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The Potential for Using Adaptive and Assignable Instructional Technology to Increase Student Agency and Achievement

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THE POTENTIAL FOR USING ADAPTIVE AND ASSIGNABLE INSTRUCTIONAL TECHNOLOGY TO INCREASE STUDENT AGENCY AND ACHIEVEMENT

by Blair A. Mishleau

A capstone submitted in partial fulfillment of the requirements for the degree of Master of Arts in Teaching.

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Saint Paul, Minnesota
August 2016

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# TABLE OF CONTENTS

CHAPTER ONE: Introduction....................................................................................4  
My Journey to Personalized Learning.................................................................6  
What is Possible for Students: Disruptive and Sustaining Innovations.............13  

CHAPTER TWO: Literature Review........................................................................15  
The Broad Umbrella of Instructional Technology in Education.......................16  
Blended Learning.................................................................................................18  
Adaptive and Assignable Instructional Technology...........................................25  
Student Agency and Personalized Learning.......................................................33  
Criticism and Challenges to Instructional Technology.......................................35  
Conclusion...........................................................................................................36  

CHAPTER THREE: Methods....................................................................................38  
Context for curriculum implementation.............................................................38  
Why Personalized Learning.................................................................................41  
Design Thinking.................................................................................................42  
Human Subject Committee..................................................................................44  
Core Components of the Curriculum.................................................................44  
Conclusion...........................................................................................................46  

CHAPTER 4:..............................................................................................................48  
Survey Responses...............................................................................................48  
Design Thinking Process.....................................................................................50
CHAPTER ONE

INTRODUCTION

A one-size-fits-all approach to learning, AKA “The Factory Model”

For the past 150 years, the way we educate children in America has remained relatively constant (see Figure 1) (Silva, White, & Toch, 2015). In fact, the specific divisions for American high school classes was dictated by the “Committee of Ten”, a group of ten prominent education leaders, who created the recommended class scope and sequence in the early 1900s (Silva, White, & Toch, 2015). In general, a content class like reading or math consists of 20-40 students in a classroom receiving the same instruction for a standard amount of time each day. Even with a skillful teacher, this model makes it very challenging to sufficiently scaffold a lesson to the wide range of student levels that exist in one classroom (M. Angell, personal communication, May 23, 2016). Likewise, most teachers, if they have the time, will only differentiate for “high” and “low” students, leaving students to get content that is still likely too easy or too hard. Even with ample modification, this differentiation is retrofitted to a lesson that meets students in the middle (e.g. those “on grade level”). In sum, the lesson was not created with the idea of reaching everyone, it was created for a student who is “on grade-level,” whatever that might be.
Figure 1. Photos showing a classroom in the 1900s and one in 2015. While changes in diversity and technology enhancement exist in the more modern photo, both photos emphasize a “sage on the stage” who is imparting knowledge onto students in a uniform fashion (Oswego city schools celebrate Read Across America Day, 2015; [Students sitting in desks in a 1935 school], 2012).

In our current model, students are placed in cohorts based on age, and a student can have failed to master 30% of a year’s content by obtaining a C- average and can still move on to the next grade. This system posits that a class of students needs the same content based on their age and assumed previous learning. Some in the personalized learning movement, those who are working in schools and within non-profits trying to increase personalized learning, call the current state of education the “factory model,” named for its batch-based processing and time (e.g. grade level cohort) versus mastery-based promotion practices (Horn & Staker, 2015, p. 6).

Most teachers I have talked to, myself included, have felt frustration with this model and its inability to reach their lowest students or sufficiently challenge their highest students. This leads to my research question: How might teachers’ use of personalized learning in elementary reading through adaptive and assignable
In the educational landscape, there is a huge push to use technology in the classroom, and people talk about it in different ways. In the context of this capstone, agency means taking conscious ownership of one’s learning, and, ideally, future. The purpose of this question, and this capstone, is to bring a better education to all students that prepares them to be self-driven learners. When I talk about personalized learning, I am referring to a learning environment where students have some ability to design their learning experience and advocate for their interests. Finally, when I talk about adaptive instructional technology programs, I am referring to programs that modify instruction automatically based on input from the student, like level of engagement or success. These interests stem from a very personal place as a student who struggled through full-group direct instruction math content, and the past four years of teaching have reinforced its importance for me.

**My Journey to Personalized Learning**

**Algebra I at my high school**

My personal experience as a student with the “one size fits all” approach to learning is one of the strongest drivers towards my interest in personalized learning. While I am currently a technology specialist in my fourth year of teaching, my passion for personalized learning comes from my experience as a student in the classroom. I have long been an avid reader and writer, but have struggled with mathematics since doing addition and subtraction fact fluency sheets in the 2nd grade. Despite caring teachers, I have consistently struggled with math throughout my academic career up to and
including college. By the time I was in high school, I genuinely felt that I was just “bad at math.”

My clearest memory of this disadvantage comes from Algebra I in the 9th grade. My teacher was passionate about math and had clearly-planned lessons. Unfortunately, I had many pre-existing gaps in my mathematical fluency due to slowly falling behind in every class since the 2nd grade. Her content was meant to be accessible to a student who was “on grade level.” Unfortunately, I was not. As a result, I struggled through the course just as I did with every previous math course. I eventually passed the class, through padded assignments like daily do-nows, and homework that I could get help for, but these grades were not a true indication of content mastery and pre-existing knowledge gaps remained. By the time I got to College Algebra and Trigonometry, I narrowly passed the class with a C+ cumulative average. This feeling of failure around math has never went away.

Recently, I reached out to my Algebra I teacher to ask about her thoughts on personalized learning. Her response revealed so much to me about her well-intentioned mindset and how it may have unintentionally created students who were not self-driven learners in the subject of math (see Figure 2).
Figure 2. Email from the author’s high school math teacher. This figure communicates her thoughts on personalized learning.

In her email, she dismisses personalized learning with two main reasons: motivating students, and students’ preference for the “sit and get” style of content delivery - also known as full-group direct instruction. There is certainly a lot going on here that is inspiring her choice to dismiss personalized learning - her admitted lack of exposure to it, her veteran status as a teacher, her teacher training program, and her mindset around teaching math, students explicit or assumed preference in “sit and get” content. However, I deeply believe that, if she had been exposed to and open to personalized learning as a concept, it likely would have left me dramatically more prepared for math as an adult. I
feel like teachers roles should be more of a facilitator of student learning, instead of being the sage on the stage who delivers the knowledge to the student.

A desire to offer “sit and get” instruction, coming from a very passionate and caring teacher, deeply saddened me. And on a very personal note, I feel like it is selling students short. It posits that the teacher inherently knows how students want to learn, and that they may be incapable of driving their own learning, even part of the time. As a student in her class, I desperately struggled to understand content, and she had worked hard to create full-group lessons that explained it. But what ultimately happened, from my perspective as a student, was that I was not able to access her direct instructional methods, and then decided that I just was not good at math. There was no potential for me to get my own instruction or homework that filled gaps I had. The herd moved forward, and I was lost within it.

**Post-college and into teaching.** About seven years later, in order to pass the Minnesota Teacher Licensure Exams (MTLE’s), I had to show my mastery in three basic skills subtests: reading, writing and mathematics.

While I passed the reading and writing skills with flying colors, I failed the math subtest by 15 points (see Figure 3). The first time I took the test, I remember calling my mom, nearly in tears.
Figure 3. Author’s first score report from the Minnesota Teacher Licensure Exam. This figure shows the cut score, 240, and the author’s score, 225.

When I emailed my scores to Teach For America, I told them “I am not shocked” about my poor performance on the test. To be clear, this test is intended to assess basic skills. After about a decade of math instruction, I was not able to demonstrate basic skills. While at the time I did not know it, I was in need of personalized support. As a true millennial does when in need of support, I did some quick Google searching and found Khan Academy (www.khanacademy.org). Khan’s mission is “A free, world-class education for anyone, anywhere,” and it features thousands of different lessons on a variety of skills (ranging from math to computer code) that anyone can access (see Appendix A) (Khan Academy, n.d.). At the time I used it, the website focused solely on teaching math skills to mastery. I spent about 10 hours sitting in my best friend’s breakfast nook answering, failing, and retrying math problems. As I was not able to advance until I answered five questions in a row correctly, any gaps I had in for a certain skill were addressed before the program would allow me to move forward.
Figure 4. Author’s second score report from the Minnesota Teacher Licensure Exam.

This figure shows the cut score, 240, and the author’s increased score, 275.

A few months later, I retook the MTLE Basic Skills Math subtest. My score rose 40 points (see Figure 4). Furthermore, I actually felt confident in my math skills for the first time in my life. Instead of a wobbly foundation that led to partial confidence in my answers, I actually felt certain of my accuracy when I answered a problem. I was so proud that I forwarded the test results (below) to my mother. At the time, I was happy that I had improved my math skills and passed my MTLE test. But I did not realize that I had just experienced personalized learning. By doing so, I mastered in three months what ten years of one-size-fits-all-instruction could not provide me: a basic foundation of math.

Gaining a Nationwide Context: CityBridge’s Education Innovation Fellowship

In the middle of my third year of teaching, my principal approached me with a fellowship opportunity, run by the CityBridge foundation. The DC-based education nonprofit described the fellowship as thus:

A yearlong program that introduces teacher leaders to the most promising practices in personalized learning. The program will empower them with a toolkit of student-centered design skills that will enable them to drive instructional innovation. (Education Innovation Fellowship, 2016, para. 1)
While my formal experience with blended or personalized learning was limited, my former experiences and the current experiences of my students inspired me. I applied and was accepted into the program, spending the next year working with a diverse group of teachers to explore the potential behind personalized learning. The fellowship is divided into three phases: Travel & Learn, Design & Innovate, and Expand & Share. The first phase allowed us to travel across the country to see schools that are using adaptive and assignable instructional technology programs hand-in-hand with well-trained teachers to individualize learning. We saw a lot of amazing classrooms, but we left with more questions than answers on how these programs might drive student achievement and agency. We asked ourselves how certain practices we saw in California might translate to classrooms in Washington, DC. We wondered how to communicate the change to students and families. We worried that our co-workers might not respond as enthusiastically as we did when presented with a new and unfamiliar instructional model.

The second phase of the fellowship involved experimentation in terms of classroom and school pilots, which inspired a lot of optimism and excitement for me and my co-fellows, but again brought so many questions about what works and what does not work when it comes to individualizing learning. Finally, the last phase involved expanding the reach of our learnings beyond the walls of our classrooms and schools. I completed the fellowship in December 2015, and have continued to innovate at my school, using the learnings from the fellowship as inspiration. It is my hope that by exploring my research question, I will be able to continue the growing conversation on what might be possible with personalized learning.
Through this fellowship and my own outside interest, I have observed nearly 40 schools that incorporate individualizing learning and/or giving students more agency over their learning into daily instruction. What I hope to accomplish with this capstone is to begin to codify my understanding, from a research perspective, of what practices relating to assignable/adaptive instructional technology programs have the most potential to drive student achievement and agency.

What is Possible for Students: Disruptive and Sustaining Innovations

Throughout the Education Innovation Fellowship, we talked a lot about sustaining innovations versus disruptive innovations. A sustaining innovation improves an existing model – like helping a teacher better execute a lesson plan to his full class (Christensen, Horn, & Staker, 2013). A disruptive innovation is an entirely new product or approach – like having all students get their own personalized daily schedule, while teachers act more as facilitators than deliverers of content (Christensen, Horn, & Staker, 2013).

The research this capstone explores includes both types of models (and those that might fall in-between), as it is unlikely that the education landscape will overnight disruptively innovate what has been done for the past 150 years. However, there is much that can be learned by disruptively innovative models like the one used at Summit Public Schools in Redwood, California, which gives students their entire curriculum for a course on day one and lets them move through it, intervening when necessary (summitps.org). Similarly, there is much that can be learned from schools that are using a sustaining innovation model, like some KIPP schools in the Bay Area of California (www.kippbayarea.org).
Ultimately, this capstone is interested in the use of instructional technology, specifically adaptive and assignable programs, and how they might accelerate learning for students. My personal experience of struggling through direct instruction math instruction, along with the past four years of teaching in a variety of schools and subject matters, have fueled a passion for personalized learning. Chapter Two will do a literature review of research around personalized learning, adaptive and assignable instructional technology programs, student agency, and the way these are all connected. Chapter Three will set the stage to gather data on a personalized learning curriculum, Chapter Four will include the creation of this curriculum, and Chapter Five will reflect on it. This is all in service of the research question at hand, \textit{How might teachers’ use of personalized learning in elementary reading through adaptive and assignable instructional technology programs lead to accelerated student achievement and agency?}
CHAPTER TWO

LITERATURE REVIEW

Introduction

The concept of technology-assisted personalized learning in public schools is often considered an increasing trend (Headden, 2013; Roscorla, 2014; Quillen, 2012). Parts of this concept, differentiating the way you teach based on a student’s learning preference, have been around in literature since 5 BC, but the practicality of implementing it in our current educational context assisted with technology is certainly a modern concept (Corno, 2008). Schools that are doing the most innovative things in this arena are pushing the bounds of current technology to get there (Osborne, 2016). For example, the Rocketship Network of Public Charter Schools has been the piloting sites for new developments in the single sign-on program Clever (J. Peters, personal communication, April 15, 2016).

