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I wish school was like this: one teacher's journey towards creating a student-led learning space

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I WISH SCHOOL WAS LIKE THIS:
ONE TEACHER'S JOURNEY TOWARDS CREATING A STUDENT-LED LEARNING SPACE

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APPROVAL OF DISSERTATION

We, the faculty supervising the work of Angela Abbott , affirm that the dissertation, " I Wish School Was Like This: One Teacher's Journey Towards Creating A Student-Led Learning Space"
, meets the high academic standards for original scholarship and creative work established by the EdD Program in Curriculum and Instruction and the College of Education and Professional Development. This work also conforms to the editorial standards of our discipline and the Graduate College of Marshall University. With our signatures, we approve the manuscript for publication.

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ABSTRACT

The purpose of this study was to use the principles of the Reggio Emilia Approach to change how children in a high poverty school in West Virginia are educated. Specifically, this study was an exploration of the learning space as a third teacher, teachers as researchers, and giving students agency in their learning. A philosophy supporting emergent and participatory inquiry was developed and carried out for this project. Data were collected using several qualitative methods such as participant observation, discussion, interviews, photo elicitation, and student work. Conclusions from this project include: that there is potential of using space as a third teacher; that reformulating teachers as researchers will make the craft of teaching stronger; and that students who are given the opportunity to exercise true agency in their learning will be more engaged in their learning and have a breadth and depth of work more complex than traditional learning.

CHAPTER 1

INTRODUCTION

DUNBAR INTERMEDIATE SCHOOL

I am a library media specialist at Dunbar Intermediate School in Dunbar, West Virginia, a bedroom community of Charleston, the state capitol. This area would be considered economically depressed by most standards, but by West Virginia standards it is holding its own; still, there are significant areas of blight and joblessness is high. As with most of West Virginia, there is a high incidence of substance abuse and the community feels every overdose personally (Saslow, 2016).

My school sits in the geographic middle of Dunbar. The location used to be the home of the high school, which was converted to a middle school. Ultimately most of the facilities were bulldozed, and a new, Intermediate-level school was constructed. The Intermediate configuration of the school makes it unique; it is the only Intermediate school in the district and one of only 13 in the state according to the 2016 West Virginia State Report Card report (W. V. D. o. Education, 2016). My school also has another unique characteristic: it is the district's only autism center. The free-standing building houses four classrooms of each grade level from grade 3 to grade 5. It also has a resource room, a classroom for developmentally delayed students, two self-contained autism classrooms, and a facility dog with specialized training to work with students with Autism. Roughly 36% of our student body falls under the special education umbrella. Our students are unique in other ways, too: a little more than 36% identify

as persons of color with 11% identifying as having more than one ethnicity. We have more boys than girls and our students live in high poverty with more than 90% identifying as low socio-economic status. Every day I see sixteen students who are in the self-contained autism classrooms (we have additional students identified as on the autism spectrum, but they are in the regular education classroom setting), eight additional students in our program for students who have developmental delays, and two more students in wheelchairs. I am happy to say that my school embraces this diversity with pride and open arms.

I started working at Dunbar Intermediate in the fall of 2016. It was mid-July when I applied for my current position of library media specialist. I was optimistic about my chances of being hired, but I was also realistic because I have a reputation for being difficult to work with. I think that reputation is unjust on the one hand, hard-won on the other. I am not one to unquestioningly accept what I am told to do; I have always believed that it is my responsibility to protect the best interests of the students I have under my care. If I believe that an instruction or policy or directive is wrong or will harm kids, I will not do it. This practice is one in which past colleagues have sometimes viewed as causing trouble. I was delighted to be called for an interview and then thankful that the interview went well. I genuinely enjoyed my conversation with the principal, who is a smart, creative, and a more progressive school administrator. I wanted the job but was not sure if an offer would be made. A few days went by, and the call came; the position offered, and after a few days of really thinking about things, I took a deep breath and accepted it.

Things were rough at first; I genuinely struggled in this new position. For most of my career I had been a classroom teacher, and therefore had no idea how to become the librarian

this school was used to having. I spent countless hours online reading and talking to people about being a librarian and what the job encompassed. Thank goodness for Legos. They entertained my students for hours while I tried not to look panicked or unsure of what I was doing. Eventually, I settled into the position and began to think about my role in the school and the lives of my students.

During October, my principal met with me and asked about my vision for the Media Center. I expressed my desire to re-design the Center around the students and their voices and to root that redesign in the philosophies of the Reggio Emilia approach and constructivist learning. It was also during this meeting we both discovered each other's passion for designing the richest learning experiences that we could for children. My principal asked me to write an Innovation Zone project grant around these ideas. We received that grant, and the idea for this project was born. In this dissertation, I explore the journey that Dunbar Intermediate School took in changing from a traditional school to one focused on student agency and inquiry.

THE INNOVATION ZONE PROJECT

The Innovation Zone project is a grant-based program sponsored by the West Virginia Department of Education. It allows public schools in West Virginia to try new techniques or ways of approaching education. Innovation Zones allow schools exemptions from various codes and policies allowing the schools the flexibility to experiment with curriculum, teaching techniques, and pedagogy.

I fully anticipated that our Innovation Zone project would take three years to bring to fruition. We had a couple of key components in mind. The first was to turn the library into a

learning hub wrapped in the pedagogical practices of constructivist learning via the incorporation of a makerspace. The second component was to use an inquiry approach where students have agency over their learning. It was our intention that students would spend the afternoons in ungraded, multi-age groups working on projects of their choice and design. The third component was to provide a safe environment for teachers to engage in research and agency over their own professional needs. Our final and most challenging component was to re-introduce education as a democratic endeavor between and among children, parents, the school, and the community.

AMERICAN SCHOOLS IN THE PRESENT

In general, American public schools have succumbed to a corporate model of operation (Giroux & Saltman, 2009). They have become regimented to the point where it is now difficult to recognize the particular beauty and talents of the individual child. Student-centered learning has been replaced by standards, "rigor," and standardized tests (Darling-Hammond, 1986). Cast aside are the days of Social Studies and Science Fairs, to be replaced with DIBELS and SBAC or PARCC testing (Ravitch, 2016). Teachers struggle to take into account the individual differences that make each child unique and able to bring different perspectives to the table; gone are the virtues of creativity and problem solving (Walker, 2014). Instead, our current system seems designed to fit everyone neatly into one standardized box; in doing this, we are draining the life out of our children (Webley, 2012).

So how did we get here? Does school have to be like this? I believe the answer is no. To get to this point, however, it is essential to look at how schools have been pushed toward regimentation and standardization over time. When I first began exploring this problem, I

traced its beginnings to *A Nation at Risk (N. C. o. E. i. Education, 1983)*, the pivotal 1983 report commissioned by then-President Ronald Reagan which claimed that public schools in the United States were failing to prepare students for the needs of the workforce. However, as I began to read Linda Darling Hammond's (1997) *The Right to Learn*, I realized that this trend went back much further, to the beginning of the industrial revolution in the 19th century. Darling Hammond pointed out that early on schools took on the personalities, if you will, of Henry Ford's assembly line model (pp. 16-17). I had heard and read about these developments over the years, but Darling reminded me once again that our issues in public schools are not new.

Standards and Standardization

The first tenet emerging from the problems facing our schools today is the regimentation or standardization of schools and how it manifests in different ways. The first is the onslaught of requirements passed down to teachers. In my district, for example, teachers are told what to teach, how to teach, the length of time to teach, and more. The intended outcome of this policy may be for every child to be guaranteed a quality education; the unintended consequence, however, is that every child, teacher, and school is expected to perform in the same ways, to essentially be the same when they are not. Regrettably, my district is not an anomaly; it is a microcosm of the national curriculum that has emerged out of both No Child Left Behind and Common Core. Linda Darling Hammond (1997) offers a stinging critique of the regimentation our public schools currently embrace. She argues that this top-down decision-making model impedes the change that can cultivate the kind of experiential

learning that happens when children are given voice in their learning and the opportunity to learn by doing (p. 67).

Schools and Democracy

The second tenet emerging from the problems facing our schools today is the loss of the democratic purpose of public schools (Meier, 2003). John Dewey (1916) is widely recognized as one of the earliest American philosophers to argue for schools' civic missions. Many others have echoed that call. W.E.B. Du Bois (Du Bois, 1949) argued that a solid education is a fundamental civil right. His mid-twentieth century argument is so directly opposed to the vocational and economic orientation of contemporary educational policy that it now seems radical.

I believe that our public schools are the future of our society and our culture. As go our public schools, so goes our country. Deborah Meier (2003) is another great proponent of democratic education. She argues passionately that our society must reject the idea of school being solely about improving the economic opportunities of students or the communities they live in. Meier also rejects the idea that education should be about improving our country's position globally. The message she has been trying to convey over the years is that schools must be seen as a means of exercising democratic learning. She argues that school is where we learn to be the citizens we need for our democracy to continue in this country.

Educational Policy

Last is the role that national policy has played in this regimentation of education. The two major educational reforms of the last twenty years have been the adoption of President

Bush's No Child Left Behind Act and the near adoption of the Common Core. The No Child Left Behind Act (NCLB), an update to the Elementary and Secondary Education Act of 1965, was President George W. Bush's signature law signed into effect in January of 2002 (Klein, 2015). The NCLB law significantly increased the role the federal government held in making schools responsible for the academic progress of all students. While this may seem like a good idea, its one-size-fits-all approach proved devastating to many schools (Barnes & Slate, 2013). It put an emphasis on making sure that specifically identified subgroups of students such as English-language learners, special education students, poor, and minority children did not lag in achievement scores when compared to their peers. The government used the threat of the loss of Federal Title 1 money to get the states to comply with the act although, according to the No Child Left Behind website, no school actually lost funding.

The Common Core State Standards Initiative, encouraged by the Obama administration, was an initiative of the National Governors Association, the Council of Chief State School Officers, Achieve (a business-sponsored group), and Student Achievement Partners (a group led by consultant David Coleman), which attempted to craft a nationalized curriculum in English language arts and mathematics. The initiative sought to establish consistent standards across all states and territories to make sure students had the skills to enter college or the workforce upon graduation. As of 2016, 42 states fully adopted what is typically referred to as Common Core Standards. Joanne Weiss wrote in the *Harvard Business Review* blog that "the goal of the national standards was to create a national marketplace for vendors of new technology and products"(Ravitch, 2016, p.XXXV). The effect on meaningful student learning remains to be determined.

Diane Ravitch was once a great proponent of charter schools and the role government could play in reforming our public schools. Over time, however, she has come to realize and admit that her earlier ideas were either misguided or wrong. The notion of a national standard curriculum, high stakes testing, and the pushing of charter schools over traditional public schools, provided the fodder for her change in views. In *The Death and Life of the Great American School System,* Ravitch (2016) argued that policymakers have taken the reins of education out of the hands of those who study and know educational best practices.

VOICE AND AGENCY

Children have so much potential and possibility if we are willing to listen and give them agency in their learning. Children have unique points of view and ideas about life. Every day I see students who are bored, inattentive, disruptive and hating school. Why do we not work toward correcting this problem? When I enjoy my work, I tend to be more focused and work harder; it is not a far stretch that children would react comparably.

One of Lev Vygotsky's most important contributions was the assertion that children should have agency of their learning; by this, he means children should be able to select or request what they want to learn and in the ways they can show their knowledge acquisition (Moll, 1992). Seymour Papert (1998) was also convinced that the best learning takes place when the learner takes charge. I regularly see the value of this in schools, when students are allowed reading choices, for example, or asked to design their own learning opportunities. When teachers impose a curriculum on students, the students often react in negative ways. The learning is rote at best, and at worst the behaviors indicated disengagement, boredom, and disruption. Appleton et al (2008) further elaborate how student disengagement is a major

factor in increased student dropout rates. In the 1998 article, "Does Easy Do It? Children, Games, and Learning," Papert uses the analogy of video games to illustrate the importance of student engagement in their own learning.

When teachers allow students to choose what they learn or how they present the material they learn, that agency—no matter how small—gives students a reason to make connections and to believe in the work they are doing. Brion-Meisels (Shafer, 2016) and Gentile (2014, p. 59) further support the importance of student agency, a way of taking charge, which helps students to become invested in what they are doing.

Agency and Authentic Learning

In the Dunbar Intermediate School's Innovation Zone, students engage complicated work connected to authentic learning. Their work of building, testing, revising, and repeating multiple times cultivates determination, perseverance, and an understanding of the true scientific process. In the Innovation Zone, students use unfamiliar materials. They explore electricity, build catapults, and test measures of floatation. Students enjoy their work, even though it can be difficult and time-consuming. They can talk about the tasks they were involved in and what they have discovered. I have not had this happen in classrooms before using workbooks or worksheets.

Howard Gardner (1983), the pioneer of Multiple Intelligence Theory, further supports the idea of student agency, while calling out the erroneous ways in which we often educate children. These ideas can be fostered through a free and natural inquiry or even a more controlled project-based learning unit of study.

REGGIO EMILIA

It is difficult to understand why policymakers look to businessmen like Bill Gates for direction and leadership on educational matters when educational researchers of Gardner's caliber both argue for and demonstrate precisely what schools could do to better serve the students in our classrooms. The most prolific collection of illustrations about the power of student agency is Carolyn Edwards' (C. Edwards, Gandini, & Forman, 2011) *The Hundred Languages of Children: The Reggio Emilia Experience in Transformation: The Reggio Emilia Experience in Transformatio*n. *The Hundred Languages of Children* presents work done in the province of Reggio Emilia, Italy, illustrating the journey this community traveled to give their children the best possible opportunities to engage in meaningful learning. I am convinced that the Reggio Approach offers schools and teachers powerful and effective ways to teach and learn.

Edwards et al's book is about the one hundred languages through which children can show what they know. It is not complete or all-encompassing; rather, it brings to life the idea that children have many ways to communicate knowledge if we are willing to look and listen to them. The Reggio Approach encourages "young children to explore their environment and express themselves through multiple paths and all their 'languages' (Children, 2010, p. 4). Children experiment and develop competencies in using spoken language, gestures, drawing, painting, building, clay and wire sculpture, shadow play, collage, dramatic play, music, and emerging writing, to name but a few" (C. Edwards et al., 2011, p. 7); our schools, however, too often allow students only a few "languages" for demonstrating their knowledge.

The province and town of Reggio Emilia, Italy fully invests in the education of their children. The educational philosophy and method that has come to be identified with that province are completely student-centered and truly cultivates student agency. Citizens of Reggio Emilia support and fund their schools, which reflect the complexities and naturalness of learning. Loris Malaguzzi founded the Reggio Emilia Approach, working with government officials to develop and bring to life his vision for early childhood education schools. Malaguzzi argued that "we need to get out from under this big blanket of conformism and passivity, and re-discover the desire to think and plan and work together" (Carlina Rinaldi, 2006, p. 42). He described his vision for the ideal school for young children as an "integral living organism, as a place of shared lives and relationships among many adults and many children" (C. Edwards et al., 2011, p. 41), and described "the pleasure of learning" as "a constructive feeling that must be reinforced … even when reality may prove that learning, knowing and understanding can be difficult and require effort" (Gandini, 2005, p. 15).

I believe this points to one of the ways American public schools are misguided in their approach to learning. The current test-centric approach of American schools and policymakers is diametrically opposed to Malaguzzi's student-centered direction for Reggio Emilia schools. Many of today's American school students sacrifice significant learning time to testing. A study commissioned by the American Federation of Teachers and reported by the Washington Post determined that students lose between 8 and 30 days of learning each year just for testing and test preparations (V. Strauss, 2013). The Reggio Approach to assessment also differs drastically. Reggio students do not sacrifice learning time to test preparation; instead, the teacher documents the learning of the students. It is through this documentation that the teacher can

observe and interpret what the student is discovering, learning, and mastering. In Reggio, this process has as much value as any product (Rinaldi, 2006).

An emergent curriculum is another way that the Reggio Approach is different. Malaguzzi believed that pre-planned curriculum would push the schools toward teaching without learning, where the curriculum just becomes a series of long-term projects and short projects. This kind of curriculum necessitates respect for ideas, questions, feelings, capabilities, the interests of the child, and an engaged mind (Cadwell, 1997).

The Reggio Approach views teachers differently, too. In RE, the teachers are trusted: they are trusted to build relationships, trusted to foster exploration, trusted to be researchers. They have the freedom to take the direction of the learning down each student's path and to document that journey; they emphasize the beauty of the world and use the learning space itself as an additional teacher.

TOWARDS METHOD

Although I have long believed that a Reggio Emilia Approach could unlock tremendous learning potential, I admit that I struggle with how I could put it to work in public schools. Interestingly, my struggle has not only been with how teachers could transform themselves and their practice, but also with how administrators could support teachers in this process. I wondered if the Reggio Emilia informed approach could work for the student who had not been taught in this manner from the beginning or if this would only work if this was the way students had been taught from the time they entered school. From kindergarten on, students are told what they need to learn, and how they need to learn it; they are not given the absolute opportunity just to explore materials, ideas, readings, and relationships. In my own teaching,

the closest I have been able to come to the Reggio Emilia Approach is with my own learning centers, but even this is not an authentically open learning environment. I still control what materials are out, the tasks different materials are used for, and who has access to the materials. What leads a child to want to explore or learn about something? How do I unlearn planning the way I have done it for 17 years and learn to plan circularly as they do in the Reggio Approach? How do I document students' learning, their journeys, when I have 300 students? How can I replicate the constructivist practices, the documentation, the building of relationships, and the beauty of learning that occurs in the schools of Reggio Emilia, Italy?

Initially, I had difficulty narrowing down this dissertation project. I knew I wanted to do a research project based on the kind of constructivist learning that takes place in the schools of Reggio Emilia, Italy, but I was not sure how to design or focus that project. When the Innovation Zone grant referred to above was awarded, the focus landed in my lap. I decided that our school would use the library as the catalyst for change in how we addressed the needs of our students. I would work to transform the library from an often unused learning space to a Reggio Emilia Approach informed learning hub where children had agency over their learning; a place where democracy was not a topic we read about but one that we practiced; and a place where students wanted to be. I would then document the planning and implementation of that attempted shift, and explore the effects the new space could have on students' agency, democratic practice, and desire to learn. My focus question emerged as: To what extent can we use the concepts of the Reggio Emilia Approach to inform the creation and work of a learning hub?

Building the Space

The initial step and question in this journey began with space; my goal would be for students to have a beautiful space in which to learn. The old library space was very traditionally "library": bookshelves filled with fiction and nonfiction books lined the outer walls. The previous tables and chairs were solid oak, big and uncomfortable; the screws in the chairs had to be tightened daily. The second space was the computer lab, a large tiered space with cream walls and 28 desktop computers in various working conditions. The third and last space was a storage office cluttered with too many items to list, including teacher books dating back more than forty years. Heather-blue office carpet, ripe with the dirt and smells of fifteen years, covered the floors. I hated working in that space and sensed the students did not care for it much either.

I began a discussion with the children about what their ideal learning space would look like. I asked the students to sketch what they wished the learning space would look like if they could have anything they wanted in the space. We discussed paint colors and how colors influence our moods; we talked about how color could affect our special needs students. The students suggested a broad range of paint colors, we selected which ones to vote on, and then their votes chose the colors we would use to paint the space.

