grade team, 4th and 5th with David included, we focused on collaboration as our pillar and we really developed a strong cohort of students who are able to work together and understand their roles, and their strengths and weaknesses as students or to work together. So as much as we're for the project based learning, it does require a certain set of skills sets for a student to be able to communicate and work together effectively with each other.

- Another key benefit of Convergence was the emergence of more positive connections, both among groups of students and among teachers. In particular,

the school faces ongoing challenges between its Latino population and other groups, but made considerable progress through their Convergence efforts. For example, teachers were seeing progress among students at recess in terms of less segregation and improved empathy. Among teachers themselves, they greatly expanded their collaboration with each other, discussion of issue and ways to improve, and established an equity council at the school. Teachers were proud and excited about their interdisciplinary collaborations and looked forward to continuing to expand those efforts in the future.

Tilden Teacher Focus Group

At the end of the 2014–2015 school year, Rockman researchers conducted a focus group with five teachers at Tilden to understand their experiences with Convergence. The group spanned grade and subject levels and it included several teachers that were new to the school in year 2 of Convergence implementation. The key themes that emerged from the discussion are shared here.

- Teachers shared examples of how their confidence and comfort levels with Convergence approaches to instruction improved. Both returning teachers and new teachers felt that they knew where to go for help, and that they knew how to use technology in their instruction to support deeper learning.

- Through the process of becoming a Convergence Academy, teachers and administrators felt they were rebuilding Tilden's technology focus, and as a result of all the Convergence units, the school was seeing much more active and exciting learning opportunities for students.

- According to teachers, one of the greatest benefits of Convergence to students was its support in becoming more effective as independent learners. Through the challenging projects, students were developing understanding on how to learn new skills and expand their knowledge, and they were learning to persevere when faced with difficulty or missteps.

- Another power benefit of Convergence was that the project based learning opportunities provided rich demonstrations of student learning, including learning that spanned content areas.

- Convergence units generated excitement among students about what they were learning. Teachers even felt that attendance was perhaps improving because of the excitement associated with the units.

- Students were learning how to use technology to support learning, to do science, to research careers and colleges, to be safe and savvy online, and to effectively communicate through different digital media.

- Students were receiving more opportunities to have their opinions heard. One teacher shared how a Convergence unit of hers had students becoming leaders in areas that they held some expertise. They continued to help their classmates

in these roles beyond the end of the unit. She and other teachers saw students' confidence develop as they helped classmates during the year.

- Teachers also highlighted the interpersonal and communication skills that students were developing through their Convergence units.

- The teachers shared examples of how they had made improvements to past Convergence units and found even more success than in their first attempts. For example, an English teacher explained that the revisions she made to her unit resulted in greater efficiency, more reading, more writing, and greater independence granted to students.

- Teachers indicated that the digital media mentors were instrumental in helping them retool their Convergence units to make them more effective.

Teacher Survey

For each of the measurement scales included in the teacher survey, we conducted individual paired samples t-tests to compare changes after one and two years of Convergence. Due to the overall small number of teachers with longitudinal survey data, we combined pre-post responses across the schools.

Analyses of teacher survey responses from both Convergence schools revealed statistically significant improvements after year 1 of implementation compared to baseline (see Table 15). Specifically, there were significant improvements in teacher self-efficacy for digital media integration, perceived value of digital media integration, and frequency of teaching practices involving digital media integration and connected learning. There was a large effect size observed for teacher self-efficacy (.86), a medium effect size for self-reported teaching practices (.47), and small effect size for teachers' perceived value. Thus, the evidence suggested that teachers at both schools already were feeling immediate impacts during the first year of Convergence.

After year 2 of implementation, there was continued, significant improvement in both teacher self-efficacy and teacher practices compared to baseline (see Table 16). Unexpectedly, there was no statistically significant change in perceived value of digital media integration. Notably, teachers' perceptions about the value of digital media integration already were highly positive at baseline. The two-year effect size for self-efficacy (.65) was closer to a medium difference while the effect size for practices (.82) was large. The sizable improvements in reported practices and teacher efficacy provide important evidence that implementation of Convergence was associated with gains in teacher capacity to integrate digital media and connected learning principles their practice. See Appendix B for item-level results.

Both schools experienced some teacher turnover from the first school year to the second school year. The new teachers thus became a second cohort of Convergence teachers. We conducted additional analyses to investigate possible differences between

the two cohorts. By comparing the self-reported practices of new teachers to the practices of teachers who experienced two years of Convergence, we found that the two-year dosage group reported a higher frequency of targeted teaching practices than the one-year group (see Table 17). For self-efficacy, the observed means of the two-year group were somewhat higher. There was, however, no difference in perceived value between the two cohorts.

Table 15. One-Year Changes in Teacher Beliefs and Reported Practices for Supporting Connected Learning

	1 Year School Year (n=35)							
	Baseline		End Year 1		95% CI		*p*	Effect Size
	M	*SD*	*M*	*SD*	*Lower*	*Upper*		
Self-efficacy[1]	2.75	.48	3.04	.47	0.13	0.45	.001	.86
Value[2]	3.42	.70	3.55	.41	-0.14	0.39	.345	.17
Practices[3]	2.88	.48	3.16	.54	0.12	0.44	< .001	.47

[1] *(1) Very Unimportant, (2) Unimportant, (3) Important, (4) Very important*
[2] *(1) Very Unimportant, (2) Unimportant, (3) Important, (4) Very important*
[3] *(1) Never, (2) Sometimes, (3) Fairly Often, (4) Frequently*

Table 16. Two-Year Changes in Teacher Beliefs and Reported Practices for Supporting Connected Learning

	2 Year School Years (n=17)							
	Baseline		End Year 2		95% CI		*p*	Effect Size
	M	*SD*	*M*	*SD*	*Lower*	*Upper*		
Self-efficacy[1]	2.75	.44	3.05	.50	0.06	0.54	.016	.65
Value[2]	3.48	.36	3.37	.41	-0.25	0.04	.153	-.38
Practices[3]	2.60	.51	3.09	.59	0.05	0.66	.009	.82

[1] *(1) Very Unimportant, (2) Unimportant, (3) Important, (4) Very important*
[2] *(1) Very Unimportant, (2) Unimportant, (3) Important, (4) Very important*
[3] *(1) Never, (2) Sometimes, (3) Fairly Often, (4) Frequently*

Table 17. Teacher Beliefs and Reported Practices at Project End by Years Personally in Project

	1 Year			2 Year			95% CI		*p*	Effect Size
	n	*M*	*SD*	*n*	*M*	*SD*	*Lower*	*Upper*		
Self-efficacy[1]	15	2.77	.44	23	3.06	.44	2.79	3.09	.054	.63
Value[2]	16	3.54	.31	22	3.36	.39	3.32	3.56	.136	-.50
Practices[3]	16	2.56	.59	22	3.02	.54	2.63	3.02	.017	.77

[1] *(1) Very Unimportant, (2) Unimportant, (3) Important, (4) Very important*
[2] *(1) Very Unimportant, (2) Unimportant, (3) Important, (4) Very important*
[3] *(1) Never, (2) Sometimes, (3) Fairly Often, (4) Frequently*

Teacher Reflections about Convergence

The teacher survey asked teachers what they perceived to be the major highlights and challenges of being a Convergence Academy. Teachers across both schools highlighted the rich, project based learning in the Convergence units and the integration of digital media and technology. Both schools cited technology issues (e.g., consistent Internet access, access to shared equipment) as a challenge, and the DMMs were a key support in handling those issues. Below are examples of what teachers (first Morrill, then Tilden) had to say about Convergence highlights and challenges after the second year of implementation.

Morrill

> *What are the major highlights of Convergence in your school and classroom?*

- *The adaptation and focus of technology in the classroom.*

- *Great unit plans created by the teacher and DMM. The lessons and supporting activities are well developed and engaging and integrate the digital media medium that our students naturally connect to.*

- *Gaining the support from an "outsider" who still has knowledge about what's going on in the school/classroom; gaining more perspectives and support with planning.*

- *Increased risk-taking of teachers & students, more project-based learning, increased problem solving & critical thinking skills displayed by students, increased confidence of students in their abilities regarding technology & content area curriculum.*

- *Access to technology and using it in a meaningful way.*

- *My highlight was working with my DMM, who has taught me so much about bringing in the arts into the classroom. I now know how to bring photography and theatre into my reading and social studies lesson plans.*

- *The students enjoyed being exposed to the different and exciting facets of technology and learning how to use technology properly.*

- *Learning new tech skills for kids.*

- *Students were 100 % involved in hands on activities and technology usage was part of their performance assessment.*

- *It allows me to reach students in a way that they can relate to. In addition to giving them autonomy of their learning as well.*

- *I believe the major highlight in my classroom was the fact that everything we did, and the units we built were student centered and project based. Photography was the media that we used all year, and the students gravitated towards it.*

- *The incorporation of media in the classroom to create project based learning units helps to get away from the monotony of basal work, and captures the interest of the students more.*

- *The students really enjoyed making paper during our recycling unit. The students also enjoyed hacking and playing games. Last year the kids enjoyed creating newsletters and exchanging them with another room.*

- *Weather Balloon Launch during the 4th quarter with 6th graders.*

- *Students participate in a Semester long Hero study where they learn about historical heroes and modern day heroes. They study photography and close reading of photography, and recreate historical photos through what they studied. In the second half, they studied how kids can be heroes. They used what they previously studied about photography the roles played in a photo session to depict themselves as kid heroes.*

What are the major challenges to using digital media in your school and classroom?

- *To get sufficiently acclimated with new technology.*

- *My students are better at navigating digital media than I am.*

- *I don't know everything (tech-wise) that is available to teachers and students, which can limit what we plan, unless we have a Convergence person to tell us what we have access to.*

- *Making it fit all students and making sure students have access to all resources, in and out of school.*

- *Time...and a need for more planning time to effectively use/integrate the tools.*

- *Having all of the technology working at the same time (i.e. the internet sometimes goes out, a program/app isn't working properly, etc.).*

- *My challenge was that my room was not set up for technology.*

- *No real challenges in the classroom, just having someone that understood what I wanted to accomplish in math and science and making convergence applicable.*

- *I think that the media was rolled out through a developmentally appropriate approach, and the students were able to apply the skills necessary to be successful. Due to the fact that we had our digital media mentor support us with the materials, and arrange for us to have access when needed, we had minimal challenges. In fact, none to speak of this year.*

Tilden

What are the major highlights of Convergence in your school and classroom?

- *My Convergence units have seen a huge increase in student involvement and interest. As a teacher, I have thoroughly enjoyed the ability to work with people from other fields and backgrounds to develop the lesson to ensure that it is relevant and interesting.*

- *I think Convergence is awesome. The fact that we have support as teachers to integrate this kind of technology and media into the classroom is amazing. Without our partnership with Convergence, it would be impossible for many of us to incorporate these types of activities in the classroom. My students' favorite unit by far this year has been the Convergence unit. The students really enjoyed the hands-on nature of the Convergence unit we did. They learned a lot during the unit, and it was a great experience for everyone. I also really liked that I was able to do the same Convergence unit twice and tweak it to improve it the second semester.*

- *I liked that you guys pushed the envelope with us. You may have pushed it too far at times , but you continued to push.*

- *The incorporation of technology piques student interest and this allows students to access materials in a way that they are comfortable with and confident in. The real world tie ins are perfect for a math class.*

- *Students are provided with opportunities to learn in a non-traditional way. Students are challenged and have to learn how to persevere and problem-solve.*

- *Getting to see students blossom in "other" areas that normally wouldn't occur in a classroom that does not incorporate technology. I got to see some of my kids step up into leadership roles.*

- *I really enjoy having access to the technology and technical expertise of the Convergence staff.*

- *Convergence allows me to collaborate with a person from different backgrounds, way of thinking and academic knowledge in the classroom. Also, convergence allows students to be able to use technology in a new way.*

- *Watching students become interested and proficient at editing iMovies.*

- *Great presence of media and after school programs and activities for students*

- *The students enjoy using technology more than they enjoy reading and writing on paper. In my classroom this year, students enjoyed using Cowbird to post short stories because they discovered that others (strangers) would sometimes read their story and "lie" it. It became a contest each day among students to see how many "likes" they got for a story. As a school, it is always fun to learn new technology and have the chance to play around on it and create things.*

- *Student as creators.*

- *My favorite part was my second unit last year. I felt like my students excelled at taking pictures and it gave them a lot of confidence.*

- *Wide [extent] of classroom participation.*

- *The use of technology incorporated into the units.*

- *The major highlight was the Senior Class digital mural based on the novel "The Pact".*

What are the major challenges to using digital media in your school and classroom?