Considering the rapid and continuous development in the sector, there is some research on the topic, but the field is a quickly developing area that research has not kept pace with. For example, there is not a plethora of independent, longitudinal studies documenting the use of specific blended learning programs.

The research question at hand, How might teachers’ use of personalized learning in elementary reading through adaptive and assignable instructional technology programs lead to accelerated student achievement and agency?, includes much more than simply personalized learning. The quantity and quality of research in broader
instructional technology, student achievement and student agency is higher than the specific field of personalized learning.

As such, this literature review includes sections on the broad umbrella of instructional technology in education, blended learning, the origins and potential with adaptive and assignable instructional technology and finally how these themes connect with student agency and student achievement. All personalized learning implementations have varying elements of adaptive and assignable instructional technology, student agency and (ideally) student achievement (Aspire Public Schools, 2013). It is the intent of this chapter to see how these different sections share similarities and how they may work in tandem and inform each other. To begin, let us look into the highlights of literature around instructional technology in education.

The Broad Umbrella of Instructional Technology in Education

The term instructional technology is broad, and means different things to different educators (M. Angell, personal communication, April 21, 2016). In this section, we will differentiate between a few terms, including tech-enhanced classrooms vs. blended learning, and individualized, personalized and differentiated learning. The research question of this capstone focuses on personalized learning, mainly because it has focus on student agency as well as achievement (Bray & McClaskey, 2013b). This is further complicated by the very recent nature of these terms. The first charter network with a full-scale, built-in blended learning model, Rocketship Schools, did not start this until 2008 (rsed.org/Blended-Learning.cfm).

The Difference between Tech-Enhanced Classrooms and Blended Learning
One important thing to distinguish is the difference between a tech-enhanced classroom and the use of technology to personalize or individualize education (see Figure 6). Since public education has been offered, technology has been used in classrooms, including rudimentary technologies like a school bell to more advanced forms, like televised learning, learning via radio, film strips, and computer-graded assignments (Means, Toyama, Murphy & Baki, 2013).

Figure 6. The Innovation Spectrum. This spectrum, created by Jennie Dougherty at KIPP Bay Area Schools, showcases some of the differences between a technology enabled, blended, and personalized classroom (Dougherty, 2013).

More recently, tech-enhanced has been used as a term to describe classrooms that have resources like smart boards, projectors, iPads, computers, and modern wireless graphing calculators (J. Peters, personal communication, April 15, 2016). Peters, the Instructional Technology Coach for KIPP DC, a network of high performing charter schools in the nation’s capital, described it as such:
To blend learning, teachers have to make connections between the program and the content taught in class, the data from the program has to be reviewed and reflected on, and the online content has to be used regularly, not just when there is time. Usage of any program in a silo is not really blended learning. (J. Peters, personal communication, April 15, 2016)

At its core, a blended learning classroom offers some student choice time, place, path and/or space, which a tech-enhanced classroom does not inherently do (Christensen Institute, n.d.). This is an important distinction when considering the research question’s focus on student agency. This offers a good introduction to transition to the vast field of blended learning, which will be talked about and dissected in the next section.

**Blended Learning**

The Clayton Christensen Institute, a prominent voice around blended learning and other innovations, defined blended learning as “a formal education program in which a student learns – at least in part – through online delivery of instruction and content, with some element of student control over time, place, path and/or pace” (Christensen Institute, n.d.). Their definition is broad, but has elements of choice, timing and technology. While all definitions of blended learning in education relate to a combination of technology and human-led instruction, the above term is not universally accepted, with higher-education studies more likely to broadly define blended learning. For example, Means and colleagues (2013) defined it as “learning through a combination of online and face-to-face experiences. In this study, cases where students learned 25% or more but not all of the assessed content over the Internet were categorized as blended learning” (p. 5).
As this capstone focuses on K12 education, we will be following the definition of the Clayton Christensen Institute. Using their definition, blended learning can be viewed as an umbrella term to cover many different concepts that pull together the ideas of tailoring learning based on student need, including personalized learning, individualized learning, instructional technology, competency-based learning, project-based learning, and more (see Figure 5) (Aspire Public Schools, p. 7, 2013). Having a clear understanding of blended learning, and its related terminology, will help to ensure the research question is properly focused.

![Blended Learning Flow Chart](image)

*Figure 5. Blended learning flow chart. This chart is reprinted from the Clayton Christensen Institute and shows how blended learning could be viewed as a spectrum or an umbrella term for various models that use technology to assist in teaching (Christensen Institute, 2013).*
As more schools have experimented with instructional technology and various different blended learning concepts such as personalized learning, individualized learning or differentiated learning, a variety of case studies have come about documenting promising practices that may be systematized to be used outside of individual schools or networks (Bernatek, Cohen, Hanlon, & Wilka, 2012a; Bernatek, Cohen, Hanlon, & Wilka, 2012b; Bernatek, Cohen, Hanlon, & Wilka, 2012c; Bernatek, Cohen, Hanlon, & Wilka, 2012d; Compass Learning, 2015; Education Research Institute of America, 2014).

As it currently stands, the majority of schools in America continue to use a traditional approach to education, namely giving students approximately the same content based off of their age and not current level of school performance, also known as the Carnegie unit (Silva, White, & Toch, 2015). That being said, blended learning and related terms are beginning to garner more press in the mainstream educational landscape and in education industry publications as models with promise (Headden, 2013; Paulson, 2014; Roscorla, 2014).

**Blended Learning as Disruptive Innovation**

According to Horn and Staker (2015), blended learning is not a modification of an existing educational model, like finding a better way for a teacher to execute a lesson plan. It is, as the cover of their book declares, a “disruptive innovation” (Horn & Staker, 2015). A disrupting innovation is one that creates an entirely new way to do something. An older example of this would be the invention of steamboats. Initially, steamboats were not feasible or economical to be used on long cross-ocean trips. But they did make sense on rivers, which did not always have strong winds and had shorter trips. An example of
this in public schooling might be the desegregation of school districts: for the first time, students of color who were bused into more affluent districts had access to high-quality instructional materials, instructors, and facilities.

Ultimately, steamboats improved to the point that they were feasible to be used in all settings, and every single large sailboat company that had not invested in steamboats went out of business (Christensen, Horn, & Staker, 2013). Christensen, Horn and Staker (2013) compared this steamboat concept to blended learning – in that it radically changes the way school can look and operate.

At its core, blended learning must involve some technology-led instruction and some human-led instruction (Aspire Public Schools, 2013, p. 7; Bray & McClaskey, 2013; Means et al., 2013). It is important to note, it has been found that 100% computer-led instruction is less impactful than a model that involves in-person teacher facilitation (Means et al., 2013). Means and colleagues’ research supports the need for some level of teacher facilitation, no matter how strong the technology may be. This is why the phrase “teachers use” is embedded in the research question, as blended learning without teacher facilitation is not blended learning.

Within the instructional technology sector, there are many terms that involve the modifying of instruction to meet the needs of students (Basye, 2014; Bray & McClaskey, 2013a; Christensen Institute, 2013). Personalized learning, specifically, has potential benefits when it comes to student agency (Basye, 2014). Having a strong understanding of how blended learning is defined, and how it might be disruptive, will be helpful in the
next section when different blended learning models are compared against each other, like the personalized learning model our research question focuses on.

**Differences between Personalized, Individualized and Differentiated Learning**

The idea of giving different pupils different content, styles or pacing is not new – in fact, researchers show evidence of this as early as 5 BC. The Roman rhetorician Quintilian, is quoted as saying:

> Some students are slack and need to be encouraged; others work better when given a freer rein. Some respond best when there is some threat or fear; others are paralyzed by it. Some apply themselves to the task over time, and learn best; others learn best by concentration and focus in a single burst of energy. (as cited in Corno, 2008, p. 161)

Surely, Quintilian’s version of meeting a student where they are at is different from ours – education is offered as a general right to students in our country, teachers are responsible for full classes for up to ten hours a day, and technology is nothing what it looked like during his time. Thus, while the concept of meeting learners where they are is not new, its implementation in U.S. public schools is (M. Angell, personal communication, April 21, 2016).

Zooming forward a few dozen centuries, the specific term individualized instruction came about almost 50 years ago, and there are studies from at least 1977 discussing it as an academic concept (Basye, 2014; Heathers, 1977).

Researchers and organizations define personalized, individualized, and differentiated learning differently, and it is important to this capstone’s research question
to look into these definitions and tease out specifically why personalized learning is targeted in the research question, and not individualized and differentiated learning.

On the International Society for Technology in Education (ISTE) blog, Basye defined differentiated learning as learning that is modified to meet students needs, preferences or goals (Basye, 2014). The academic objectives for the class, though, remain unchanged (Basye, 2014). They defined individualized learning as allowing students to go through content at their own speed, perhaps revisiting old content they need to be retaught or skipping through content that the student already knows. In line with their definition of individualized learning, the learning goals remain the same for the entire class. ISTE defined personalized learning as:

Personalized learning involves the student in the creation of learning activities and relies more heavily on a student’s personal interests and innate curiosity. Instead of education being something that happens to the learner, it is something that occurs as a result of what the student is doing, with the intent of creating engaged students who have truly learned how to learn. (as cited in Basye, 2014, para. 14).

Bray and McClaskey (2013a, 2013b), two educational professionals who focus on personalized learning, have similarly defined the three terms (see Figure 7 and Appendix B).
<table>
<thead>
<tr>
<th>Personalization</th>
<th>Differentiation</th>
<th>Individualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Learner...</td>
<td>The Teacher...</td>
<td>The Teacher...</td>
</tr>
<tr>
<td>drives their learning.</td>
<td>provides instruction to groups of learners.</td>
<td>provides instruction to an individual learner.</td>
</tr>
<tr>
<td>connects learning with interests, talents, passions, and aspirations.</td>
<td>adjusts learning needs for groups of learners.</td>
<td>accommodates learning needs for the individual learner.</td>
</tr>
<tr>
<td>actively participates in the design of their learning.</td>
<td>designs instruction based on the learning needs of different groups of learners.</td>
<td>customizes instruction based on the learning needs of the individual learner.</td>
</tr>
<tr>
<td>owns and is responsible for their learning that includes their voice and choice on how and what they learn.</td>
<td>is responsible for a variety of instruction for different groups of learners.</td>
<td>is responsible for modifying instruction based on the needs of the individual learner.</td>
</tr>
<tr>
<td>identifies goals for their learning plan and benchmarks as they progress along their learning path with guidance from teacher.</td>
<td>identifies the same objectives for different groups of learners as they do for the whole class.</td>
<td>identifies the same objectives for all learners with specific objectives for individuals who receive one-on-one support.</td>
</tr>
</tbody>
</table>

*Figure 7.* PDI chart, version 3. This is part of a chart showing differences between personalized, differentiated and individualized learning (Bray & McClaskey, 2013b).

In schools that are pursuing personalized learning models, students have more choice when it comes to what they are working on during a given part of the day and, the objective they are working to meet. This gives context as to why the phrase “personalized learning” is used in the research question, as compared to another term (M. Angell, personal communication, April 21, 2016). While some school do actively choose to pursue a personalized learning model, personalized learning exists in a spectrum, and it is possible to see benefits from implementing components without adopting a full-school, full-day model (Bray & McClaskey, 2013a).

As personalized learning, blended learning, and related terms have consistently been rated as fast-growing trends, it is pertinent to focus on the specific instructional technology that is referenced in the research question – *adaptive and assignable* program
and to examine pertinent literature about it (Means et al., 2013; Roscorla, 2014). While adaptive and assignable instructional technology programs are not a requirement for personalized learning, most literature reviewed for this chapter includes at least one type of program in its research.

**Adaptive and Assignable Instructional Technology**

Adaptive and assignable instructional technology programs are programs that typically teach one or more subject areas (such as math or reading) and are adaptive, modifying themselves to give students content tailored to their need, and/or assignable, allowing teachers to give students different content based on need and/or interest. The research question focuses on these as a potential lever for personalizing learning, thus the current state of program capability and use is important.

While these programs have been around for decades in a variety of forms, they have garnered more attention in the past five years for their use in personalizing learning in schools that have chosen to use them to fidelity (Roscorla, 2014, para. 4). The number of programs in the marketplace that are, or claim to be, adaptive have also gone up in the last half-decade (J. Peters, personal communication, April 15, 2016).