Our next space discussion was about furniture. The students and I looked at many catalogs and online images of different spaces looking at the layout and furniture in the space. The students were stoked about the chair swings they saw in one space; I was stoked about tables that flipped down and rolled out of the way. The students were elated about bean bag chairs, and I was elated about futons. The students were thrilled about red chairs on wheels,

and I was thrilled about wheeled chairs that were not red. Over the course of a few weeks, we developed a list of furniture the students wished we had. I began to research how I could obtain the furniture the students wanted.

The next leg of the journey had me ordering the furniture the students voted on. I researched where to find affordable, colorful furniture that would be comfortable to use and would allow all the little bodies to move. I decided on Amazon and began to put a cart together; the students selected six swivel chairs, five cozy sack chairs, two futons, six tractor chairs, six yoga ball chairs, and a few other types of chairs. I ordered tables that would flip down and allow us to store the tables to have a greater workspace. We placed the order in April and spent the next two months waiting for the furniture the students wanted to arrive. Then one June day the packages began to roll in; they arrived for three days and the library filled with boxes. Over the next three days, I recruited my own family, my principal's spouse, and a son of another teacher to put all of the furniture together and tear down the old space so that it could be built back up as the students had imagined. I wanted the space ready for our first project-based learning staff development in July and for when the kids arrived in August. I made sure to document this process by keeping the students' sketches, our votes on color and furniture, and by photographing the space.

PROBLEM STATEMENT

Children have so much potential and possibility if we are willing to listen and give them agency in their learning; they " have the ability to state their educational needs if we do not take that ability away from them by our sheer size, by intimidation, and by the implicit threat of violence" (Harrison, 2002, p. 9). When teachers allow students to choose what they learn or

how they present the material they learn, that agency—no matter how small—gives students a reason to make connections and to believe in the work they are doing. In this dissertation, I used participatory ethnography to explore the journey Dunbar Intermediate School took in changing to a school focusing on student agency and inquiry.

RESEARCH QUESTIONS

To further help focus on this change I identified four research questions I used as guides to help me determine if this type of shift can happen in a public school:

1. How can constructivist learning based in the Reggio Emilia Approach inform the work of this learning hub?
2. How do children talk about their experiences of learning in this RE informed learning hub?
3. How do educators talk about student's experiences in this learning hub?
4. What elements are needed for this Reggio Emilia informed approach to the learning hub to be adapted to other learning situations?

PHILOSOPHY AND METHODOLOGY

As I looked through my notes for Laurie Thorp's (2006) *The Pull of the Earth*, I realized the documentation of my project should take the direction of a participatory ethnography. Participatory ethnography, in this study, means those represented in the work also participated in the research. In other words, I researched the work I did while I was doing it, and the students actively reflected upon and reformulated the center as we went. I anticipated that

this documentation would be messy, and it was. It was not at all linear: it bounced back and forth, foregrounded multiple voices, and encompassed different modes of capture, from journal entries to sketches, to photographs. But this messy documentation of this messy project very accurately conveys the story of the movement our school took to apply the principles of the Reggio Emilia Approach in a traditional public school setting to help us find our way back to being genuinely child-centered.

This project used a variety of techniques to explore its questions. Observant participation (Tedlock, 1991) and short interviews drew upon photographs, journals, discussions, and stories to determine if and to what extent the concepts of the Reggio Emilia Approach could be used to successfully develop a learning hub that might act as a change agent to shift learning to student-centered in a public school.

My first question, to what extent can Reggio Emilia Approach based constructivist learning inform the work of a learning hub, guided my exploration of constructivist approaches to student learning. I had weekly discussions with students. We called these weekly discussions "debriefings." We would gather at the center of the carpet and talk about the work the students did and what remained to be done. It was a wonderful time to hear the students talk about their struggles and their successes, what they enjoyed and what they did not want to engage with. It gave me insight into their interests, curiosities, and wonders. The debriefings also gave me the opportunity to listen to my students and develop deeper relationships with them; the kind necessary for my students to feel comfortable with struggling and even failure when they were learning. I also observed students daily and surveyed them about creating their own learning. I experimented with different learning materials presented in different

fashions to facilitate students' creating their own learning and surveyed students about how they wanted to learn. Did they want to do projects? Did they want to learn with another person, in a group, or alone? How could we put materials in the students' hands so that they might construct the knowledge they seek? I also used observations, field notes, photographs, and student discussions to explore and document the effectiveness of constructivist learning in a Reggio Emilia Approach context.

My second question, how do children describe and contrast their experiences of learning in this Reggio Emilia Approach informed learning hub was addressed through observations and interviews with the students. Students were asked to compare their experiences learning in the classroom versus the learning hub. They were also asked to think about their learning in traditional library spaces as compared to the learning hub. Methods to facilitate the interviews were based on particular students' learning styles and included a range of discussions, photographs, and drawings.

I investigated my third question, how do educators understand and interpret students experiences in this learning hub, by inviting four select educators—the school principal, a librarian from a different school within the county, a classroom teacher, and a university level educator—to observe Interest Group meetings over the course of eight weeks including Exposition Day. Each educator conducted their observations over the course of an afternoon and was interviewed after the observations concluded.

To address my fourth question, what elements of this RE informed approach to the learning hub can be replicated or adapted to other learning situations, I conducted a focus group that included each of the four educator/observers.

This dissertation is an exploration of the journey my school began in an attempt to bring the practices of the schools in Reggio Emilia to our learning space.

CHAPTER 2

REVIEW OF THE LITERATURE

CONTEXT, OVERVIEW, AND THE CHALLENGE

In general, American public schools have succumbed to a corporate model of operation (Giroux & Saltman, 2009). They have become regimented to the point we no longer recognize the particular beauty and talents of the individual child. Student-centered learning has been replaced by standards, "rigor," and standardized tests (Darling-Hammond, 1986). Cast away are the days of Social Studies and Science Fairs, to be replaced with DIBELS and SBAC or PARCC testing (Ravitch, 2016). Teachers are no longer able to take into account the individual differences that make each child unique and able to bring different perspectives to the table; gone are the virtues of creativity and problem solving (Walker, 2014). The teachers in Fairfax School District in Virginia lament that NCLB has "sucked the creativity out of their lesson plans, forcing them to narrow their curriculums and teach only those concepts that will be on state tests" (Webley, 2012, p. 3). The No Child Left Behind law bears significant responsibility for much of this due to the loss of instructional time formerly devoted to art, music, physical education, and other subjects, time replaced with test preparation (Walker, 2014). Teacher preparation may also be part of this problem. Darling-Hammond (Darling-Hammond, Hammerness, Grossman, Rust, & Shulman, 2005, p. 391) criticizes the teacher preparation programs of the 1980s as being overly theoretical, as having little connection to practice. Teacher candidates may not have been learning how to take into account the individual differences of the children or how to bring the creativity and problem solving into the classroom. The current system bears some responsibility for this as well; contemporary

curricula too often force schools and students to fit neatly into one standardized box; by doing this, we are draining the life out of our children (Webley, 2012).

So how did we get here? Does school have to be like this? The answer is no, but to get to this point, it is important to look at how schools have been pushed toward regimentation and standardization over time. When I first began exploring this problem, I traced its beginnings to *A Nation at Risk*, the monumental 1983 report commissioned by then-President Ronald Reagan who claimed that public schools in the United States were failing to prepare students for the needs of the workforce. But as I began to read Linda Darling Hammond's (1997) *The Right to Learn*, I realized that this trend actually went back much further, to the beginning of the industrial revolution in the 19th century. Darling Hammond pointed out that, early on, schools took on the personalities, if you will, of Henry Ford's assembly line model (pp. 16-17). Although I had heard and read about these developments over the years, Darling Hammond once again reminded me that the challenges our public schools face are not new.

From Standards to Standardization

The regimentation or standardization of schools manifests in a number of different ways. The first is the onslaught of requirements passed down to teachers. In my district, for example, teachers are told what to teach, how to teach, the length of time to teach, and more. The teachers are asked to move at a pace defined by curriculum maps the central office developed. These maps tell what topics are to be covered in any given month. They list vocabulary to teach and tell the teacher how many days to spend on each concept. The district administrators check each teacher's testing data including weekly tests and benchmarks. If a teacher does not do well the principal may be asked to defend what is happening in his or her

school. In all fairness, we have a very transient population, and the intentions were to make every classroom uniform so that children could transfer schools and pick up right where they left off from their old school. The intended outcome was for every student to be guaranteed a quality education. But the unintended consequence has been that every student, teacher, and school is expected to perform in the same ways, to essentially be the same when clearly they are not. Regrettably, my district is not an anomaly; it is a microcosm of the national curriculum pushed by both No Child Left Behind and Common Core. Linda Darling Hammond (1997) offers a stinging critique of the regimentation our public schools currently embrace:

> Bureaucratic solutions to problems of practice will always fail because effective teaching is not routine, students are not passive, and questions of practice are not simple, predictable, or standardized. Consequently, instructional decisions cannot be formulated on high then packaged and handed down to teachers. (p. 67)

This top-down decision-making model, she continues, gets in the way of the real change that needs to happen (p. 67). That change, the education reform that I believe needs to happen, needs to cultivate the kind of experiential learning that happens when children are given voice in their learning and the opportunity to learn by doing.

The Civic Mission of Schools

The second tenet emerging from the problems facing our schools today is the loss of the democratic purpose of public schools (Meier, 2003). John Dewey (1916) is widely recognized as one of the earliest philosophers to argue for schools' civic missions. Nel Noddings (1999) succinctly articulated one of the sentiments Dewey took very seriously, the notion that a democratic society "must have a type of education which gives individuals a personal interest in

social relationships and control, and the habits of mind which secure social changes without introducing disorder" (Noddings, 1999, p. 580). Many others have echoed that call. W.E.B. Du Bois (Du Bois, 1949) took the idea further, arguing that a solid education is not only necessary for a functioning democracy; it is a fundamental civil right:

> Of all the civil rights for which the world has struggled and fought for 5,000 years, the right to learn is undoubtedly the most fundamental ….The Freedom to learn…. has been bought by bitter sacrifice. And whatever we may think of the curtailment of other civil rights, we should fight to the last ditch to keep open the right to learn, the right to have examined in our schools not only what we believe, but what the leaders or other groups and nations, and the leaders of other centuries have said. We must insist upon this to give our children the fairness of a start which will equip them with such an array of facts and such an attitude toward truth that they can have a real chance to judge what the world is and what is greater mind have thought it might be. (p. 230-231)

DuBois's argument is so directly opposed to the vocational and economic orientation of contemporary educational policy that it seems radical today. Noddings (1999) further pushes this idea by asking, "Are students best prepared for democratic life by absorbing a rigorous body of carefully prescribed material, or must they have actual experience with democratic processes?" (p. 580).

Our public schools are the future of our society and our culture. However, the direction our public schools take will influence the direction of our country. Deborah Meier (2003) is another strong proponent of the importance of democratic education. She argues passionately that our society must reject the idea of school being solely about improving the economic

opportunities of students or the communities in which they live. Connecting the rise of that idea to *A Nation At Risk* (1983,) Meier also rejects the idea education should be about improving our country's position globally:

> This was the claim that got everyone exorcized in 1983. It has been the organizing principle of the last 20 years of school reform. It was based on false and misleading data then; subsequent economic history proved it was nonsense, and our current worldwide pre-eminence assuredly doesn't rest on getting higher test scores. But the fiction has persisted. It has distracted us from the real agenda and led us to the even more absurd and malicious 'No Child Left Behind' Act of 2002. (Meier, 2003, p. 1)

The message Meier has been trying to convey over the years is that schools must be seen as a means of exercising democratic learning. In fact, she believes school is where we learn to be the citizens our country needs if democracy is to continue in this country:

> The real crisis is not a threat to America's economic or military dominance but the ebbing strength of its democratic and egalitarian culture. We have lost sight of the traditional public function of schools: to pass on the skills, aptitudes, and habits needed for a democratic way of life. These skills, aptitudes, and habits are hard to come by; they are not natural to the species, and in fact, the idea of civic virtue is as counterintuitive as is much of modern science. They are as hard to teach as relativity and teaching them in ways that make them second nature is even harder. It's no wonder that flourishing democracies are a fragile phenomenon. (Meier, 2003, p. 15)

The Problem of Policy

Last is the role that national policy has played in this regimentation of education. The two major educational reforms of the last twenty years have been the adoption of President Bush's No Child Left Behind Act and the near adoption of the Common Core. The No Child Left Behind Act (NCLB), an update to the Elementary and Secondary Education Act of 1965, was President George W. Bush's signature law signed into effect in January of 2002 (Klein, 2015). The NCLB Act significantly increased the role the federal government held in making schools responsible for the academic progress of all students. While this may seem like a good idea, the Act's one size fits all approach proved devastating to many schools (Barnes & Slate, 2013). It emphasized making sure identified subgroups of students such as English-language learners, special education students, poor, and minority children did not lag behind in achievement scores compared to their peers. Although this may seem a good idea in theory, in practice the results have sometimes been devastating. A group of teachers in rural Maine described how NCLB has negatively impacted them: "We had to adopt a new reading program. The emphasis is on math and language arts; social studies has taken the back burner" (Powell, Higgins, Aram, & Freed, 2009, p. 22). Those same teachers also reported a decrease in the emphasis on electives and on the arts due to NCLB. The teachers further commented "Students are being tested to death but learning less. They are just making children learn to pass tests but not for the good of learning. The curriculum is interrupted for the standardized testing" (Powell et al., 2009, p. 6). These practices can be devastating to students. Historically the worst performing schools are in the highest poverty areas. Harris (2007, p. 1) concluded students who attend schools

that are high poverty and high minority are more than 89 percent less likely to report high achievement scores on NCLB testing criteria (p. 1). Those students are punished for academic failure that has a direct link to poverty. Rumberger and Palardy (2005) used "data from the 2000 National Assessment of Educational Progress to illustrate this: both low-income and middle-income fourth-grade students had lower math scores in high-poverty schools compared with low-poverty" (p. 5). Additionally, high teacher turnover and dismissal over student achievement scores only further exacerbate the perceived failures of the schools, educators, and students while deflecting policy problems with the NCLB Act.

Darling-Hammond (2007) further amplified the failure of NCLB, "As evidence of its unintended consequences emerges, it seems increasingly clear that NCLB as currently implemented is more likely to harm most of the students who are the targets of its aspirations than to help them" (p. 246). These bears repeating: for Darling Hammond, NCLB harms the very students it professes to serve:

> NCLB, while rhetorically appearing to address these problems, actually threatens to leave more children behind. The incentives created by an approach that substitutes high-stakes testing for highly effective teaching are pushing more and more of the most educationally vulnerable students out of school earlier and earlier. In a growing number of states, high school completion rates for African American and Latino students have returned to pre-1954 levels. In these states, two-way accountability does not exist: The child is accountable to the state for test performance, but the state is not

held accountable to the child for providing adequate educational resources. (p. 255)

The Common Core State Standards Initiative, encouraged by the Obama administration, was an initiative of the National Governors Association, the Council of Chief State School Officers, Achieve (a business-sponsored group), and Student Achievement Partners (a group led by consultant David Coleman). It attempted to craft a nationalized curriculum in English Language Arts and Mathematics. The initiative sought to establish consistent standards across all states and territories to make sure students had the skills to enter college or the workforce upon graduation. By 2016, 42 states had fully adopted the Common Core State Standards (CCSS), although not all states used that specific name. In crafting the standards, the Obama administration ensured the private sector a seat at the table, encouraging the "innovation of products for the schools" (Ravitch, 2016, p. xxxv). Joanne Weiss wrote in the *Harvard Business Review* blog that "the goal of the national standards was to create a national marketplace for vendors of new technology and products" (Ravitch, 2016, p. xxxv). It remains to be determined the effect on meaningful student learning.

Diane Ravitch was once a great proponent of charter schools and the role government played in reforming our public schools. But over time she has come to admit that her earlier ideas were either misguided or wrong. The notion of a national standard curriculum, high stakes testing, and the pushing of charter schools over traditional public schools, provided the fodder for her change in views. In *The Death and Life of the Great American School System,* Ravitch (2016) provided insight into why our policymakers have taken the reins of education out of the hands of those who study and know educational best practices:

> When school officials and legislators in the United States speak of accountability, they mean getting tough on teachers and principals. They mean firing teachers if the test scores of their students do not rise, or giving them a bonus if they do. They mean closing schools and firing the entire staff to prove that one is serious. They mean rating teachers based on their students' test scores, and then using these ratings when making tenure, salary, and promotion decision. None of this helps student or schools. What it does instead is wreak havoc on the lives of students, teachers, principals, and communities. This policy has encouraged veteran teachers to retire early and discourage new entries into the profession. After more than a dozen years of test-based accountability, many states report teaching shortages and a sharp decline in the number of entrants into teacher preparation programs. (pp. 26-27)

Voice and Agency

Children have so much potential and possibility if we are willing to listen and to create opportunities for them to develop agency in their learning. Children have unique points of view and ideas about life. Maxine Greene (1993) beautifully describes children as selves who are

> creating meanings, becoming in an intersubjective world by means of dialogue and narrative…perceive them telling their stories, shaping their stories, discovering purposes and possibilities for themselves, reaching out to pursue them, …moved to provoke such beings to keep speaking, to keep articulating, to devise metaphors and images, as they feel their bodies moving, their feet making imprints as they move toward others, as they try to see through others' eyes. Thinking of beings like that, many of those writing today and

> painting and dancing and composing no longer have single-focused, one-dimensional creatures in mind as models or as audiences. Rather, they think of human beings in terms of open possibility, in terms of freedom and the power to choose" (p. 213)

Every day I see students who are bored, inattentive, disruptive, and hating school. Why do we allow kids to hate school? Dewey "observed school is not preparation for life; it is a part of life" (Giudici, Rinaldi, & Krechevsky, 2001, p. 77). If we believe this statement, why do we acquiesce to this developing disdain for school as a rite of passage? Why do we not work toward correcting this problem? Harrison (2002) writes, "Children have the ability to state their educational needs if we don't take that ability away from them by our sheer size, by intimidation, and by the implicit threat of violence" (Harrison, 2002, p. 9). If I enjoy my work, I tend to be more focused and work harder; it is not a far stretch to propose that children would react comparably.

Moll (1992) pointed out that Lev Vygotsky argued learners needed social interaction to achieve cognitive development. One of Vygotsky's most important contributions was the assertion that children should have agency in their learning; by this, he means children should be able to select or request what they want to learn and in the ways they can show their knowledge acquisition. Seymour Papert (1998) was also convinced the best learning takes place when the learner takes charge. Gary Stager (2005, p. 4) published Papert's *Eight ideas behind the Constructionist Learning Lab* in which Papert further elaborates on the idea of students taking charge of their learning: "Many students get the idea that 'the only way to learn is by being taught.' This is what makes them fail in school and in life. Nobody can teach you

everything you need to know. You have to take charge of your own learning" (p. 4). Idit Harel further elaborates: "learning requires taking a stance, seeking and finding one's intellectual identity, owning the artifacts of learning and finding your own voice" (G. S. Stager, 2001, p. 6).