- *Guiding students through a new experience, when I am not totally sure of what the output will look like. Learning to let go and give more student ownership.*

- *I think the major challenge is that I do not always know how to incorporate aspects of digital media in the classroom, and I don't always know the best way to incorporate it in the classroom. The second biggest challenge is that students are unfamiliar with many of these things, and some students shut down when they don't immediately understand what is going on in class.*

- *The learning curve for students and myself with learning the technology was challenging at times.*

- *Trying to do things with technology can lead to unexpected and sometimes debilitating hurdles. One day of the unit was totally lost due to our inability to get onto the Internet.*

- *Many of my students are unfamiliar with most technology past their most basic uses. As such, a lot of time needed to be spent explaining how to do tasks that students needed to understand to be successful.*

- *The challenge has been the students being more digitally literate than myself.*

- *Planning the units and student "buy-in".*

- *Not enough time.*

- *The challenge of using digital media in the classroom happens when technology fails. For example, not being able to get on a site that was meant for the class.*

- *The major challenge is having access to the technology required for a particular project and having mentors who are not stretched too thin.*

Students

Student Survey

Surveying of students made it possible to explore the influence of Convergence on important student outcomes. Specifically, there were pre-post measures of possible student engagement in student-centered learning; student knowledge, skills, and self-efficacy in media creation and analysis; and student perceptions of school culture. In this section of the report, we share highlights observed by comparing survey data from fall 2013 (baseline) with that of spring 2015 (after second year of implementation).

Across grade levels, Convergence students indicated multiple examples of increased use of digital media and technology to create, learn, and communicate with others, both inside and outside of the classroom. Another important overall shift was that students were more engaged in their learning. This was supported by their reports of increased opportunities to pursue what that they found interesting, and by their reports of more frequent sharing with others about their interests, their work, and what they were learning through increased use of digital tools for connecting with others. These and other key trends are described below by each grade-level span. See the Appendix for item-level frequencies and means for each administration of the student surveys.

Grades 2–3

- Compared to baseline, Year 2 results showed an increase in students' use of technology and digital media at school to make videos and take photographs to share with others.

- During school time, students also more frequently shared things they learned with family and friends and more frequently could do things that they found interesting.

- There were increases in several classroom activities that reflect connected learning principles. For example, there was an increased frequency of students working on multi-day projects, students revising their work after receiving feedback, students talking about things they have read, and making connections between stories they read and their lives.

- Students were in greater agreement at the end of Year 2 about aspects of a positive school culture; in particular, feeling like they were important at school, having their work put on display.

- There was greater agreement in liking to use technology at school.

- Students also indicated that they were getting to learn about and work with technology in the classroom with the support of outside visitors.

- Students indicated they had better focus when using technology, could play with technology to learn how to use it, could ask for help about technology when needed, and had more opportunity to use technology to play.

Grades 4–7

- In the survey findings, students in grades 4–7 showed the most impressive and consistent improvements.

- Compared to baseline, year 2 survey responses indicated students experienced an increased use of technology in the classroom.

- Students reported that they could make more frequent connections to interesting things they were doing or learning about in school, and they more frequently shared those things with their peers. They increased their use of technology to make videos, take photographs, make music and sounds to share with others, to make presentations, to create presentation visuals, and to play or chat online with others.

- There was a consistent trend in increased confidence about students' use of digital media to learn, create, and share.

- Students reported greater agreement that they had access to outside experts in digital media and that their teacher liked to use technology in the classroom.

- In terms of school climate, students reported greater agreement that other students were listening to them and that they felt important at school.

- Regarding digital literacy, students reported higher levels of agreement in knowing how to keep themselves safe online, in recognizing prejudice or bias in the media, getting information from more than one source online, thinking about their online search strategies, and thinking about how people like themselves are represented in media.

- Compared to reports at baseline, students also increased the frequency of their technology use during free time. More students used technology for homework, learning about interesting things, sharing things they learned or found interesting, and talking or collaborating with other online.

Grade 8

- At the end of Year 2, 8th grade students reported higher confidence that they could present information in different ways, and that they could share their creative work with classmates and with a larger audience online.

- There was an increase in reported use of digital media for class presentations using video, audio, or pictures. During school time, there also was higher use of social media sites, texting, and emailing to share new or interesting information to others. Students more frequently commented on articles/photos/videos online, and communicated with people online on message boards and such while at school. In addition, students more frequently connected what they are learning in school to things that they are interested in or passionate about.

- Student reported greater agreement with different aspects of a positive school environment. There was an increase in students feeling connected to a group of people who share their interests and passions. They also were in greater agreement that they remained focused on schoolwork and that sometimes they get so interested in their work that they did not want to stop what they were doing. In addition, there was greater agreement that their opinions were taken seriously by other students, that they felt like they mattered at school, that people at school noticed when they were "good at something", and that people were friendly to them.

- Students reported greater opportunities to work with experts in digital media other than their teacher.

- At the end of Year 2, 8th graders, in their free time, were more frequently:
    - Communicating with people online
    - Commenting on others' online work
    - Using social media, email, and texting to share what they learned or found interesting
    - Thinking about how they searched online for information about a topic
    - Learning things from social media
    - Getting their information online from more than one source

Grades 9–12

- For high school students overall, there were several areas where they appeared to gain confidence. These included their ability to present information in different ways, including photography, video, writing, etc.; and sharing their creative work with their classmates.

- Students also reported greater confidence in being able to determine the veracity of information found online and to judge the trustworthiness of online sources.

- Students reported higher use of digital media for class presentations.

- There was also an increase in how often student felt they could connect what they were learning to things that they were interested in or passionate about.

- In terms of perceived school climate, there was an uptick in student agreement that "other students in my school take my opinions seriously", and "People at school notice when I'm good at something".

Student Focus Groups

At the end of the first year of implementation, REA conducted several focus groups with students to hear their reflections about Convergence Academies in their school. At Morrill, one group was with students in grades 2–3 and another was with grades 5–7. Two student groups were conducted at Tilden with a mixture of students in grades 9–11. In this subsection of Chapter 3, each school's findings are described separately and are each organized under three key topic areas: digital media tools, Convergence (instructional) units, and school culture and community.

Morrill Student Focus Groups

Digital Media Tools

All participants in the focus groups with Morrill students used technology and digital media tools in their classrooms during the school year. Students used Chrome books, iPads, tablets and cameras in school to conduct interviews, take pictures, research topics, and make book trailers and movies as part of Convergence Units. At Morrill, students used digital media tools in their classrooms, the library, and the computer lab, as well as outside in the community garden and playground.

When asked, what do you like to do on the computer or tablet, younger students responded, "finding some research of recycling and compost," "finding answers," and "going to study or going to websites of math and reading." Younger student participants said that playing computer games such as BrianPop Jr., Addition Battle, Multiplication Battle, Walk the Plank, Map Reading, and Study Island has helped them better learn math and reading during their free time. Participants in the focus group with 2nd and 3rd graders enjoyed reading on a computer more than from a book stating, "it's more fun."

Older students appreciated using Google CPS to save documents that they worked on during the Convergence Units stating, *"everybody has Google CPS" and it saves by itself, so whatever we write it saves by itself."* In the future, students would like to continue to use digital media tools in school. One student wanted *"to help the little kids learn how to...use digital media so they can grow up."*

Convergence Units

Participants at all grade levels described their experiences in varied Convergence units during the year. Through the conversation, students described activities in the

Convergence units that helped them, as well as other activities they did not find helpful. Older student participants used rubrics that teachers created to help them track what they did for a project and what they could do to make improvements. *A* student described the benefit of having a rubric by stating, *"it helped me do better and get a good grade on my project."*

In both groups, students were most vocal about the recycling units. Students in the 2nd and 3rd grade described using cameras for "*recording, taking pictures"*, using computers *"for doing a newsletter",* and using the tablets *"to make a PSA announcement."* During the unit, students created posters and *"picked up real litter that was all around the playground to show* [the teacher] *that we need trash cans."* The parts of the recycling unit that the 2nd and 3rd grade students enjoyed most were putting the garbage together to measure how much of each product was recycled and searching for litter outside. After the project, students described their feelings as *"happy": "I feel happy because we don't have to clean up more garbage,"* and *"I feel happy because I hope that there's no more litter on the playground."*

Students in grades 5–7 worked with a DMM on their recycling unit. Cameras and recycling games were used during the unit. For example, one student stated, *"We looked up some pictures that we liked, that people made out of recycling, and then we got to play on games when we was like done". "I liked* [the recycling unit] *because we got to go outside with the cameras…we made some recycling box*[es]*, painted them, and put them in each class upstairs…every Friday we would go and dump them, and weigh the trash."* Students also learned how to make recycled cards out of shredded paper. When describing their experience with the recycling unit, students used words like "*awesome," "interesting," "creative,"* and "*adventurous."*

School Culture and Community

Students reported that both community members (parents, neighbors, etc.) and DMMs were part of their classroom experience during the 2013-2014 school year. Community members are part of the school as peer mentors, who *"try to help the students and stuff—they help the school."* Older students noted that community members were present in the school to help the younger students; however, the older students whished they had more opportunities to interact with the parent mentors. Younger students interacted with DMMs during their recycling project stating their DMM taught the class how to *"recycle and how to make new paper," "how to edit a video,"* and how to use the cameras to take pictures at different angles.

Morrill students were motivated to learn and they set goals for themselves at the beginning of the school year. The majority of students agreed that teachers at their school helped motivate them to learn and do better in school. Teachers at the school assisted students with their homework and projects. At the beginning of the year,

students set academic goals. Their goals included getting better scores on the state standardized tests and making the Honor Roll.

Students indicated they care about their school and community and want others to know that Morrill is a school that has *"some teachers that really care about you."* One of the participants stated, *"We learned stuff at the school, and they make us a better person by…if we do bad things, we deserve to get…consequences."* Another student reflected on why she likes the school:

> *My family has this thought…the school looks old, and it's outside, and it's bad, whether the teachers, whether the books, whether it's the materials. Almost all of my family used to go to this school. But this new school came out, it was really new and more technology and they like, all of them, they went to the other school, and I told them that our school is not just because it looks old from the outside, from the inside it's actually really cool because we use technology a lot and we have different props to like focus a little bit more on something else.*

Tilden Student Focus Groups

Digital Media Tools

Tilden focus group participants had used digital media tools within the Convergence units and in their school clubs. The majority of participants were involved in technology based clubs. Students explained they learned how to use new digital media tools in their classes and clubs that they had not used prior to Convergence. They described using digital cameras, green screen backgrounds, voice recorders, computers, and iPads during the unit and the performance assessments. On the computer and iPads, student participants learned how to use PicMonkey, Storyboard, and Snap Video. The participants used technology in classrooms, computer lab and the atelier to work on Convergence units. Outside of the Convergence units, students used technology for *Reading Plus*, which a student noted, *"it improves your reading skills,"* and in the school clubs, that meet twice a week during the school day.

Student participants at Tilden were interested in continuing to use digital media tools in their classes in the future. While they could not definitively state how often other students outside their own grade level or club used technology, they were concerned with the number of digital media tools available at Tilden. Students had to share equipment and in some cases did not finish their performance task due to lack of equipment.

> *You have to share technology with that class and most of the work was on the cameras, we didn't have a lot of access to the cameras that we should have, so we was going back and forth…so I couldn't really record my end.*

Students at Tilden used Google CPS and drop box to save and share their work, *"…I actually made me a short movie and I sent it to my drop box, I can always have it."*

Students also learned about various apps and desktop applications. For example, one student learned about an application called *Duolingo* in school and continued to use this application at home. *"It's fun because we can do French on our own..."*

Convergence Units

All Tilden student participants took part in at least one Convergence unit with their teachers.

> *I like when we do different project stuff, how we use the like, the little video thing to make clips and stuff, like make a story up and then you put it all together in a video.*

Student participants worked on Convergence units in clubs, social science, history, college and career, science, English, and Spanish classes. Not all student participants wanted to work on the units let alone complete them,

> *When I first started the project, I was like I ain't going to do this and I ain't going to do this, and then I just got forced, and then I did the project, and then I just felt good about it.*

There were mixed reactions among participants as to the pace, length, and challenge level of the units. Students noted they started Convergence units with different skill sets than their peers. One participant described students who knew a lot about a subject area and they were able to complete the project in one day. However, students who were not well versed in the subject took much longer to complete the project: *"there's kids in my class that know* [subject]*, so they did it in one day, literally one day."*

School Culture and Community

At home, Tilden students reported using Facebook, Instagram, and Twitter to communicate with peers. Students worked with DMMs in their classes. The DMMs helped students take and edit photos, create storyboards, add sound to videos, and make advertisements. With the help of teachers, Convergence staff, and DMMs, students were exposed to new careers and students took notice. One student explained, "Sometimes, some students in here, they like, they want to be photographers, engineers," and another student added, "game designers."

Lastly, perhaps one of the greatest benefits that students highlighted was that the Tilden students were motivated to learn with the encouragement of their parents, teachers, other staff, and themselves.

"Just me wanting to be independent…if I can make it happen on my own, I make it happen in the right way…so I feel like if I just do right in school, [then] I can be independent the way I want to."