**Adaptive and Assignable Reading Programs**

As this capstone’s research question focuses on creating a reading curriculum, it is helpful context to look at different reading programs along with research that has occurred around them. One example of an adaptive program in reading (and math) is iReady, created by Curriculum Associates, Inc. (i-ready.com). The program offers students content that is based off of their current level of performance as decided by an
initial diagnostic. Approximately every 8-12 weeks, the diagnostic is re-administered, and the students’ content is modified based off of growth they have shown on the diagnostic. Figure 8 and 9, below, show two screenshots from the program. The first shows an individual student’s progress through the start of the year, August 20th, through the spring, May 3rd. While some variance in scores is predicted, the student’s growth of more than 100 points total can be seen. They started at 487, a 2nd grade level, and progressed to a 599, a solid 3rd grade score.

The second screenshot shows an individual student’s lesson plan based off of their performance on the diagnostic. Based on the student’s diagnostic performance in the five reading domains, they are given lessons that are aligned with their current zone of proximal development.
**Figure 8.** iReady screenshot of the diagnostic screen. This screen shows the student’s progress throughout the year on full diagnostic (which also assigns a grade level placement) and on growth monitoring (which do not assign grade placement) (Curriculum Associates, 2016).

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Assigned</th>
<th>Status</th>
<th>Completion</th>
<th>Scale Score</th>
<th>Placement</th>
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<td>05/03/16</td>
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<td></td>
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<td>02/23/16</td>
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<td>Completed</td>
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<tr>
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<td>08/20/15</td>
<td>487</td>
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</tbody>
</table>
Figure 9. iReady screenshot. This screenshot shows the online lessons they receive based off the most recent assessment, broken up into five different domains (Curriculum Associates, 2016).

As reading programs have gotten better at giving students content that is at their level, engaging, and applicable to classroom instruction, they have become easier to implement within a more traditional school setting as well as schools that are pursuing a full-scale personalized learning model (J. Peters, personal communication, April 15, 2016).

Their ability to help students to perform better on reading standardized tests is becoming better documented. These programs offer several features to make this happen.
Some programs, like Compass Learning’s PathBlazer program, directly import students’ historical standardized test scores and then gives students specific content based on this data (see Appendix B) (www.compasslearning.com/pathblazer). Other programs, like Waggle - which is powered by an adaptive program called Knewton - offer up to 11 different “tech-enhanced” question types, which prepare students for computerized test questions while also increasing the rigor beyond a $\frac{1}{4}$ chance in guessing on a traditional multiple choice question (see Appendix D for the different considerations it asks itself) (www.wagglepractice.com). The potential of these programs is backed up a variety of third-party studies showing that proper use of the program leads to higher performance standardized test data (Compass Learning, 2015; Education Research Institute of America, 2014).

Micro-adaptive and micro-adjusting programs

Another area that can be seen in research about adaptive instructional technology programs is a growth in “micro-adjusting” or “micro-adaptive” applications (Kakosimos, 2015; Ozyurt, Ozyurt, Baki, & Guven, 2014). While discussion of such programs can be found more than 20 years ago, it is becoming easier and more common with advances in software and hardware capabilities (Mills & Ragan, 1994). It could be targeted that micro-adaptive programs have potential to help all students learn, but Corno found it to be most helpful when focused with a demographic in mind, “In general, field experiments with tailored or macro-adaptive programs show particularly strong growth for targeted populations” (Corno, 2008, p. 163).
Micro-adaptive programs vary from a typical adaptive program, such as iReady, Compass learning or Accelerated Math 2.0 (cainc.i-ready.com; renaissance.com/products/accelerated-math). The latter automatically adapt occasionally, and as infrequently as every 12 weeks (The i-Ready school year: An overview of implementation, n.d). This means that a student could be getting content that is too easy or too hard for months if the initial diagnostic was not accurate (The i-Ready school year: An overview of implementation, n.d; J. Peters, personal communication, April 15, 2016)

Micro-adaptive programs differ in that they adapt as frequently as every question (Kakosimos, 2015; Ozyurt et al., 2014). This, when combined with a teacher making micro-adaptations in their face-to-face instruction, can have a profound impact on students (Corno, 2008). When asked about their satisfaction with several micro-adaptive programs, their responses were positive (Kakosimos, 2015; Ozyurt et al, 2014).

The charts below show two examples of what a micro-adaptive program might do when adjusting curriculum. The first, from Mills and Ragan’s presentation at the 1994 National Convention of the Association for Education Communication and Technology, albeit primitive, shows their proposal for a micro-adaptive program that would modify instruction by 1/5 a grade level dependent on student performance. For example, if a student was struggling, they would be brought down 1/5 a grade level each session until they were succeeding. If a student was excelling, they would go up 1/5 a grade level each session until they were sufficiently challenged.

The second figure shows the actual flow-chart for a more modern college-level mathematics program, showing that micro-adapts based on each question as well as
learning objective (Ozyurt et al., 2014). If a student is unsuccessful at an on-level learning objective, they are moved on to a lower level learning objective that focuses on the same skill. Within each objective, if a student gets an individual question wrong, the program gives the student a second chance to answer the question with supports. If they answer the question wrong a second time, they are moved to an easier learning objective (see Figures 10 and 11).

![Figure 10. Adaptive program flow chart.](image)

Figure 10. Adaptive program flow chart. Presenters at the 1994 National Convention of the Association for Educational Communications and Technology put forward their prototype of a micro-adaptive program. Notice that after each session the program would check to see if the student could be working at .20 of a grade year higher or lower (Mills, & Ragan, 1994).
Figure 11. Adaptive program flow chart. Researchers from UZWEBMAT study illustrated how their adaptive learning program functions (Ozyurt, Ozyurt, Baki, & Guven, 2014).

A more recent program that emphasizes in-the-moment adaptation is Waggle (see Figure 12). The program, which provides reading and math instruction, asks itself the following questions as a student completes activities: “How many hints did the student access?; How many tries did it take for the student to get it correct?; What is the difficulty level of the question?; How easy is it for the student to guess and get it right?” (L. Puckett, personal communication, May 25, 2016)
Figure 12. Waggle’s micro-adaptive checkpoints. Waggle, powered by the Newton adaptive engine, asks itself 13 questions every time a student answers a question. (Waggle, n.d.).

**Student Agency and Personalized Learning**

One potential benefit of personalized learning, outside of higher student achievement on standardized tests, is the ability of adaptive and assignable programs to be used to increase student agency over their learning. The research question is looking to see how personalized learning can help increase student agency and achievement. In the context of this capstone, student agency is broadly defined as students feeling as though they have some level of ownership over their learning, including some level of control over time, choice of program, and choice of progress. Student achievement is defined as students showing mastery over content that is at their current zone of proximal
development and, if applicable, narrowing any gaps between the ZPD and their current age-based grade level.

In *How Children Succeed*, Tough (2012) chronicled how the Knowledge is Power Program (KIPP) worked to help students from low-income backgrounds complete college. He interviewed Martinez Dowling, who runs KIPP Through College for New York City. She said:

There are students who have incredible intellect but don’t necessarily channel it in the right direction. There are lots of kids who struggle with procrastination issues, even though they have the ability to get their work done. (as cited in Tough, 2012, p. 102)

The data around high school and college persistence in students from low-income backgrounds is clear (11 Facts About High School Dropout Rates, n.d.; Horn & Ramos, n.d.). For example, about one quarter of students fail to graduate from high school on time, and more than 1.2 million drop out each year. Emerging studies, including those from KIPP Through College, link at least some of it to student’s level of ownership over their learning (M. Angell, personal communication, April 21, 2016; Tough, 2012).

In some classrooms, schools and school networks, the power of adaptive and assignable program’s reporting abilities are used to increase agency, since the reports are tailored to each individual student (Davis, 2014). Goal-setting is not new, but doing so with distinct data that is tailored to each student’s level is not practical for most teachers without assistance from an adaptive or assignable program.
Student agency and achievement have overlap when it comes to long-term outcomes for students (Tough, 2012). One example of this is Greenfield School’s learner path. Greenfield, a subset of the large Achievement First charter network, has created learning playlists of content. The model is quite different from a traditional classroom, including student ownership over progression through content with mastery-based activities. For example, some units are completed online, students unable to move on to a new skill until they have mastered the previous one. On the platform, which Achievement First had custom built, mastery showing up as green, yellow, or red around each playlist. The program is in its first full year of implementation, but the overall concept may show promise in both agency and achievement for students.

While agency is not an inevitable byproduct of personalized learning, experts in the field see it as having the potential to do so, particularly for already-strong educators (N. Dougherty, personal communication, April 27, 2016; J. Peters, personal communication, April 15, 2016).

**Criticism and Challenges to Instructional Technology**

It may go without saying that there are also detractors of instructional technology. Most of these focus on the *implementation* versus the actual use of technology (November, 2013). For example, in “Why Schools Must Move Beyond One-to-One Computing,” a solid argument is made that many school districts purchase technology first and then do not know how to implement it in a way that drives achievement for students. Others are worried about constant screen time for students, worrying about the effects hours of screen time per day can have on developing bodies (Dodig, 2015).
Conclusion

This chapter has reviewed literature and looked at themes around blended learning, adaptive and assignable instructional technology and student agency and achievement, focused on informing the research question of this capstone: *How might teachers’ use of personalized learning in elementary reading through adaptive and assignable instructional technology programs lead to accelerated student achievement and agency?*

In the section on blended learning, review of literature showed the variety of emerging and established terminology under the umbrella of blended learning, in particular, the focus of student agency in personalized learning helped confirm its use in the research question as opposed to another term - like differentiated learning or individualized learning (Bray & McClaskey, 2013a; Christensen Institute, 2013). In addition, research has shown that students achieve the most when they have face-to-face instruction in addition to computer-led instruction (Means et al., 2013).

In the section on adaptive and assignable instructional technology, the potential of micro-adaptive programs shown through as a commonality, along with potential downfalls of programs that adapt infrequently (Ozyurt et al, 2014; J. Peters, personal communication, April 15, 2016). This may inform the types of programs pursued while creating the curriculum.

Research and trends in student agency and achievement showed that while personalized learning has potential to increase both, technology for technology’s sake
will not in and of itself make a difference (M. Angell, personal communication, April 21, 2016; Means et al., 201; J. Peters, personal communication, April 15, 2016).

Moving into Chapter Three, the literature review done thus far will help inform what trends are occurring in the personalized learning sector, what is possible, and what is already being done at other schools. In addition, the role of the teacher as a facilitator to ensure student achievement and agency was confirmed through this literature review and will therefore be central to the curriculum designed. In Chapter Four, a personalized learning curriculum will be developed, and the current state of micro-adaptive programs as well as the current research on student agency will be invaluable as the curriculum is developed.
CHAPTER THREE

METHODS

Introduction

The focus of this capstone is on better delivering content to students in a way that gives them choice and voice, leveraging technology to increase learning. The purpose is to answer the research question: *How might teachers’ use of personalized learning in elementary reading through adaptive and assignable instructional technology programs lead to accelerated student achievement and agency?*

This chapter provides context for the curriculum in mind to address this question, the population in mind when designing this curriculum, the perceived importance of this particular curriculum for that community, the process used to design the curriculum, and the components of the curriculum.

**Context for curriculum implementation**

The school in mind for this curriculum is in the Southeast neighborhood of Washington, DC. Southeast has a reputation of being the most historically under-resourced quadrant within DC (see Figure 13) (Manon, 2015). Within the neighborhood, there are multiple former DC Public Schools that have closed based on long-term under-performance. Over 99 percent of the students in the school are African American, zero are English Language Learners, and many come from neighborhoods within walking distance of the school. Over 90% of students qualify for free or reduced price lunch.
Figure 13. Student test score/home price chart. This chart from Urban Turf, shows students achievement data in comparison to home prices for a three-bedroom home. The majority of schools are in the Southeast quadrant (Manon, 2015).

While the neighborhood has a history of not serving students academically, the school has a relatively strong track record of student achievement when compared to schools in the neighborhood. The school offers students an increasing variety of door-opening experiences, such as daily science instruction, a weekly technology class, extra-curricular offerings and communicative teachers.
**Curriculum Audience**

One area of growth that continues for the school, however, is personalization of student learning. As the principal of the school noted, fourth grade students who are in the bottom quartile of the nationwide Measurement of Academic Progress (MAP) assessment have been in that bottom quartile since first grade, give or take a few students. It is clear that what is currently being done to move those students “out of the red” has not been effective. This curriculum, while applicable for all students, has the bottom quartile students in mind.

A closely-tied area for growth is student ownership of their learning – sometimes referred to as choice and voice. Data shows that students having ownership over their learning early and often helps to build habits, sometimes called soft skills or character traits, that can help students persist in college and in their lives at-large (Tough, 2012).

While some choice and voice exists on a spectrum depending on the grade level and particular teacher, curriculum is very prescriptive. This is particularly observable in math instruction. All math curriculum is created at the network level for our group of schools, shared with teachers, and is expected to be taught verbatim. This goes as far as the math instructional coach for creating videos of herself teaching content, then sharing it with teachers for them to copy. The math instructional coach has been adamant about not allowing any personalized learning or cross-subject instruction to occur during this math block. Given the prescriptive nature of mathematics instruction from the top down, the curriculum will focus on reading instead of math. The targeted grades will be third or
fourth grade, given the number of veteran teachers in those grade levels, allowing this to be more realistically be implemented within the school.