When teachers impose a curriculum on students, the students often react in negative ways. The learning is rote at best, and at worst the behaviors indicated disengagement, boredom, and disruption. Appleton et al. (2008) further elaborates on how student disengagement is a major factor in increased student dropout rates. In the 1998 article, "Does Easy Do It? Children, Games, and Learning," Papert (1998) uses the analogy of video games to illustrate this point further:

> What is best about the best games is that they draw kids into some very hard learning. Did you ever hear a game advertised as being easy? What is worst about school curriculum is the fragmentation of knowledge into little pieces. This is supposed to make learning easy but often ends up depriving knowledge of personal meaning and making it boring. Ask a few kids: the reason most don't like school is not that the work is too hard, but that it is utterly boring. (p. 88)

When teachers allow students to choose what they learn or how they present the material they learn, that agency—no matter how small—gives students a reason to make connections and to believe in the work they are doing. Brion-Meisels (Shafer, 2016) elaborates further, "it (student agency) means recognizing that young people have a perspective on the world that adults can't share, and that their perspective should be welcomed alongside the wisdom that adult perspectives bring" (p. para. 3) Gentile (2014) further supports student agency, "When students voice their opinions about their educational experiences, they are

given more control over their learning experiences" (p. 59). Student agency is a way of taking charge that helps students to become invested in what they are doing.

Student Agency and the Innovation Zone

Student agency is the driving force behind the Innovation Zone grant. The Innovation Zone project's aim is to change how children are learning in a high poverty public school. It might appear that what my students do in the Innovation Zone is just play, but what they are doing is completing complicated work that is connected to authentic learning. Among other things, students use animation software to illustrate linear thought and problem-solving, and build marble runs from recycled materials to show design processes. Their work of building, testing, reviving, and repeating multiple times cultivates determination, perseverance, and an understanding of the true scientific process, unlike so many of the simplistic experiments taught in textbooks. In the Innovation Zone, students use unfamiliar materials. They explore electricity, making both simple and complex circuits. They use Legos to build catapults to explore simple machines. They test how a variety of cans of soda sink or float in water to determine how the contents of the can determine whether they will float or sink. Students enjoy their work, even though it can be difficult and time-consuming. They can talk about the tasks they were involved in and what they had discovered. It is common for these students to share with our principal their successful designs for the catapults; they have also explained their failures to her. In one particularly enlightened example of authentic problem based learning, they explained to the principal that their geodesic domes fell due to the moisture in the air because our air conditioning did not work correctly, and then shared the details of that finding

with her. Learning like this could not or would not have happened in a meaningful way in a classroom with a workbook or a worksheet.

Howard Gardner (1983), the pioneer of the Multiple Intelligence Theory, further supports the idea of student agency, while calling out the erroneous ways in which we educate children. These ideas can be fostered through a free and natural inquiry or even a more control project-based learning unit of study. In a 1991 interview Daniel Gursky (1992) had the opportunity to speak with Gardner about the impact of this type of pedagogy has on student learning:

> I often hypothesize that people probably learn more from the few projects they do in school than from hundreds and hundreds of hours of lectures and homework assignments. I imagine that many people end up finding their vocation or avocation because they stumbled into a project and discovered they were really interested in it. (p. 27)

The Hundred Languages

Layton (2014) describes the tremendous influence that powerful individuals like Gates have over our nation's students and schools:

> The Bill and Melinda Gates Foundation bankrolled the development of what became known as the Common Core State Standards. With more than $200 million, the foundation built political support across the country, convincing state governments to make systemic and costly changes. (Layton, 2014, p. 7)

Why do we look to businessmen like Bill Gates for direction and leadership on educational matters when educational researchers of Gardner's caliber clearly demonstrate

what schools could do to better serve the students in our classrooms? The most prolific collection of illustrations about children being successful in having agency in their learning is Carolyn Edwards et al's (C. Edwards et al., 2011) *The Hundred Languages of Children: The Reggio Emilia Experience in Transformation: The Reggio Emilia Experience in Transformation*. *The Hundred Languages of Children* presents work done in the province of Reggio Emilia, Italy, illustrating the journey this community traveled to give their children the best possible opportunities to engage in meaningful learning. I am convinced that the Reggio Approach offers schools and teachers powerful and effective ways to teach and learn.

Edwards et al's book is about the one hundred languages through which children can show what they know. It is not complete or all-encompassing, but rather an idea that children have many ways to communicate knowledge if we are willing to look and listen to them. As Edwards et al. further elaborate, the Reggio Approach encourages:

> young children to explore their environment and express themselves through multiple paths and all their 'languages,' including the expressive, communicative, symbolic, cognitive, ethical, metaphorical, logical, imaginative, and relational (Children, 2010, p. 4). Children experiment and develop competencies in using spoken language, gestures, drawing, painting, building, clay and wire sculpture, shadow play, collage, dramatic play, music, and emerging writing, to name but a few. (C. Edwards et al., 2011, p. 7)

If these are just a few examples of the more than one hundred languages through which students learn, why do we use only a few for students to demonstrate their knowledge?

The Reggio Emilia Approach

The province and town of Reggio Emilia, Italy fully invests in the education of their children. The educational philosophy and method that has come to be fully identified with that province are completely student-centered and truly cultivates complete student agency. They fully support and fund their schools, which reflect the complexities and naturalness of learning.

These schools began after the destruction of the community after World War II. They came about through the vision of Loris Malaguzzi, the founder of the Reggio Emilia Approach. He worked with the government officials to develop and bring to life the early childhood education schools in Reggio Emilia and in doing so the Reggio Approach began. Malaguzzi believed schools and classrooms should not be places that educate children in an assembly line fashion. He did not want teachers to be constrained to the pre-determined curriculum. In an interview with Rinaldi (2006), Malaguzzi says "we need to get out from under this big blanket of conformism and passivity, and re-discover the desire to think and plan and work together" (Carlina Rinaldi, 2006, p. 42). Malaguzzi also said, "if we take away the child's ability, possibility, and joy in projecting and exploring, then the child dies" (Rinaldi, 2006, p. 42). Malaguzzi does not mean the literal death of the child; rather, he means the death of the spirit of the child. Malaguzzi further connects the spirit of the child and the relationship of that spirit to the spirit of the teacher:

> When the child dies, the teacher dies as well, because the teacher's goal is the same as that of the children: to find meaning in the work and existence, to see value and significance in what they do, to escape from being

> indistinct and anonymous, to be able to see gratifying results from the work and their intelligence. (Carlina Rinaldi, 2006, p. 42)

Lella Gandini interviewed Malaguzzi and asked about the basic principles of the Reggio Approach. Malaguzzi described the schools in this manner:

> We think of a school for young children as an integral living organism, as a place of shared lives and relationships among many adults and many children. We think of school as a sort of construction in motion, continuously adjusting itself. Certainly, we have to adjust our system from time to time while the organism travels on its life course, just as those pirate ships were once compelled to repair their sails, all the while keeping on their course at sea. (Edwards, 2011, p. 41)

Malaguzzi described his vision for learning in this way:

> The pleasure of learning, of knowing and of understanding is one of the most important and basic feelings that each child expects to receive from the experience he or she is living through: either alone, with other children or with adults. It is a constructive feeling that must be reinforced so that the connected pleasure lasts even when reality may prove that learning, knowing and understanding can be difficult and require effort. It is through this very capacity of overcoming the difficulty that the pleasure transforms itself into joy. (Gandini, 2005, p. 15)

Strozzi (2001) also quoted Malaguzzi as saying:

> Schools should be a place where the search for the meaning of life and of the future takes place [and that] “such a school would be hard-working, inventive, livable,

> documentable, and communicable, a place of investigation, learning, recognition, and reflection where the children, teachers, and families are happy." (p. 58)

These factors point to one of the ways American public schools are misguided in their approach to learning. The current test-centric, prescribed curriculum approach of American schools and policymakers are diametrically opposed to Malaguzzi's student-centered direction for Reggio Emilia schools. Many of today's American school students sacrifice significant learning time to testing and rigid curriculum. A study commissioned by the American Federation of Teachers and reported by the *Washington Post* determined that students lose between 8 and 30 days of learning each year just for testing and test preparations (V. Strauss, 2013). Rigid curriculum requirements also add to the loss of opportunity for learning. More classes are required for students, eliminating the opportunity for sustained learning that often is seen when students select electives. Charles William Eliot (1909), former president of Harvard University, defended electives for students on the ground of their ability to offer such sustained learning more than one hundred years ago. In her writings on Dewey, Nel Noddings (1999) noted his support of this theme:

> Sustainable learning offered in the democratic education students have in electives. Dewey believed that engaged, sustained study of almost any topic would produce the growth and discipline we seek in education. Further, Dewey held that students' involvement in the choice of topics, projects, and objectives for their own learning was an essential. (p. 580)

The Reggio approach to assessment differs drastically. Reggio students do not sacrifice learning time to preparing for standardized tests; instead, the teacher documents the learning of the students. It is through this documentation the teacher can observe and interpret what the student is discovering, learning, and mastering. Rinaldi (2006) explains that process as:

> [the] offering of children's process and procedures, and to those which the children and adults together put into action, a perspective that gives value. Valuing means giving value to this context and implies that certain elements are assumed as values. (p. 54)

In Reggio, this process has as much value as any product.

The lack of a pre-determined or pre-planned curriculum is another way that the Reggio Approach is different. Malaguzzi believed that pre-planned curriculum would push the schools toward teaching without learning, where the curriculum just becomes a series of long and short term projects. Learning without a planned curriculum negates the fixed curriculum, replacing it with an emergent curriculum co-constructed by children, teachers, and parents. This kind of curriculum necessitates respect for ideas, questions, feelings, capabilities, the interests of the child, and an engaged mind (Cadwell, 1997).

The Reggio Emilia Approach views teachers differently, too. In the Reggio Emilia Approach, the teachers are trusted. They are trusted to build relationships, trusted to foster exploration, trusted to be researchers. They have the freedom to take the direction of the learning to the path the students go down and document that journey; they emphasize the beauty of the world and use the learning space itself as an additional teacher.

Constructing Learning

What is the difference between constructivism and constructionism? Is it just a play on words or do the two different words stand for two distinctive theories of learning? Can either theory be actualized in American public schools? Are these two theories intermingled and thus the backbone of Reggio Emilia schools? Should they be given strong consideration as the basis for public education in the United States? This section will explore these two theories and contributors to both ideas.

Fosnot & Pery (1996) write, "Constructivism is a poststructuralist psychological theory, one that construes learning as an interpretive, recursive, nonlinear building process by active learners interacting with their surround= the physical and social world." Piaget, who coined the term "constructivist learning," provides a glimpse into how children learn and grow. Piaget describes what children are interested in, what they can achieve, and the different stages of their development. Piaget's theory identified four stages of cognitive development (Piaget & Cook, 1952). Those four stages represent thought from birth to adulthood. His sensorimotor stage covers birth to approximately two years old. This stage typically is identified with the reflexes of infants, growth motor skills like learning to walk and talk. The preoperational phase covers approximately two years old to seven years old. This phase might involve learning to use language properly, think symbolically (an orange means both a color and a piece of fruit), and great use of imagination. The third phase, Concrete Operational, covers ages seven years to eleven years. Learning is becoming more concrete and the concepts of time, space, and quantity are understood and can be applied but not in an abstract way. The final stage, Formal

Operations (Piaget, 1965), covers 11 years through adulthood. This stage is when the person can think theoretically and hypothetically, strategies and planning can happen, and cross-learning can be conceived and applied. His views describe how children's thinking and doing occur across time and how they may hold on to or let go of the views they have. One of the important ideas in his theory is the concept of how children will hold on to their views of the world even when someone tells them they are or may be wrong.

Piaget believed children, rather than being just recipients of stimulation, investigate and act upon their world, even as they simultaneously get to know that world (Fox, 2001). Piaget believed the person encountering a new learning situation would draw upon prior knowledge to make the new experiences understandable (Yilmaz, 2008). Ackermann (2001) describes Piaget's ideology in this way:

> To Piaget, children not only have their own views of the world (which differ from those of adults), but these views are incredibly coherent and robust. They are stubborn, not easy to shake. Children in this sense are not incomplete adults. Their ways of doing and thinking have integrity, a 'logic' of its own, that is most well suited to their current needs and possibilities. (p. 3)

Piaget deemed knowledge to be an experience that is acquired through interaction with the world, people and things just as Dewey believed. Ackermann (2001) further explains Piaget's ideology:

> 1. Teaching is always indirect. Kids do not just take in what's being said. Instead, they interpret what they hear in the light of their own knowledge and experience. They transform the input.

2. The transmission model, or conduit metaphor, of human communication, won't do. To Piaget, knowledge is not information to be delivered at one end, and encoded, memorized, retrieved, and applied at the other end. Instead, knowledge is an experience that is acquired through interaction with the world, people and things.

3. A theory of learning that ignores resistances to learning misses the point. (p. 3)

Piaget shows that indeed kids have good reasons not to abandon their views in the light of external perturbations. Conceptual change has almost a life of its own (p. 3).

Seymour Papert worked with Piaget in the 1950s and 1960s. Papert had a slightly different take on the theory of constructivism, which he elevated to constructionism:

> Constructionism—the N word as opposed to the V word— shares constructivism's view of learning as 'building knowledge structures' through progressive internalization of actions… It then adds the idea that this happens especially felicitously in a context where the learner is consciously engaged in constructing a public entity, whether it is a sand castle on the beach or a theory of the universe. (Ackermann, 2001, p. 4)

Papert's theory is not associated with developmental milestones or stages of learning like Piaget's. Papert's focus is on the "art of learning and the significance of making things in learning" (Ackermann, 2001, p. 1). Papert's theory epitomizes the engagement of students on many levels. He wants to know how the learners engage with materials, how the engagement directs, hinders or increases self-directed learning and the ultimate formation in the construction of new knowledge. Papert stresses "the importance of tools, media, and context in human development" (Ackermann, 2001, p. 1). Together both theories provided a solid foundation to build student-centered learning opportunities.

Reggio Emilia schools are the epitome of both constructivist and constructionist learning. Lella Gandini (Gandini, Etheredge, & Hill, 2008) describes the students in Reggio Emilia schools as having interests in relationships, in constructing their learning. Students are creating their personal knowledge by actively engaging with the world in which they are living. The students are living what John Dewey describes in *Experience in Education*. Dewey believed genuine education comes about through experience. This does not mean that all experiences are genuinely or equally educative (Dewey, 2007). Dewey may have been the first to describe what we now know as constructivist learning, but he certainly is not the only person to postulate the idea of learning by doing.

CHAPTER THREE

METHOD

Research Design

Qualitative research, emergent design and participatory ethnography were the backbones of this research. In general, "qualitative research is a naturalistic manner to learn and understand in a content-specific environment" (Patton, 1990, p. 128). Strauss and Corbin (1990) explain qualitative research as "any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification" (p. 11). Golafshani (2003) adds: "Unlike quantitative researchers who seek causal determination, prediction, and generalization of findings, qualitative researchers seek instead illumination, understanding, and extrapolation to similar situations" (p. 600).

The emergent design allowed this project to be adaptable to the local context of the study. Thorp (2001) acknowledges the dynamic nature of emergent research design as it relates to constructivist learning studies. In her work, Thorp recognizes the desire of the participants to want to go beyond being just observers: they want to participate and build on their own knowledge even as Thorp is trying to learn from them. Thorp takes her cues from those she observes and studies and adapts her research to flow with the direction of those whose lives she is watching. Both Thorp and her participants construct their own knowledge but have the freedom to allow both paths to intertwine and to adjust direction as the natural flow dictates. Peter Kahn (as cited in Thorp, 2001) describes the constructivist path this way:

> We have a choice, to follow the trails or not. Here is what happens to me when I choose the trails. I cover lots of ground fast. I start thinking about past experiences and future possibilities, and as my mind chatters to itself time goes by and miles are covered. In contrast, when I move off trail my mind becomes more alert. My perceptions become keener. Each moment I have decisions to make. I pay more attention to the landscape. It is a wonder, a pleasure. It is also unsettling; I take the risk of getting lost. With similar alertness and feelings in seeking to understand the human relationship with nature, we move off the trail into uncharted territory. Questions help set our course. (p. 37)

The use of emergent design here afforded the opportunity to use flexibility as a tool in and as an element of discovery with this study. Employing participatory ethnography as a design element also granted me the chance to be a part of the study while also being, as in Reggio Emilia, a teacher as researcher.

Methods

I used the methodology of participatory ethnography, a kind of ethnography that involves participants more deeply in the construction and interpretation of knowledge, to conduct my research. The primary methods included observant participation, interview and dialogue, and photo elicitation, all of which were gathered from the perspective of the teacher as researcher. These methods gave me the most relevant data to conduct my research.

Participatory ethnography involves what Ruth Behar (2014) refers to as a form of "witnessing" (p. 5); witnessing is also a large part of what this study did. There was no single instrument in this study in terms of a traditional pencil and paper survey; in its place was "a highly adaptable, intensely curious, heart wide-open 'witness'" (L. G. Thorp, 2001, p. 52). This

"witnessing" used a variety of techniques to explore its questions, such as observant participation (Tedlock, 1991), short interviews, discussion, photo elicitation (Clark, 2011), stories, and field notes. All were used to explore the extent to which the concepts of the Reggio Emilia Approach might be used to successfully develop a learning hub that can act as a change agent to shift learning from traditional teacher-centered learning to student-centered in a low income, high needs, public school.

Observant Participation

Observing how students engage learning in the learning hub was an essential aspect of this research; observant participation was one of the critical methods I used. In traditional ethnography, this is more commonly known as participant observation, a term Thorp (2001) sees as an oxymoron. Thorp considers the very idea to be problematic because she does not believe the researcher can separate herself from the research context (p. 57). She, herself, cannot personally keep her distance from those she is studying, which is a crucial factor in participant observation.

Tedlock (1991) describes a different type of observation, observant participation, which is more in line with Thorp's practice and the approach I used in this study. Tedlock (1991) suggests that qualitative researchers understand "the relationship between objectivity and subjectivity, scientist and native, Self and Other as mutually constituent, rather than see it as 'an unbridgeable opposition'" (p.71). In other words, the observer is always in some way as actively involved in the activity as the participants who are being observed. Moeran (2009) further describes observant participation as moving past the surface observations, looking beyond what the participant may want the observer to see, looking deeper. Observant

participation was used in this study as part of the repertoire of the teacher-researcher while documenting the learning as it occurred in the learning hub.

Interview and Dialogue

An additional method I used was interviews and dialogue. Interviews and conversations were documented through handwritten field notes. Both a digital recorder and a video camera were used to record interviews and focus group sessions. A full capacity, specifically designated iPad recorded the interviews, which were naturalistic in design and occurred informally in both individual and small group settings, and were documented in field notes. Recordings were listened to, analyzed, and notated, and transcribed.

The focus group sessions, which involved the participating educators (henceforth educator participants), were recorded using both the designated iPad and a GoPro. The focus group sessions occurred after the Educator Participants observe student activity in the learning hub, as well as the learning hub itself. Educator Participants were observed at least twice; each observation took approximately one hour. Each time an Educator Participant observed, I (the teacher-researcher) conducted a short debriefing conversation that asked participants to describe what they observed, and whether they see a difference between how our students and students in more traditionally designed schools are learning. After all had completed their second observation, a one-hour focus group was conducted that asked the Educator Participants to share their observations, reflect on what they saw, and discuss what aspects could be replicated in other public schools. A few of the key elements I attended to in my debriefings and focus groups were problem-solving, communication, student-led inquiry, hands-on learning, flexibility, trust, and creativity.