"School helped me a lot because all of my teachers push me…".

Chapter 4: Conclusions

In close partnership with Chicago Public Schools, CCAP at Columbia College Chicago developed and tested an innovative model of participatory, inquiry learning and schoolwide integration of digital media and technology. More specifically, the Convergence Academies aimed to improve student achievement in reading and math, increase college and career readiness rates, enhance students' ability to use digital media and technology, and improve important 21st century competencies such as communication and collaboration. The independent evaluation conducted by Rockman et al examined the impact and implementation of the Convergence i3 initiative at the two neighborhood schools involved in the initiative.

Based on pre-post comparison of grade level means on standardized tests (NWEA MAP), the Convergence Academies initiative was associated with statistically significant achievement gains in reading and mathematics for all students in grades 3–8 after both one year and two years of implementation. At the high school level, the short-interrupted time series analysis of grade level means on standardized tests (ACT EPAS) for grades 9–11 did not show significant improvements from the extended baseline average after the first year of Convergence in reading or math achievement, and the reading and math achievement scores that were available for 11th graders after two years of Convergence did not significantly deviate from the extended baseline average. Investigation of college readiness outcomes showed that the 9th grade On Track Rate and graduation rate did not deviate from the extended baseline average to a statistically significant extent after either one year or two years of Convergence.

Evidence gathered through surveys, observations, and interviews demonstrated that excitement and engagement was wide spread among students in both schools. Over time, students increased their confidence to meet learning challenges and use digital tools and technology to learn, to pursue their interests, and to create. Students also used new digital tools and platforms to facilitate collaboration and communication and to self-regulate their learning. Through the Digital Atelier space, students were able to connect formal learning activities with opportunities for informal learning and teachers were able to expand their ability to strategically integrate digital media tools and technology into their instruction.

In both years of Convergence implementation, the program achieved fidelity of implementation at the elementary school but missed one its targeted thresholds at the high school. Still, through their professional learning in the Convergence initiative, teachers developed challenging, problem-based learning projects that integrated digital media and technology. The Convergence units that teachers created with the support of the specialists built on students' interests and experiences to engage them in rich, authentic learning experiences embedded with iterative feedback and reflection. With experience in developing and implementing new instructional activities inspired by the

Convergence framework, teachers' self-efficacy improved and teachers' sharing of new practices and instructional activities propagated.

Due to their only being a single elementary school and high school involved in this development project, the resulting single-group research designs did not control for several threats to internal validity (e.g., history effects) and external validity (e.g., effects due to setting, testing effects). The designs also were constrained by reliance on grade level test scores rather than student level scores. Nevertheless, the positive outcomes observed in this research clearly warrant additional investigation. It is strongly recommended that further research be conducted to measure effects of Convergence on student learning, motivation, and 21st century skills. It may prove particularly advantageous to study both student and teacher outcomes associated with the scaled down model, Convergence 2.0, that is currently being implemented by CCAP. Clearly, the Convergence i3 project had numerous accomplishments and generated great enthusiasm for the participatory-based, interest-driven pedagogy that embraced digital media and cultivated student communication and collaboration.

APPENDIX A. Convergence Academies System for Measuring Fidelity of Implementation

Construct 1: Convergence Academies Instructional Framework							
Key Elements of Component	**Operational Definition For Indicator**	**Data Source(s)**	**Data Collection Schedule**	**Level 1: Teacher Level Scoring**	**Level 2: School Level Scoring**	**Level 3: Program Level Threshold for Fidelity**	**Sample / Schedule of Fidelity Measurement**
1.1 Unit Plan Template and Rubric	Template for developing instructional units, which integrate digital media learning, and Rubric with criteria and descriptors for high quality unit.	Unit plan templates and rubrics	Year 1: Dec. 2013 Year 2: Aug. 2014	NA	1 = template and rubric are available		
1.2 Documentation Guide	Written instructional guidance to assist teachers as they implement and document student work from implemented Convergence units.	Plan document	Jan., each year	NA	1 = guide available		Annual measurement of fidelity for both schools for 2 years.
1.3 Professional Learning Cycle includes Convergence Framework (Six Pillars of Instructional Design & 3 C's (Connect, Consume, Create))	Process for professional learning community groups (e.g., grade level or department level teams) that aligns with the CA Framework	Process document	Year 1: Jan. 2014 Year 2: Aug. 2014	NA	1 = process available		
					0–3 range across 3 indicators. A high implementing school has to achieve at least 2 of the 3 indicators (score of at least 2 on component).	Both schools must have level 2 score of 2 or higher.	

Construct 2: Professional Learning Supports							
Key Elements of Component	Operational Definition For Indicator	Data Source(s)	Data Collection Schedule	Level 1: Teacher Level Scoring	Level 2: School Level Scoring	Level 3: Program Level Threshold for Fidelity	Sample /Schedule of Fidelity Measurement
2.1 Teacher Summer Institute	Optional 2-3 day summer workshop for teachers	Attendance rosters	End of August of each school year	2 = high – at least 2 days attendance 1 = moderate = 1 day attendance 0 = < 1 day attendance	2 = 50% or more of teachers with high attendance 1 = 25–49% of teachers with high attendance 0 = less than 25% with high attendance		
2.2 Formal PD Sessions	Ongoing meetings, workshops, and institute days for teachers	Attendance rosters	End of school year	2 = high – at least 20 hours 1 = moderate = 7–19 hours 0 = < 6 hours	2 = 50% of teachers with high attendance 1 = 25%–49% with high attendance 0 = less than 25% with high attendance		Annual measurement of fidelity for both schools for 2 years.
2.3 Informal mentoring by digital learning coaches	Digital learning coaches collaborate with teachers to design unit plans, implement unit plans in the classroom, document implementation in the classroom, collect student work and facilitate and support teachers in grade level meetings.	Annual coaching logs	End of school year	2 = high, received at least 15 hours of coaching 1 = moderate, received 10–14 hours of coaching 0 = low, received less than 10 hours coaching	2= 75% of teachers received high coaching 1= 50–69% received high coaching 0 = Less than 50% received high coaching		
					0–6 range for school total score across 3 indicators. A high implementing school has to score at least 2 on 2 indicators and 1 on the 3rd indicator for a total of 5 out of 6.	Both schools: Level 2 score of 5 or higher, each scoring at least 2 on 2 indicators and 1 on the 3rd indicator	

Construct 3: Connected Learning Supports							
Key Elements of Component	**Operational Definition For Indicator**	**Data Source(s)**	**Data Collection Schedule**	**Level 1: Teacher Level Scoring**	**Level 2: School Level Scoring**	**Level 3: Program Level Threshold for Fidelity**	**Sample/ Schedule of Fidelity Measurement**
3.1 School leadership meetings	Core staff meet and communicate monthly with principals and other school leaders	Program logs and agendas	End of school year		1 = 9 of 9 (school months) meetings and communication occurred		Annual measurement of fidelity for both schools for 2 years.
3.2 Digital atelier design — *Different scoring each year.* **Year 1**: Digital atelier design process	Participatory design process for a digital atelier space using the Digital Atelier Toolkit	Program documentation / Toolkit	End of school year 1		year 1: 1 = Design process involved multiple stakeholder groups;		
Year 2: Digital atelier space available	Digital Atelier is available during and after school for 100 hours per semester	Attendance records	End of school year 2		year 2: 1 = Atelier open 100 or more hrs during school year, 0 = less than 100 hrs		
3.3 School community blogs	Blog available online to parents and community members that provides information about Convergence Academies	Online blog	September		1 = blog is accessible online 0 = blog is not online		
3.4 Strategic partnerships	Convergence co-directors work with school leaders to strategize and build sustainable partnerships with out of school organizations.	Program logs/ Meeting notes	End of school year		2=two or more meetings are conducted 1 = one meeting 0 = no meetings		
					0–5 is range for school total across 4 indicators.	Each school must score at least a total of 4 out of 5, including at least a score of 1 for indicator 3.4.	

APPENDIX B. Teacher Survey: Item-level Results

Table A1. One-Year Changes in Frequency of Digital Media Integration: Item-Level

Indicate how often you do the following activities:						
Baseline to Year 1 (n=35)	Time	M	SD	Difference	t	p
Incorporate digital media into lesson plans.	y1	2.86	0.77	0.52	3.43	0.002
	baseline	2.34	0.84			
Provide students with multiple opportunities to correct mistakes in order to build mastery.	y1	3.34	0.64	0.11	0.81	0.422
	baseline	3.23	0.73			
Use authentic formative and/or summative performance tasks.	y1	3.23	0.60	0.09	0.77	0.447
	baseline	3.14	0.77			
Integrate project-based learning into instruction.	y1	3.11	0.76	0.02	0.27	0.786
	baseline	3.09	0.70			
Talk with other teachers about integrating digital media into instruction.	y1	3.06	0.80	0.60	4.03	0.000
	baseline	2.46	0.85			
Design instruction utilizing digital media tools.	y1	2.94	0.84	0.63	3.71	0.001
	baseline	2.31	0.87			
Play around with digital media tools and technology.	y1	3.14	0.85	0.51	3.10	0.004
	baseline	2.63	0.84			
Utilize students' background and prior knowledge in instruction.	y1	3.40	0.65	0.03	0.27	0.786
	baseline	3.37	0.60			
Provide students opportunities to work together on projects.	y1	3.20	0.76	-0.11	-0.73	0.473
	baseline	3.31	0.72			

How often do you use digital media and technology to facilitate student learning in each of the following ways?:						
Baseline to Year 1 (n=35)	Time	M	SD	Difference	t	p
Conduct investigations.	y1	2.66	0.77	0.23	1.49	0.147
	baseline	2.43	0.88			
Create cues, questions or advanced organizers.	y1	2.74	0.92	0.31	1.68	0.102
	baseline	2.43	1.07			
Create graphic organizers for	y1	2.97	1.01	0.57	2.89	0.007

comparing, classifying, creating metaphors and analogies.						
	baseline	2.4	1.06			
Create physical models or use pictures to represent knowledge.	y1	3.14	0.81	0.48	2.63	0.013
	baseline	2.66	0.94			
Facilitate group collaboration and structure.	y1	3.23	0.81	0.54	2.87	0.007
	baseline	2.69	1.02			
Homework and practice.	y1	2.63	0.91	0.37	1.97	0.057
	baseline	2.26	0.89			
Note taking and synthesis of information.	y1	2.86	0.91	0.57	3.10	0.004
	baseline	2.29	1.05			
Provide feedback to students.	y1	3.2	0.76	0.51	2.24	0.032
	baseline	2.69	1.23			
Set student objectives.	y1	3.21	0.85	0.53	2.50	0.018
	baseline	2.68	1.25			
Share exemplary student work in classroom, school or with parents.	y1	3.23	0.73	0.57	2.89	0.007
	baseline	2.66	1.19			
Students create movies or animation projects.	y1	2.49	1.07	0.92	4.34	0.000
	baseline	1.57	0.98			
Track the relationship between effort and achievement.	y1	2.86	0.88	0.63	3.19	0.003
	baseline	2.23	1.11			

Table 2A. Two-Year Changes in Frequency of Digital Media Integration: Item-Level

Indicate how often you do the following activities						
Baseline to Year 2 (n=17)	**Time**	***M***	***SD***	**Difference**	***t***	***p***
Incorporate digital media into lesson plans.	y2	3.06	0.90	0.77	3.054	0.008
	baseline	2.29	0.77			
Provide students with multiple opportunities to correct mistakes in order to build mastery.	y2	3.29	0.69	0.05	0.251	0.805
	baseline	3.24	0.75			
Use authentic formative and/or summative performance tasks.	y2	3.41	0.62	0.35	1.852	0.083
	baseline	3.06	0.66			
Integrate project-based learning into instruction.	y2	3.35	0.70	0.11	0.696	0.496
	baseline	3.24	0.44			
Talk with other teachers about integrating digital media into instruction.	y2	3.24	0.83	0.53	2.045	0.058
	baseline	2.71	0.99			
Design instruction utilizing digital media tools.	y2	3.00	0.94	0.65	2.524	0.023
	baseline	2.35	0.86			
Play around with digital media tools and technology.	y2	3.06	0.83	0.59	3.05	0.008
	baseline	2.47	0.62			
Utilize students' background and prior knowledge in instruction.	y2	3.53	0.62	0.00	0	1
	baseline	3.53	0.51			
Provide students opportunities to work together on projects.	y2	3.65	0.49	0.12	0.808	0.431
	baseline	3.53	0.62			