While some of the parameters to fully-implement this curriculum are outside of the locus of control of the curriculum design, the historic lack of growth for bottom-quartile students and a need to bring more choice and voice for students motivates innovation for curriculum where it can happen. There is also a hunger to do something differently amongst teachers, but they typically have not been given the time, space or resources to do this.

Why Personalized Learning

A personalized learning curriculum focused on adaptive and assignable instructional technology programs was chosen as it intends to reach three goals: more choice and voice, better targeting of student needs, and a stronger integration of instructional content with instructional technology programs. The current school schedule has instructional content, like reading, at the beginning of the day and the instructional technology reading program at the end of the day. They exist at opposite parts of the day, and they also are not generally informed by each other.

Simply creating a new curriculum is not the answer – teachers must be meaningfully pulled into this conversation and their many observations about the current classroom model must be integrated into the curriculum. One solid way to move in a direction that puts students’ needs first while leveraging teachers’ knowledge is through a process called Design Thinking.
Design Thinking

Figure 14. Graphic of the Design Thinking process. (Stanford University Institute of Design, 2015).

The process of design thinking includes five stages (see Figure 14). In essence, the process is intended to be a human-first process to design systems, spaces and more.

**Empathize**

The first stage in the process is to find out how people are feeling, broadly, about the topic at hand and other topics that relate to it. For this curriculum, I will have at least 25 teachers, see survey (see Appendix E). The survey, a Google Form will ask about their current school’s structures around learning, school schedule, and more. In addition to asking demographic information, the survey will seek to work on a deeper level – figuring out how students and teachers feel about the current systems and how engaged they are. I will distribute it via email to the many colleagues I have had over the past four
years, via social media and via word of mouth. This data collection phase will occur over the course of a week in the summer of 2016.

**Define**

After gathering data in a people-first manner, the next step of the process is to define the problem. Typically, more than one problem surfaces, so there will likely be a list of problems. Problems are identified by looking at the feedback from the customers, in this instance teachers, and looking for trends and potential root causes. Following the 80/20 rule, where 20% of your effort can account for 80% of results, I will focus on a few key problems to define. This will lead to the next stage, ideate. This will occur the week following the survey closing, and should take around three days.

**Ideate**

This is the process of coming up with hypothesis of what might address the problem(s) that were defined. For example, “How might teachers more intentional engagement with adaptive instructional technology programs lead to students getting content that is better-aligned to where they are at?” is an example hypothesis that could come from the ideate stage. This will take around three days to complete, and the cognitive steps for this process is documented in chapter five. From here, the ideas would be put into place in the prototype stage.

**Prototype and Test**

Design Thinking emphasizes testing early and often. The last two steps, prototype and test, intend on narrowing the feedback loop between noticed problems and implementing solutions into the product – in this case, a curriculum. Instead of spending
resources on an elaborate system, it is more economical and quicker to create a
minimally-viable product (MVP) and then learn from it. This phase will take about two
weeks, given the fact that much of the foundation has already been set. After the
completion of the capstone and curriculum MVP, I will test it on a small-scale by
going teacher feedback and input from other stakeholders, revise, and test again until it
is ready for full-school implementation.

Given the people-first nature of the curriculum design process, much of the
curriculum is reliant on data gathered by educators and other stakeholders. That being
said, there are some components that are unlikely to change. The next section introduces
initial thoughts on curriculum.

**Human Subject Committee**

In this capstone, students are not involved, and teachers are only involved in
answering a voluntary survey. Likewise, the process went through the Human Subject
Review short-form. Through this form, I was given permission to offer an optional
survey to teachers to share their views around technology in education. The curriculum
itself will end up being an online curriculum using the personalized learning
curriculum-housing program Hapara Workspace.

**Core Components of the Curriculum**

**Hapara Workspace**

Hapara Workspace is a web-based tool that offers teachers and administrators
broad access to use other programs – ranging from adaptive and assignable programs to
videos and PDFs – to personalize learning for specific students and groups of students.
As Figure 13 shows, teachers create goals for students on the left-hand column, share resources to help the student achieve these goals in the second column, provide a space to show mastery or evidence in the third column and offer a rubric or criteria for success in the right-hand column. Teachers can create up to ten different student groupings, allowing for a high level of individualization based on student need. Figure 15 shows a Hapara Workspace that allows for personalized math instruction. It has students in 10 different groups based on their score on the Measures of Academic Progress (MAP) test (see Appendix A). Each group has a number of Khan Academy math lessons assigned to them, with the evidence column including a tracker for them to keep track of their progression.

**Instructional Technology Programs Used in Curriculum**

Within the curriculum, several instructional technology programs will be used. These include iReady, an adaptive reading program; Flocabulary, a website that teaches content via hip-hop animated videos; and Literably, a program that assesses students leveled literacy needs.
Figure 15. Example of my Hapara Workspace. This shows a workspace that provides students with personalized math instruction using MAP and Khan Academy.

Conclusion

This chapter introduced the context for the curriculum and the process – Design Thinking – that was used to create a personalized learning curriculum. This was done to answer the research question, *How might teachers’ use of personalized learning in elementary reading through adaptive and assignable instructional technology programs lead to accelerated student achievement and agency?* The actual curriculum created was dependent on the completion of the Design Thinking process, but an initial curriculum warehouse, Hapara Workspace, was identified as the shell for the content.

In the next chapter, the Design Thinking process was done, and the prototyping and testing phases of the process will be completed multiple times until a strong
curriculum is created. Finally, Chapter Five will reflect on the learnings of this curriculum, where it can be improved, and the future use of personalized learning curriculums within my school.
CHAPTER FOUR

RESULTS

Introduction

The purpose of Chapter Four is to provide a space to unpack the data from the teacher survey completed, analyze results, and identify next steps in creating a personalized learning curriculum. Before beginning Chapter Four, a survey was created to probe the mindsets of teachers around technology’s role in the classroom, teachers’ mindsets around classroom layout, and more (see Appendix E and F). The survey responses was used in conjunction with the research done in Chapter Three to create a personalized learning reading curriculum. To create the curriculum, Chapter Four will start the Design Thinking process. This all aims to answer the research question, How might teachers’ use of personalized learning in elementary reading through adaptive and assignable instructional technology programs lead to accelerated student achievement and agency?

Survey Responses

The original goal for survey responses was 25. At the time of survey closing, 35 teachers responded. The survey (see Appendix E), completed using Google Forms, was open from June 16 through July 1, 2016. Figure 16, below, shows the spread of teacher experience - ranging from less than a year to over a decade. All grade bands were represented, with 13 high school teachers, 6 middle school teachers (defined as grades 5-8), 9 elementary school teachers, 2 pre-k teachers and 5 in the category of “other.”
Teachers came from at least 12 different states and two different countries. You can see the full responses, save personally-identifiable information, in Appendix F.

**How long have you been teaching/did you teach?** (35 responses)

![Pie chart showing years of experience of teachers who completed the personalized learning survey.]

*Figure 16. Years of experience. This chart shows the average years of experience of teachers who completed the personalized learning survey.*

Just as there was diversity in the demographics of the respondents for the survey, there was also diversity in their mindsets and comfort level around technology in the classroom and other types of disruptive innovation. An example of this can be seen below, in Figure 17, where they share their differing views on how many minutes a student should be looking at a screen each day while at school.
Assuming students were still working in groups and interacting with their teacher regularly, what is the most time you would feel comfortable with students being on a device per day?

(35 responses)

Figure 17. Screen time for students. This chart shows how much student screen time teachers are comfortable with per school day.

While there definitely is some level of divide in survey responses, trends and overall sentiments are possible to derive, particularly when cutting data in certain ways. For example, Figure 16 might imply teachers are torn about student screen time. However, more than 60% are comfortable with 90 minutes or more. While some are comfortable with more than 90 minutes, that 60%+ grouping shows a wide tolerance for a solid amount of screen time each day.

To answer the research question and to create a personalized learning reading curriculum, the additional survey responses and research from Chapter Three must be put through the Design Thinking Process, which will occur in the next section.

Design Thinking Process

Empathize

The first component of the Design Thinking Process is to empathize with the customer or user of the product/space/service. In this instance, the customers are teachers
and, through their actions, students. Instead of designing a product first, then seeing how it affects their emotions, Design Thinking aims to focus on the people first.

Looking at survey data, there are a few components that are relevant for the Empathize section, which will be explored below. While some may not seem relevant to a personalized learning curriculum at first glance, being able to empathize with a teacher’s concern or interest in a given approach is helpful to keep in mind while designing a product for them.

**The biggest obstacle teachers face.** Educators are bombarded by reforms, curriculums and products that promise to be a silver bullet to fix systemic, persistent problems that present obstacles to teach all students (Petrides, 2010). Likewise, one of the first questions asked teachers what they considered to be the biggest obstacle to their students’ success. This was offered as an open-ended response to allow the broadest of perspectives. While there is considerable variety in the specific needs, I have put the obstacles into the following broader categories. All 35 responses fell into at least one of these broader categories. A relevant educator response is below to further illuminate how they feel about the challenge and what their specific context is.

**Student engagement and behavior management**

Ten of the respondents in the survey focused on engagement or behavior as the largest obstacle to student success. Below are two comments from respondents.

- Student investment was often a challenge and manifested in the form of distracted or disruptive behaviors in some schools I worked at. The cause was likely a disinterest in or a lack of understanding of the content being presented.
I consider behavioral issues to be the biggest obstacle to ensuring 100% of students were successful in class. When I am spending 10-15 minutes dealing with a student who is spiraling, that is 10-15 minutes of time that every other student is not getting instruction (and 10-15 minutes of them learning that the behavior they are seeing will get the explicit attention of the teacher!).

Supporting students when parental support is limited or home life is unsafe/high-stress

Seven of the respondents mentioned family or parental support or a home life that is not stable. Below are two comments from respondents.

- Helping students focus on their education when their home life was non-ideal and/or stressful (ex. working multiple jobs, taking care of siblings, acting as household parent, obtaining meals for family)
- Resources outside of the classroom was not equal to all students. Some students have no access to computers and internet connections.

Successfully delivering and differentiating content and finding time to re-teach content

Fifteen of the respondents mentioned getting content to students in a meaningful way, including differentiating and finding time to re-teach it. Below is one representative comment from a respondent.

- It was impossible to reach every student where they were at in math. In addition to being expected to get my kids to pass the grade level state test, I needed to troubleshoot all their skill gaps. But, with rooms of 25-30 kids, most of whom had been passed along without learning basic math skills, that was impossible. And
there was no way to just start teaching at 3rd grade math and try to make it to grade level content.

Administrative support

Three respondents mentioned administrative support, though none gave at-length commentary on how this was their greatest obstacle.

After sharing what they feel like is the biggest obstacle in teaching students, teachers chose from a specified list of options to improve education.

The best way to improve education. Teachers were given four options on an area they would focus on to improve education, shown below in Figure 18. The two most popular options, class size and individualized learning, are shown. Not one teacher chose “a high-interest writing curriculum” and those who chose “other” still fell into either class size and/or individualized learning.
Below are several ideas, strategies or models that some view as helpful in educating students. Choose the one you would most likely invest in if you were a billionaire donor trying to improve schools in a large urban area. (35 responses)

![Chart showing percentages of teacher responses.]

Figure 18. The best way to improve education. This chart shows, when given four choices, which they would pick to focus on to improve education in a large urban area. The cut-off blue response reads as follow “Helping teachers use adaptive technology during part (about an hour a day) of their teaching day. Adaptive technology adjusts content based on student's need. For example, a lower reader may get a different reading passage than a reader who is far above grade level.” You can see the full responses in Appendix F.

Reducing class size. Fifty one percent of teachers chose this option, making it the most popular choice overall. While the move towards reducing class size can be helpful in condensing/decreasing the workload of a teacher (K. McDonald, personal communication. July 17, 2016), a multi-million dollar program to reduce class size, led by the Bill and Melinda Gates Foundation, showed no strong positive effects (Gates, 2011). As one teacher commented about it in the survey:
Class size alone has not proven to have impact unless it is paired with high quality instruction. Many teachers in the U.S. still instruct in very traditional ways where behavior/rule-following is the primary goal of the day rather than exciting and engaging young minds.

While some data shows that class size does not have a direct effect on student achievement, it is pertinent that it was the most popular item amongst teachers. The curriculum created cannot affect class size, but it can keep teacher’s distribution of time into consideration.

*Helping teachers use adaptive technology.* This category was second in popularity, and selected by 34% of teachers surveyed. In terms of empathizing, the open responses will be most helpful in the transition to the Define stage. A few highlights are below:

- Different students have different reading levels. Most classes are heterogeneously grouped together, but there is a strong need for instructional differentiation.
- In math, a weakness in one topic can lead to difficulties learning future topics. So identifying areas for improvement and spending an hour a day on those areas would make a huge difference in a student's classroom performance.