Photo elicitation

I also used photo elicitation (Clark, 2011) in this study, a method in which a person tells the story of experience by taking and discussing select photographs or video. It is a research strategy that directly capitalizes on the familiar social conversations that occur through the sharing of pictures. Photo elicitation can be done with students by giving the students a camera and asking them to photograph their learning. Harper, as discussed by Clark (2011) outlines how photo elicitation can be implemented as a "child-centered method in applied and academic inquiry" (p. 159) Douglas Harper (1987, 2002) in describing photo elicitation as an underutilized qualitative method, encourages social researchers to use this method to construct a visual narrative. Laurie Thorp (2006) sees photo elicitation as a particularly useful reflective practice that both helps children understand better, and helps researchers understand what children know:

> These visual images encourage readers to take a closer look at the small social worlds of our inquiry. Visual imagery adds a layer of complexity to our texts and representations pointing at specific moments of human interaction. They are, as Barthes (1987) has said, 'moments of resurrection.' (L. Thorp, 2006, p. 131)

Photographs will be used in this project to document progress as it happens in the learning hub. Although the teacher-researcher took most of the pictures, the project remained opened to students who also wanted to photograph learning as it was happening in the learning hub. Photographs were also used to document the change in the learning that happened; the shift from teacher focused to student focus.

Stories

I used stories to inform the construction of the process of thinking, designing, and building a learning hub. The stories help readers understand who the students are, how they feel about our school and learning environment, and how elements of this study affected this community of learners. Jerome Bruner (1990, p. 4) suggests the collection of narratives is necessary to understand how people construct and understand learning within their environment (L. G. Thorp, 2001, p. 65). This gathering of stories, or narratives as Bruner identifies them, provides the necessary backstory and emotional information about how people construct understanding as it relates to learning. Stories give both the author and the reader the opportunity to explore multiple perspectives, to see through a child's eyes. The stories in this study are documented in correlation to the retrospective field notes.

Field notes were a valuable option to describe not only what was happening with the students, but also the surroundings based on the senses of the observer. Van Maanen (1995) says that messy texts, of which field notes should be considered, "invent a more complex object whose study can be as revelatory and as realistic as the old" (p. 19). Thorp (2001) describes well the particular process that was used in this study: "Acknowledging that field notes are an interpretive process; the creation of text focusing on noting key phrases, words, body language, and tone" (p. 56). Interview field notes were expanded upon immediately following after an interview to maintain fidelity to important thoughts and to broaden the interpretation process. Following this, the notes were typed on a word processor and saved in an electronic format.

Jackson (1990) writes, "Field notes are an intermediate step between the immediate experience of interaction and the written document" (p. 15). Field notes are a necessary part

of this field study; however, being able to make field notes at the time interactions occur may not be feasible. Thorp (2006, p. 128) discusses the frustration with trying to make field notes as events happen, and her need to change to retrospective field notes: "It soon became quite clear that taking field notes in the presence of what fierce heat of a curious child just wasn't tenable… The shift from field notes to retrospective field notes felt both liberating and transgressive" (p. 128). Thorp further elaborates on the shift: "I soaked up all the participation… trusted the observations would pour out on the paper later each evening" (2006, p. 128). This study used Thorp's retrospective style of field notes rather than traditional field notes. This was necessary due to the time constraints on me as a teacher and my necessity to directly address the needs of the students as they arose in real time.

Teacher as Researcher

The Reggio Emilia Approach and philosophy are at the base of my teaching and research. One of the critical ideas in the Reggio Emelia (RE) Approach is that RE educators are always engaged in ongoing research. As Edwards and Gandini (2015) write, "Research is a concept that underpins all activity of Reggio Emilia educators, in a general way of working aimed at generating new ideas, thoughts, and projects closely linked to the contemporary world" (p. 92). Therefore, the RE method of the teacher as a researcher informed my approach to this project. As a RE inspired teacher as researcher, I conducted research to determine to what extent the principles of Reggio Emilia can be implemented in a high poverty public elementary school in West Virginia.

One of the first things I learned as a teacher as researcher, is that changing the physical environment affects learning. This is a commonly understood tenet in Reggio Emilia; in fact,

Malaguzzi "viewed the learning space as a 'third educator' declaring the rights of the child to a quality environment" (Carla Rinaldi, 2013, p. 30). This goes beyond how we currently use our learning spaces. For example, covering classroom walls with anchor charts is not the way Malaguzzi would have considered using learning spaces as a "third educator"; Reggio Emilia educators go beyond surface decoration and into the design of the setting itself.

Furthermore, I researched how building relationships with students can give the students agency and voice in their learning. Loris Malaguzzi believed firmly in the development of relationships as a way of connecting with the world. In an interview with Carlina Rinaldi (2013), he said, "it is the image of the child who is so engaged in developing a relationship with the world, and intent on experiencing the world that he or she develops a complex system of abilities, learning strategies, and ways of organizing relationships" (p. 15).

As part of this project, I explored what educators believe and know about how best to teach teachers about what it means to be teacher researchers, how this affects learners, and what this means for students. Schools cannot just be the place to impart a culture; they must be places "to create it, to encourage critical thinking, creativity, and relationships" (Carla Rinaldi, 2013, p. 27). For example, developing a culture of sharing research between adults and children is critical in Reggio Emilia, and is an emphasized practice every day in Reggio Emilia schools. Documentation, one of the key elements of the teacher as researcher, "is an integral and structuring part of the educational theories and teaching practices, as it gives value to and makes explicit, visible and assessable the nature of the individual and group learning processes of both the children and the adults" (Carla Rinaldi, 2013, p. 35). This documentation, when elaborated on, shared and discussed further illustrates the democratic learning that happens in

Reggio Emilia schools. Although this was not a direct goal of the project, I hoped that the Educator Participants would be able to help me think about how to best teach my colleagues at Dunbar Intermediate School about Reggio Emilia.

Setting

Dunbar Intermediate School is an unassuming school in the town of Dunbar, WV. Three hundred students attend the school in grades three through five. It is only one of thirteen schools in the state of West Virginia with the particular population configuration described in Chapter 1. Each grade level has four teachers. The school has a full complement of specialists including a full-time library media specialist, physical education teacher, two Title 1 Reading Specialists, and one Title 1 Math Specialist; also included in the specialist staff listing are part-time art and music teachers.

The school is designated as an Autism Center, meaning that students with an Autism diagnosis may choose to attend this school. The school has two self-contained Autism classrooms. The school also has a self-contained room for students with intellectual disabilities and a resource room for students who have learning disabilities. The students with learning disabilities may be students who need reduced assignments, assistance with assignments, dyslexia, or have academic difficulties. More than twenty students are members of these classrooms; however, not all students with the diagnosis of Autism are in these classrooms. Each regular education classroom has at least one identified student with Autism, many with more than one student with the diagnosis, and some with students who are in the process of obtaining this identification. The school also is unique because it has a certified autism therapy dog. Sully, the therapy dog, has been an instrumental resource for students who need to re-

center throughout the day. He also provides other students with the opportunity to develop a safe relationship with another living thing, something all students may not have outside of school.

The school is designated as a Title 1 school due to the high number of its students who live in poverty. Dunbar struggles with joblessness, crime, and addiction. It is not uncommon for students to live with families other than their birth families, or to be in the care of child protective services.

The school struggles to reach students in a meaningful context due to many of the previously mentioned issues. The school principal sought a better way to educate her students and worked to change her school by encouraging the development of our Innovation in Education Zone project and grant. In writing this grant, I sought to incorporate as much of the Reggio Emilia Approach as possible. I could not construct a new building, but I could allow students to select colors for walls and paint. I could not go without classroom furniture, but I could enable the students to pick out the furniture they wanted for their learning spaces. I could teach the teachers about the role of the teacher as researcher and student agency and voice. I could also find a way to make natural inquiry and the hundred languages of children as much a part of the learning day as possible. The school's unique demographics, administrative support, and willingness to allow experimentation provided the conditions for this study.

Participants

Purposive sampling (Patton, 1990) was used to select the students and educators who participated in this study. This qualitative study focused on one school of 300 students, followed a relatively small number of students in depth, and invited four purposively selected

educators to participate. Purposive sampling is different from many other forms which aim for generalization. The "logic in purposive sampling," Thorp (2006) writes, "lies in selecting information-rich respondents for study. A purposive sample shifts the emphasis from quantity to quality, from breadth to depth" (p. 121). The students selected for interviews were students from the teacher researcher's interest groups. These interest groups are groups of students who elected to work directly with the teacher-researcher for thirty minutes each day, working on a project the students developed. Each grade level has one interest group in the learning hub daily. The Educator Participants selected to be part of the observation group will be from across disciplines in education. The group consisted of a person who is a traditional librarian and teaches with a conventional American pedagogy, an elementary classroom teacher, an elementary principal, and a retired university professor in an elementary education program. Data was collected from March 2018 to June 2018.

The role of the teacher as a researcher was the role I took on for the duration of this study. I advised the principal on how to proceed with the different aspects of the grant; observed students and wrote field notes; developed what we would call a curriculum in the United States, but in actuality loosened as many restrictions as possible and instead opened up learning in a more natural way as it correlates to Reggio Emilia education; and conducted interviews with a group of educators not associated with the school in order to examine their observations of the learning that is taking place within the school.

The role of the students was to be learners. I saw all three hundred students each week; all students were included. The students were charged with learning. I had discussions as part of our everyday practices and routines. I documented their work via field notes,

discussions, and photo elicitations. As part of the Innovation in Education Zone grant, student focus groups were conducted to assist in the guidance of the work that is taking place within the confines of the grant. The results of the grant focus groups were shared and elements were used for this study.

Four educators were selected to form a focus group to examine the educational practices of the school to determine how the school may be implementing the principles of the Reggio Emilia Approach and constructivist learning. The group consisted of an outside library media specialist working in elementary education, an educator from the state of West Virginia Department of Education, an education instructor from a university, and a classroom teacher. This group did two observations for a minimum of one hour to a maximum of two hours. Individuals then did a debrief interview to discuss their observations. The focus group came together later in the evening. The purpose of waiting for a few hours was to give the members of the focus group the opportunity to reflect on what they believe they observed.

Data Collection

Data collection was carried out using various qualitative methods including, but not limited to interviews, conversations, observant participation, stories, and the use of photographs. These methods have been selected because they fit the type of study being conducted; however, if other, more appropriate methods appear to be necessary or useful during the study, those methods will also be utilized. One issue with using these methods was the overriding issue of how to best witness, access, understand, or otherwise comprehend the phenomena of inquiry as it occurred. In this case, prolonged engagement with sensitivity to the needs of the research participants guided the selection of the best methods to use at the most

appropriate time (L. G. Thorp, 2001). Data collection consisted of the following: field notes, photographs, copies of student-developed artifacts, and interview and focus group transcripts. These data were collected to give an opportunity to examine what is occurring across several different platforms.

Data Analysis

Naturalistic data analysis is a type of data analysis that is ideally suited for this type of research study. Thorp (2001) describes a kind of data analysis that follows guidelines as set out by Lincoln and Guba (Lincoln & Guba, 1985). Naturalistic data analysis differs from conventional analytic methods in that it is carried out throughout the entire course of the study and is not done serially. Naturalistic data analysis is not linear but rather circular in process. In using this method, questions are developed, data are gathered, questions are refined, data are gathered again, data are analyzed, questions are revised for complexity, and more data are gathered, and so on. Describing the process of analysis she used for her own dissertation data, Thorp (2001) writes:

> This process has a built-in mechanism for self-correction and validation. This type of analysis allows for the researcher to interact with the data, to utilize skills of reason, insight, creativity, memory, intuition, and logic all at the same time, a uniquely human talent that software is unable to perform. Naturalistic data analysis has a process orientation that shifts the emphasis from analysis to something more aptly described as analysis-synthesis-interpretation. (p. 48)

Strengths and Limits

The power of the study is the examination of the student agency in learning within the constraints of learning in a low-income public school. Giving students the opportunity to construct their own learning is a powerful tool at a time when the student's voice is often negligible or nil. The use of field notes, photo elicitation, and focus group discussions with both students and educators is also a strength to the study. The limitations of the study are studying one school, the size of the school, and the very particular nature of the site and its participants. Although this study does not aim for generalization, its findings may help schools with similar aims in similar situations to design RE projects that work for them.

CHAPTER 4

CONNECTIONS

CAN CONSTRUCTIVIST LEARNING BASED IN THE REGGIO EMILIA APPROACH INFORM THE WORK OF THIS LEARNING HUB?

Two roads diverged in a yellow wood,
And sorry I could not travel both
And be one traveler, long I stood
And looked down one as far as I could
To where it bent in the undergrowth;

Then took the other, as just as fair,
And having perhaps the better claim,
Because it was grassy and wanted wear;
Though as for that the passing there
Had worn them really about the same,

And both that morning equally lay
In leaves no step had trodden black.
Oh, I kept the first for another day!
Yet knowing how way leads on to way,
I doubted if I should ever come back.

I shall be telling this with a sigh
Somewhere ages and ages hence:
Two roads diverged in a wood, and I—
I took the one less traveled by,
And that has made all the difference.
-Robert Frost (1916)

Much like Frost's "Road Not Taken," Dunbar Intermediate School (DIS) has chosen an educational path for children not often followed by many public schools in the United States, much less in West Virginia. This path has led to experience moments of wonder, exploration, and connection as we have journeyed toward transforming how children are educated using the principals of the Reggio Emilia Approach. This story of how we started down this path begins before I arrived at Dunbar Intermediate School.

JFS is the principal at Dunbar Intermediate; she has been at DIS for four years. As she has progressed along her path of the school leader, she has witnessed an abundance of pedagogy she felt was detrimental to students on both personal and academic levels. One of JFS's first changes at DIS was the development of what is now known as the Student Ambassador program, which was designed to give students a voice in their school. As Student Ambassadors, DIS students learn to greet visitors to the school, to engage visitors in conversation, and to give informational tours of the school. The particulars of what students say about the school and what happens in the classrooms were left up to each student. Allowing the students to do this required JFS first to trust the students and trust their voice to be representational of the work that is going on in the school, and then give students the ability to know and understand their school in more holistic ways, rather than just being a student in a singular class. Katz (1998) identifies this as one of the ways the Reggio Emilia Approach is different and can be used in American public schools: students "…minds can be engaged in a variety of ways in the quest for deeper understanding of the familiar world around them" (p. 34)

The creation of the Student Ambassador team was the catalyst for change, intentional or not. With the addition of this program, word spread to those outside of the area. This excitement caught the eye of philanthropist, Ted Dintersmith, who spent the 2016 school year visiting each of the 50 states to find schools that did education differently. Dunbar Intermediate was the school he visited in West Virginia. His visit gave JFS the much-needed boost to continue the Student Ambassador program and begin to imagine how she could change how her school approached learning.

Beginnings

In the fall of 2016, I joined the staff of Dunbar Intermediate School as the Library Media Specialist. A grant was forwarded to me to apply for funding for a STEAM (Science, Technology, Engineering, Art, Math) project. I approached JFS about applying; I had little idea where this would take us.

I distinctly remember the crisp fall afternoon when my learning space was abuzz with students, the door swung open, and JFS walked into the middle of our space. My heartbeat sped up. Although I am confident that I am an excellent teacher, my heart still races when an administrator walks into my room unannounced. She looked around, turned to me and then said, "Can you come and see me on your planning period? I have an idea I want to run by you." My mind began to race, what had I said or done to spur this? Did she not like what she saw in my space? I took a deep breath to calm my mind and resumed working with my children.

At 9:30, I made my way to JFS's office. I knocked on the door and announced I was coming to see her as she had asked. I sat in one of the two cushioned black chairs in front of her desk. JFS sat behind her desk. She looked like a classic school principal at that moment, peering over the top of her glasses, her hair pulled in a tight bun on the top of her head. But the ideas she then pitched were different from any I had ever heard from a school leader.

She began with "I want our school to be the best, not just the best in Kanawha County, not just the best in West Virginia, but the best, period." Ok, I thought. "Have you ever heard of the Innovation Zone grant?" She asked. "Yes, I have," I said. "Why? Do you want to apply for one of the grants?" I said with a chuckle as I thought she was joking. "Yes," she replied. I am sure my jaw dropped. She was offering the opportunity I had been looking for.

JFS shared with me her vision for education, “I want the kids to have ownership in their learning. I want the kids to have buy-in.” I started thinking about whether this is a way to bring the principles of the Reggio Approach to a school. I wondered if she would give me permission to teach the way I have always known to be most effective, and often been told not to do. We continued the conversation for 45 minutes discussing student agency, voice, and democratic education among other topics. We agreed to meet after the students left for the day to continue the conversation. As I walked out of the office, that feeling in the pit of my stomach turned to elation in my soul. I was almost giddy with excitement; my mind began to race as I thought about all of the possibilities of where this could go; the opportunities to openly explore were only bound by our imaginations. Those conversations were the basis for the application for the Innovation in Learning grant.

We Won!

November was a busy month. JFS and I worked daily on ideas for the grant. We asked for volunteers to help us flesh out the ideas, often working for hours after school. It took three weeks from the moment we set pen to paper to finalize the plans that we had discussed. We worked until the final day to submit the grant request. JFS had to leave the school to get all of the signatures needed to submit the grant. The grant deadline was at 4 o’clock; we submitted ours at 3:34.

January 4th, 2016 was a typical day at Dunbar Intermediate School. Students had come and gone. The staff was participating in an afterschool professional development, and without warning, I was called to the office for a phone call; that phone call changed the direction of the

school. We had received the Innovation in Learning grant, which began our journey on the road less taken.

The Space as a Third Teacher

Rinaldi (2006) writes that when "designing a school, first and foremost, designing a space of life and the future" (p. 80) should be the road taken; that was the first step on our path to integrate principles of the Reggio Approach at Dunbar Intermediate. Our building is neither new nor modern; instead, it is a conglomeration of old and new. Our third-grade wing is the remnant of the old community middle school. A full-size gym occupies a full third of the wing, and when you are close, you can hear the echo of the balls as they bounce off the solid oak floors. If there is one place that encompasses the full senses outside of my learning space, it might be this area.

My learning space started as a very traditional library. The walls were stark white, carpets a dingy heathered blue. The furniture weighed heavy in the room, round bulky wooden tables and chairs with matching amber wooden shelves lining the two sides of the room. When I walked into the space the first time, the aroma of old, damp books smacked me in the face. The space had a few saving graces. The north corner of the room was the lone place that had windows, but they were floor to ceiling windows. I had a traditional computer lab attached to the room and two offices; one occupied by a speech therapist, and the other an office space for me. The space had potential.

JFS and I had one of many meetings about the learning spaces of the school. She described a new school in Kentucky, Eminence Community School. Eminence is vastly different than most American schools because the students had a hand in every aspect of the design

process and a voice in the elements to be incorporated into the school. The students wanted a slide from the 2nd floor to the 1st floor, and they got it; they wanted a hot chocolate machine, and they got it; they wanted their cafeteria to be like a restaurant, and they got it. Eminence sounded like a place you might find in Reggio Emilia, but it was not something we could replicate. Nor could we modify our building to get close to what Eminence had done; we would have to approach this aspect differently.

The environment as a third teacher is a significant component of the Reggio Approach. Cadwell (1997, p. 92) describes the environment as an "educator full of variety, with large space and small spaces, spaces for building, for dancing, for pretending, for talking, for wondering, and for reflecting" (p. 92). As the librarian, I had the opportunity to talk with every student and begin to have a dialogue about what they liked about school and what they didn't. We started with the library space.