How often do you use digital media and technology to facilitate student learning in each of the following ways?:						
Baseline to Year 2 (n=17)	**Time**	***M***	***SD***	**Difference**	***t***	***p***
Conduct investigations.	y2	3.06	0.90	0.65	2.864	0.011
	baseline	2.41	0.80			
Create cues, questions or advanced organizers.	y2	2.82	0.88	0.53	1.705	0.108
	baseline	2.29	0.92			
Create graphic organizers for comparing, classifying, creating metaphors and analogies.	y2	3.12	0.70	0.83	4.197	0.001
	baseline	2.29	0.85			
Create physical models or use pictures to represent knowledge.	y2	3.12	0.78	0.65	3.096	0.007
	baseline	2.47	0.87			

	Time	M	SD		t	p
Facilitate group collaboration and structure.	y2	3.24	0.90	0.59	1.661	0.116
	baseline	2.65	1.00			
Homework and practice.	y2	2.71	1.05	0.65	2.184	0.044
	baseline	2.06	0.75			
Note taking and synthesis of information.	y2	2.76	1.09	0.58	1.898	0.076
	baseline	2.18	1.02			
Provide feedback to students.	y2	3.24	0.97	0.65	2.021	0.06
	baseline	2.59	1.28			
Set student objectives.	y2	3.29	0.92	0.64	1.89	0.077
	baseline	2.65	1.27			
Share exemplary student work in classroom, school or with parents.	y2	2.76	1.09	0	0	1
	baseline	2.76	1.20			
Students create movies or animation projects.	y2	2.38	0.96	0.88	2.907	0.011
	baseline	1.5	0.82			
Track the relationship between effort and achievement.	y2	2.65	1.06	0.24	0.808	0.431
	baseline	2.41	1.00			

Table 3A. One-Year Changes in Teacher Self-Efficacy for Digital Media Integration: Item-Level Results

After Year 1 (n=35)					
	Time	M	SD	t	p
Use digital media in lessons to engage students in learning.	y1	3.17	0.86	3.932	0.000
	baseline	2.63	0.81		
Incorporate real world problems in instruction.	y1	3.29	0.71	2.721	0.010
	baseline	2.91	0.78		
Get support for developing lessons or units that integrate digital media.	y1	3.26	0.82	2.692	0.011
	baseline	2.77	0.91		
Develop units that effectively integrate digital media.	y1	3.03	0.86	3.625	0.001
	baseline	2.49	0.82		
Integrate digital media into core academic instruction.	y1	2.91	0.71	3.699	0.001
	baseline	2.41	0.66		
Adapt or create performance tasks integrating digital media tools.	y1	3	0.87	4.028	0.000
	baseline	2.4	0.70		

Design curriculum to use digital media tools to enhance content, instruction, and student engagement.	y1	3.03	0.86	3.636	0.001
	baseline	2.43	0.88		
Provide leadership to help others to coordinate the use of content, digital media tools and technologies, and teaching approaches at my school.	y1	2.6	0.95	3.625	0.001
	baseline	2.06	1.00		
Choose digital media tools and technologies that enhance lesson content.	y1	2.83	0.86	3.824	0.001
	baseline	2.26	0.82		
Choose digital media tools and technologies that enhance students' learning.	y1	2.89	0.90	3.688	0.001
	baseline	2.31	0.87		
Learn how to use new digital media tools and technologies.	y1	3.17	0.75	1.995	0.054
	baseline	2.86	0.85		
Create a safe environment for students to explore and take risks.	y1	3.44	0.61	3.423	0.002
	baseline	3.03	0.72		
Use student interests in designing content lessons.	y1	3.11	0.68	2.144	0.039
	baseline	2.83	0.82		
Influence the decisions that are made in the school.	y1	2.63	0.69	1.675	0.103
	baseline	2.4	0.91		
Express my views freely on important school matters.	y1	2.85	0.86	0.297	0.768
	baseline	2.79	0.98		
Get the instructional materials and equipment I need.	y1	2.86	0.69	1.552	0.130
	baseline	2.6	0.78		
Reach the most difficult students.	y1	2.91	0.82	2.234	0.032
	baseline	2.6	0.65		
Get students to learn when there is a lack of support from the home.	y1	2.88	0.77	0.961	0.343
	baseline	2.74	0.71		
Keep students on task on difficult assignments.	y1	2.94	0.64	0.813	0.422
	baseline	2.83	0.71		
Increase student's use of critical feedback to inform future work.	y1	2.86	0.81	2.066	0.047
	baseline	2.54	0.70		
Motivate students who show low interest in schoolwork.	y1	2.97	0.67	1.044	0.304

	baseline	2.82	0.72		
Provide opportunities for collaboration.	y1	3.03	0.57	-0.442	0.661
	baseline	3.09	0.70		
Overcome the influence of adverse community conditions on students' learning.	y1	2.88	0.64	0.849	0.402
	baseline	2.76	0.70		
Get students to follow classroom rules.	y1	3.29	0.62	0.529	0.600
	baseline	3.23	0.65		
Incorporate play and exploration into classroom instruction.	y1	3.2	0.76	1.506	0.141
	baseline	2.94	0.84		
Incorporate student choice into classroom instruction.	y1	3.24	0.74	2.659	0.012
	baseline	2.88	0.69		
Design classroom routines that enable all students to participate in classroom activities.	y1	3.26	0.66	0.206	0.838
	baseline	3.23	0.69		
Assist parents in helping their children do well in school.	y1	2.74	0.82	1.139	0.263
	baseline	2.57	0.82		
Make parents feel comfortable coming to school.	y1	2.97	0.89	0.000	1.000
	baseline	2.97	0.86		
Make the school a safe place.	y1	3.2	0.80	0.000	1.000
	baseline	3.2	0.68		
Make students enjoy coming to school.	y1	3.29	0.75	1.747	0.090
	baseline	3.09	0.74		
Get students to believe they can do well in school work.	y1	3.44	0.61	1.852	0.073
	baseline	3.21	0.64		

Table 4A. Two-Year Changes in Teacher Self-Efficacy for Digital Media Integration: Item-Level Results

After Year 2 (n=17)	Time	*M*	*SD*	*t*	*p*
Use digital media in lessons to engage students in learning.	y2	3.06	0.75	4.243	0.001
	baseline	2.35	0.70		
Incorporate real world problems in instruction.	y2	3.24	0.75	2.219	0.041
	baseline	2.76	0.66		
Get support for developing lessons or units that integrate digital media.	y2	3.35	0.61	4.243	0.001
	baseline	2.47	0.80		
Develop units that effectively integrate digital media.	y2	3.24	0.75	4.408	0.000
	baseline	2.24	0.56		
Integrate digital media into core academic instruction.	y2	2.94	0.90	2.279	0.037
	baseline	2.35	0.61		
Adapt or create performance tasks integrating digital media tools.	y2	3.12	0.70	3.490	0.003
	baseline	2.35	0.61		
Design curriculum to use digital media tools to enhance content, instruction, and student engagement.	y2	3.06	0.75	5.339	0.000
	baseline	2.24	0.66		
Provide leadership to help others to coordinate the use of content, digital media tools and technologies, and teaching approaches at my school.	y2	2.53	0.87	3.801	0.002
	baseline	1.88	0.78		
Choose digital media tools and technologies that enhance lesson content.	y2	2.82	0.73	2.864	0.011
	baseline	2.18	0.64		
Choose digital media tools and technologies that enhance students' learning.	y2	2.82	0.73	2.864	0.011
	baseline	2.18	0.64		
Learn how to use new digital media tools and technologies.	y2	2.82	0.73	0.523	0.608
	baseline	2.71	0.69		
Create a safe environment for students to explore and take risks.	y2	3.31	0.60	1.291	0.216
	baseline	3.06	0.77		
Use student interests in designing content lessons.	y2	3	0.79	0.293	0.773
	baseline	2.94	0.83		

Influence the decisions that are made in the school.	y2	2.75	0.93	1.074	0.300
	baseline	2.5	0.97		
Express my views freely on important school matters.	y2	3	0.87	0.223	0.826
	baseline	2.94	0.97		
Get the instructional materials and equipment I need.	y2	3.06	0.66	1.074	0.299
	baseline	2.82	0.64		
Reach the most difficult students.	y2	2.94	0.66	2.400	0.029
	baseline	2.59	0.62		
Get students to learn when there is a lack of support from the home.	y2	3	0.61	0.824	0.422
	baseline	2.82	0.73		
Keep students on task on difficult assignments.	y2	3	0.61	0.000	1.000
	baseline	3	0.61		
Increase student's use of critical feedback to inform future work.	y2	2.88	0.60	0.899	0.382
	baseline	2.71	0.59		
Motivate students who show low interest in schoolwork.	y2	3	0.63	0.000	1.000
	baseline	3	0.63		
Provide opportunities for collaboration.	y2	3.24	0.66	0.523	0.608
	baseline	3.12	0.78		
Overcome the influence of adverse community conditions on students' learning.	y2	3	0.71	0.621	0.543
	baseline	2.88	0.70		
Get students to follow classroom rules.	y2	3.18	0.73	0.000	1.000
	baseline	3.18	0.64		
Incorporate play and exploration into classroom instruction.	y2	3.18	0.73	-0.368	0.718
	baseline	3.24	0.66		
Incorporate student choice into classroom instruction.	y2	3.24	0.75	0.621	0.543
	baseline	3.12	0.70		
Design classroom routines that enable all students to participate in classroom activities.	y2	3.18	0.73	-0.293	0.773
	baseline	3.24	0.56		
Assist parents in helping their children do well in school.	y2	2.82	0.81	0.460	0.651
	baseline	2.71	0.69		

	Time	M	SD	t	p
Make parents feel comfortable coming to school.	y2	3.12	0.78	0.523	0.608
	baseline	3	0.71		
Make the school a safe place.	y2	3.18	0.73	-0.621	0.543
	baseline	3.29	0.59		
Make students enjoy coming to school.	y2	3.24	0.66	1.000	0.332
	baseline	3.06	0.66		
Get students to believe they can do well in school work.	y2	3.35	0.61	0.808	0.431
	baseline	3.24	0.44		

Table 5A. One-Year Changes in Teacher Perceived Value of Digital Media Integration: Item-Level Results

Baseline to Year 1 (n = 35)					
	Time	M	SD	t	p
Infusing digital media into math, reading/language arts, or science.	y1	3.51	0.56	1.862	0.071
	baseline	3.26	0.74		
Designing opportunities for students to demonstrate digital media skills.	y1	3.34	0.54	0.403	0.689
	baseline	3.29	0.79		
Using digital media for improving student achievement.	y1	3.37	0.55	-0.197	0.845
	baseline	3.4	0.78		
Providing opportunities for students to express opinions or questions.	y1	3.63	0.49	0.594	0.556
	baseline	3.54	0.78		
Incorporating student interests in classroom instruction.	y1	3.69	0.47	2.066	0.047
	baseline	3.37	0.81		
Designing constructive opportunities for students to make mistakes.	y1	3.6	0.55	0.867	0.392
	baseline	3.46	0.78		
Incorporating opportunities for students to participate in authentic dialogue with peers.	y1	3.6	0.60	0.702	0.487
	baseline	3.49	0.78		
Incorporating opportunities for students to participate in authentic dialogue with experts or other outside of the classroom using publishing, blogs, or other media tools.	y1	3.43	0.61	0.361	0.721
	baseline	3.37	0.81		
Designing opportunities for student to express themselves in multiple ways.	y1	3.74	0.44	0.751	0.458
	baseline	3.63	0.77		

Table 6A. Two-Year Changes in Teacher Perceived Value of Digital Media Integration: Item-Level Results

Baseline to Year 2 (n = 17)					
	Time	*M*	*SD*	*t*	*p*
Infusing digital media into math, reading/language arts, or science.	y2	3.24	0.44	0.000	1.000
	baseline	3.24	0.44		
Designing opportunities for students to demonstrate digital media skills.	y2	3.12	0.60	-1.852	0.083
	baseline	3.29	0.59		
Using digital media for improving student achievement.	y2	3.24	0.44	-2.219	0.041
	baseline	3.47	0.51		
Providing opportunities for students to express opinions or questions.	y2	3.53	0.51	-0.696	0.496
	baseline	3.65	0.49		
Incorporating student interests in classroom instruction.	y2	3.65	0.49	0.808	0.431
	baseline	3.53	0.51		
Designing constructive opportunities for students to make mistakes.	y2	3.41	0.51	0.000	1.000
	baseline	3.41	0.51		
Incorporating opportunities for students to participate in authentic dialogue with peers.	y2	3.35	0.61	-1.376	0.188
	baseline	3.53	0.51		
Incorporating opportunities for students to participate in authentic dialogue with experts or other outside of the classroom using publishing, blogs, or other media tools.	y2	3.41	0.62	0.000	1.000
	baseline	3.41	0.62		
Designing opportunities for student to express themselves in multiple ways.	y2	3.41	0.51	-2.400	0.029
	baseline	3.76	0.44		