*Technology as a babysitter.* The third important survey question for the Empathizing portion read as follow “When you think of technology in the classroom, what makes you feel more nervous?” Fifty one percent of them feared teachers using technology as a babysitter, which is vital context to consider when defining the problems this curriculum seeks to address for teachers. The second most prevalent concern that
teachers would not be properly trained on any of the tools they are asked/mandated to use, which is another concern that will be helpful in curriculum creation.

**Screen time for students.** The final guiding question in the Empathize stage is the amount of student screen time teachers feel is appropriate during a typical school day. As previously mentioned, more than 60% of teachers are open to 90 minutes or longer, with the vast majority of educators willing to have at least one hour of classroom screen time a day. This data/information must be forefront during the curriculum creation.

In the Empathize area of the Design Thinking Process, we saw a relatively small group of themes around teacher’s perceived biggest obstacles to classroom success, which focused on student engagement, life outside of school interfering with success, the ability to differentiate content, and support from administration. In addition, there were some clear trends around potential solutions. These trends, in addition to the research from Chapter Three regarding student engagement and differentiation, will be helpful during the Define stage of the Design Thinking Process.

**Define**

The last component of Chapter Four is defining the problems this curriculum aims to solve. For this purpose, it is relevant to revisit the research question, *How might teachers’ use of personalized learning in elementary reading through adaptive and assignable instructional technology programs lead to accelerated student achievement and agency?*

The Define section aims to gather more specificity to this, based off of the trends gathered in the Empathize phase. Specifically, two to four problems need to be identified
that the curriculum can then work towards solving. In summary, the main concerns of teachers, based on the different questions on the survey that were focused on in the Empathize section:

- They want to increase student engagement and implement solid behavior management. This includes deep content knowledge on the part of the teacher, investment on the student end, and consistent expectations from teachers.

- They want to successfully differentiate content and find time to re-teach content. This includes deep content knowledge on the part of the teacher, potentially changing the traditional structure and schedule in the classroom, and rigorous engagement with content on the student end.

In addition, if technology is used to help solve these problems, they must follow the below constraints:

- Student screen time should last between 90 minutes and two hours to meet the desires of the majority of teachers surveyed.

- Technology must not be treated as a babysitter in place of strong instruction, to meet the concerns of 50% of teachers surveyed.

- Teachers need to be properly trained on any new technology, to meet the concerns of about 50% of teachers surveyed.

**Conclusion**

In Chapter Four, we looked at the teacher survey data collected. Using this data, we completed the Empathize and Define phases of the Design Thinking Process. In
Chapter Five, the Ideate phase of the Design Thinking Process was completed to develop the core components to the curriculum. Then, the curriculum will be outlined and next steps and a reflection of the capstone will be explained.
CHAPTER FIVE

CONCLUSION

The purpose of Chapter Five is to finish the Design Thinking Process as to create the curriculum, reflect on what was learned in the process of completing the capstone and examining next steps and learnings from this endeavor. In addition, how the curriculum will be shared and limitations of the research. This is all in service of answering the research question, *How might teachers’ use of personalized learning in elementary reading through adaptive and assignable instructional technology programs lead to accelerated student achievement and agency?* In Chapter Four, survey data was examined to identify trends and define several problems that teachers hope to solve.

In Chapter Five, we will come up with several hypotheses that could address the problems identified in the Define phase of the Design Thinking Process. From there, we will create the Prototype curriculum, which will then be implemented within my school. Chapter Five will reflect on what has been learned in this capstone, discuss potential implications of the curriculum created, talk about next steps, including how I will share this curriculum with my school, and finally discuss limitations of the capstone. Now, let us look at the hypotheses that come from the Ideate phase of the Design Thinking Process.

**Ideate**

In Chapter Four, we analyzed teacher survey data to first empathize with teachers about their concerns and excitements for technology in the classroom. We then defined the problems that are likely holding teachers back from fully using personalized learning...
in their classes. Using the problems created in the Define phase, the Ideate phase involves making hypotheses of solutions that, if implemented in the form of a personalized learning curriculum, could lead to positive classroom outcomes.

**Hypotheses**

To created hypotheses, I started by looking back at the research done in Chapter Two to ensure that any proposed solutions are focused on personalized learning and, when possible, involve adaptive instructional technology programs to best meet students’ precise needs. I then revisited survey data, specifically looking at the trends identified in Chapter Four. Below are 4 hypotheses that will be tested through the personalized learning reading curriculum I created.

1.) How might integrating technology with tasks that do not involve screen time help teachers feel more comfortable in leading a personalized learning curriculum in their classroom?

2.) How might a digital progress tracker that pushes intrinsic motivators (e.g. beating a personal best, showing growth over time) aide in student engagement and behavior management?

3.) How might built-in differentiation in the curriculum help teachers better meet the needs of students while actively ensuring they have the support to differentiate?

4.) How might an integration between teacher-led and computer-facilitated instruction aide in a higher-quality experience for both, moving away from a “babysitter” model some teachers are afraid of?
These hypotheses are vital in the core components of this curriculum, which will be explained in the Prototype phase of the Design Thinking Process below.

**Prototype and Test**

The personalized learning reading curriculum was developed in the curriculum warehouse tool Hapara Workspace (hapara.com). This program allows a teacher to create a Workspace, or a specific area where students can work on a given set of tasks, that includes content from any website or any file the teacher wishes to use. As the curriculum created focused on personalized learning and reading, the goals and activities are focused on reading and achieving personalized goals.

**Components of Curriculum**

Figures 19, and 20 showcase the basic functionalities of the Workspace. As this is a digital curriculum, the core components are also explained in the following sections.

**Groupings.** One of the components of the curriculum that allows for personalization is the grouping feature of the Workspace. In the curriculum I created, there are five groups that meet a variety of needs. For example, the bottom quartile group allows for differentiated content specifically for students in the bottom quartile based off of the NWEA MAP reading assessment. Teachers can assign students to more than one group, if desired.

**Student Agency.** Within the curriculum, students have multiple places to show agency. For starters, the learning goals can be done in any order the student chooses. Furthermore, students can choose to listen to classical music while reading. They also
have the ability to track their achievement via the iReady tracker, giving them a space to look at their progress.

**Student Achievement.** Student achievement is built-in to the curriculum through a few teacher-facilitated components. For starters, students have at least 30 minutes of reading time per session. The book the student is reading must be on their current level, which is up to the classroom teacher to ensure. In some groups, there are also extra iReady lessons added. This would be a step the teacher does to ensure the student is getting supplemental iReady lessons that are focused on their current need (for example, comprehension).

![Diffrent group options screenshot](image)

*Figure 19.* Different group options screenshot. This screenshot shows five example groupings in the personalized learning curriculum. A teacher can create up to ten groups, and students can be assigned to more than one group. For example, a student could be a “class ambassador,” tasked with helping their peers, but could also be placed in the “bottom quartile” group, which involves getting extra reading practice with their teacher and the adaptive reading program iReady.
Figure 20. Screenshot of the “comprehension focus” group. This screenshot shows part of the activities and goals for the “comprehension focus” group. A teacher might place students in this group who need to work on deeply understanding what they have read.
Further screenshots of the curriculum, along with a link to view it online, is included in Appendix G. Now that the curriculum has been created, it will be piloted this year. More information on this will be included in the following sections.

**Sharing the curriculum with my school**

This curriculum is going to be piloted in a 3rd or 4th grade classroom at my school. Based off of this, results and next steps will be shared with my school in a professional development workshop that will be led in October at my school. Third and fourth grade teachers will then be offered to integrate components of the curriculum in their classrooms. I plan on emphasizing that this curriculum is not a set, rigid mandate. Rather, it is an example of what is possible when putting personalized learning, student achievement and student agency at the forefront.

**Potential implications of curriculum**

It is my hope that, after the curriculum is prototyped and improved, teachers will have a school-specific example of a successful personalized learning curriculum within the context of their school and community. It is also possible to use this curriculum as a starting point for their own exploration and experimentation in their classrooms. More broadly, at the network level, my charter network can use this curriculum as an example of personalized learning.

**Next Steps**

The main component left to complete after this capstone is the prototyping and refining of the curriculum. As it presently stands, the curriculum is informed by academic research and input from a variety of educators. However, it has not been actively tested
with teachers and students. One unknown is the structure might be in the classroom - this could be a full-class implementation, a rotation model, etc. Another is how classroom management might work, given the dramatic change this would be from previous teaching models. Completing the Test phase of the Design Thinking Process with the curriculum and modifying and improving it is going to be paramount in developing the most effective curriculum that is most likely to be implemented to fidelity by teachers.

Reflecting on what was learned

The survey data, the focused hypotheses that originated from the data, and the curriculum that was ultimately created is but one part of this Capstone. The literature review informed much of the original direction for this work. Reflecting on this, some key learnings that influence curriculum creation are below.

There are many different technology tools - the tool is not the answer. In research, I found hundreds of articles about different educational technology tools - ranging from micro-adaptive programs (Ozyurt, Ozyurt, Baki, & Guven, 2014) to those that offer online practice (Khanacademy.org). I also discovered that just because something has been used with some relative success does not mean that it is the silver bullet in helping all students succeed (Means et al., 2013). While I did choose Hapara Workspace, it by no means is the only system such a curriculum could exist it.

Being specific around definitions is vital. As the personalization v. differentiation v. individualization table (see Appendix B) showcases very well, terms that are sometimes used interchangeably actually have different meanings. In crafting my research question, conducting the Design Thinking Process and creating the curriculum, I
often came back to the research I did on the different terms surrounding blended learning. This was likely one of the most valuable components, as I feel like I have a much stronger competency around the intricacies of related, yet different, terms in educational technology.

**Listening to teachers is vital, and underrated.** This was not as strongly identified during the literature review, but was emphasized as I completed the survey component. Teachers shared their opinions boldly, and were hungry to do so. With little effort, I exceeded my survey respondent total. In addition, teachers were verbose with their thoughts and feedback.

There are many other learnings, but the three above are the most poignant. Next, areas for further research will be discussed.

**Recommendations for Future Research**

The biggest recommendation for future research is the use of the Design Thinking Process in curriculum design. This process has been used in education in many ways - from organizing classroom setups to deciding on a new blended learning program. However, its use as a process for creating curriculum is not common practice. In addition, completing the Test phase of the Design Thinking Process will garner a lot of valuable information regarding what implementation looks like in an actual classroom.

Before closing out this capstone, I will reflect on the limitations of the study.

**Limitations**

This capstone has limitations - some of which are currently known and some of which may come to light after its completion. One example that is currently known is that
the teacher survey had a section that discussed classroom design. This was not used in the final curriculum, though it was interesting to read. These responses can be seen in Appendix F.

Another limitation could be the decision to house the curriculum in Hapara Workspace. For teachers who do not have access to this program, the curriculum cannot be used as-is. They would have to re-create it on another platform.

**Final Reflection**

This capstone has been a powerful learning experience for me, but the work is far from done.

Ultimately, this capstone has been a stimulating learning experience. It has started a process for my school, and for me, that will continue as we prototype, reiterate, and improve a personalized learning reading curriculum for our students. When I think back to the beginning of this capstone, I recall my Algebra I teacher dismissing the need or interest in personalized learning for students. “They seem to prefer the ‘sit and get’ method instead of having to work things out on their own,” she had said. While I am sure I did not alter what education looks like in America, I do feel like I have pushed for a more student-centered environment that focuses on personalization, agency and achievement.
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# APPENDIX A

## TECHNOLOGY TOOLS REFERENCED IN CAPSTONE

<table>
<thead>
<tr>
<th>Name of Tool:</th>
<th>Purpose:</th>
<th>Web Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khan Academy</td>
<td>Features thousands of different lessons on a variety of skills (ranging from math to computer code), including video tutorials and practice questions for skill mastery.</td>
<td>khanacademy.org</td>
</tr>
<tr>
<td>Pathblazer by Compass Learning</td>
<td>Individualized learning program that creates a playlist of lessons based off of imported standardized assessment data.</td>
<td>compasslearning.com/pathblazer</td>
</tr>
<tr>
<td>Waggle</td>
<td>Individualized learning program that has a teacher place a student on a pathway and then modifies this pathway based off of students’ performance.</td>
<td>wagglepractice.com</td>
</tr>
<tr>
<td>Hapara</td>
<td>Content sharing and monitoring tool for Chromebooks. Allows teachers to share Google documents and any files with students, along with screenshot, messaging and feedback features.</td>
<td>hapara.com</td>
</tr>
<tr>
<td>Hapara Workspace</td>
<td>Curriculum housing tool for Chromebooks. Allows teachers to share specific content with students along with deadlines and resources. Allows differentiation by up to 10 different groups that students can be assigned to.</td>
<td>mystudentdashboard.com</td>
</tr>
<tr>
<td>NWEA MAP test</td>
<td>NWEA MAP is an adaptive assessment that gives teachers a large amount of data about students’ current zone of proximal development. They have assessments in reading, math, science and more.</td>
<td>nwea.org/</td>
</tr>
<tr>
<td>iReady Reading</td>
<td>iReady is a blended learning reading and math program. It offers an adaptive diagnostic assessment, similar to the NWEA MAP test (above). From this diagnostic, iReady creates personalized lessons plans of online content for each students.</td>
<td>cainc.iready.com</td>
</tr>
<tr>
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</tr>
<tr>
<td>Accelerated Math 2.0</td>
<td>Accelerated Math 2.0 is an online math curriculum. Teachers can assign content to students to complete, and teachers can track students’ progress and needs for remediation.</td>
<td>renaissance.com/products/accelerated-math</td>
</tr>
</tbody>
</table>
APPENDIX B

PDI Table
APPENDIX C

DESIGN THINKING PROTOCOL

Go to the following link to access the Design Thinking for Educators Toolkit, which was used to complete the curriculum of this capstone.

http://www.designtinkingforeducators.com/toolkit/
APPENDIX D

KNEWTON ADAPTIVE CONSIDERATIONS

What Knewton Considers

Every student interaction gives Knewton information that helps generate better recommendations. For a first-time student, Knewton makes no inference about their ability but can predict how they might respond to certain questions based on what it knows about the content and how other students have already interacted with it. Once a student starts interacting with the content, the engine starts tailoring all future recommendations.