I started the discussion the second week in March of 2017. We had just finished the last rotation for the set of centers I had out, so this was a perfect time. I gathered each class as they came to the library asking each class respectfully to go to the center carpet for something we called a debriefing. This is a time when we come together and have discussions, go over schedules, or make announcements. The kids liked the debriefings, but they did not like sitting on the carpet; they often complained about the carpet being dirty, and often it was. Walls and carpet were the topics of discussion for this debriefing. I asked the students if they could change anything about the library what would they change. I got nothing; I could hear the crickets chirping outside over the silence in the room. I was shocked by their silence. How could they not want anything changed? I had to ponder why this happened.

Twelve classes were asked and twelve classes gave no response. I decided I was going to have to do two things: one, I was going to have to provide some guidance; and two, I was going to have to show the students different classrooms from around the world to spark the creativity I knew they had. The following week I tried this with my first class Monday morning.

When Ms. Bays' class came to the library that Monday morning we gathered at the center carpet for a debriefing. I started the conversation by asking the kids if they liked the color of the walls. I received a resounding no as the answer. I asked the kids what colors they would paint the walls if they could paint them. I had 22 students, and I received 22 different responses. Nothing was going to be easy with this. So began a discussion about the science of color and how color can make us feel. JH was one of the first kids to speak up. He said "I don't really like the color red. It makes me think of blood." "I know just how you feel, JH," I responded. "I don't like red either. It isn't an inspiring or calming color for me." And then I asked how our kids with sensory issues might feel in a room with a lot of red. JC peered through his thick glasses, smiled, and chuckled as he said he didn't like it either. JC was one of the kids I was speaking about when I talked to the class. Earlier in the year, we learned he had a diagnosis of autism and oppositional defiant disorder. His temper was volatile and often ran from any situation that angered him or made him feel out of control. He had already run a lot that year.

I continued the discussion about the color of the walls the entire class period. It was a lively and very thoughtful discussion about the colors the kids wanted to see the walls painted. That discussion was the inspiration for the remaining discussions with the remaining classes.

By the end of the week, I had a list of the most popular colors the students wanted to have the learning space painted. They came up with colors that would invoke inspiration and calm to all students in the building. I heard time and time again how they wanted a happy space; a space they never wanted to leave. The list contained blues and purples and oranges and yellows and greens. They were all colors we could use in the area if I planned correctly. That week gave me hope we could change the learning space to be something the kids wanted to come to. The third graders seemed genuinely elated to have their opinions asked of them.

The fourth and fifth graders were much more skeptical. Talking to them, in fact, was beyond challenging. There was skepticism with each age group. The fifth graders showed a lot of apathy. They openly said they were not going to be around to see anything that was changed; that seemed to be the most upsetting thing to them. They were unable to think about the other students and creating a place for them to learn that was more than what they had. Several students did not want to participate in any discussion because it would not benefit them and adamantly stated so. There was a coldness in their responses; the only way to describe it is that they had a wall up that I could reach over at times and other times I could not have gotten over it with a ladder.

The fourth graders' reactions were a mix of the two other grades. I did not see the apathy and push back as I had with the fifth graders and they participated in discussions about the colors of the walls. SS seemed to like to give input yet AE could care less. CW loved giving her information, but JZ did not. It would seem the most buy-in would be from third grade.

I spoke with the principal about the reactions I had with the students. While I was somewhat shocked, her response was matter of fact. She said if the older kids didn't want to

participate we would focus on the third-grade level. It was an easy fix to a complex problem. Why did the fifth graders not respond when given the opportunity? Why were the fourth graders not as excited as the third but not as jaded as the fifth? Had they never been asked what they wanted in school? Did something happen in their time in schools that caused them not to trust the opportunity to express their opinions about what and how they wanted to learn?

I continued to pursue the redesign of the library with all of the students, but I readily admit most of the time was with the third graders. I asked what the fourth and fifth graders wanted, but I asked once and moved along. I did not force discussions or beg for ideas. If the students wanted to participate, they could, and if they did not, they just moved to the next activity.

The next part of the redesign was furniture. Once the students had narrowed and voted on paint colors, the fun began. I had observed over the year how uncomfortable the furniture was. Teachers had trouble sitting still when we held meetings in the space; the kids were like whirling dervishes in the chairs during classes, so I knew those had to be changed out. The tables also did not work for our space. The tables were Oak, and they were large and heavy. They could not easily be moved; the inability to move the tables would make collaboration and connections difficult. Edwards et al. (2011) describe the view of space in Reggio Emilia school as an

> invitation to explore. Everything is thoughtfully chosen and placed with the intention to create communication, as well as exchanges among people and interactions between people and things in a network of possible

> connections and constructions. This process engages everyone in dialogue and offers tools, materials, and strategies connected with the organization of space to extend or relaunch those ideas, to combine them or to transform them. (p. 318)

Flexible Furniture

We started with tables. No student wanted tables that sat in one place. HM described the tables she wanted as "being on wheels so they could be moved to any space in the library." I showed the students websites with different types of tables. They loved the ones that had colored tops and wheels on the legs. JM found a table where a switch could be pulled, and the top would drop down. I showed all of the students that table, and it was an overwhelming favorite. The irony of the selected tables was the actual table tops. The current trend in education has been tables kids can write on with dry erase markers. AW told me that was one of the worst ideas she had heard of. AW was a 3rd-grade student with an infectious smile. She often zips around the school in her motorized wheelchair, and while her legs may not work, no one sees AW as having a disability; she is just AW. Her reasoning for not having a table you could write on was valid; she said you do not write on furniture. She had a point, and I was going to go with her point. Chairs would be up next.

I asked the students about how they liked to sit and learn and what I heard most was they didn't want to sit, well at least not in the traditional sense. The suggestions were couches, bean bags, chairs they could sit on their feet, pillows, and chairs that were soft. I began to search for what the students wanted. I found inspirational chairs from Ikea, but I was unable to procure them as vendors for our district. Traditional school furniture was expensive, hard, and

well, traditional. Since our district does use Amazon as a vendor, I decided to look there to help me find what the students conveyed to me they wanted. I found junior futons (short futons), I found fluff chairs (bean bags with memory foam instead of beads), wobble chairs (chairs that are not flat on the bottom), tractor chairs (the seats look like the seat on a tractor), yoga ball chairs, and a knee chair. I was unable to find a chair the kids could perch on (sitting on their feet), and I thought pillows would be a bad idea due to some of the issues often faced in elementary school. I was able also to add color via the chairs. The chairs were green, yellow, blue, orange, pink, grey, purple, and black. Even if I could not get all the colors the kids wanted on the walls, the furniture would provide the vibrancy they were looking for. The space was in the process of changing into a place the students wanted to come and learn; it was in the process of becoming the third teacher, but the journey needed to continue. I needed to change the pedagogy of the space; I needed to keep moving forward to transform how children learn in the library at Dunbar Intermediate School.

Teacher as Researcher

When I arrived at Dunbar Intermediate School, the library appeared to be a traditional library space. The books were sorted by fiction and nonfiction, and everything was in its place as the Dewey Decimal System determined it should be. A glance at the files on the computer in the library further confirmed the story the space was telling me; files of lesson plans on alphabetical order, descriptions of the number range for the Dewey Decimal System, even holidays around the world. Also on the computer were letters to parents informing them of the misbehavior of their students; the letters were filled with tales of disrespect ranging from

talking back, to failure to follow directions, to fighting. The pictures these letters painted were ones that showed the unhappiness of students, the disengagement.

Dewey (1934) suggested, "the difference between the aesthetic and the intellectual is one of the places where the emphasis falls in the constant rhythm that marks the interaction of the live creature with his surroundings" (p. 14). Between the space and the evidence on the computer, the picture was bleak about this program; I would need to scrap everything and build from the bottom. It was at this point I began to deeply explore how I could apply the principles of the Reggio Emilia Approach in this school. There would be no pedagogista to help guide me, no atelierista to support me in this endeavor; I was on my own. There were a few things I identified in my research as principles that should be implemented as elements of the Reggio Emilia Approach: constructivist learning, democratic education, natural items, loose parts, documentation of student learning, and student voice and agency in their learning.

I was overwhelmed. How could I develop a program from the bottom up? How much support and leeway would I have from my school principal? How would the other teachers react to what I was doing? Where would I start? Was this another fork in the road not taken?

I readily admit to being slightly panicked; I tried to change and do too much at one time. I had to stop, breathe, and think. I thought about my former classrooms and how I wanted them to be but was told it would not be possible. I thought about what I had read about the library space from the files left by the former librarian. I thought about the students and my promise to do my best always to do what was best for them. I thought deeply about constructivist practices and inquiry learning. Could I apply these principles to a public

elementary school? I took a deep breath and began to change the way students could learn in the space.

I did not ask the students what they wanted to learn or how they wanted to learn. I thought about setting up the space in the style of learning centers. The learning centers would be set up using the STEM acronym; each table would have at least one activity devoted to science, technology, engineering, or math. I would also add a station tied to the book that would be read aloud to students.

I believed the centers were good entry-level centers. The stations were: a sink or float with cans of soda and juice for science, animation for technology, cup stacking and Legos for engineering, play dough making for math, and a marble run that correlated to a story I would read as a read aloud. Students were required to go to each station and would rotate one station for the next six weeks. The kids enjoyed the stations; they laughed, and they talked loudly with each other in an excitable way. I hated the way I managed the kids when they were in the stations. The noise levels bothered me as the kids were so loud when they talked to each other. They practically screamed with excitement at each other. The students' disregard for library rules also bothered me. They ran, they tried to jump from station to station, and they screamed. I hated the way being in the space made me feel; I hated being in the space because I felt everyone was out of control. Most of all I hated how I reacted to kids when they were using the centers; I was short-tempered and inflexible when I reacted to the students' behavior.

The third-grade students managed the centers the best. They were excited to be able to do things they thought were fun and repeatedly told me how much fun it was to come to the library. I enjoyed that group of students the most. The fourth and fifth-grade students never

really seemed to get the hang of the centers or be engaged in work that could be meaningful. It was not clear whether they just did not see the centers as useful or if they felt the freedom the centers allowed could be used to do whatever they wanted. The fifth graders seemed to have the most difficulty with freedom. They pushed the boundaries, refused to stay at the station, screamed rather than talked, and questioned everything.

I decided the next set of centers would be ones the student would select but they would be required to stay at that center for three sessions before rotating. It was worse than switching every week and almost impossible for me to manage who was supposed to be at each station. They were not constructing their own learning nor was inquiry being used. If there was a positive note, it was I was building positive relationships with students. Sometimes the students told me daily how much they enjoyed coming to the library; it was something. But that was not enough, because it was not the job I needed to do. Students were not expressing agency in their learning; in fact, I could not say with any degree of certainty they were learning anything in the centers.

We would have time to do one more set of centers. I decided to put items in boxes and allow the students to select materials as they wished and work with them for as long or as little as they wished; there would be no rotations or demands from me to stay with the materials.

I gathered each class in the center of the carpet to explain the change in the protocols to them. The students were excited about the changes. FJ said the "loved this idea." She thought it was cool that I was not making the students stay with things they did not want to stay with. The 4th and 5th-grade students also managed themselves, for the most part, much

better; the students were much less off task or disengaged. This was my first indicator giving students authentic agency in their learning could work.

The remainder of the school year consisted of special holiday events and state testing, four weeks of student testing. For all intents and purposes, the first year was over.

Transitions

Preparations for year two began as year one was coming to an end. We had provided students the opportunities to express what they would like to see in the learning space in terms of wall colors and the types of furniture they would like to see. I would spend the following weeks researching the best options to give the students what they wanted. Countless hours were spent poring over websites and researching for quality, price, and desired functions; finally, purchase requisitions were made and orders placed. An update in materials for the library had also been researched, and orders were beginning to come together.

In the weeks passed after submitting the orders, the principal approached me about renaming the library and the computer lab. She felt the space was no longer just a library, but an area for students to use their imaginations. She also felt the old computer lab was turning into a space that was more than just a space to do canned programs. The principal asked if I believed it would be a good idea to let the students rename both areas. I LOVED the idea.

I spoke with each class of students, fourteen classes in all. I asked them to describe the library with the work they did during centers. I got answers such as fun, imagining, loved, thinking, and others. I explained to the students I didn't believe "the library" was a name that fit the learning space as we reimagined the learning that could take place in the area and that had already taken place. I asked the students to give me ideas for a new name for each space.

The kids came up with beautiful names such as Imaginarium, Think Tank, Fablab, and the Make tank just to name a few. The top five were selected, after consultation with JFS and the staff and faculty, and then we gave every student the opportunity to vote for a name for both the old library and the old computer lab. All week long students voted on the name, all week long I counted votes; by Friday I would have the results. We teased students every day at evening announcements. We might say the least favorite was winning or even a name we did not have on the ballot. The principal stoked the fires of the students masterfully. On the last Monday of the last week of school, we finally revealed the winning names for the spaces: the library would become the Imaginarium, by a five to one margin, and the computer lab would become the Think Tank or Tank for short. The kids took pride and ownership of the names of the spaces. It was theirs, and they were proud of themselves for creating those names. Again, giving the students agency proved very successful.

The last week of school for students came and went. Boxes upon boxes came during that previous week. There were boxes everywhere: boxes in the hall, boxes in the Tank, boxes in the Imaginarium. Slowly box after box was opened and the contents put together. I felt like I had been swallowed up in the sea of boxes; some empty, some still full. Slowly the materials emerged and found a space in the Imaginarium. We had chairs on wheels, tables on wheels, computers, robots, and more loose bits of technology than I could count. We had yoga ball chairs, tractor chairs, wobble chairs, computer chairs, memory foam chairs, mini futons, and knee chairs. We had tables whose tops folded down and whose legs were on wheels that could be configured in many different ways. Computers were left in the boxes but placed in what

would eventually be their new home in the Tank. It was clear I would need a lot of storage; it was also clear that my summer would be filled with trips to work on the two spaces.

The third week of July would be the unveiling of the space to the teachers during our first training with Magnify Learning. I wondered what the teachers' reactions would be. Would they react positively, as I believed the students would? Slowly the teachers began to roll into the space; one by one they filled the space and pondered the new chairs and the tables. I still find the images of the teachers attempting to sit on the yoga ball chairs comical, especially since we determined later that we may have overfilled the balls with air. JFS was the first to attempt to sit on one of those chairs, bouncing on and back off. I was afraid she would flip her dress over her head as she flew off the chair. The teachers laughed; they loved the space. The memory foam bean bags were a super big hit as they brought the teachers a small bit of respite as they worked diligently to learn to shift their pedagogical practices from traditional teaching to project-based learning. Happily, the furniture gave the room an effervescent feeling that promised learning could be fun even when it was difficult.

Three weeks after our teachers attended our summer PBL institute we reported back to work and got our collective spaces ready for our open house and our students. Meetings, meetings, more meetings took place over the first three days. There was nervous energy to the building, and I wondered if what we put together in the space would be that vision the kids conveyed to us. The open house was slated for 6 o'clock pm; the time came, and the doors opened. It was the best turn out for an open house to date. Many of our students came to meet their classroom teacher but ended up spending their time in the Imaginarium (the former space known as the library). The smiles on the faces of both the parents and the children as

they walked into the space were splendid. As inspiring as those smiles were, the highlight of the evening had to be when we were able to take one of our students out of her wheelchair and set her in the memory foam, bean bag chair. AW's words spoke volumes when she said: "no one has ever had a place for me so I can get out of my chair." It moved me to tears and validated what I had read about the environment as a third teacher. Creating this environment gave AW another level of connection to learning, to space, and to others she had not had in her public school education.

AW's experience with the furniture gave me a more concrete concept of space as a third teacher, but I could not just rest on that one experience. Could I take both a stand and a standardized way of teaching and shift the learning to align more with the principles of the Reggio Emilia Approach and the way students learn naturally? The next leg on this journey would be for me to address the way children learn in the Imaginarium. There would be many twists and turns as we moved forward; all necessary as we took steps to be better for our students. The swiftness of the first curve in this leg of the journey was not a surprise.

Inquiry and Learning Centers

Inquiry learning was the underlying pedagogical current in the Innovation Zone grant; it was viewed as the ultimate shift to a student-driven, student voice learning environment. Project-based learning or PBL was the middle point of getting us to the end goal of true inquiry learning through voice and choice. I was not sure how we would get there and if we could, ultimately, overcome the obstacle of moving past PBL to get to the inquiry.

I wanted my space to go to the next level. I wanted my own space to be set up differently. Constructivism, student voice, and student choice permeated my every thought as I

tried to figure out how to create the conditions in the Imaginarium that would allow me to commence teaching using these principles. To walk into the Imaginarium you would think I had a wide variety of resources especially for a library, but the truth is I felt woefully underwhelmed with what my students would have access to. The students selected the chairs, tables, and colors of the space, but I thought I needed so much more to be able to give them opportunities to explore and find their passions fully. I reread *The Hundred Languages of Children for inspiration*. I read *The Pull of the Earth* once more for inspiration. I reread *Making Learning Visible* for inspiration. And then I began to get to work.

My first attempt was to place tables in rows and stations. I moved the six tables into three columns and set the chairs around them. I began with stations that would be representational of the acronym STEM (Science, Technology, Engineering, and Math); sink or float with bottles of various liquids for science, animation using Wacom tablets for technology, cup stacking for engineering, and geoboards for math. I also included a reading station and a board game station. During the first go-round students selected their center and stayed at the center for the class period; after that, the student would rotate to the next table for the next class period, and this would continue until the students had been to all six stations. The kids enjoyed it and were engaged for the most part, but I did not feel the students had much voice or were constructing much knowledge with this method. We continued in this manner for about seven weeks. The next iteration had me change the centers and the protocols on which the students would move from station to station. This go round the students would select a center and would remain at the center for three class periods. After the three class periods, the students could choose another station and stay at that station for three additional weeks. The

students would make this pattern for three sets of rotations. Again the students enjoyed the stations, but still, I did not see the results in terms of voice and constructionism and, truthfully, not the agency I had hoped I would see. This would take us up to semester break and give me some additional time to read and reflect on what I was doing.

I changed things for the third nine weeks — this time I set up six new stations and increased the complexity of the stations. What follows is from my notes on the first class as they came in to see the new stations.

A third-grade class would be the first class with the new rotations of STEM-based centers. The 20 students arrived in the library space. When they first walked into the library, they lacked energy, eyes half closed as if they had just pulled themselves out of bed, but as soon as they saw materials on the tables, things changed. Their eyes opened, and they gasped with excitement and questions about what we were going to do. I gave them the directions to all gather in the center of the space on the dingy carpet. I flipped on the switch to turn our interactive whiteboard on and began to talk about our new centers. I clicked on tab one on the Internet Explorer browser, and up popped images of balloon-powered Lego cars. Several students shouted out they had made Lego cars before, but I explained to them how they were physically the energy source when they made the cars before, but now the air they breathed into the balloon would be the energy source. I then moved to tab two on the board and images of Lego balances were displayed. I explained to the students they needed to construct a working Lego balance. The kids asked if they were going to get “goldfish” crackers to use with the balance: one of the images had goldfish being used; I deflected committing to bringing in

goldfish for them to use. I continued, describing station three - geodesic domes, station four- paper airplanes, station five – squishy circuit, and station six marble run.