APPENDIX C. Student Survey Item-Level Results

Convergence Student Survey: Grade 2–3 Baseline, Post Year 1, and Post Year 2

How often do you do the following during regular school time? (Click one circle in each row.)							
Question	Time	1	2	3	4	n	M
I use technology to make videos.	Baseline	62.64%	23.08%	5.49%	8.79%	91	1.60
	Post Y1	29.09%	38.18%	14.55%	18.18%	55	2.22
	Post Y2	40.51%	34.18%	5.06%	20.25%	79	2.05
I use technology to take photographs to show others.	Baseline	55.06%	24.72%	12.36%	7.87%	89	1.73
	Post Y1	30.91%	45.45%	7.27%	16.36%	55	2.09
	Post Y2	30.38%	27.85%	15.19%	26.58%	79	2.38
I share new things I have learned or find interesting with family or friends.	Baseline	10.84%	25.30%	16.87%	46.99%	83	3.00
	Post Y1	7.41%	25.93%	16.67%	50.00%	54	3.09
	Post Y2	11.39%	16.46%	22.78%	49.37%	79	3.10
I play video games online with other kids.	Baseline	25.58%	36.05%	10.47%	27.91%	86	2.41
	Post Y1	29.63%	31.48%	3.70%	35.19%	54	2.44
	Post Y2	31.65%	27.85%	8.86%	31.65%	79	2.41
I can do things that I am interested in.	Baseline	21.84%	26.44%	13.79%	37.93%	87	2.68
	Post Y1	20.37%	25.93%	24.07%	29.63%	54	2.63
	Post Y2	10.39%	19.48%	15.58%	54.55%	77	3.14

1=Never, 2=Sometimes, 3=Usually, 4=Always

I think I can:							
Question	Time	1	2	3	4	n	M
I think that I can use technology to show others my work and share my thoughts.	Baseline	19.32%	18.18%	26.14%	36.36%	88	2.80
	Post Y1	20.00%	9.09%	34.55%	36.36%	55	2.87
	Post Y2	13.92%	17.72%	35.44%	32.91%	79	2.87
I think that I can share my creative work with my classmates.	Baseline	11.49%	11.49%	9.20%	67.82%	87	3.33
	Post Y1	1.85%	9.26%	18.52%	70.37%	54	3.57
	Post Y2	7.69%	10.26%	24.36%	57.69%	78	3.32

1=Not At All, 2=Not Really, 3=Sort of / Maybe, 4=Yes For Sure

In your class this year, how often do you do the following?							
Question	Time	1	2	3	4	n	M
Work with partners or a group to make my writing or reading better	Baseline	12.22%	30.00%	12.22%	45.56%	90	2.91
	Post Y1	3.64%	38.18%	18.18%	40.00%	55	2.95
	Post Y2	5.06%	35.44%	15.19%	44.30%	79	2.99
Redo my work after someone looks at it	Baseline	25.84%	26.97%	11.24%	35.96%	89	2.57
	Post Y1	20.37%	38.89%	9.26%	31.48%	54	2.52
	Post Y2	10.13%	25.32%	26.58%	37.97%	79	2.92
Tell other students how to make their work better	Baseline	14.61%	32.58%	17.98%	34.83%	89	2.73
	Post Y1	20.00%	40.00%	20.00%	20.00%	55	2.40
	Post Y2	8.97%	39.74%	17.95%	33.33%	78	2.76
Talk about something I've read	Baseline	22.73%	23.86%	17.05%	36.36%	88	2.67
	Post Y1	18.52%	33.33%	16.67%	31.48%	54	2.61
	Post Y2	9.09%	29.87%	16.88%	44.16%	77	2.96
Make connections between a story and my life	Baseline	28.41%	30.68%	10.23%	30.68%	88	2.43
	Post Y1	22.64%	26.42%	18.87%	32.08%	53	2.60
	Post Y2	26.32%	23.68%	14.47%	35.53%	76	2.59
Explain how I solved a math problem	Baseline	5.68%	28.41%	17.05%	48.86%	88	3.09
	Post Y1	5.45%	21.82%	14.55%	58.18%	55	3.25
	Post Y2	6.33%	27.85%	16.46%	49.37%	79	3.09
Talk about how to use math in everyday life	Baseline	20.22%	25.84%	21.35%	32.58%	89	2.66
	Post Y1	16.36%	29.09%	21.82%	32.73%	55	2.71
	Post Y2	15.38%	28.21%	26.92%	29.49%	78	2.71
Work on a project that takes more than one day	Baseline	24.14%	31.03%	13.79%	31.03%	87	2.52
	Post Y1	16.36%	34.55%	14.55%	34.55%	55	2.67
	Post Y2	5.19%	33.77%	23.38%	37.66%	77	2.94
Debate ideas and answers with other students	Baseline	26.44%	25.29%	16.09%	32.18%	87	2.54
	Post Y1	24.53%	22.64%	26.42%	26.42%	53	2.55
	Post Y2	15.58%	35.06%	23.38%	25.97%	77	2.60

1=Never, 2=Sometimes, 3=Usually, 4=Always

How much do you agree with the following statements?							
Question	Time	1	2	3	4	n	M
Other students in my school listen to me.	Baseline	17.58%	20.88%	26.37%	35.16%	91	2.79
	Post Y1	18.18%	18.18%	27.27%	36.36%	55	2.82
	Post Y2	19.23%	21.79%	37.18%	21.79%	78	2.62
I feel like I am important at school.	Baseline	15.56%	8.89%	30.00%	45.56%	90	3.06
	Post Y1	18.52%	14.81%	14.81%	51.85%	54	3.00
	Post Y2	7.59%	12.66%	24.05%	55.70%	79	3.28
My school puts up my work so others can see it.	Baseline	7.78%	12.22%	20.00%	60.00%	90	3.32
	Post Y1	12.73%	12.73%	29.09%	45.45%	55	3.07
	Post Y2	2.63%	7.89%	34.21%	55.26%	76	3.42
People at school notice when I'm good at something.	Baseline	8.99%	12.36%	32.58%	46.07%	89	3.16
	Post Y1	12.96%	12.96%	18.52%	55.56%	54	3.17
	Post Y2	9.09%	10.39%	36.36%	44.16%	77	3.16
I like using technology at school.	Baseline	13.48%	7.87%	19.10%	59.55%	89	3.25
	Post Y1	1.85%	7.41%	20.37%	70.37%	54	3.59
	Post Y2	2.56%	11.54%	28.21%	57.69%	78	3.41
I participate in class.	Baseline	0.00%	11.11%	17.78%	71.11%	90	3.60
	Post Y1	3.70%	7.41%	38.89%	50.00%	54	3.35
	Post Y2	6.58%	10.53%	40.79%	42.11%	76	3.18
I keep doing schoolwork even if I am bored.	Baseline	6.74%	7.87%	25.84%	59.55%	89	3.38
	Post Y1	3.77%	11.32%	24.53%	60.38%	53	3.42
	Post Y2	6.49%	18.18%	29.87%	45.45%	77	3.14
Schoolwork is interesting.	Baseline	7.95%	7.95%	27.27%	56.82%	88	3.33
	Post Y1	3.92%	9.80%	31.37%	54.90%	51	3.37
	Post Y2	7.14%	14.29%	27.14%	51.43%	70	3.23
I get to work with classroom visitors when I use technology.	Baseline	25.56%	15.56%	26.67%	32.22%	90	2.66
	Post Y1	7.27%	3.64%	47.27%	41.82%	55	3.24
	Post Y2	14.10%	12.82%	38.46%	34.62%	78	2.94
Visitors come to my classroom and help me learn about technology.	Baseline	34.44%	15.56%	24.44%	25.56%	90	2.41
	Post Y1	5.45%	10.91%	40.00%	43.64%	55	3.22
	Post Y2	12.99%	10.39%	32.47%	44.16%	77	3.08
My teachers like to use technology in class.	Baseline	5.49%	8.79%	21.98%	63.74%	91	3.44
	Post Y1	0.00%	5.45%	21.82%	72.73%	55	3.67
	Post Y2	3.90%	6.49%	35.06%	54.55%	77	3.40

1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree

How much do you agree the statement is true for you?							
Question	Time	1	2	3	4	n	M
If I can't do something on a computer the first time, I keep trying until I can.	Baseline	8.79%	7.69%	25.27%	58.24%	91	3.33
	Post Y1	1.82%	10.91%	38.18%	49.09%	55	3.35
	Post Y2	8.97%	11.54%	32.05%	47.44%	78	3.18
It is hard to focus when I am using technology.	Baseline	17.78%	21.11%	28.89%	32.22%	90	2.76
	Post Y1	14.55%	25.45%	36.36%	23.64%	55	2.69
	Post Y2	17.57%	32.43%	25.68%	24.32%	74	2.57
I can play with technology to learn to use it.	Baseline	13.19%	18.68%	21.98%	46.15%	91	3.01
	Post Y1	1.82%	10.91%	27.27%	60.00%	55	3.45
	Post Y2	9.46%	12.16%	31.08%	47.30%	74	3.16
If technology breaks, I don't know what to do.	Baseline	19.54%	19.54%	22.99%	37.93%	87	2.79
	Post Y1	28.30%	13.21%	20.75%	37.74%	53	2.68
	Post Y2	23.61%	19.44%	19.44%	37.50%	72	2.71
I don't like using new technology.	Baseline	47.19%	17.98%	5.62%	29.21%	89	2.17
	Post Y1	44.44%	18.52%	5.56%	31.48%	54	2.24
	Post Y2	36.00%	29.33%	12.00%	22.67%	75	2.21
When I can't understand something about technology, I ask for help.	Baseline	12.36%	14.61%	25.84%	47.19%	89	3.08
	Post Y1	3.70%	7.41%	33.33%	55.56%	54	3.41
	Post Y2	9.33%	12.00%	26.67%	52.00%	75	3.21
I see connections between what I learn in school and home.	Baseline	8.14%	12.79%	23.26%	55.81%	86	3.27
	Post Y1	7.41%	14.81%	31.48%	46.30%	54	3.17
	Post Y2	8.00%	16.00%	25.33%	50.67%	75	3.19
I get to use technology to play.	Baseline	17.05%	11.36%	15.91%	55.68%	88	3.10
	Post Y1	11.54%	7.69%	19.23%	61.54%	52	3.31
	Post Y2	7.89%	10.53%	32.89%	48.68%	76	3.22

1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree

How often do you do the following during your free time?							
Question	Time	1	2	3	4	n	M
I use computers during free time outside of school to do homework.	Baseline	41.11%	25.56%	6.67%	26.67%	90	2.19
	Post Y1	41.51%	24.53%	9.43%	24.53%	53	2.17
	Post Y2	32.00%	25.33%	10.67%	32.00%	75	2.43
I use computers during my free time outside of school to learn about things that are interesting to me.	Baseline	32.22%	18.89%	12.22%	36.67%	90	2.53
	Post Y1	43.40%	20.75%	11.32%	24.53%	53	2.17
	Post Y2	28.57%	22.08%	15.58%	33.77%	77	2.55

1=Never, 2=Sometimes, 3=Usually, 4=Always

Convergence Student Survey: Grade 4–7 Baseline, Post Year 1, and Post Year 2

How often do you do the following during regular school time? (Click one circle in each row.)							
Question	Time	1	2	3	4	n	M
I use technology to make videos.	Baseline	28.93%	61.01%	7.55%	2.52%	159	1.84
	Post Y1	14.50%	45.04%	23.66%	16.79%	131	2.43
	Post Y2	21.15%	47.58%	17.62%	13.66%	227	2.24
I use technology to take photographs.	Baseline	50.94%	24.53%	11.32%	13.21%	159	1.87
	Post Y1	18.32%	44.27%	19.08%	18.32%	131	2.37
	Post Y2	14.16%	40.27%	20.80%	24.78%	226	2.56
I use technology to make music and sounds to share with others.	Baseline	58.23%	20.25%	8.23%	13.29%	158	1.77
	Post Y1	36.64%	37.40%	17.56%	8.40%	131	1.98
	Post Y2	37.00%	36.12%	12.33%	14.54%	227	2.04
I use digital media (video, sound, pictures) in presentations.	Baseline	20.89%	45.57%	21.52%	12.03%	158	2.25
	Post Y1	15.27%	22.90%	30.53%	31.30%	131	2.78
	Post Y2	13.33%	29.78%	31.56%	25.33%	225	2.69
I share new things I have learned or find interesting.	Baseline	6.37%	54.78%	19.11%	19.75%	157	2.52
	Post Y1	6.25%	39.84%	28.91%	25.00%	128	2.73
	Post Y2	6.28%	39.01%	31.84%	22.87%	223	2.71
I play or chat online with people (e.g. message boards, blogs, team games).	Baseline	33.33%	26.42%	16.98%	23.27%	159	2.30
	Post Y1	24.03%	31.78%	17.05%	27.13%	129	2.47
	Post Y2	13.16%	27.19%	24.56%	35.09%	228	2.82
I make connections to things or do things that I am interested in.	Baseline	10.76%	44.30%	29.75%	15.19%	158	2.49
	Post Y1	7.69%	36.92%	34.62%	20.77%	130	2.68
	Post Y2	5.73%	42.29%	30.84%	21.15%	227	2.67
I talk to a professional or expert in something.	Baseline	38.06%	39.35%	18.06%	4.52%	155	1.89
	Post Y1	22.48%	45.74%	19.38%	12.40%	129	2.22
	Post Y2	21.15%	43.17%	19.38%	16.30%	227	2.31
I use technology to create graphs or other visuals to present something.	Baseline	37.97%	38.61%	16.46%	6.96%	158	1.92
	Post Y1	17.69%	32.31%	28.46%	21.54%	130	2.54
	Post Y2	14.10%	33.48%	25.99%	26.43%	227	2.65