Many considerations go into generating unique recommendations for each student. Here are some that the Knewton engine considers:

**Knowledge State and Goals:**

*Learner Proficiency* indicates where a student falls on the spectrum of course mastery.

*Assessment Needs* identifies what a student knows already and what that student *needs* to learn to master the course.

*Need for Remediation* outlines which topics a student needs to review and master.

*Where to Move Forward* signals which topics a student is ready to move forward to.

**Behavior and Learning Progressions:**

*Learner Pace* accounts for the due date a student is working towards.

*Repetition of Material* tracks which concepts need to be reinforced.

*Asset Relationships* define prerequisite relationships between concepts that the course content covers.

*Instructional Value* is determined for all instructional content; the higher the value, the better a student learns and understands the concept.

*Assessment Value* is calculated for all assessment content; the higher the value, the better the item predicts student proficiency.
**Question Difficulty** derives from how all students have responded to a given question. A concept can have questions with different levels of difficulty that can be presented to students depending on their needs.

**Content Duration** allows recommendations to account for the length of a content item to optimize the adaptive experience for each learner.

**Engagement** means how our models can understand which content results in increased engagement and lowers the chances of a given student dropping out of the product.

Document courtesy of Waggle Learning.
APPENDIX E

TEACHER SURVEY QUESTIONS

Personalized Learning Curriculum Survey

This will be used as part of Blair Mishleau’s capstone for his Masters of Arts in Teaching for Hamline University. If you have any questions, please reach out to him at mishleau@gmail.com

* Required

What is your name?

Your answer

Are you a current K-12 teacher?

○ Yes
○ No

What school do you teach at? *

If you’re no longer in the classroom, explain what you currently do/where you currently work.

Your answer

What grade do you currently teach? *

Or, what did you teach longest if you’re outside of the classroom

○ Pre-K
○ 1st-4th
○ 5th-8th
○ 9th-12th
○ Other:

What subject do/did you teach? *

Your answer

How long have you been teaching/did you teach? *

If you’re no longer in the classroom, go with the number of years you taught before leaving K-12 teaching.

○ 1 year or less
☐ 2 years
☐ 3 years
☐ 4 years
☐ 5 to 7 years
☐ 8 to 10 years
☐ More than 10 years

NEXT

25% complete

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Google Forms
Personalized Learning Curriculum Survey

* Required

Your theories and thoughts as an educator

As a teacher, what is/was the one biggest obstacle to ensuring 100% of students were completely successful in your class? Please be as detailed as you'd like! *
There are many barriers in ensuring educational equity, but for this question try to think specifically when you were delivering content to your students.
Your answer

Below are several ideas, strategies or models that some view as helpful in educating students. Choose the one you would most likely invest in if you were a billionaire donor trying to improve schools in a large urban area. *

- Helping teachers use adaptive technology during part (about an hour a day) of their teaching day. Adaptive technology adjusts content based on student's need. For example, a lower reader may get a different reading passage than a reader who is far above grade level.
- Reducing class size, so a teacher has no more than 20 students in their classroom.
- Investing in a high-engagement writing curriculum that interests all students.
- Other:

Why? *
Your answer

What do you see as the biggest role of technology in the classroom? *

- Enhancing the work teachers already do (for example, using a smart board instead of a white board)
- Teaching students vital technology skills (for example, typing, doing basic research online, etc.)
○ Helping teachers better keep track of data (for example, inputting exit slips to note trends)

○ Individualizing instruction, so students have some amount of choice and differentiation of content (for example, students completing different math lessons on their computer based on a diagnostic assessment)

○ Other:

When you think of technology in the classroom, what makes you feel more nervous? *
Choose all that apply

☐ Students spending too much time on a device

☐ A teacher using an instructional technology program as a "baby sitter" instead of teaching

☐ Students using the device to access inappropriate materials

☐ Allowing low students to stay low by giving them content that's not on grade level

☐ Teachers not being trained to use instructional technology programs as a tool in their toolkit

☐ Other:

Assuming students were still working in groups and interacting with their teacher regularly, what is the most time you would feel comfortable with students being on a device per day? *

☐ Less than 30 minutes

☐ 30 minutes to one hour

☐ 1 hour to 90 minutes

☐ 90 minutes to 2 hours

☐ 2 hours to 2.5 hours

☐ More than 2.5 hours

☐ Other:
Personalized Learning Curriculum Survey

* Required

Your preferences in classrooms/school settings

You're about to see a few different types of classrooms/work spaces of real schools in real urban areas in the U.S. They all serve at least 50% free/reduced price lunch. After each photo, rank your feelings about it, then write a few sentences about why you feel that way.

Option 1

![Image of Option 1]

Option 1 *

1  2  3  4  5

Love it  O  O  O  O  O  Hate it

Why do you feel that way about Option 1?

Your answer
Option 3

Why do you feel that way about Option 3?
Option 4

1 2 3 4 5

Love it ○ ○ ○ ○ ○ ○ Hate it

Why do you feel that way about Option 4?

Your answer

Option 5

1 2 3 4 5
Why do you feel that way about Option 5?
Your answer

Option 6

Why do you feel that way about Option 6?
Your answer
APPENDIX F

TEACHER SURVEY RESPONSES

Note: Any information that might identify individual respondents by name or school has been removed.
Personal information has been redacted.

Are you a current K-12 teacher?

- Yes: 20 (57.1%)
- No: 15 (42.9%)

What school do you teach at?

Personal information has been redacted.
Personal information has been redacted.
As a teacher, what issue was the one biggest obstacle to ensuring 100% of students were completely successful in your class? Please be as detailed as you'd like!

- Helping students focus on their education when their home life was non-ideal and/or stressful (ex. working multiple jobs, taking care of siblings, acting as household parent, obtaining meals for family)
- Students did not always see or care how the content was relevant to them.
- Supportive parents: When I taught in Beaufort county I was never able to get ahead of parents, and when I did, they didn't care that their student was not passing art. I do feel that having a strong United team with your parents makes it so much easier to have success, but I also feel that having a 100% success rate, especially in high school is hard. At that age they need to WANT it themselves, they need the passion and the drive to be successful. Sometimes the failing wakes them up... And teaches them another life lesson... And those life lessons that they learn with is are important too.
- Being able to be fully prepared with in-depth knowledge and plans for many subjects tailored to many different learners.
- Lack of support from administration, classroom size, attendance, retention of students, violence from students towards others.
- Instructional delivery pace, planning time for differentiated instruction, developing engaging lessons, utilizing opportunities using authentic assessment as a tool to measure learning.
- The lack of parental involvement in the student's life. If a child has a terrible home life, most often, they struggle in the classroom. I would say about 60% of my students in a class of 25 fall into this category.
- Capitalism and neoliberalism. Most of my students can barely make ends meet and they have no energy for doing homework outside of class (or even coming to class on some days) so their progress is slow.
- The fact that a lot of my students are not at grade level when they walk into my classroom. In addition their needs are extremely variable based on the amount they get before my class.
- I consider behavioral issues to be the biggest obstacle to ensuring 100% of students were successful in class. When I'm spending 10-15 minutes dealing with a student who is spiraling, that is 10-15 minutes of time that every other student is not getting instruction (and 10-15 minutes of them learning that the behavior they're seeing will get the explicit attention of the teacher).
- Getting all students interested in the content for the day.
- Ensuring every student could access material at their current level AND had the habits to fully engage in study.
- Student investment was oftentimes a challenge and manifested in the form of distracted or disruptive behaviors in some schools I worked at. The cause was likely a disinterest in or a lack of understanding of the content being presented. Another factor was a lack of prior knowledge and not being prepared to cover content that was current at their grade level. Finding effective ways to remediate and diagnose misunderstandings was a huge and time consuming part of my work, which was often delayed by daily activities and did not occur in a timeframe that was fair to students.
- School admin mismanagement
- It was impossible to reach every student where they were at in math. In addition to being expected to get my kids to pass the grade level state test, I needed to troubleshoot all their skill gaps. But, with rooms of 25-30 kids, most of whom had been passed along without learning basic math skills, that was impossible. And there was no way to just start teaching at 3rd grade math and try to make it to grade level content.
- Parent support. I can reinforce so many things in my classroom, but if my students aren't practicing outside the class, a good amount of learning is lost.
- One of the biggest challenges you see ensuring that all students in my class are successful is differentiation. Classes THAT I teach usually have at least 35 students, several of whom have learning disabilities, some whom read/write at elementary school levels. I also see the opposite end of the spectrum, with a number of students in the same class reading and writing at a college level. It is a constant struggle to decide what success looks like for students at all ends of the spectrum and help them to achieve that success.
- Family involvement
- Their lack of determent that leads to apathy.
- Consistency from all classrooms and staff prevented students from being as successful in my classroom as possible. When expectations varied for transitions, Do Now completion, and homework, I spent a lot of time resetting expectations and investing students in the work of my classroom.
- Student motivation is critical. Before focusing on any curricular content, I always made sure to develop connections with my students. Once a connection is formed, motivation naturally follows.
- Honestly, I feel like after a year out of the classroom I have developed a much healthier perspective on what it means to be passionate as a student. We mastered all of our standards and had great reading growth, but I don't feel like I instilled the love of learning, the love of the world, and the problem solving skills/mindsets in my students that I think would have made them 100% successful. I think that I was very caught up in standard mastery, and when I saw baseline skills lacking in my students, that is what I wanted to address. I own this mindset and my decisions in the classroom, but I feel like the curriculum that I was given, and the curriculum that I built, was very standards based in a detrimental way. I would love to be pushed/encouraged to push myself to execute a project based curriculum.
- Having the resources, support, and time to be able to serve all my students to the extent that they needed.

I work in SEN so the children's autism and other conditions have presented many barriers to learning. Having access to a complete package (resources, tech, etc.) makes a huge difference for these students. I love that I have been able to work with so many different types of learners and see them succeed at their own pace.
7/9/2016  

Personalized Learning Curriculum Survey - Google Forms

Support staff, environments all at once is a rare occurrence. I have found the students make most progress when everything lines up to remove barriers to learning. A holistic and creative approach is key.

Student engagement: If a student’s attention strays during notes or an explanation, then they are less likely to understand the skill being taught.

There are so many students who look like they’re understanding the content/what we read together, but then when I ask them to critically think about the literature and write about it with a critical lens, it seems so difficult for them unless I scaffold and give them ideas. I constantly strive to get them to dig deeper, but it doesn’t work for everyone.

Lack of time to reteach material

One of the biggest obstacles to ensuring 100% of students are completely successful in my classes is non-completion of academic requirements of the course.

Preparedness for a formal education. Many students did not have the mindset or resources and weren’t familiar with the social norms and expectations needed to be successful in a classroom environment. Whether these students were lower skilled or not, they very quickly fell behind or dropped out.

Knowing all of my students well enough to know where their learning is currently, where the next steps should be taken, supporting my students with the necessary tools and connecting my students to their learning to shift the personalization from me to them. In class sizes as for 25+, with 15-15 different languages spoken in the classroom, socio-economic issues obstructing the academics (often 3-4+ students homeless), the biggest obstacle was connecting with each child to make the next steps accessible and what they wanted to learn.

Just one? Goodness... so many factors influence student success: too many students in the class (too hard for me to reach every student), not engaged in their own learning; parents not as supportive as they could be (both of the teachers and their own children); curriculum lacks meaning for students.

Being willing to let students work on their own projects and at their own pace AND having them actually work instead of choosing to take the easy way out.

Resources outside of the classroom was not equal to all students. Some students have no access to computers and internet connections.