The geodesic domes were physical structures made from tightly rolled newspapers. I asked the entire class to come around the table. I picked up a newspaper advertisement and told the kids these went into the trash; I picked up another paper—this time a half page of the newspaper—and again told the students to throw paper like this in the garbage. The final paper I picked up was a full page of the newspaper. I took the paper, turned it on its corner, grabbed a straw, placed it on the very tip of the corner of the newspaper and began to roll the newspaper into a tight roll. I explained how I was pressing down against the table as I rolled the paper, never letting my fingers release the newspaper from between the table until I reached the opposing corner of the paper. I then asked a student for a piece of tape, taping the end around the roll. I passed the rod around and asked each kid to notice the difference between the end of the rod and the beginning of the rod. Several students noticed the ends were squishy because they could easily press the paper down, but in the middle, it felt thicker and "you could not press it down very easy." I added the need for about 90 rods before they could construct a structure. I had never attempted this station before. I am glad I tried it. As a teacher, I feel I need to work things with my students to be able to determine what they like, how they adapt to new tasks, and to help me be a better teacher. I see this as part of the teacher-researcher role.

Station four is the paper airplane station. I describe the task as constructing three airplanes; one that can fly a long distance, one that can do stunts, and one that has a lot of hang time. One little girl asks me what it means to have hang time; my explanation is to stay in

the air as long as possible. I also tell them they may only use the materials on the table. I wonder if they know what I mean when I use the word construct. I think they do, but I still wonder if I am using words they know or can figure out what they mean. I skipped station five even though the kids cried with disappointment as I moved to station 6. I knew I would have to do a lot of explaining in station five so my objective was to give it the time it needed.

Station 6 was marble run construction. It took me two trips to Lowes to get enough dowel rods to cut to make enough pegs for this center. That is a story in itself. I thought I would be able to find precut pegs for the board, but apparently they do not exist. So I went to Lowes and purchased ¼ inch by 4 feet round dowel rods, took them home, and marked them off in 3-inch increments. Then I got out my Dremel and learned out to cut the dowels with this tool. That was exciting because I had the Dremel for about two years and had never learned how to use it. I think me learning how to use the Dremel is an example of the type of inquiry that happens in Reggio Emilia schools and the type of constructivist learning I would like to see from my students: I had a need, I looked for solutions, and I found a way to figure it out. This has led me to begin to think about how else or what else I can use the Dremel for. I recognize in Reggio Emilia Schools the students may have gone out into nature and looked for twigs that would have been able to take the place of the dowels, but my surroundings and the time of year we did this station prohibited me from doing this. As I reflect on this time, maybe I should have asked students to give this a try and allowed them to learn by doing. Perhaps I am the one who missed the mark this time.

Station 5 was the squishy circuits' stations. This station contained the following items: 3 hand generators, four alligator clips, four double A battery power sources, 1 D battery power

source, four 3v button batteries, three miniature bulb holders, four blue LEDs, four gold LEDs, and three bags of squishy dough. The dough is conductive dough. It contains salt which will allow the completion of an electrical circuit so that an LED bulb will light up. I took each object and told the kids what it was called and how it worked, but I stopped short of putting pieces together to complete the circuit. I imagine in a Reggio Emilia school the teachers would have just put out the materials and then let the kids figure out how to use them, but I can't see kids naturally being able to figure out how the pieces would have gone together to make circuits to light an LED. Am I selling my students short when I don't believe they will come to the specific outcome? It is times like this I long to have someone who understands what I want to do with my students and can help me; all I have are the words in the writings of Malaguzzi, Rinaldi, Gandini, and a few others.

After describing each center, I asked the students to come back to the carpet. We had about 25 minutes left in class, and I wanted to get them into the centers. I forgot to explain they must stay at the station for a minimum of 3 class periods, so I did that next. Finally, I asked each student to select the station they wanted to go; I did not limit the number of students at any station. When all was said and done the paper airplane station, and the marble run were the only two stations that no student selected. The students worked for the remaining 20-25 minutes in their stations. The kids were working on their tasks at each station; I was pleasantly surprised. As the students left to return to class, they commented about having fun and how cool it was in the Imaginarium.

A fourth-grade class arrived next. I spent the next 25 minutes going over each of the six stations in precisely the same fashion as the 3rd grade. I wondered if there would be a difference between the two grade levels in terms of curiosity, work ethic, and collaboration.

This class had students in the marble run area, a place in the Imaginarium that has a four feet by eight feet piece of peg board, empty paper towel rolls cut in half, a bucket of ping pong balls, and 3D printed clips that will snap into the peg openings on one side and hold the paper towel half roll on the other side. The premise is the students will design a way to get the ping pong ball from top to bottom using the hooks and the paper towel half rolls. AA, CB, and LS selected this area, and they worked beautifully together. They took turns laying out their designs with the pegs and listened to each other's questions and expression of both doubt and support. They asked each other about different ways to put an idea into action moving pegs to different places or adjusting the angles the paper towel half tubes were laid on the pegs, they tested their designs by running the ping pong ball down each section and making any adjustments that stopped the ball as it traveled toward the end goal. They tested and retested their designs until they were sure they had the best model to get their ping pong ball down the path the quickest. It was great to see them in action. It made me think about how kids could be part of a team to try to figure out how to fix problems.

The students in the geodesic domes had the most trial and error happening in their station. They experimented many different ways of trying to roll the newspaper. They tried to roll the papers more loosely and then make the roll tight after they got the straw out. One student tried to roll the paper side to side rather than corner to corner. As I watch, I wonder if I should let the next group that goes into the station determine how they would like to roll the

papers; perhaps that would align more to how the teachers would do it in a Reggio Emilia school.

LB chose the squishy circuit station. She discovered if you used alligator clips to clip the D battery energy source to the hand generator, the battery would cause the generator to move on its own. The hand generator will rotate in a different direction from the direction you turn it to create an energy source. Her observations were not discovered by the third graders. I could see in her a desire to want to figure things out rather than play or explore with no purpose.

My last observation of this group came in the paper airplane station. RK and CT both selected this station. They typically do not work together. CT is soft-spoken and RK is very aggressive and bossy. The boys, however, found a way to work together. They asked if they could use a computer to look up different models of paper airplanes. I allowed it. I am not sure if that modification would have been acceptable in Reggio Emilia school, but I think the task was a provocation that would have been embraced.

My next class was a fifth-grade class. The students arrived full of energy, laughing and giggling as they bounced into the space. I immediately had the kids go to their stations after I completed the explanations of the stations as I had done with 3rd and 4th grade. I was astonished, again, at the resistance I was getting from one or two students. KK immediately asked to move to another group-he had selected squishy circuits. He stated there was nothing for him to do, yet the other four kids were using the materials to make the LEDs and lights work. I decided to get out a chibitronics circuit workbook. This workbook uses conductive tape and LED stickers to explore circuitry; all KK had to do was read and follow the directions. He refused to work on the workbook. I am becoming frustrated but also begin to realize this is a

KK problem and not a problem with the centers or the content of the centers. I cannot help but struggle with this tug of war in my mind about how to rectify this situation; do I keep trying to find a way to engage him with the materials, do I just give up and say circuits are not his thing, do I just see this as maybe he is just choosing not to use this opportunity? Is part of student agency and voice refusing to participate in what is available?

On a positive note, the students in the marble run did some exceptional work. NW, OR, and AT worked to develop a marble run so that all of them would drop the ping-pong ball at the same time and arrive at the same place via different starting points. They were excited they figured out how to make that happen. I watched as they put up their designs, tested them, and then made modifications. I kept them afterward for a few moments to record their run. My other stand out observation was the paper airplane station. DB and SJ were the students at the station. Even with a computer to look up airplane designs, the task was difficult for them. They were having difficulty with spatial reasoning. They could not look at the computer screen and then to the paper and replicate the design of the airplane. They requested videos. That is another problem, finding a way to have digital resources for students. But is using digital resources part of the Reggio Emilia Approach? I found myself wondering if I was looking for artificial ways, such as using the videos and technology, to do what could be done naturally. Was I suggesting a form of artificial inquiry? Is what I am doing inquiry at all? Am I delusional in believing this false dichotomy is the best I can do in an American public school?

Pace

The school garden is one area I believe changes the dynamic of pace in our school. There is no real way to push a fast pace, no way to rush or prepare for intended outcomes. In

our garden, we learn to be patient and to wait. We can anticipate the end product, but nature has a way of changing the result of the garden. Our first year our tomato crop was very abundant, but this year we had a high amount of rain which causes the tomato crop to be susceptible to fungus and rot. Our yield was not what we anticipated. It didn't diminish the excitement of our garden or the harvest. JS often asked and remarked how much fun he had when we worked in the garden. He explained, "Getting my hands dirty is fun. I love to look every day to see what has grown and what I can pick to put on the salad bar." The garden mimics what should happen in the classroom, listening to the child to dictate how to proceed. Why are we failing to listen?

Children Describe and Synthesize Their Experiences of Learning in the RE Informed Learning Hub

Take the journey through life with me, dear,
Cuddle close to my weary side.
I need you to help guide me, dear,
Whatever betide.

This journey is on a mysterious road, dear,
The conclusion that I can not foresee.
Still, I ask you to take my shaky hand, dear,
And take this journey with me.

By Joseph T. Renaldi (2005)

The Stories of Children

As I skimmed my field notes, I discovered an entry that I thought demonstrated pace, but what I discovered was the entry was more about the need to build relationships with students.

JC was really on fire today. This was his third visit to this center. He had successfully made LEDs light up, changed the brightness through the amount of energy he pushed through the LED; he was ready for a new challenge. Today he found two miniature bulbs mixed in a bag of electricity wires, alligator clips, and bulb holders. He asked me what they were. I explained to him they are light bulbs that are just really small. He asked if he could use them to experiment with. I agreed. He looked at the first bulb searchingly as if he were trying to see if it would work the same as the LEDs; it would not. The LEDs had "legs" one longer than the other to indicate a positive side and a negative side. His brow creased in the middle as if he were perplexed about how to connect it to an energy source. But then he began to look at the materials on the table, and he spotted the bulb holders. He took one out of the bag and then worked to screw in the bulb. He connected a clip to the left side and then another clip to the right side, turned the hand generator, and the light illuminated. Man, the smile on his face, was awesome; I swear his smile stretched from ear to ear. I sat and watched him intently to see what would be next. JC took the second bulb, placed it in another bulb holder and connected it to a separate hand generator. After he completed the second set up, I told him he could connect both bulbs and generate the light with only one hand generator. He asked, "How?" I asked him what would happen if he connected the two bulb holders with alligator clips in the middle and then connected one generator clip to each of the remaining sides. He took one clip from the generator and clipped it to the left side plate of the first generator. He took an alligator clip and connected from the right side plate of the first generator to the left side plate of the second bulb holder. He then took the

remaining generator clip and clipped it to the right side plate of the second bulb holder; he turned the hand generator, and both lights came on. He was so thrilled he went to all of his friends and asked them to come and look at what he had done. He also could not wait to show his classroom teacher his discovery. He brought her all the way into the room and explained his whole process about connecting the bulb holders. She was equally joyed for him and his excitement. It was a fantastic class period.

I feel I need to talk about how far JC has come over the last 27 weeks so the reader might further understand the magnitude of what has just happened with Jared. JC is of average height and has a slight build. His body wiggles and squirms and in general never stops moving. One might look at him and think he was an athlete as he has a more muscular build. His head is slightly large, and he wears Coke bottle glasses. JC is considered to be a special needs student; he is Autistic and Oppositional Deviant among other diagnoses. When JC arrived at the beginning of the school year, he was angry. He would not do work for his teacher, you could not correct his behavior, and he randomly would have vocal and physical outbursts. I can remember one morning in the lunchroom and JC was given lunch detention; he refused to sit in lunch detention. I moved his tray and told him he would have to sit at the reflection table. The reflection table is a group of tables facing the wall and not the room of other students; it is a time out and think about area used for students who have not made the best decisions either in the cafeteria or in the classroom). He refused to move and began to be aggressive toward the other students. I moved all of the other students away from him and sat next to him asking him if he was ready to move. It was counterintuitive to how I would typically handle the situation, but for some unknown reason, it was how I chose to react that day. We came to an impasse,

and eventually, I left him sitting at the table comfortable that he would not hurt anyone or himself. Later my lunch buddy was able to get him to sit at the reflection table and have a quiet talk with her about what happened. The situation was diffused, and he sat at the reflection table.

JC had a few more outbursts over the next few weeks, but each one was met with calm voices and people that showed they were not trying to be mean to him. We showed him we cared about him. A few weeks later the local middle school band came to perform. Jared lasted 1 minute before having an all-out fit. He could not handle loud noises, a trait common in autism although we had not yet realized it with him. I took him out of the space and into the library. He lay on a bean bag chair and began to relax. I think that was a turning point for us both in building our relationship. I think it was that day he began to trust that I cared about him. He started viewing school differently from that day forward. How different would JC be today if I had not taken the time to build a relationship? How different would JC's learning be if I had only given him one opportunity to explore the items in the electricity station?

GR

GR comes to the Imaginarium with a third-grade classroom. He is tall with Harry Potter style glasses. His red hair matches his personality, always smiling and an agreeable child. GR can read but is far below grade level. The Imaginarium is one of the places GR can learn and be successful in difficult tasks, unlike the traditional classroom setting.

Each day GR comes into the Imaginarium he asks two questions; the first question is can he get new books to read and the second question is can he build a robot. Happily, he often can do both. Today we have WeDo robotics out for the students to work with. GR sits patiently

waiting for his turn to select the area in which he can work. No surprise he wants to work with the WeDo Robotics. GR sits at the parts box and begins to build. He has no concept of motors and only looks to make his design manually roll with traditional wheels. I sit down with GR and show him the battery power source and how we can use an axel with the power source to make the wheels move. His smile grows wide, and there is a spark in his eyes, but that quickly fades as he cannot figure out how it runs if he does not push it.

GR and I fetch a computer out of our storage room, I show him how to log in, and we open the WeDo software. I show GR what a few of the blocks do in the program and how to snap them together. I walk away.

Twenty more minutes of the class passes by. Suddenly I hear a screech; it was GR. He figured out how to make the WeDo move and to make a noise. He was elated. He told me it was the "awesomest" thing he ever did. When the class lined up to leave the space, I asked GR what he thought about how we did things in the library. He said, "I love it 'cause we can do a bunch of things like build robots that might be dinosaurs or we can read books. It's my favorite."

IB

IB is the son of one of our teachers. He is a handsome young man with a skillful mindset for soccer. He has a gentle demeanor and a big heart. His class helped plan the changes in the physical space of the Imaginarium but went to middle school before any of the pedagogical changes happened. He often comes back to school to visit and spends some of his time in the Imaginarium when he has to come with his mom to school.

IB bounds through the door on a snowy morning. He did not have school, but his mother had to report to work. "Man I can't believe this space. I wish we had this at my school." is a frequent cry I hear from him. We chat about what he misses and what is better. He says the middle school does not let the students do much of anything. They do not do centers, and a lot of kids are mean. He says "I wish we could come back here."

OE

OE is in the fourth grade. She is generally a quiet child, but when she comes to the Imaginarium and the Tank, she comes alive. OE has taken on two projects within my spaces. OE is part of the Dunbar Intermediate School's first VEX Robotics team. Not only is she a member of the team, but also a member of the first all-girls VEX Robotics team. She has taken on the role of leader and robot designer. We often have conversations about the robot builds and adjustments that need to be made to those builds. She asks me about using different motors, and I advise her to make sure the robot's frame is strong enough to high hang. OE smiles more during this time than most other times I see her even when the pace is hectic and chaotic. It is clear the Tank is a place that allows her personality to shine.

She has decided for this season's robotics challenge a "Flex 'bot" would be the best design to build. She spends hours building the robot allowing only her teammates to fetch parts for her. She has trouble with spatial reasoning, but I notice all of the kids have the same issue. Her teammates step in to help her build the bot even though she does not ask for the help. It takes the team almost six weeks for the bot to be built. The team begins to practice driving the bot, and OE seems to be the top driver, seems to be.

We attend our first district competition. OE and one of her teammates have their first match of the meet. It was a disaster. The girls only scored four points. OE comes off the field crying. I ask her if she would like a hug, she does, and I give her a squeeze telling her everything is ok. When she has composed herself, she hugs me and tells me she is sorry. I reply by asking her if she did her best for the first time in this situation because I believe she did. She said "uh huh, and that is why I love you being my teacher."

OE is also working on a project when she comes to the Imaginarium for Interest Groups. She was not originally part of my interest group but asked to be traded to me. My fourth-grade interest group was working on a Turtle Blocks tile project, but OE was not interested in that project and asked if she could do something else. She said to me "there are not enough girls in STEM so how can I change that?" I asked her why she thought that was and she replied "girls don't know what STEM really is. They think it's just for boys too." So I said, "Let's change that" and a project was born.

OE recruited three other young ladies to join her on this project. They work every day on the project. They have developed a resource brochure, a commercial, a slide show, but they did not think they had pushed far enough. They asked me what else they could do, and we began to work as a team to find a problem they could try to fix. OE said this was one of the things she liked so much about this learning space; she said we look for problems, and we find solutions. I liked that. I asked her what else she liked, and she said a couple of things made her like coming to the space. She said she likes doing projects and getting to pick what she gets to work on. She also commented on how she likes coming to my space because they get to do things no one else thinks they can do.

The final element of OE's Girls in STEM project is creating an adaptive hand device that will allow a fellow student with a physical disability to be able to hold a drum stick to play a musical instrument. The student has a physical disability that has confined her to a wheelchair and has limited fine motor skills in her hands. She is unable to grip drumsticks. OE and her teammates plan to design and 3D print a device to strap to their classmate's hand so the classmate can just move her entire hand to play the instrument. I cannot wait to see what they develop, and I am glad they have the opportunity and the space to try.

HOW DO EDUCATORS UNDERSTAND AND INTERPRET STUDENT'S EXPERIENCES IN THIS LEARNING HUB?

I teach.
Ideas and words are my business.
I toss them into the air
And watch them float
Softy
As autumn leaves (though with much less color and grace)
They float around your heads,
Drift in piles on your desk tops,
Glide along your sleeves
And whisper-dance around your ears.
Someday
One may catch your attention and inspire you with its color-
At least for a season
-by Margaret Hatcher (2002)

Maria Montessori (1967) wrote, "The greatest sign of success for a teacher…is to be able to say 'The children are now working as if I did not exist'"(p. 283). But can teachers in public schools fade into the background and allow the students to work and shine in the work they do? Does the system allow or give an opportunity for this to happen?

Dunbar Intermediate School has been involved in trying to shift the direction of instructional practices. This is being attempted through two pedagogical shifts, inquiry learning, and project-based learning. The thought behind this is twofold. First, a thirty to forty-five-minute "Interest Group" is held every day in every classroom including Related Arts. This time is designed to allow students to select the teacher they want to work with and work on a project that is led by the students. The Project Based Learning aspect is for teachers to develop, write, and implement PBL in the place of traditional teaching. Cuevas et al. (2005) conducted a study to determine the impact of PBL versus conventional teaching practices and found benefit to this shift,

> A development and research study of twenty-five third and fourth-grade students from six elementary schools of diverse linguistic and cultural groups engaged in PBL indicated that the PBL curriculum enhanced the inquiry skills of all students including lower socioeconomic and English language learners, regardless of grade, prior achievement, gender, and ethnicity (pp. 337-357).