1=Never, 2=Sometimes, 3=Usually, 4=Always

How confident are you that you can do the following?							
Question	Time	1	2	3	4	n	M
I can present information in different ways, such as through photos, video, writing, drawing, etc.	Baseline	14.47%	32.08%	40.88%	12.58%	159	2.52
	Post Y1	5.38%	26.15%	40.00%	28.46%	130	2.92
	Post Y2	10.18%	37.61%	30.09%	22.12%	226	2.64
I can upload and edit my own photos, videos, and sound.	Baseline	21.52%	26.58%	26.58%	25.32%	158	2.56
	Post Y1	12.50%	25.78%	28.13%	33.59%	128	2.83
	Post Y2	12.16%	31.53%	28.38%	27.93%	222	2.72
I can use video to show others something.	Baseline	12.03%	27.85%	42.41%	17.72%	158	2.66
	Post Y1	10.00%	24.62%	26.92%	38.46%	130	2.94
	Post Y2	9.42%	27.35%	32.74%	30.49%	223	2.84
I can use drawing or images that I made with technology to show others something.	Baseline	13.29%	32.91%	37.34%	16.46%	158	2.57
	Post Y1	6.15%	26.92%	37.69%	29.23%	130	2.90
	Post Y2	13.78%	28.00%	34.67%	23.56%	225	2.68
I can share things I've made with my classmates.	Baseline	9.49%	25.95%	28.48%	36.08%	158	2.91
	Post Y1	14.06%	36.72%	32.03%	17.19%	126	3.17
	Post Y2	5.45%	20.91%	34.09%	39.55%	220	3.08
I can share things I've made work with a larger audience.	Baseline	35.44%	36.08%	18.35%	10.13%	158	2.03
	Post Y1	3.97%	19.84%	31.75%	44.44%	128	2.52
	Post Y2	19.20%	34.38%	28.13%	18.30%	224	2.46
I can find resources online/doing online research.	Baseline	11.32%	21.38%	28.93%	38.36%	159	2.94
	Post Y1	3.97%	19.84%	31.75%	44.44%	129	3.26
	Post Y2	6.73%	17.04%	32.29%	43.95%	223	3.13
I can determine if information I find online is trustworthy.	Baseline	28.93%	30.82%	27.04%	13.21%	159	2.25
	Post Y1	10.77%	33.08%	33.08%	23.08%	130	2.68
	Post Y2	9.78%	35.56%	32.44%	22.22%	225	2.67
I can determine if information I find online is true.	Baseline	28.48%	29.11%	27.85%	14.56%	158	2.28
	Post Y1	6.25%	38.28%	32.03%	23.44%	128	2.73
	Post Y2	11.56%	33.33%	28.00%	27.11%	225	2.71

1=Not at all confident, 2=Somewhat confident, 3=Moderately confident, 4=Very confident

How much do you agree with the following statements?							
Question	Time	1	2	3	4	n	M
Other students in my school listen to me.	Baseline	10.90%	23.08%	56.41%	9.62%	156	2.65
	Post Y1	10.77%	16.92%	55.38%	16.92%	130	2.78
	Post Y2	7.80%	23.85%	50.92%	17.43%	218	2.78
I feel like I am important at school.	Baseline	11.54%	26.28%	42.31%	19.87%	156	2.71
	Post Y1	6.98%	18.60%	48.84%	25.58%	129	2.93
	Post Y2	7.41%	20.83%	51.85%	19.91%	216	2.84
My school displays student work.	Baseline	3.92%	14.38%	39.87%	41.83%	153	3.20
	Post Y1	3.10%	9.30%	49.61%	37.98%	129	3.22
	Post Y2	5.53%	14.29%	47.93%	32.26%	217	3.07
People at school notice when I'm good at something.	Baseline	7.10%	16.77%	46.45%	29.68%	155	2.99
	Post Y1	3.91%	21.09%	39.06%	35.94%	128	3.07
	Post Y2	6.94%	12.96%	48.15%	31.94%	216	3.05
People at school are nice.	Baseline	16.67%	30.13%	33.97%	19.23%	156	2.56
	Post Y1	12.50%	23.44%	51.56%	12.50%	128	2.64
	Post Y2	11.76%	22.62%	49.32%	16.29%	221	2.70
I look forward to using technology in school.	Baseline	3.25%	4.55%	34.42%	57.79%	154	3.47
	Post Y1	1.57%	3.94%	34.65%	59.84%	127	3.53
	Post Y2	1.82%	11.36%	35.00%	51.82%	220	3.37
I participate in class.	Baseline	4.55%	15.58%	50.00%	29.87%	154	3.05
	Post Y1	3.97%	13.49%	54.76%	27.78%	126	3.06
	Post Y2	2.31%	18.98%	50.93%	27.78%	216	3.04
I keep doing schoolwork even if I am bored.	Baseline	2.56%	15.38%	48.72%	33.33%	156	3.13
	Post Y1	4.80%	14.40%	44.00%	36.80%	125	3.13
	Post Y2	4.57%	20.55%	42.47%	32.42%	219	3.03
Sometimes I get so interested in my work I don't want to stop.	Baseline	7.10%	11.61%	39.35%	41.94%	155	3.16
	Post Y1	2.36%	11.02%	47.24%	39.37%	127	3.24
	Post Y2	6.33%	15.38%	45.25%	33.03%	221	3.05
I get to work with experts in digital media who are not my teacher.	Baseline	24.03%	37.66%	27.92%	10.39%	154	2.25
	Post Y1	10.94%	21.88%	44.53%	22.66%	128	2.79
	Post Y2	5.41%	24.77%	48.20%	21.62%	222	2.86
My teacher likes to use technology in class.	Baseline	11.11%	16.99%	41.18%	30.72%	153	2.92
	Post Y1	3.17%	13.49%	33.33%	50.00%	126	3.30
	Post Y2	2.26%	11.31%	52.04%	34.39%	221	3.19

1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree

How much do you agree with the following statements?

Question	Time	1	2	3	4	n	M
If I can't do something on a computer the first time, I keep trying until I can.	Baseline	4.46%	10.19%	54.78%	30.57%	157	3.11
	Post Y1	4.80%	13.60%	48.80%	32.80%	125	3.10
	Post Y2	5.09%	17.13%	48.15%	29.63%	216	3.02
It is hard to focus when I am using technology.	Baseline	20.38%	35.67%	29.30%	14.65%	157	2.38
	Post Y1	18.25%	41.27%	24.60%	15.87%	126	2.38
	Post Y2	18.14%	34.88%	29.77%	17.21%	215	2.46
I can play with technology to learn to use it.	Baseline	7.01%	9.55%	49.04%	34.39%	157	3.11
	Post Y1	3.17%	9.52%	54.76%	32.54%	126	3.17
	Post Y2	2.80%	11.68%	53.74%	31.78%	214	3.14
To solve problems or find information, I use the internet to find what I am looking for.	Baseline	2.56%	14.10%	41.67%	41.67%	156	3.22
	Post Y1	1.60%	9.60%	53.60%	35.20%	125	3.22
	Post Y2	3.26%	10.23%	45.12%	41.40%	215	3.25
When technology doesn't work, I don't know what to do.	Baseline	28.21%	35.26%	23.72%	12.82%	156	2.21
	Post Y1	19.84%	31.75%	33.33%	15.08%	126	2.44
	Post Y2	17.13%	35.65%	31.48%	15.74%	216	2.46
I don't like using new technology.	Baseline	54.19%	25.16%	11.61%	9.03%	155	1.75
	Post Y1	49.61%	29.92%	12.60%	7.87%	127	1.79
	Post Y2	40.37%	34.40%	13.30%	11.93%	218	1.97
When I can't understand something about technology, I ask for help.	Baseline	4.46%	10.83%	37.58%	47.13%	157	3.27
	Post Y1	1.57%	11.81%	48.82%	37.80%	127	3.23
	Post Y2	4.11%	10.96%	50.68%	34.25%	219	3.15
I know how to keep myself safe online.	Baseline	14.19%	9.03%	33.55%	43.23%	155	3.06
	Post Y1	3.23%	9.68%	32.26%	54.84%	124	3.39
	Post Y2	2.31%	8.80%	37.04%	51.85%	216	3.38
I can understand things on TV or the internet.	Baseline	5.81%	7.74%	52.90%	33.55%	155	3.14
	Post Y1	3.23%	10.48%	38.71%	47.58%	124	3.31
	Post Y2	1.83%	10.55%	54.59%	33.03%	218	3.19
I recognize prejudice or bias in media (racism, sexism, etc.).	Baseline	24.52%	24.52%	25.81%	25.16%	155	2.52
	Post Y1	10.48%	13.71%	43.55%	32.26%	124	2.98
	Post Y2	6.85%	16.44%	45.21%	31.51%	219	3.01

1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree

How often do you do the following during your free time?							
Question	Time	1	2	3	4	N	M
I am interested in learning more about technology and using digital media.	Baseline	4.49%	18.59%	24.36%	52.56%	156	3.25
	Post Y1	6.25%	21.09%	33.59%	39.06%	128	3.05
	Post Y2	5.48%	26.94%	32.42%	35.16%	219	2.97
I think about how people like me are represented in movies, TV shows, and magazines.	Baseline	31.21%	42.04%	17.83%	8.92%	157	2.04
	Post Y1	22.66%	42.97%	23.44%	10.94%	128	2.23
	Post Y2	24.20%	33.79%	26.94%	15.07%	219	2.33
I use technology during free time outside of school to do homework.	Baseline	19.23%	26.92%	22.44%	31.41%	156	2.66
	Post Y1	15.20%	26.40%	32.80%	25.60%	125	2.69
	Post Y2	12.33%	30.59%	27.40%	29.68%	219	2.74
I use text messaging or email to share new things I have learned or find interesting.	Baseline	29.94%	40.76%	21.02%	8.28%	157	2.08
	Post Y1	17.32%	35.43%	30.71%	16.54%	127	2.46
	Post Y2	13.24%	31.05%	31.05%	24.66%	219	2.67
I use technology during my free time outside of school to learn about things that are interesting to me.	Baseline	19.11%	27.39%	23.57%	29.94%	157	2.64
	Post Y1	13.49%	24.60%	32.54%	29.37%	126	2.78
	Post Y2	14.61%	25.11%	27.85%	32.42%	219	2.78
I talk or collaborate with people online (e.g. message boards, blogs, team games).	Baseline	24.20%	28.66%	21.02%	26.11%	157	2.49
	Post Y1	20.31%	31.25%	27.34%	21.09%	128	2.49
	Post Y2	11.87%	26.94%	27.85%	33.33%	219	2.83
I get information on a topic from more than one source.	Baseline	19.87%	25.64%	33.33%	21.15%	156	2.56
	Post Y1	6.40%	28.80%	36.80%	28.00%	125	2.86
	Post Y2	6.64%	25.12%	39.34%	28.91%	211	2.91
When I search for something online, I decide which search results will be the most useful.	Baseline	17.95%	28.21%	27.56%	26.28%	156	2.62
	Post Y1	4.76%	25.40%	37.30%	32.54%	126	2.98
	Post Y2	4.59%	25.69%	32.57%	37.16%	218	3.02