One of the biggest obstacles is pre-requisite knowledge. Many students are being pushed forward through school without having foundation skills. Without these skills, they are hurt moving on, but then fall further and further behind. I work with students in small groups and one on one, but there is only so much time in the day and it often comes to me 2+ grade levels behind.

Class sizes... We have too many students in our second and third grade. Also, we are not a 1:1 school, yet we are required to complete many technology projects which require students to have access to a device.

Below are several ideas, strategies or models that some view as helpful in educating students. Choose the one you would most likely invest in if you were a billionaire donor trying to improve schools in a large urban area.

- Helping teachers use adaptive technology during part (about an hour a day) of their teaching day. Adaptive technology adjusts content based on student's need. For example, a lower

Why?

When I was a classroom teacher, I saw greater success with differentiated materials - pushes students beyond their comfort zones as well as meets students where they are at.

I currently teach an average of 26 students, which makes it difficult for me to give students the individual attention they need, want, and deserve. It is difficult for me to get to know all the students as individuals, and I cannot always make personal connections that will help the students. I do not always know what is happening outside of school which can definitely affect their school performance. If their lives outside of school are full of strife, how can they focus in school?

I feel that one teacher with a lower number of students. I am really lucky this year and am only allowed to have 25 in each class, due to number of computers in my room, but there are many teachers that have 30+ and it’s hard to see and talk to everyone when your numbers are that high.

As an educator, I would love the opportunity to work with a smaller group of students to better able to differentiate. This seems like the thing, out of those choice, that I would be more interested in investing in. I believe this is mostly because I have writing curriculum and programs be a tech knowledge he that I feel strongly about. Also, 6 the next question about the role of technology, I think that more than one choice applies, but I can only select one.

The nation loses many talented teachers who seek professions where they are compensated more fairly. Teachers put in more hours than most professionals and aren’t offered the same salary or access to pay raises. I would love to see teachers paid fairly for the work they do.

Technology is the wave of the future and one hour of adaptive technology instruction could be easily infused in to the regular school day.

It is just common sense, the less students a teacher has the focus on reaching, the more he or she will be able to reach.

Individualized learning directed by dedicated, highly trained teachers is the best way to ensure student success. If I could choose three answers, I would say 1) reduce class size. 2) pay teachers more. 3) train teachers more

I’ve seen it work in other schools.

Adaptive technology is engaging for students, so if a student is spiraling, everyone else can (and wants to) continue their work. But it also ensures that the top students don’t get bored at the same time that the struggling students get the extra lessons they need.

The smaller the class size, the more likely the teacher is able to build authentic relationships with their students.

Great teachers produce great results, reducing the class size of a sub-par teacher will not increase their effectiveness just as giving a sub-par teacher access to
technology will not increase effectiveness if the technology is not used correctly. However, limiting the class size of an effective teacher will provide that teacher with additional capacity to coach, innovate, scaffold/individualize lessons, serve struggling students, etc.

Great leaders hire and build great teachers. They hold their school communities of teachers, parents, leaders, and most importantly students, to high standards. They are rare, but can make all the difference. School leaders are often well intentioned but not effective due to a lack of skill, support, or time. More strong, committed, and skilled leaders would be my focus for investment.

My ESL immigrant students entered the classroom at very different levels. Individualized instruction would help meet each student at their ability.

To be able to reach kids where they are at and troubleshoot those gaps from there.

This is a huge part in children's success. When their families have a great relationship with their teacher, they will be more likely to want success for their child and trust that the teacher will give both the scholar and parent the tools for success.

The biggest struggle I currently have in my classroom is with differentiation, and this strategy/program seems to be the most useful for overcoming that obstacle.

In my grade level a lot of students receive very limited attention and home and smaller class sizes would allow teachers to give more attention to each student and more effectively differentiate lessons to meet every student's individual needs and interests.

Kids get lost in large classrooms. Teachers physically cannot give quality time to each kid in their class over the course of a 50 min period when there are 30+ students. Many of the best practice teaching strategies such as differentiation are nearly impossible when there are that many kids in a room.

Education requires differentiation. Each student comes into the classroom with unique needs. If teachers could intentionally use differentiation, students could more likely access a range of texts and use technology in order to increase engagement and investment.

Small class sizes support fostering personal connections with students. To me, connection is the key.

I think that if every student operated from this mindset, the result would be world-shifting.

Reducing class size allows teachers to dedicate more time and resources to each student. However, this would only be a small step in terms of a maximal impact.

With small class sizes the work load reduces allowing teachers more time to differentiated all of their lessons so that everyone is able to access the lesson but is still challenged to make progress. The most precious thing you can give teachers time. With time they can improve their subject knowledge, create better resources and curriculum and give better assessment to their pupils. Any tool are only as good as the workperson using them.

In math, a weakness in one topic can lead to difficulties learning future topics. So identifying areas for improvement and spending an hour a day on those areas would make a huge difference in a student's classroom performance.

Smaller class sizes means the teacher can pinpoint what specific students need to work on.

This would help students with comprehension which would allow them to better understand what they are learning.

Different students have different reading levels. Most classes are heterogeneously grouped together, but there is a strong need for instructional differentiation.

Class size alone has not proven to have impact unless it is paired with high quality instruction. Many teachers in the U.S. still instruct in very traditional ways where behavior/rule-following is the primary goal of the day rather than exciting and engaging young minds.

Need fewer students to connect with them personally, know where they are, know where they should go next and keep giving them feedback on their next steps.

Students' needs have increased so much (more broken homes, more poverty, more distractions, less stability), and for teachers to have the most impact, we need to be able to work closely with individual students. No amount of technology can make up for the lack of 1:1 contact between teachers and students.

I believe strongly in the old adage they don't care what you know until they know you care. Along those lines creating relationships is key and it is easier to do in smaller classrooms.

To be effective a teacher should have a connection with the students and it's very hard to have with large class sizes.

The reality is that students are going to come to us at different ability levels. Technology is a high interest item for a majority of students so it will help them stay engaged. Students also do not want to appear "dumb" in front of their peers. If they can appear to be doing the same activity as everyone else, but be receiving support at their level, that is important, especially for self-esteem and even more so at the middle school level.

Although this was a very difficult question, our school has very large class sizes and it is detrimental to student learning. We do not have the resources to support all of the students. If we had lower class sizes it would be better for students and teachers alike.

What do you see as the biggest role of technology in the classroom?

Enhancing the work teachers already do (for example, using a smart board)
Teaching students vital technology skills (for example, typing, doing)
Helping teachers better keep track of data (for example, input)
Individualizing instruction, so students have some amount of choice and differentiation of content (for example, students completing different math lessons on their computer based or

When you think of technology in the classroom, what makes you feel more nervous?
Your preferences in classrooms/school settings

Option 1

Why do you feel that way about Option 1?
I really like that there is a free flow to the seating. It gives students the ability to move to a place where they feel most comfortable learning and working. However, I would like to see a common meeting area where the class can sit together for whole group discussion and instruction.
Looks like a great place for students to engage, very clean and modern... College like. Students seem to have school more on the brain then they feel they are in a positive space.
So open and sunny! Collaborative.
Looks open and colorful
Open and welcoming floor plan that allows for students to learn in a comfortable, clean and bright environment.
It looks like a welcoming, independent learning environment. It almost reminds me of a college which is what we are preparing our high schoolers for.
It would take teachers a long time to move from one group to another to check in on students. Also, it seems like a ton of money was spent on a swanky building when the teachers at that school are probably still underpaid.
Love the open space with variable seating.
Love the light and bright colors as a work space. It gives me nightmares as a classroom though... There's way too much area for students to get off topic.
Good for students working in small groups, sharing ideas, typically better for more mature students, open/couch spaces can be used as an incentive for on-task behavior, very openairy, gives students more freedom/indipendence
This feels like real life/real work place. Spaces for authentic interaction, light, bright, etc.
Color, space that is intended for collaboration, clean and modern, bright natural light
Can't see onets
open, bright space, with collaborative areas for students
If actually productive, this would be positive, but I could see too much freedom being detrimental to this style of learning
The space looks innovative, inviting, and collaborative.

This isn't a type of classroom I've ever experienced and could easily see it going either very well or very poorly.

Not traditional enough

Viewing the outside is possible and connection to nature is always powerful as a grounding experience. Students are working in groups, seem comfortable, and look to be enjoying the learning experiences in which they are engaging.

I love the natural light and comfortable decor. I can't tell if there's a display/presentation area or a private meeting workspace. As a student in that space, I'd want a table or desk so I don't have to balance my laptop all of the time.

Collaboration, freedom; students opting to be where they are and actively engaging with content.

It's alright. I like the open, comfortable atmosphere, and the ability for students to comfortably engage. It also most clearly models the feeling on college campuses outside the classroom. However, I don't see structure or an environment that motivates and inspires learning, but more of a coffeeshop atmosphere, which encourages discussion, but not necessarily deep learning.

It is open, light and offers a selection of working environments in one area.

It's difficult to tell if the students are supervised and it seems easy for them to be off task. It looks inviting, comfortable and modern.

I like the colors, but the rest looks cold

Seems most appropriate for high school

The set-up is not conducive to paying attention and classroom management.

Open space, freedom, organic - this space is typical of a university or work setting. Giving it to kids has the same benefits.

It is a big open space with bright colors, but where do the students work through their learning? Where is the showing of learning?

I love the choices students seem to have about where to sit and which kind of furniture to use. Obviously those huge windows are awesome! Lots of natural light.

These students do not appear to be goofing around and I choose to assume good intentions and thus it looks like they are learning collaboratively in an open airy space.

Although comfortable there's too much room and a student can get lost or not feel included.

There are distinct areas of the room. Students are far enough apart that groups can work on their own without being distracted. There are different types of seating so students can be where they are comfortable. I like the colors.

Innovative, bright, clean and sets students up to feel good and work cooperatively.

---

**Option 2**

**Love it:**

1. 18 (61.4%)
2. 10 (28.6%)
3. 5 (14.3%)
4. 2 (5.7%)

**Hate it:**

5. 0 (0%)

---

**Why do you feel that way about Option 2?**

I love that there are different pieces for students to work in addition to a communal area where larger groups can meet for whole class discussion or instruction. It
looks that students have the flexibility to sit where they feel they will be the most productive, and there is space for students to work in groups where they are not
too close to other groups to avoid distractions.

Seeing tech this much always makes me think "what will the future be like?"

The open concept is fine, but I'd worry about distractions.

Direct instruction given in fluorescent lighting can become boring very quickly.

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Seeing tech this much always makes me think "what will the future be like?"

The open concept is fine, but I'd worry about distractions.

Direct instruction given in fluorescent lighting can become boring very quickly.
Option 3

Why do you feel that way about Option 3?

Option 3

<table>
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<th>Love it:</th>
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<tbody>
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<td>10</td>
<td>28.0%</td>
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<td></td>
<td>12</td>
<td>34.3%</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>8.6%</td>
</tr>
</tbody>
</table>

Hate it: | 1 | 2.9% |

- I like that the students are not sitting in desks, although some students would prefer to sit in desks. I like that there is a space for the whole class to meet, but I do not see if there are places for students to move around if they need or want to.
- Engaging yes, but looks like most classrooms.
- Good for some things.
- I probably like this the most because it feels traditional and most like my own experience.
- There appears to be student engagement and the needed structure for question and answer/student involvement for this particular age group.
- A little too traditional for me.
- I don't teach K-12, I have no opinion.
- It's okay. There is a time and place for those settings.
- Lots of light, students are all engaged, and everyone looks comfortable (without risking falling asleep).
- I teach high schoolers and they hate sitting on the floor.
- I believe there is value in whole-group instruction to develop common ideas and common language.
- Students smiling, focused, and using silent communication cues.
- Students are happy and engaged.
- Set up for lecture style or listening, not collaborating, but also those are skills kids need.
- Students want to please teacher and show that they have the correct answer.
- It's hard to see what the actual classroom space looks like but it's great to see all students engaged.
- Students look engaged and excited and seem to be following classroom instructions and embodying classroom culture.
- 100% engaged.
Students like excited to participate. The expressions on faces seem to possess joy for learning and sharing. Students raising their hands at this point in the lesson shows a respect for their peers in giving them a turn to share out.

This picture only shows the students during a class meeting time. I can't tell if this is just a short seminar or how they spend the majority of their time. It's really too difficult to place a value on this scale since this may just be the meeting space of a well designed classroom.

Clear student engagement and joy, signs for listening and students participating with the teacher.

Kids are clearly engaged, but the structure of the classroom looks decidedly teacher-student, ping pong, rather than oriented towards activating all students and utilizing their voice. Also, the bubble in the mouth thing is irritating to me.

For many this is an uncomfortable seating position. It is used as a default position and adults sit at an elevate position to the children creating a subconscious hierarchy.

Students are engaged and appear to be excited about responding.

Like the kids on the floor, but there is a lot going on in the background walls

Similar to option 6.

There is an indication for facilitated instruction and good classroom management.

I'm personally uncomfortable with these types of methods used to teach children to be quiet and listen.

Bright colorful and together.