The focus of this study is that pedagogical shift in the space called the Imaginarium. The Imaginarium, formerly identified as the library, is arguably the most used space by the students in the school. In the morning, students come as classes to the Imaginarium to engage in various activities while their classroom teacher takes their planning period. The afternoons are used for student-led learning in practice the school has called Interest Groups. Interest groups are formed by the students. Students list up to three names of teachers they would like to work with. Students are placed with their first choice until there are no more spaces then the next

name on the list until all students are placed with teachers. The Imaginarium has had every spot full and many kids trying to get in or put on a waitlist; this indicates the level of desire the students have to come to this space to learn. As their teacher I feel incredibly moved to be the person the kids want to work with, but with that comes the responsibility of making sure the kids get what they need, their quests met, and inquiry learning is taking place.

Everything in the Imaginarium has been designed with student voice and choice for their learning; they have had a say in the furniture, the technology, even the materials. One of the things that could not be controlled for would be what other teachers would observe and think of the learning in the space; would they understand how the students were learning in the space or the implications of the type of learning the students were doing as it compared to traditional learning.

Currently, a typical day begins at 7:30 am with the robotics team coming into the Imaginarium to work independently. Classes start at 8:00 am with a third grade for forty-five minutes. This is a planning period coverage class. The third-grade teachers have planning and or meetings during this time. Until I asked a teacher for observations and feedback of the learning taking place by third-grade students in the Imaginarium, only one third grade teacher had come to see what their students were doing in the Imaginarium.

LB

LB is the third-grade teacher who came to observe the learning that takes place in the Imaginarium. LB and I discussed the Constructivist pedagogy and if she felt that pedagogy was evident in the Imaginarium. LB (L. Bays, personal communication 5th, December, 2018) said, "I love to observe students through the Constructivist Learning Theory. As I understand it, the

theory is based on observation and scientific study about how children learn through hands-on activities. It helps children construct their own understanding and knowledge of the world through experiencing situations in life and reflecting on those experiences. “

She continued, “When students encounter something new, they have to merge it with their prior knowledge and experience, maybe changing what they believe, or discarding the new information as irrelevant. In any case, they are active creators of their own knowledge. To do this, they must ask questions, inspect, and assess what they know.”

I asked LB if that type of learning was evident in the Imaginarium. She said, “You encourage students to assess how the activity is helping them gain understanding constantly. Having them question themselves and their strategies during any activity will help students become "expert learners." Giving them a variety of tools to meet their needs and keeping them engaged in learning.” I am not sure I agree with the use of the word assess in this context and how it is generally applied in education, but students consistently are asked to determine what they want and need to continue to learn something every time they walk into the Imaginarium.

I asked her how the Imaginarium works compared to other classrooms in the building. “The Imaginarium is set up to work through science, technology, and hands-on learning. If you were to go around to most of the other classrooms, I think that you would find worksheets and county-wide technology programs being used along with the adopted textbooks.” My observations are not as rigid as Lisa’s. I know teachers are attempting to do project-based learning. They have been through two years of training, and I know teachers are trying to do more than just use adopted texts and worksheets. My observations are they are just missing

some of the basics of project-based learning. I also do not know if they buy into the idea of students learning their own learning and if they do, how much agency they should have. A recent conversation with another teacher indicated this to be true. The teacher asked how we could do project-based learning when we had students who could not read. She further elaborated that she often wondered what her place was in a project-based learning school as a Title 1 reading teacher. It was clear the teacher believed the two aspects as being mutually exclusive. I wonder if teachers can ever be convinced other teaching pedagogies can be better for students either across the board or situationally.

In forty-five minutes the third grade exited and fourth grade entered. Only one teacher, a split level teacher, at this grade level, had previously been into the space and observed the learning that happened.

AA

The split level teacher, AA (A. Adkins, personal communication, December 14th, 2018), has been into the Imaginarium on several occasions. I recently chatted with her about her observations of her students' learning in the Imaginarium. What repeatedly stood out was how she spoke about the excitement her students displayed when they left the space.

> Children come from this space after learning to describe it as exciting, happy, and meaningful. What the students in this space learn, they take out into the world. They are excited to share their experiences and teach others what they have learned. The best part, they remember all of it so they can teach others!

AA continued, “The learning that I saw in the Imaginarium was … engaging work that the students take outside of that space to use in other places within their lives.” AA’s class has several projects they are working on. One group of students is taking a recycled cable spool and converting it to a buddy bench. The learning that is materializing is incredible with this group. Their leader, an eleven-year-old named CH, has to lead the team to research and find blueprints to make this buddy bench with these parameters. The boys must find a way to remove the large discs from the spools. The discs are anchored by five spool width long metal rods. The nuts and bolts are rusted together and will not turn. I am not sure if they will not turn because the boys are not strong enough to turn them or if the rust has melded the pieces together. JM suggested some grease applied to the nuts and the bolts would help “loosen them up.” I purchased some WD40 and together with the boys, I applied and reapplied WD40 to each set of nuts and bolt on the spool. One was able to be loosened and removed after a weeklong soak. After running into the obstacle, again, of removing the other four, the boys asked if they could get help from our school janitor, DJ. DJ tried to work with the boys but they determined we needed different tools and therefore we could not possibly have been successful in the removal of the nuts and bolts unless we used a socket wrench.

Another group of students are working to create a sensory path for the hallway to help our students who need help refocusing their bodies. Because our school is an Autism Center, we have many students that have sensory issues related to having autism. We also have a lot of students who have attention deficit hyperactivity disorder, and this path could also work for those students. ADA leads this group. The group does some research including watching a few videos to see what should happen when students use path. The group decides we need help to

make sure we are doing this correctly. I decide we need to contact the occupational therapist for the school. The students are told how to write a letter, they write a letter to our occupational therapist and share it to me, I, in turn, send it to her and a connection is made. The kids are excited about this future meeting. A third group is converting recycled pallets into a storefront for our school store. The fifth group works in robotics, and the final group is recreating the Seven Wonders of the World in Minecraft. There is a lot of work that occurs with these students.

After AA observed her class in the Imaginarium, we chatted about what she observed. I asked her if she thought the learning that takes place in the Imaginarium was different. She said, "Yes! In a lot of other schools and classrooms, it is hard to let the students have such a big say. It is hard for some educators to listen to the student's voice, and bring that voice to life within the classroom. The Imaginarium is a safe place for students to explore all angles of learning in a way that is best for them." While I understand what we are trying to do is different there are times I don't see what we are doing as being special, but rather doing what students need us to be doing. I also asked AA about the Constructivist Learning pedagogy since it is the underlining basis for the Reggio Emilia Approach to learning. I wondered what her experience with it was and if she would recognize it as the pedagogy being used in the Imaginarium. AA did know about the Constructivist Learning pedagogy, but it was not from her pre-service training, but rather from the Imaginarium and our conversations. She said, "There is tons of value in the constructivist pedagogy and the Imaginarium. This is a place where students are learning things they would get in NO other place. The Imaginarium opens a whole new world for many students that would never be given this opportunity otherwise."

Interest Groups

Fifth grade comes in from 9:30 to 10:15. Every teacher has been invited to come into the Imaginarium to observe their classes at work. Throughout the last three years, none of the teachers have come into the space for that purpose. After the 5th grade last leaves I have a forty-five minute planning period followed by lunch and then lunch duty; next comes Interest Groups.

Morning classes have given me the opportunity to engage as many students as possible in Constructivist Learning, one of the many underlining principles of the Reggio Emilia Approach. But it is with interest groups I see the most significant opportunity to imitate the Reggio Emilia Approach. Interest groups started as a result of the Innovation Zone grant. The premise is to increase student agency by giving the students the opportunity to select a teacher they would like to work with, and then the students and teachers develop something the students would like to learn about. All aspects of the study would be open to discussion. Students would have two opportunities to present their work to the school community and the public through Expo Days. Expo Days would happen two times per year, end of the first semester and end of the school year.

Initially, Interest groups were set up by grade level. I was the only Related Arts teacher to have an interest group. Each student was able to list up to three teachers in their grade level plus me to work with. We would meet at designated times for thirty minutes. I would do this for each grade level. I routinely had as many as twenty students to work with. I relished these opportunities to work with students using the Reggio Emilia Approach. Considerable credence is given to the relationships between teachers and students. Gandini (2003) describes the

teacher-child relationship as a partnership, “Teachers are not considered protective baby sitters…both the teacher and child are supported, valued for their experience and their ideas, and seen as researchers. Cooperation at all levels is the powerful mode of working...” To be successful in Interest groups, those relationships must be fostered. First, that would be my first order of business, to build authentic relationships with students. We spent days chatting and playing board games. We built with Lego. We read books. Then we began to talk about things the students wanted to learn about. Their ideas were great. We settle on explorations of creating a buddy table using recycled materials for third grade, 3d printing for 4th, and 5th grade was building furniture using nonstandard materials.

Each group was impressive with what they were able to accomplish by the end of the school year Expo Day. The third-grade group took a cable spool, repaired it, sanded it, selected paint colors, painted the spool, developed positive words of encouragement, cut the words out using a Cricut machine, and decoupaged the letters on to the spool. They presented the table to the school on Expo Day. The fifth-grade group took PVC pipe and made book stands and carts from PVC pipe. They learned to measure using authentic tools such as a measuring tape, cut using both a pipe cutter and a Dremel rotary cutter, and how to design and put together a cart from schematics. The students’ only issue was not being able to glue their carts together. This factor was due to the smell of the chemicals in the adhesive.

The most impressive group was the 3d printing group. This group was, as a colleague says, a squirrely bunch. Mostly boys, this group could never sit still. They would fidget from their fingers to their toes. They squirmed from the moment they walked into the space. They talked all the time and jumped from computer to computer, chair to chair. We started with a

program called Tinkercad. Tinkercad is an entry-level, computer-aided design piece of software and then learned to move those files to a slicer program, Polar3d, and finally to be 3d printed. The students had to learn a lot of safety protocols with the equipment that was being used; beyond that, it was truly a student-driven time. It was quite common to see students jumping around the room, literally and figuratively, helping each other with their designs and files. What these squirrelly kids created was incredible; pencil holders, name tags, houses, bubble blowers, board game pieces, gear for learning centers, and even toys.

Memorable Project Work

When I asked observers to the Imaginarium about memorable student work, it is the 3d printing work that is mentioned most often. AA (A. Adkins, personal communication, December, 2018) describes what she observed, "My favorite project that I got to see at this school came from the Imaginarium with the 3D printers. I saw a student (Jared) who hated everything at school, get low test scores, and have negative days more often than positive shine with that learning tool. The student was able to learn all the ins and outs of how to create online, get it to print, work out solutions to problems that came when things did not print the way they were expected to, and most importantly the student was able to stand eye to eye with board members, parents, teachers, other students and share all of what he had learned. He was so proud of what he had accomplished, and it was something for the entire school that will now be there always." JC (personal communication, December, 2018), an Intervention Specialist, made a similar observation, "The 3-D printing project was incredible. The students wanted to be there, wanted to be experts and wanted to interact with others. It was refreshing to see students who loved to learn." Lastly, RB (personal communication, December 2018), a

district Librarian, commented on how impressive it was to see the students creating and 3d printing chess pieces. If there were one example of the Hundred Languages of Children in action and how the Reggio Emilia Approach could be used, this would be it.

WHAT ELEMENTS OF THIS RE INFORMED APPROACH TO THE LEARNING HUB CAN BE REPLICATED OR ADAPTED TO OTHER LEARNING SITUATIONS?

The Hundred Languages

No way. The hundred is there.
The child
is made of one hundred.
The child has
a hundred languages
a hundred hands
a hundred thoughts
a hundred ways of thinking
of playing, of speaking.
A hundred always a hundred
ways of listening
of marveling, of loving
a hundred joys
for singing and understanding
a hundred worlds
to discover
a hundred worlds
to invent
a hundred worlds
to dream.
The child has
a hundred languages
(and a hundred hundred hundred more)
but they steal ninety-nine.
The school and the culture
separate the head from the body.
They tell the child:
to think without hands
to do without head
to listen and not to speak
to understand without joy
to love and to marvel
only at Easter and at Christmas.

They tell the child:
to discover the world already there
and of the hundred
they steal ninety-nine.
They tell the child:
that work and play
reality and fantasy
science and imagination
sky and earth
reason and dream
are things
that do not belong together.
And thus they tell the child
that the hundred is not there.
The child says:
No way. The hundred is there.
-Loris Malaguzzi (1987)(translated by Lella Gandini)
Founder of the Reggio Emilia Approach

The notion of replication or adaptation is not new to education; it is part of the Innovation Zone grant, it is something we tried to do as part of this study, it takes place every day. The question of replication and adaptation with this study is important because of the grant and the possible implications as it could pertain to the demographics of similar types of schools looking to explore changing the way they address pedagogy and learning in their schools.

I engaged the observers in conversations about how we might adapt what we were doing in Dunbar Intermediate to other places. I was able to have talks with Lisa and Ashley every day at school. Robin and I had weekly dinner sessions to discuss the work I was doing at DIS and the impact of this work on my students. I was very fortunate to have Josh come for a visit to our end of year Expo Day. This allowed him to see the gathering of the work the students had completed during the school year. Once again I was able to have face-to-face

conversations with him over dinner to discuss what he saw. I followed up with him several times over the phone.

We started with their views on new teachers being able to move into a school such as Dunbar Intermediate School. The school has turned over more than four teachers for the last three years. RB (R. Bland, personal communication, December 6th, 2018) expressed the opinion it was not how teachers were trained but how they were placed in jobs:

> I don't see any issues with training pre-service teachers. I see the problem as the way teachers are placed or picked for jobs. It should be made clear to teachers and staff what happens at Dunbar Intermediate School and if they wish to come on board with enthusiasm and willingness to be at Dunbar Intermediate School then so be it, if not, find another place to work. Teachers should work in an environment they believe in order to be effective to learning.

JC (personal communication, December 8th, 2018) expressed the disconnect between how we prepare teachers and what the actual expectations are as a barrier to new teachers being able to assimilate to a classroom position in a school such as Dunbar Intermediate School:

> This model requires an individual who is experienced in classroom management skills and prepared to adapt to the daily struggles presented in a constructivist classroom. It is hard to teach pre-service teachers how to address the unknown. I also feel the disconnect between post-secondary and k-12 education is a major stumbling block. Our post-secondary instructors preach research-based practices and constructivist methods yet our K-12 administrators preach test scores. Our young teachers are caught in the crossfire.

Both RB and JC address significant issues faced by trying to have teachers who can step into teaching positions at Dunbar Intermediate School. As teachers leave, it is difficult to be able to hire teachers that understand many of the facets of pedagogy we are attempting to change. Have teachers been trained to be researchers? Have they been supported in being researchers? Do classroom teachers have strong enough classroom management and relationship building skills to give up traditional control of their classroom to allow students agency in their own learning? I am not sure preservice teachers could fit these criteria nor could many veteran teachers.

I asked the observers to share their opinion on the ability to replicate the learning that is taking place in the Imaginarium. LB (personal communication, December 5th, 2018) responded:

> I believe it depends on the administration to how well it will be embraced. Teachers must realize that there is a lot of front load work, but once that is taken care of, then it becomes somewhat more manageable. However, the benefits out weight the preparation time and clean up time.

LB also spoke of the barriers to this type of learning:

> It takes a skilled, open-minded, flexible teacher, like Ms. Abbott to be able to pull off stations within a learning environment. Plus, an attuned teacher that is willing to change an issue on the spot as it arises. Also, the way that principals, parents, students, teachers have the presumption of what a classroom looks like, feels like, sounds like and behaves in teams, or it can be as individuals. I think very soon the students understand the value of

> what they are learning, but I'm afraid others may not. This is not a clean, nothing out of place traditional classroom setting. You can see that students have learned and left their learning footprint there and can take more than just a worksheet home with them. They are making meaningful connections to real-life situations.

AA (personal communication, December 14th 2018) also expanded on replicating the learning that happens in the Imaginarium:

> I think that this could work in other elementary schools in the following ways; student voice, hands-on, and real-world learning. The only barrier that I see with this type of learning would be that students are not able to encounter this type of learning in all aspects of their day. This is a type of learning that can reach all students, not just the "smart" ones. This way of learning allows others to feel good about things they are doing/completing.

LB and AA are teachers at Dunbar Intermediate School; their opinions give us a glimpse at how teachers working in this type of environment feel about teaching and working within the pedagogical shift that is being initiated in this school. RB and JC give us the perspectives of someone from outside of Dunbar Intermediate School as to the ability to replicate and the barriers of replication.

JC (personal communication, December 8th, 2018) expressed the following thoughts:

> This model would work at any school who has the teachers who are brave enough to take this project on, the administration strong enough to support it and a community patient enough to allow their students to grow within it.

There are also barriers to think about. Our schools are governed by legislations passed by people with little to no experience in TEACHING. True, everyone has gone to school, but few know what it takes to engage students and spark their curiosity successfully. Sadly, we are in a society that doesn't value our efforts enough. Until our communities, legislators and administrators can focus on more than test scores constructivist principles will be scrutinized.

RB (personal communication, December 6th, 2018) expanded on the ideas for JC:

The constructivist model would be very good at all elementary schools. Students being empowered and feelings of self-worth are something very hard to achieve in this day and time at this level. Properly support not only would it work but be dynamic learning and living experiences for all – students and staff. The barriers I see are getting staff buy in, money, and support from the board office and school administration.

CHAPTER 5

POSSIBILITIES, CONCLUSIONS, RECOMMENDATIONS

This dissertation has grown out of the work I have done over two and a half years. Every day used to give students a voice in their own learning; every day used to encourage teachers to be researchers, every day used to show how constructivist learning can provide a more in-depth learning opportunity, every day used to apply the principles of the Reggio Emilia Approach at Dunbar Intermediate School. Greenwood and Levin (2000) say the assessment of social research is whether it yields support for all of the parties involved in the processes of self-determining change. Thorp (2001) continues, "the question of validity then becomes a question of action." Has the last two and a half years of this project been enough to influence change for the students, teachers, and community of Dunbar Intermediate School (DIS)? Can the journey of the past two and a half years be an inspiration or a beacon for others who want to travel down a similar path?

POSSIBILITIES

When I reflect on the past two and a half years I think about the possibilities we have brought to fruition and the opportunities that still lay in the future. There are so many things we tried, some successful and some not, but the idea that we could and should try is what I hold on to.

Possibilities of the Classroom as a Third Teacher

We do not typically think of the classroom as being alive; we see it as the result of someone's imagination and work or lack of imagination and work (Arendt, 2013); (Frye, 2002) if

we see it at all. Maxine Greene, channeling Virginia Woolf, reminds us of how we become engrossed in the "cotton wool of habit" (Greene, 1995, p. 115). By seeing the classroom as an educator, we can begin to consider how surroundings can contribute to children's learning (Strong-Wilson & Ellis, 2007). I remain hopeful for what learning could be if the educators and architects that designed learning spaces understood how space should be used as a third teacher. What if they understood the educational psychology behind providing students with spaces and furniture that allow students to move about freely and let the spaces be flexible to accommodate many different sizes of groups and different learning styles? What if the space could allow parents to see what the students are learning every day? What if the outdoors could come in?