1=Never, 2=Sometimes, 3=Usually, 4=Always

Convergence Student Survey: Grade 8 Baseline, Post Year 1, and Post Year 2

How often do you do the following during regular school time?							
Question	Time	1	2	3	4	n	M
I use digital media (video, audio, or pictures) in presentations for class.	Baseline	8.00%	56.00%	32.00%	4.00%	25	2.32
	Post Y1	2.38%	21.43%	28.57%	47.62%	42	3.21
	Post Y2	3.08%	33.85%	44.62%	18.46%	65	2.78
I use social media sites (Facebook, Twitter, etc.) to share new things I have learned or find interesting.	Baseline	68.00%	28.00%	0.00%	4.00%	25	1.40
	Post Y1	40.48%	19.05%	26.19%	14.29%	42	2.14
	Post Y2	29.23%	33.85%	16.92%	20.00%	65	2.28
I use text messaging or email to share new things I have learned or find interesting.	Baseline	13.04%	52.17%	30.43%	4.35%	23	2.26
	Post Y1	16.67%	21.43%	40.48%	21.43%	42	2.67
	Post Y2	20.00%	29.23%	30.77%	20.00%	65	2.51
I comment on articles, photos, or videos online.	Baseline	32.00%	36.00%	20.00%	12.00%	25	2.12
	Post Y1	30.23%	37.21%	23.26%	9.30%	43	2.12
	Post Y2	18.46%	24.62%	35.38%	21.54%	65	2.60
I communicate with people online (e.g. message boards, blogs, team games).	Baseline	28.00%	40.00%	24.00%	8.00%	25	2.12
	Post Y1	25.58%	20.93%	23.26%	30.23%	43	2.58
	Post Y2	16.92%	20.00%	32.31%	30.77%	65	2.77
I connect what I am learning to things that I am interested in or passionate about.	Baseline	20.83%	37.50%	33.33%	8.33%	24	2.29
	Post Y1	11.63%	34.88%	25.58%	27.91%	43	2.70
	Post Y2	7.69%	32.31%	35.38%	24.62%	65	2.77

1=Rarely/Never, 2=Occasionally, 3=Frequently, 4=Often/Always

How confident are you that you can do the following?							
Question	Time	1	2	3	4	n	M
Present information in different ways (e.g. through photography, video, writing, drawing, etc.)	Baseline	12.00%	40.00%	28.00%	20.00%	25	2.56
	Post Y1	2.33%	20.93%	48.84%	27.91%	43	3.02
	Post Y2	10.94%	32.81%	29.69%	26.56%	64	2.72
Upload and edit my own photos, videos, and audio	Baseline	16.00%	24.00%	24.00%	36.00%	25	2.80
	Post Y1	0.00%	30.23%	34.88%	34.88%	43	3.05
	Post Y2	6.35%	39.68%	25.40%	28.57%	63	2.76
Share my original creative work with my classmates	Baseline	4.00%	36.00%	48.00%	12.00%	25	2.68
	Post Y1	2.33%	30.23%	34.88%	32.56%	43	2.98
	Post Y2	6.25%	29.69%	35.94%	28.13%	64	2.86
Share my original creative work with a larger audience online	Baseline	12.00%	52.00%	28.00%	8.00%	25	2.32
	Post Y1	13.95%	41.86%	23.26%	20.93%	43	2.51
	Post Y2	12.90%	41.94%	22.58%	22.58%	62	2.55
Find resources online/doing online research	Baseline	4.00%	12.00%	32.00%	52.00%	25	3.32
	Post Y1	2.33%	18.60%	39.53%	39.53%	43	3.16
	Post Y2	6.25%	21.88%	37.50%	34.38%	64	3.00
Determine if information I find online is from a reliable or trustworthy source	Baseline	0.00%	16.00%	52.00%	32.00%	25	3.16
	Post Y1	2.38%	26.19%	50.00%	21.43%	42	2.90
	Post Y2	7.81%	34.38%	26.56%	31.25%	64	2.81
Determine if information I find online is accurate	Baseline	12.00%	8.00%	60.00%	20.00%	25	2.88
	Post Y1	2.33%	23.26%	41.86%	32.56%	43	3.05
	Post Y2	4.69%	26.56%	39.06%	29.69%	64	2.94

1=Not at all confident, 2=Somewhat confident, 3=Moderately Confident, 4=Very Confident

How much do you agree with the following statements?

Question	Time	1	2	3	4	n	M
Other students in my school take my opinions seriously.	Baseline	8.00%	48.00%	36.00%	8.00%	25	2.44
	Post Y1	9.52%	23.81%	54.76%	11.90%	42	2.69
	Post Y2	9.23%	20.00%	47.69%	23.08%	65	2.85
I feel like I matter at school.	Baseline	8.33%	20.83%	45.83%	25.00%	24	2.88
	Post Y1	7.14%	26.19%	52.38%	14.29%	42	2.74
	Post Y2	6.15%	16.92%	52.31%	24.62%	65	2.95
My school displays student work or projects so everyone can see them.	Baseline	4.00%	8.00%	56.00%	32.00%	25	3.16
	Post Y1	4.88%	9.76%	56.10%	29.27%	41	3.10
	Post Y2	3.08%	15.38%	43.08%	38.46%	65	3.17
People at school notice when I'm good at something.	Baseline	12.00%	12.00%	52.00%	24.00%	25	2.88
	Post Y1	9.76%	17.07%	51.22%	21.95%	41	2.85
	Post Y2	3.08%	23.08%	41.54%	32.31%	65	3.03
People at school are friendly to me.	Baseline	4.00%	12.00%	64.00%	20.00%	25	3.00
	Post Y1	4.88%	14.63%	65.85%	14.63%	41	2.90
	Post Y2	6.15%	7.69%	47.69%	38.46%	65	3.18
I usually look forward to using digital media (video, audio, pictures) for school and school projects.	Baseline	4.00%	0.00%	36.00%	60.00%	25	3.52
	Post Y1	0.00%	11.90%	45.24%	42.86%	42	3.31
	Post Y2	4.62%	7.69%	44.62%	43.08%	65	3.26
I participate in class activities.	Baseline	0.00%	8.00%	64.00%	28.00%	25	3.20
	Post Y1	0.00%	9.52%	59.52%	30.95%	42	3.21
	Post Y2	6.15%	9.23%	47.69%	36.92%	65	3.15
I stay focused on schoolwork even when there are other interesting things to do.	Baseline	8.00%	24.00%	52.00%	16.00%	25	2.76
	Post Y1	0.00%	21.95%	53.66%	24.39%	41	3.02
	Post Y2	4.69%	10.94%	54.69%	29.69%	64	3.09
Sometimes I get so interested in my work I don't want to stop.	Baseline	4.17%	29.17%	54.17%	12.50%	24	2.75
	Post Y1	4.76%	11.90%	57.14%	26.19%	42	3.05
	Post Y2	9.23%	9.23%	47.69%	33.85%	65	3.06
I have opportunities to work with experts in digital media who are not my teacher.	Baseline	8.00%	48.00%	32.00%	12.00%	25	2.48
	Post Y1	2.38%	23.81%	57.14%	16.67%	42	2.88
	Post Y2	6.15%	18.46%	44.62%	30.77%	65	3.00
I'm connected a group of people who share my interests and passions.	Baseline	29.17%	25.00%	41.67%	4.17%	24	2.21
	Post Y1	2.38%	19.05%	50.00%	28.57%	42	3.05
	Post Y2	6.15%	16.92%	40.00%	36.92%	65	3.08

1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree

How much do you agree with the following statements?							
Question	Time	1	2	3	4	n	M
I try to think of different ways to fix things when I have a problem using technology.	Baseline	4.55%	22.73%	68.18%	4.55%	22	2.73
	Post Y1	7.14%	14.29%	61.90%	16.67%	42	2.88
	Post Y2	6.25%	10.94%	54.69%	28.13%	64	3.05
Other things easily distract me when I am learning how to use technology.	Baseline	9.52%	42.86%	33.33%	14.29%	21	2.52
	Post Y1	4.88%	29.27%	48.78%	17.07%	41	2.78
	Post Y2	7.81%	17.19%	51.56%	23.44%	64	2.91
I learn how to do something new on a device (phone, computer) by playing around with it.	Baseline	9.09%	4.55%	40.91%	45.45%	22	3.23
	Post Y1	0.00%	9.52%	54.76%	35.71%	42	3.26
	Post Y2	3.13%	14.06%	42.19%	40.63%	64	3.20
To solve problems or information, I use the internet or social media (Facebook, Twitter, etc.) to connect with others and find what I am looking for.	Baseline	0.00%	36.36%	40.91%	22.73%	22	2.86
	Post Y1	9.76%	21.95%	39.02%	29.27%	41	2.88
	Post Y2	3.13%	14.06%	45.31%	37.50%	64	3.17
When dealing with technology problems, I usually get stuck and don't know what to do.	Baseline	31.82%	27.27%	31.82%	9.09%	22	2.18
	Post Y1	9.52%	30.95%	52.38%	7.14%	42	2.57
	Post Y2	7.81%	28.13%	35.94%	28.13%	64	2.84
I don't like using new technologies because I'm afraid I might mess up and not know what to do.	Baseline	50.00%	22.73%	13.64%	13.64%	22	1.91
	Post Y1	26.19%	35.71%	33.33%	4.76%	42	2.17
	Post Y2	14.06%	28.13%	31.25%	26.56%	64	2.70
When I can't understand something about technology, I ask more knowledgeable people about it.	Baseline	0.00%	27.27%	54.55%	18.18%	22	2.91
	Post Y1	4.76%	21.43%	52.38%	21.43%	42	2.90
	Post Y2	6.25%	10.94%	54.69%	28.13%	64	3.05
When I go online, I feel like I am part of a community.	Baseline	13.64%	31.82%	45.45%	9.09%	22	2.50
	Post Y1	7.14%	33.33%	40.48%	19.05%	42	2.71
	Post Y2	8.33%	11.67%	48.33%	31.67%	60	3.03
I know how to keep myself safe online.	Baseline	0.00%	0.00%	57.14%	42.86%	21	3.43
	Post Y1	2.50%	2.50%	52.50%	42.50%	40	3.35
	Post Y2	6.35%	3.17%	41.27%	49.21%	63	3.33
I understand what I see, hear, and read online.	Baseline	0.00%	9.09%	45.45%	45.45%	22	3.36
	Post Y1	0.00%	12.20%	53.66%	34.15%	41	3.22
	Post Y2	1.56%	7.81%	37.50%	53.13%	64	3.42
I recognize prejudice or bias in media (racism, sexism, etc.).	Baseline	9.09%	4.55%	45.45%	40.91%	22	3.18
	Post Y1	2.44%	12.20%	46.34%	39.02%	41	3.22
	Post Y2	6.25%	3.13%	48.44%	42.19%	64	3.27

1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree

How often do you do the following during your free time?							
Question	Time	1	2	3	4	n	M
I make connections to things I care about.	Baseline	13.64%	40.91%	31.82%	13.64%	22	2.45
	Post Y1	9.52%	21.43%	50.00%	19.05%	42	2.79
	Post Y2	6.25%	14.06%	39.06%	40.63%	64	3.14
I think about how people like me are represented in movies, TV shows, and magazines.	Baseline	4.55%	31.82%	22.73%	40.91%	22	3.00
	Post Y1	2.38%	30.95%	45.24%	21.43%	42	2.86
	Post Y2	4.69%	12.50%	51.56%	31.25%	64	3.09
I use social media sites (Facebook, Twitter, etc.) to share new things I have learned or find interesting.	Baseline	27.27%	27.27%	22.73%	22.73%	22	2.41
	Post Y1	17.07%	24.39%	29.27%	29.27%	41	2.71
	Post Y2	7.94%	22.22%	34.92%	34.92%	63	2.97
I use text messaging or email to share new things I have learned or find interesting.	Baseline	4.55%	54.55%	27.27%	13.64%	22	2.50
	Post Y1	7.32%	24.39%	36.59%	31.71%	41	2.93
	Post Y2	12.50%	17.19%	42.19%	28.13%	64	2.86
I comment on articles, photos, or videos online.	Baseline	9.09%	54.55%	18.18%	18.18%	22	2.45
	Post Y1	19.05%	16.67%	42.86%	21.43%	42	2.67
	Post Y2	15.63%	20.31%	29.69%	34.38%	64	2.83
I communicate with people online (e.g. message boards, blogs, team games).	Baseline	18.18%	27.27%	36.36%	18.18%	22	2.55
	Post Y1	7.14%	14.29%	30.95%	47.62%	42	3.19
	Post Y2	6.25%	20.31%	37.50%	35.94%	64	3.03
I get information on a topic from more than one source.	Baseline	9.52%	23.81%	33.33%	33.33%	21	2.90
	Post Y1	2.38%	16.67%	47.62%	33.33%	42	3.12
	Post Y2	3.13%	14.06%	39.06%	43.75%	64	3.23
When I search for something online, I decide which search results will be the most useful.	Baseline	4.55%	27.27%	22.73%	45.45%	22	3.09
	Post Y1	7.14%	11.90%	38.10%	42.86%	42	3.17
	Post Y2	4.69%	14.06%	42.19%	39.06%	64	3.16
I learn new things from social media sites like Facebook, YouTube, or Twitter.	Baseline	13.64%	22.73%	22.73%	40.91%	22	2.91
	Post Y1	14.29%	19.05%	26.19%	40.48%	42	2.93
	Post Y2	3.17%	12.70%	46.03%	38.10%	63	3.19