I don't see much here related to "work spaces" -- kids sitting on a rug isn't new, is it?

I can see more to the younger kids but these young people appear to be doing what they should be doing EXCEPT a couple of them meet me things they are being told to quiet down and I cannot ascertain if this is transition or the space lends to them speaking when they should not.

Not sure.

I like there is a central meeting place for the students. They have routines and structures in place. I would guess desk seating is very structured and rigid students are all actively engaged in learning.

Option 4

<table>
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<th>4</th>
<th>5</th>
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<td>7</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>20%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
|    |   | 40%
|    |   | 60%
| Hate it | 5 | 2.9% |

Why do you feel that way about Option 4?

I love that there are different places for students to work in addition to a communal area where larger groups can meet for whole class discussion or instruction. It looks that students have the flexibility to sit where they feel they will be the most productive, and there is space for students to work in groups where they are not too close to other groups to avoid distractions.

Group work is important as long as their is still individual role to hold every group member accountable

Love the mobile furniture! Lots of ways to collaborate and move things around.

Some distractive behaviors due to the seating arrangement.

Looks very welcoming ... love the desk setup

It looks difficult for students to actually work in groups in this setup. They're too far from their partner to effectively work together, and the tables have too many students at them to form effective large groups.

Love the collaborative way the students can interact.

Good for small groups of highly-functional and engaged students, but at an elementary level, could quickly turn into everyone making faces at each other. I would not use this in my classroom.

Good for round table discussions and teacher facilitation

Like space for collaboration, ease with which the teacher can circulate

Setup for collaborative groups, but they feel too big and far apart and the room looks empty with bare walls

Students are quietly engaged

Flexible spaces that can be used for collaboration, but furniture wouldn't move as freely as in picture 2

Smaller groups can be great for certain learners.

Clean, not cluttered, lots of space for teamwork and collaboration.

Teacher is very engaged with students but classroom space appears to be under utilized

Students are setup in a circular style in order to share their learning more effectively.

It's a large, flexible space with comfortable seating. Clearly, there's opportunity for presentations, individual and group work.

Group work, teacher popping in, seems like the students on the far edge are a little too far away to completely engage with the group. Looks like focus is lacking
on the far side of the teacher.

All students can see one another and potentially work together.

Seems to allow for a reasonable degree of interaction between students. It depends how it is used. Not the easiest for adults to offer support/comments/questioning.

It looks like this space is set up in a hallway. I wouldn't want to teach in a space where people could walk by or through my teaching area.

Looks collaborative!

It allows interaction between students and with the teacher.

The classroom teacher moves around to check on individual students, after perhaps, a short discussion of topic.

Harkness/Socratic discussions are some of the most impactful ways to engage learners. They are empowered to learn :) 

Front of the classroom can shift and the class can grow or change as needed.

I recognize those tables – they're flexible, in that they are on wheels, so they can be easily moved depending on the students' needs. I like that. The chairs, though, also need wheels to make it all more flexible.

This space appears to be in an area where distraction and and does happen. Not always best for learning. That being said the arrangement of tables lends to group discussion.

Round tables makes everyone feel like they are all on the same level.

This space allows for conversation and movement. It allows for students to look at each other. I like that the white board is movable so it can be where ever it needs to be. Bring it to the students instead of the students to it. Desks are easy to rearrange for smaller groups. Feels like a business board meeting. Teacher can easily get around to all students.

students are a little too far apart and there is no technology.

---

**Option 5**

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<thead>
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</thead>
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<td>22.9%</td>
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</tr>
<tr>
<td>4</td>
<td>6</td>
<td>17.1%</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

**Why do you feel that way about Option 5?**

I like that the students are not sitting in desks, although some students would prefer to sit in desks. I like that there is a space for the whole class to meet, and it looks as though there are places for students to meet and work in small groups.

Engaging but like most classrooms

Again, good for some things.

Good instructional delivery for this particular age group.

The classroom looks colorful and the students look engaged. A little traditional.

I don't teach K-12. I have no opinion.

 Doesn't seem comfortable.

All the VIPs are bright, but somewhat chaotic. Could easily distract a kid. You can see kids facing multiple directions, which makes me think they are not fully engaged (and possibly squirming?)

Again, my students would hate sitting on the floor

Attention is less focused on the task at hand–too much external stimuli

Students appear somewhat engaged, and there is a good deal of information on the walls, but it appears busy and some students seem distracted.

Students actively engaged.

set up for lecture or listening only, no differentiation or flexibility

Most, but not all students seem engaged. This is typical of what I am used to as a teacher.

The space itself looks like an average classroom -maybe a bit cramped, but the whole class seems engaged and participative.

Similar to 3, students look engaged and excited and the teacher is directly engaged with the class.

Students seem engaged, but the focus is on the teacher.

This picture only shows the students during a class meeting time. It's really too difficult to place a value on this scale since this may just be the meeting space of a well designed classroom.

Students are engaged, that environment would be too visually stimulating to me. I would hope that students are actively utilizing everything that is on the walls.

Fine for initial instruction I suppose.

See option 3. Also the walls are very busy which could be distracting for predominantly visual learners or those with attention problems.

Looks like a normal classroom setting.
Too busy in the background!

Allows close interaction with students.

It is important for the instructor to assess background knowledge of students, check on their entry skills, clarify misconceptions, before letting them go for collaborative work and further learning.

Very traditional. The teacher is above the learners.

Same as option 3

Again, not much new here. There's nothing wrong with "rug time," there's nothing wrong with a teacher up front w/students facing him/her. It's easy to criticize that as being "old school," but there are times when it is appropriate -- as long as it isn't all day long.

Same as 3

Over stimulation on the walls.

Routines and structures are in place. There are a lot of visuals and anchor charts up for students to refer back to. Central meeting place for class discussions. It looks like the teacher is just dictating? very few children are engaged...

Option 6

Why do you feel that way about Option 6?

<table>
<thead>
<tr>
<th>Love it</th>
<th>Dislike it</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>6</td>
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</table>

All the students are sitting at tables and facing the same direction, which works well for whole class instruction. However, not all students can sit for extended period of time and focus. I would like to see more flexibility in the seating and places where students can move around when the feel a bit "stifled."

Movement gets the juices flowing!!

Rows of desks are not my favorite. Even rows on the carpet feel better because it's easier to turn to talk.

Too dull

Focusing on student engagement is a useful tool.

This room looks wayyyyyy too plain.

Rugs As soon as one student in the middle of the row needs to get up and leave they would disturb the entire row. People in the front row would also never see people in the back row. It would also be impossible for the teacher to reach every student. This one is the worst.

How does this work for every student?

Hard to reach each and every student quickly. It would be dam near impossible to get to students sitting near the wall in rows 2 & 3.

I like how all kids are facing the front, however the space seems super cramped and it's hard for whole class discussion/interaction with one another.

Clearly a sense of community created by individuals, which can be powerful. I'd love to see the impact of taking these relationships and putting them in setting 1.

Walls are a little empty but the focus of students is clear and the groups looks actively engaged and positive.

All students engaged

set up for lecture and listening only, not easy to do group work

It seems that every student is raising their hand which even if they don't know the answer shows that they are not afraid of getting something wrong. Shows strong classroom culture.

I am not a huge fan of desks in lines like this, but the students all seem to be engaged.

Similar to 3 and 5.

Students seem excited and eager to participate. I would be at a 1 if I say students moving and not being confined to sitting.

Unless there's a whole other 1/2 to this room, I don't like that the arrangement is squeezed into rows. Kids can't even get out on the far side of the rows. I'd feel claustrophobic.

No room for students to move. I hope that partner talk is a thing in this classroom, not a lot of culture or student work on the walls.

Kids look like they are responding to a question that requires a TPR, but there is also high potential for just copying each others' answers.

Too crowded, many barriers between the teacher and learners. How do adults help/work with an individual in the middle of a row without disturbing others. Forced focal point to the front of the class/teacher/board.

Everyone is participating and looking in the direction of the teacher. Whatever was just asked of the students, they seem to be engaged in it.

Looks old school. Aren't we about collaborating and having students dig deep into the curriculum, as opposed to listening to the teacher at the front of the room?

Im not a big fan of rows of desks.

The set-up, to me, considers class size and space for management purpose. I would believe that every grading period, the instructor would vary grouping...
Personalized Learning Curriculum Survey - Google Forms

arrangement:
Yuck. Teacher is the focus.
Small room. Chuck full of furniture and students. Though, I like this teacher is a Green Bay fan.
Looks like they are all participating in some way -- that's good. I think those are flexible tables (on wheels), which means they probably don't sit in rows all day long. As far as this work space goes, it looks awfully crowded...
This is difficult because it doesn't allow for teacher proximity but does allow for lots of opportunity for students to bother each other.
Not sure
So much whiteness on the walls. I hate rows. Teacher can not get to all the students. Allows for limited partner and group work. Limited mobility.
All students actively participating...

Closing Questions

Would you like a copy of the capstone, once complete?

<table>
<thead>
<tr>
<th>Option</th>
<th>Yes (add email address below)</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>45.7%</td>
<td>54.3%</td>
</tr>
</tbody>
</table>

Personal information has been redacted.
On the following pages are several screenshots of the curriculum. Due to the fact that this is a digital curriculum, it is easiest to understand it by viewing the link online.

**Brief description:** This personalized learning reading curriculum is housed on Hapara Workspace. It is divided into five groups, though a teacher can create up to 10. The Workspace has 4 columns. The leftmost column describes the student’s goals for the given period. The second column has a spot for a scaffolded book summary a student can fill out after completing their reading goal in the leftmost column. The third column has a way for students to track their progress on iReady, an adaptive reading program. Finally, the fourth column has a spot for the teacher to share mini-lesson videos if that is a component of the day’s lesson.

These activities will be scaffolded or, in some cases, not present at all, depending on the group the student is assigned to. For example, a student in the “comprehension focus” group is part of a pull-out group during their reading time. In addition to a personal book summary, they will also complete a group Google Doc activity where they talk about the book their group is currently reading.
Bottom Quartile Group (1 of 3 screenshots)

This group, for students who are in the bottom quartile of the NWEA MAP reading assessment, has a modified book summary (with sentence starters) and customized iReady lessons focused on their needs.
### Your Reading Goals

#### Watch the mini-lesson before meeting with your teacher

*It's on the right-hand side that says "Mini-Lesson of the Day".*

#### Read from your book bag for 30 minutes

Please choose a book from your book bag and read for 30 minutes. Then, complete a book summary!

If you want to listen to music, click the file that says "music" below.

**www.online-stopwatch.com/timer/30minut...**

**Music.mp3**

#### Complete 2 iReady Extra Lessons

Complete two iReady Extra Lessons. Then, update your name on the iReady tracker!

Be sure you click the "Extra Lessons" button!

**cainc.i-ready.com/**

### Book Summary

#### Your book summary sentence starter:

Start your book summary with:

**In my book, one thing that I thought was interesting was...**

**One thing I was confused by was...**

#### Mr. Mishleau’s Example Book Summary

Today I read page 1-15 of The Lorax. I learned that we need to be nice to our environment, like our trees and animals.
Bottom Quartile Group (3 of 3 screenshots)

iReady Lesson Tracker

Started 3m ago  Due 2m ago
Click the link below to track your iReady lessons.

Once you've passed 30 lessons, submit it to your teacher!

Individual evidence 📑

iReady Lesson Tracker

Mini-Lesson of the Day

⭐ Fiocabulary video: Main Idea

🔗 www.fiocabulary.com/unit/main-idea/video/
Comprehension Focus Group (1 of 3 screenshots)

This group, for students who need to focus on comprehension of reading, has students work in a book club to answer comprehension questions about the book they are reading. They are also pulled as a small group for a portion of the reading block. Finally, their group has a unique mini-lesson video that primes them on the book they are starting to read.
**Comprehension Focus Group (2 of 3 screenshots)**

**Your Reading Goals**

- **Watch the mini-lesson before meeting with your teacher.**
  - It's on the right hand side that says "Mini-Lesson of the Day!"

- **Read for 45 minutes**
  - Find a book that is on your level and read for 30 minutes, using the timer link below.
  - If you want to listen to music, click the file that says "music" below.
  - [www.online-stopwatch.com/timer/30minutes/](http://www.online-stopwatch.com/timer/30minutes/)
  - [Music.mp3](http://Music.mp3)

- **Complete 30 minutes of iReady reading**
  - Complete 30 minutes of iReady. When you pass a lesson, put it on the iReady tracker!
  - [caimc.i-ready.com](http://caimc.i-ready.com)

- **Rotation #1 w/ your teacher!**
  - Ashley
  - Karem
  - Jahnya

**Book Summary (and music)!**

Mr. Mishleau's Example Book Summary

In the book *The Borrowers*, I read page 72-85. One thing that I thought about when reading the book was how I would feel if I was a tiny person. The borrowers were afraid of normal sized people, and I think I would also be afraid if I were them.
Comprehension Focus Group (3 of 3 screenshots)