1 = Rarely/Never, 2= Occasionally, 3= Frequently, 4= Often/Always

Convergence Student Survey: Grade 9–12 Baseline, Post Year 1, and Post Year 2

How often do you do the following during regular school time?							
Question	Time	1	2	3	4	n	M
I use digital media (video, audio, or pictures) in presentations for class.	Baseline	25.53%	34.04%	17.02%	23.40%	47	2.52
	Post Y1	14.19%	39.35%	27.74%	18.71%	155	2.51
	Post Y2	11.82%	32.73%	25.45%	30.00%	110	2.74
I use social media sites (Facebook, Twitter, etc.) to share new things I have learned or find interesting.	Baseline	38.30%	21.28%	19.15%	21.28%	47	2.91
	Post Y1	34.62%	20.51%	22.44%	22.44%	156	2.33
	Post Y2	21.30%	24.07%	17.59%	37.04%	108	2.70
I use text messaging or email to share new things I have learned or find interesting.	Baseline	25.53%	34.04%	17.02%	23.40%	47	2.85
	Post Y1	26.45%	28.39%	21.94%	23.23%	155	2.42
	Post Y2	17.27%	25.45%	28.18%	29.09%	110	2.69
I comment on articles, photos, or videos online.	Baseline	26.09%	28.26%	19.57%	26.09%	46	2.36
	Post Y1	25.32%	25.97%	27.92%	20.78%	154	2.44
	Post Y2	14.81%	29.63%	29.63%	25.93%	108	2.67
I communicate with people online (e.g. message boards, blogs, team games).	Baseline	17.39%	23.91%	23.91%	34.78%	46	2.84
	Post Y1	23.08%	22.44%	30.77%	23.72%	156	2.55
	Post Y2	13.76%	24.77%	31.19%	30.28%	109	2.78
I connect what I am learning to things that I am interested in or passionate about.	Baseline	17.39%	28.26%	41.30%	13.04%	46	2.64
	Post Y1	18.47%	32.48%	28.66%	20.38%	157	2.51
	Post Y2	13.64%	27.27%	33.64%	25.45%	110	2.71

1=Rarely/Never, 2=Occasionally, 3=Frequently, 4=Often/Always

How confident are you that you can do the following?							
Question		1	2	3	4	n	M
Present information in different ways (e.g. through photography, video, writing, drawing, etc.)	Baseline	8.7%	43.5%	34.8%	13.0%	46	2.52
	Post Y1	7.64%	32.48%	36.31%	23.57%	157	2.76
	Post Y2	8.18%	36.36%	28.18%	27.27%	110	2.75
Upload and edit my own photos, videos, and audio	Baseline	14.9%	12.8%	38.3%	34.0%	47	2.91
	Post Y1	10.46%	27.45%	28.76%	33.33%	153	2.85
	Post Y2	8.26%	32.11%	28.44%	31.19%	109	2.83
Share my original creative work with my classmates	Baseline	8.5%	23.4%	42.6%	25.5%	47	2.85
	Post Y1	10.97%	24.52%	34.19%	30.32%	155	2.84
	Post Y2	8.18%	38.18%	31.82%	21.82%	110	2.67
Share my original creative work with a larger audience online	Baseline	28.9%	24.4%	28.9%	17.8%	45	2.36
	Post Y1	18.59%	28.21%	26.28%	26.92%	156	2.62
	Post Y2	7.34%	38.53%	30.28%	23.85%	109	2.71
Find resources online/doing online research	Baseline	9.1%	25.0%	38.6%	27.3%	44	2.84
	Post Y1	10.26%	29.49%	30.77%	29.49%	156	2.79
	Post Y2	8.33%	32.41%	31.48%	27.78%	108	2.79
Determine if information I find online is from a reliable or trustworthy source	Baseline	10.6%	31.9%	40.4%	17.0%	47	2.64
	Post Y1	11.69%	35.06%	29.22%	24.03%	154	2.66
	Post Y2	5.50%	37.61%	31.19%	25.69%	109	2.77
Determine if information I find online is accurate	Baseline	8.5%	36.2%	31.9%	23.4%	47	2.70
	Post Y1	11.61%	32.26%	28.39%	27.74%	155	2.72
	Post Y2	6.42%	28.44%	34.86%	30.28%	109	2.89

1=Not at all confident, 2=Somewhat confident, 3=Moderately Confident, 4=Very Confident

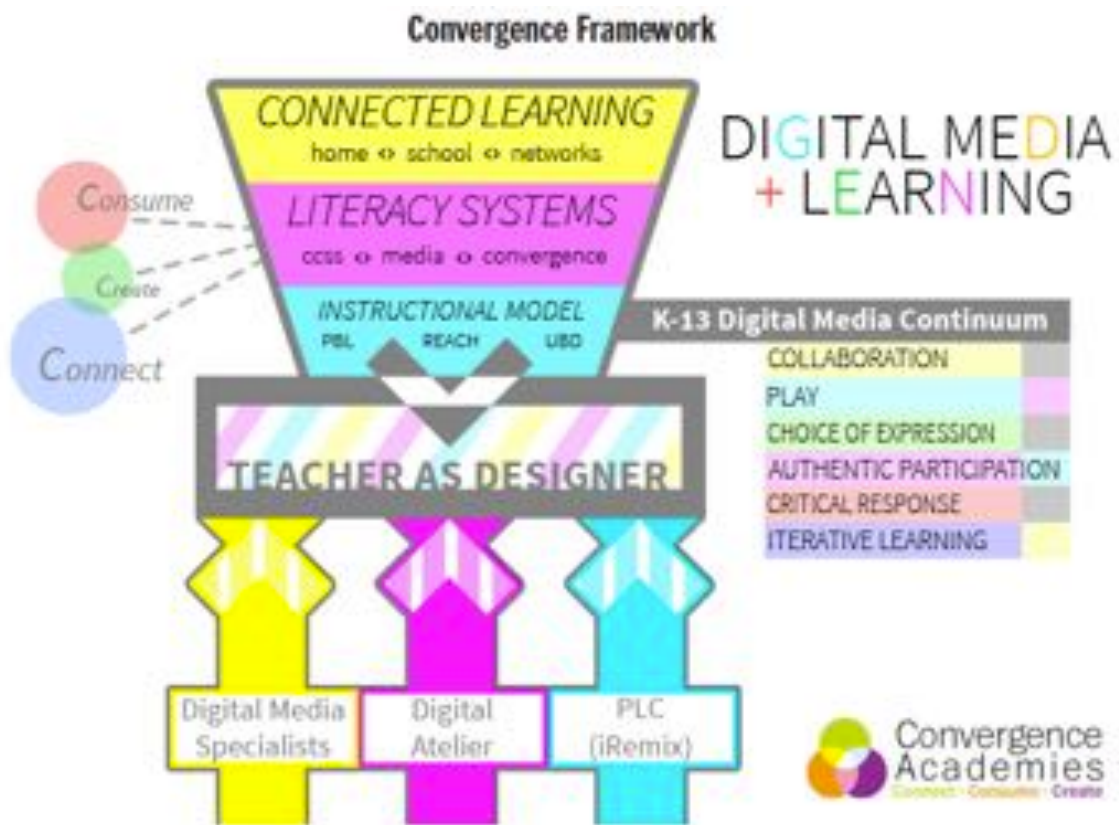## How much do you agree with the following statements?

Question	Time	1	2	3	4	n	M
Other students in my school take my opinions seriously.	Baseline	9.1%	27.3%	50.0%	13.6%	44	2.68
	Post Y1	11.11%	11.76%	58.17%	18.95%	153	2.85
	Post Y2	10.48%	20.00%	53.33%	16.19%	105	2.75
I feel like I matter at school.	Baseline	11.6%	16.3%	41.9%	30.2%	43	2.91
	Post Y1	15.13%	23.03%	46.71%	15.13%	152	2.62
	Post Y2	4.81%	17.31%	58.65%	19.23%	104	2.92
My school displays student work or projects so everyone can see them.	Baseline	9.5%	9.5%	42.9%	38.1%	42	3.10
	Post Y1	6.67%	13.33%	52.67%	27.33%	150	3.01
	Post Y2	2.86%	20.00%	50.48%	26.67%	105	3.01
People at school notice when I'm good at something.	Baseline	9.5%	21.4%	40.5%	28.6%	42	2.88
	Post Y1	11.84%	16.45%	48.68%	23.03%	152	2.83
	Post Y2	4.81%	16.35%	53.85%	25.00%	104	2.99
People at school are friendly to me.	Baseline	7.0%	16.3%	48.8%	27.9%	43	2.98
	Post Y1	12.42%	26.14%	46.41%	15.03%	153	2.64
	Post Y2	5.66%	16.04%	60.38%	17.92%	106	2.91
I usually look forward to using digital media (video, audio, pictures) for school and school projects.	Baseline	6.7%	15.6%	44.4%	33.3%	45	3.04
	Post Y1	18.42%	33.55%	33.55%	14.47%	152	2.44
	Post Y2	7.62%	16.19%	51.43%	24.76%	105	2.93
I participate in class activities.	Baseline	2.3%	16.3%	44.2%	37.2%	43	3.16
	Post Y1	6.58%	16.45%	55.92%	21.05%	152	2.91
	Post Y2	3.81%	20.95%	55.24%	20.00%	105	2.91
I stay focused on schoolwork even when there are other interesting things to do.	Baseline	4.8%	11.9%	45.2%	38.1%	42	3.17
	Post Y1	9.40%	26.17%	47.65%	16.78%	149	2.72
	Post Y2	2.88%	20.19%	52.88%	24.04%	104	2.98
Sometimes I get so interested in my work I don't want to stop.	Baseline	4.5%	22.7%	45.5%	27.3%	44	2.95
	Post Y1	5.30%	9.27%	52.32%	33.11%	151	3.13
	Post Y2	4.72%	25.47%	46.23%	23.58%	106	2.89
I have opportunities to work with experts in digital media who are not my teacher.	Baseline	15.9%	20.5%	45.5%	18.2%	44	2.66
	Post Y1	6.62%	11.92%	52.32%	29.14%	151	3.04
	Post Y2	8.57%	25.71%	49.52%	16.19%	105	2.73
I'm connected a group of people who share my interests and passions.	Baseline	2.3%	25.0%	50.0%	22.7%	44	2.93
	Post Y1	7.24%	9.21%	54.61%	28.95%	152	3.05
	Post Y2	6.60%	18.87%	50.94%	23.58%	106	2.92

1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree

How often do you do the following during your free time?							
Question	Time	1	2	3	4	n	M
I make connections to things I care about.	Baseline	15.0	25.0	40.0	20.0	40	2.65
	Post Y1	10.67%	18.00%	43.33%	28.00%	150	2.89
	Post Y2	8.49%	28.30%	39.62%	23.58%	106	2.78
I think about how people like me are represented in movies, TV shows, and magazines.	Baseline	12.2	41.5	29.3	17.1	41	2.51
	Post Y1	11.49%	29.05%	38.51%	20.95%	148	2.69
	Post Y2	8.57%	31.43%	36.19%	23.81%	105	2.75
I use social media sites (Facebook, Twitter, etc.) to share new things I have learned or find interesting.	Baseline	18.4	26.3	18.4	36.8	38	2.74
	Post Y1	12.16%	25.68%	36.49%	25.68%	148	2.76
	Post Y2	12.38%	25.71%	36.19%	25.71%	105	2.75
I use text messaging or email to share new things I have learned or find interesting.	Baseline	20.0	42.5	20.0	17.5	40	2.35
	Post Y1	11.33%	26.67%	39.33%	22.67%	150	2.73
	Post Y2	13.46%	27.88%	30.77%	27.88%	104	2.73
I comment on articles, photos, or videos online.	Baseline	5.3	44.7	31.6	18.4	38	2.63
	Post Y1	14.97%	26.53%	34.01%	24.49%	147	2.68
	Post Y2	8.57%	32.38%	38.10%	20.95%	105	2.71
I communicate with people online (e.g. message boards, blogs, team games).	Baseline	9.8	31.7	26.8	31.7	41	2.80
	Post Y1	11.92%	23.84%	35.10%	29.14%	151	2.81
	Post Y2	11.43%	26.67%	39.05%	22.86%	105	2.73
I get information on a topic from more than one source.	Baseline	5.4	35.1	18.9	40.5	37	2.95
	Post Y1	11.41%	24.83%	38.26%	25.50%	149	2.78
	Post Y2	7.69%	31.73%	41.35%	19.23%	104	2.72
When I search for something online, I decide which search results will be the most useful.	Baseline	2.6	25.6	33.3	38.5	39	3.08
	Post Y1	10.60%	30.46%	34.44%	24.50%	151	2.73
	Post Y2	6.73%	32.69%	39.42%	21.15%	104	2.75
I learn new things from social media sites like Facebook, YouTube, or Twitter.	Baseline	10.3	28.2	12.8	48.7	39	3.00
	Post Y1	12.67%	23.33%	33.33%	30.67%	150	2.82
	Post Y2	7.62%	20.00%	42.86%	29.52%	105	2.94

1 = Rarely/Never, 2= Occasionally, 3= Frequently, 4= Often/Always

APPENDIX D. Convergence Academies Framework