Dunbar Intermediate School is less than twenty-five years old, and yet the school is not designed to be conducive to the spaces being utilized as a third teacher just as the vast majority of older schools. As I think about all of the schools I have taught in, none of them have been conducive to the learning space being used as a third teacher. Dunbar Intermediate School (and most others) have spaces that are closed off, there is a lack of storage, a lack of space to display and document student work, no real space to actively congregate intimately, yet we made it work somehow. We changed what we could: paint color, tables, chairs, fabrics. What we could not change, well, that is a conundrum of most schools in the US: how do we work with a space that makes children not want to be in it and not want to learn?

Imagine, if you will, learning spaces that are bright and allow the student to move about and explore freely? When I reflect on what we needed in our space, there are many things I wish I could change. I would love to have double the space we have and for the space to be

completely open. I would want a few small pods where students could congregate and discuss current projects or reflect on the project of the past or plan for projects in the future. I would want the space to be filled with the light from outside with lots of windows, windows to allow the outside in; if houses can have window walls that fold open to bring the outside in, why could schools not have the same? What if every learning space had moveable and multifunctional furniture? Why are we so committed to the idea that students must sit to learn?

One of the most successful ways we have used our space is in fostering relationships. While the space is not flexible, the furniture is. We can move it in different configurations to suit our needs, whether it be for centers, project work, or meetings. It does not feel like school in the same way a traditional classroom does. Having two spaces has allowed me to grow and foster trust with the students; only through those relationships could this have happened. Many students can move about the two spaces freely and have independence because we have cultivated that relationship. I would like to see more teachers in our school embrace the idea of fostering a deeper relationship with our students so they can be trusted to have access to any space they need access to. It would be wonderful if a kid who needed to go to the gym to run off some steam could do so whenever they wanted, or go and check out a book whenever they wanted, or get help with research or a technology issue whenever those issues came up.

Possibilities of Student Agency

When I think about student agency, I think of students having a voice and choice in their learning. As I reflect on my learning observation notes of my students, I do see how my students can have discussions in a way that is more meaningful than we, as adults, can. They

can work together more efficiently and often want to help others. I see this as both a reflection of the space we have created and in the trust I have worked to establish with the students. The space lends itself to how the students can view themselves and learning; the space acting as the third teacher. Learning is not negative, it is hard fun. I see the spirit of the Reggio Emilia Approach mimicked in these actions. When one student discovers something new they latch on to that way but also look for more ways of learning or discovering. They are willing to share their information; they have trust with those they work with. Many have a caring about each other and about doing better than the world shows them.

As I reflect on the introduction of our new stations, I go back and skim my notes in the Project Zero book, *Making Learning Visible*. The book is a collaboration between Project Zero (PZ) and Reggio Emilia Schools, so the chapters are set up such that PZ does one chapter based more on theory and observation and RE writes the next based more on application or practice. I continue to struggle with the realities of RE above early childhood, which in RE is considered seven years old or our $1^{st}/2^{nd}$ grade. Everything I have read only focuses on toddlers. In theory, the principles of discovery should be the same, but in reality, after going through a few years of traditional schooling, the notion of completely turning over student learning might fail because neither the teacher nor the student has experience with the freedom to learn based on student interests only.

The realm of possibilities for student agency is enormous. The students give me the most hope to realize the opportunities available to them when they have agency in their learning. The students at Dunbar Intermediate School have been able to do fantastic work in the Imaginarium and the Tank. They learned to write computer code, to 3D print, build

furniture, establish a school-based garden, develop a campaign to get more girls to go in to STEM, build a buddy bench recycling an old cable spool to do so, establish a school store, use computer coding to create a 3D printed design to stamp into a tile to form a living art piece for the school, develop and create adaptive hardware to help a disabled classmate play a musical instrument, and to create a school landscape to help pollinators and beautify the building. They learned all of these things plus so much more. They learned all of these things without one textbook and one formalized assessment. The students at Dunbar Intermediate School learned all of these things and more because they found the work meaningful to them. Ariel will not soon forget the struggle she had to get the coding blocks in the correct order to make the shapes she wanted in Turtle Blocks for her tile design. Huyssen (2003) points out that "lived memory is active, alive, embodied in the social" (p. 28). Teaching in this way is not without criticism; I have been told I give my students too much say in what they do. My school has been criticized for thinking they are "special" or better than other schools for attempting to give a student this voice. They say we have gone too far. I do not believe we have gone far enough. The examples here take place in a 30 minute a day Interest group time slot, and little has changed inside most teachers' classrooms. What if we began to teach all core subjects like this? What if kids had to research a historical moment and recreate the moment in Minecraft? What if science concepts were demonstrated in Scratch or 3D printed in Tinkercad? What if each classroom teacher selected a novel to teach and the kids were able to select which book they wanted to study? Is there any better way to learn about plants, biomes, labor movements, etc. than by creating a school garden? I doubt it.

One of the most impactful ideas, as I tried to determine the best way to give my students agency in their own learning, falls under the heading of a "Contagious Experiment," which Giudici et al. (2001) describe in this way:

> Learning to listen, see, observe, and interpret the children's actions, thoughts, and logic of investigation and construction helps us to learn the art of being and talking with them, to understand better the processes and procedures they choose for developing personal relationships and acquiring knowledge. The educator's responsibility is thus to design and construct contexts that sustain these processes and foster relationships, loans of competencies, expectations imitations, and 'contagion'. (p. 10)

This is a powerful idea, connections, and relationships as the basis for learning, understanding, guiding. There is no mention of testing or a particular textbook company. It drills down to the basics, just the teacher and child on a journey to learn, together. The learning that is rooted in the relationship cannot be imitated or evaluated by a standardized test. In Reggio Emilia teachers work to advocate for childrens' well-being and inspire learning in all areas (C. Edwards et al., 2011). The teacher pays close attention to the students' actions, identifying a problem that might be of interest to the student. The teacher helps the students focus on that problem and put together a "guess." The goal is to 'stimulate' learning by making the problems more complex and involving. The problems form something known as "cognitive knots," problems that stop the student, but that

> should be thought of as more than negative moments of confusion and frustration. [Knots] are moments of cognitive disequilibrium, containing positive possibilities for regrouping, hypothesis testing, and intellectual comparison of ideas. They can produce

interactions that are constructive not only for socializing but also for constructing new knowledge. (C. Edwards et al., 2011, p. 158)

There is no mention of testing or a particular textbook company in this approach to problem solving. This is an important distinction; it demonstrates an ability to deeply understand the work students do and be able to determine the depths of knowledge without using a formal assessment. This further shows how students can learn deeply and have their work evaluated for a depth beyond the limitations of formal assessments. It drills down to the basics, just the teacher and child on a journey to learn, together.

Another powerful idea is that of time, tempo, and pace. As I reread my learning observation notes, I cannot help but feel how our schools are missing the mark when it comes to time, tempo, and pace. Giudici et al. (2001) offer a way of thinking about time in school that seems much more productive: "Time will be their greatest ally. Giving oneself time to pause, to stop for a moment and reflect, often means giving quality to the learning that takes place and the relationships that are formed" (p. 15). It is possible to get so caught up in this rush to "cover" pages in textbooks that we fail to provide the opportunity for meaningful and real learning to happen. Much like how tempo drives a song, pace drives schools.

Possibilities of Teachers as Researchers

Cadwell (1997) describes how the teachers are valued as researchers in the Reggio Emilia School system:

> Teachers work in pairs and maintain strong, collegial relationships with all other teachers and staff; they engage in continuous discussion and interpretation of their work and the work of children. These exchanges

> provide ongoing training and theoretical enrichment. Teachers see themselves as researchers preparing documentation of their work with children, whom they also consider researchers. The team is further supported by a pedagogista who serves a group of schools. (p. 6)

I see "teacher-researcher" as being a multifaceted role. I believe when teachers try something new, they are conducting research. They are trying to determine what works for their students in their classrooms. I do not see many teachers getting credit for doing research, but quite a few employ this practice. They want what is best for their students, so they are willing to try new things. In this project, I have tried new ways to implement centers. I have tried to learn to use new or different tools to share with my students. I have tried to learn different topics and ways to approach the various needs of all of my students, and to turn critical eyes and ears toward my own practice: "When teachers make listening and documentation central to their practice, they transform themselves into researchers" (C. Edwards et al., 2011, p. 244).

Teachers are researchers in the ways they investigate, study, and experiment with best practices, understanding the theories behind the work they are doing. The educators in Reggio schools spend about six out of thirty-six working hours every week without children. Those six hours have the teachers participating in professional development, planning, preparation, and meetings with families (Giudici et al., 2001). This is not common practice in most US schools. There is not often time for research when students are present. It has to be done outside of the classroom, after their work hours. I have spent hours upon hours reading and thinking about how I teach, what I teach, how my students learn, but the time spent has been on my

own time and not during my work hours at school. I used to think all teachers should be doing what I do, spending their own time to do the research, but I think I am wrong. If the teaching day made room for all teachers to research, we could all grow as practitioners, too.

How do we view teachers as researchers in public school education? Teachers are rarely seen as researchers. They are not allocated time to research in their work days, nor are they supported to attend conferences or other professional development to hone their understanding of their craft better. As the recent Common Core debacle once again makes clear, policy makers rarely look to educators to identify and correct problems in public school education. In my own public school experience, we are under the impression the lone book study done during the school year is enough research for teachers. And even at that, teachers rarely get to select a book that means anything to them. They read a chapter, tell everyone what is in the chapter until all chapters are presented, and then they are done. It is a one size fits all kind of research.

One of the areas of the Reggio Emilia Approach that I would like to know more about is how to use provocations. I understand the concepts behind it but is it even possible to use at the elementary level and when your class size usually exceeds twenty-two students? Another area of research is being able to do documentation for each child who attends my class, but again how do I do that when I see three classes of students with more than twenty-two students in addition to my other groups? To be the best teacher I can be for my students, I have to be the best teacher researcher and given the time, space, professional development, and funding to do so.

Conclusions

Two and a half years into this project and the work at Dunbar Intermediate School is not complete. We have a good start, but I worry if it can be maintained. Moving in to year three we have experienced a change of more than fifteen teachers. Our administrator receives constant pressure to move away from student-centered experiments and conform to the district norm. She receives little support from other administrators; they often comment about how Dunbar Intermediate School thinks it's "something special." We also seem to be moving into a time when the needs of our students are greatly increasing; we have many students who have lost one or both parents to drugs or jail, who increasingly do not have food to carry them through the weekends, and who need help—more and more often—with basic clothing needs such as jackets and shoes.

What we have tried has worked. We purchased the furniture the kids wanted, painted the space colors they selected, and we have had a decrease in student behavior problems. We have asked the kids what they would like to learn about or projects they would like to work on and the work the kids have done has become increasingly complex in breadth and depth. We have worked to build relationships with students that have given us a pathway to see how students experience school and learning. It has inspired me to continue the conversations about redesigning our spaces, giving students agency in their learning, supporting teachers as researcher, seeking student input on how they see and experience learning. What we have changed can continue to work, but will it be enough? As much as I do not want to quantify the success or failure of our program, I would be remiss if I did not address the issue of our test scores. Our scores on the Smarter Balanced Assessment Consortium (SBAC) test have not

increased; in fact, they have slightly decreased. There are grumbles that what we are doing is the cause for this decline, and that we should throw out interest groups and only teach basic skills. I believe we should increase and expand what we are doing rather than roll it back. To most, it is counter-intuitive, but thirty minutes of project work directed by students is not enough to influence learning in traditional core subjects that is assessed using a standardized test. It would be interesting to see what might happen to those scores if we actually continued what we have been doing and increased the amount of time dedicated to student agency and constructivist learning principles. Teachers need additional training on how to release agency to students and how to use provocations to influence students to want to learn about standards the state says we must have students master. Teachers need training on how to best use their learning spaces as a third teacher, and they need time to become and remain teacher researchers. Our school can be a magnificent place for children to learn, but we need to continue on this pilgrimage.

Recommendations for Further Research

Research is an increasingly difficult task to do in public schools. However, there are paths we need to expand upon. Using the Reggio Emilia Approach to learning is the first path. Reggio Emilia schools are incredibly protective of their children and how they educate them, but we must look to their experts to increase our knowledge and implement those practices in our public schools. Many teachers have never heard of the Reggio Emilia Approach, so that is an obstacle, but that can be overcome. This first path of research should be how the Reggio Emilia Approach can be adapted and implemented in our schools, particularly in high poverty schools. One of the mistakes we made is not providing our staff with professional development

on the underlying principles of the Reggio Emilia Approach. A recommendation for research would be to provide the research to the staff and determine if the professional development changed the ability of the teachers to provide more constructivist learning opportunities for the students and if the teachers could recognize some of the 100 languages of children to show the knowledge they have about a topic.

The second path of research leads on to student agency in high poverty schools. There are many articles dedicated to trading student agency for content mastery in high stakes testing. This is in direct contradiction to what happens in Reggio Schools. According to Rinaldi (2006):

> Learning does not take place by means of transmission or reproduction. It is a process of construction, in which each individual constructs for himself the reasons, the 'whys', the meanings of things, others, nature, events, reality, and life. The learning process is certainly individual, but because the reasons, explanations, interpretations, and meanings of others are indispensable for our knowledge building, it is also a process of relations – a process of social construction. (p. 125)

The third path of research should be in the realm of the teacher as researcher. We need to change the culture of teacher education to be more about the craft rather than just the nuts and bolts of teaching. As we have through this project, we have failed to give teachers the opportunity to research best practices as it relates to the grant. We explained what we were doing in the grant, asked the teachers to vote, and then began to implement once the grant was given to us. We have never given the teachers the opportunity to determine what

professional development they need or how to change their pedagogy best to better suit their students. How do we give teachers the autonomy and support to be those researchers both in theory and in practice?

Recommendations for practice

In reality, I do not think it was realistic for us to think we could change the pedagogical culture of our school in three years. In terms of staffing alone, this is a nearly impossible task. In order for our school to be successful we need a consistent staff, but we have completely rebuilt our third grades twice and are now facing rebuilding them again. Hiring so many teachers is exhausting and frustrating. It affects our school culture and makes team unity nearly impossible. We have had to rebuild our fourth grade and our special education staffs as well. One of the great challenges this project faced was that we spent two years training teachers; the turnover was so high, though, that we could not even keep that knowledge in the school, let alone nurture it. The seasoned teachers that have moved on or retired are being replaced with newly graduated teachers who are just learning how to manage a classroom, who do not know or understand the curriculum and its intricacies. JC pointed out how this environment would be difficult for new teachers to be immediately adept at teaching in, "this model required an individual who is experienced in classroom management skills and prepared to adapt to the daily struggles presented in a constructivist classroom. It is hard to teach pre-service teachers how to address the unknown." (personal communication, December 8th, 2018)

As I reflect back on this project, I think about how important it is for DIS to increase, rather than decrease student agency. Students need to be given a way to express their voices in what they are learning. As JC expressed,

> The students at DIS were EXCITED about their work. They were the experts who could not wait to share their knowledge about their projects with anyone who would listen. These students were the directors of their learning, and it was evident in their engagement in the project.

This engagement is the foundation of deep understanding and learning. Reyes (2012) quantified this in their work as:

> Multilevel mediation analyses showed that the positive relationship between classroom emotional climate and grades was mediated by engagement while controlling for teacher characteristics and observations of both the organizational and instructional climates of the classrooms. Effects were robust across grade level and student gender. (p. 700)

Anecdotally and through quantitative measures, we know student engagement plays a monumental role in student achievement. The selection of a novel to read in class, for example, is one way a student can exercise autonomy. Rasinski (1988) states, "Student interest and student choice should be an integral part of an elementary reading program if students are going to be turned onto reading and become lifelong readers." Our classes that used novels and self-selected reading materials had higher achievement scores than our classes that did not. One of the more frustrating aspects we did not account for was how to best utilize our

Title 1 staff in student engagement in reading. Their jobs are restricted on many levels and as we seek to give students more agency a conflict arose between those two aspects.

The teachers at DIS need much more training, guidance, and support than what they are being given; two weeks of project-based learning training across two summers is not enough. Training, guidance, and support are the only way this project does not stop, but rather grows. I can continue to teach using the Reggio Emilia Approach, but teachers cannot maintain that which they do not have a firm understanding of or do not feel they are supported enough to carry out. Bays restates this sentiment:

> The teacher's input isn't valued or asked for by the administration. Teachers don't have any input about what we want or would like to learn or have more depth of knowledge within a certain area. We don't get the training or support we need, and it makes a huge difference.

I maintain it is better for students to have an exposure to these principles, but we need to increase these exposures not let the ones they have in the Imaginarium be the only ones they have.

Epilogue

In a few weeks, the grant will come to a close and thus will come an end to this project. I cannot help but wonder what will happen when all is said and done. We are faced with another major staff change and a possible administrative change as well. Our students need us, and this way of teaching, more than ever but I cannot be assured what will happen between now and the year to follow. I hold the hope tightly we will continue to be a beacon of hope for

our students and give them the opportunity to learn in a powerful and meaningful manner. I also hope we have shown to others how children can do great things if we just give them the opportunity.

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APPENDICIES

APPENDIX A

IRB APPROVAL

MARSHALL UNIVERSITY
www.marshall.edu

Office of Research Integrity
Institutional Review Board
One John Marshall Drive
Huntington, WV 25755

FWA 00002704

IRB1 #00002205
IRB2 #00003206

June 18, 2018

Elizabeth Campbell, Ph.D.
Doctoral Programs in Education, MUGC

RE: IRBNet ID# 1246600-1
At: Marshall University Institutional Review Board #2 (Social/Behavioral)

Dear Dr. Campbell:

Protocol Title:	[1246600-1] Connected Learning: Using the principles of Reggio Emilia to bring Constructivist learning and student agency to a public school	
Expiration Date:	June 17, 2019	
Site Location:	MUGC	
Submission Type:	New Project	APPROVED
Review Type:	Expedited Review	

In accordance with 45CFR46.110(a)(6)&(7), the above study and informed consent were granted Expedited approval today by the Marshall University Institutional Review Board #2 (Social/Behavioral) Chair for the period of 12 months. The approval will expire June 17, 2019. A continuing review request for this study must be submitted no later than 30 days prior to the expiration date.

This study is for student Angela Abbott.

If you have any questions, please contact the Marshall University Institutional Review Board #2 (Social/Behavioral) Coordinator Bruce Day, ThD, CIP at 304-696-4303 or day50@marshall.edu. Please include your study title and reference number in all correspondence with this office.

APPENDIX B

CV

ANGELA D. ABBOTT

918 Pershing Drive, South Charleston, WV 25309 • 304.766.7337 • angeladabbott@gmail.com

EDUCATION

Chapmanville High School • June 1988

- HS Diploma
- National Honor Society
- Who's who Among American High School Students
- SCORES winner
- Student Government
- Voice of Democracy Winner
- Pre-season All-State Candidate Basketball

Marshall University May 1992

- BS Multi-Subject K-8 Education
- Phi Delta Kappa Honorary
- Kappa Delta Pi Honorary

Marshall University July 1997

- MA Early Childhood Education

Marshall University

- MA Educational Computing and Technology

Marshall University August 2010

- Certificate Administration

Marshall University

- Doctoral Student – Coursework completed Winter 2014
- Dissertation work to be completed Spring 2019

Harvard University

- Summer 2010

MIT

- Summer 2011

CERTIFICATIONS

- Multi-subject K-8
- Early Childhood Education Pk-K
- Middle Level Professional
- Public School Administration
- Library Media Specialist
- TIS (expired)

EXPERIENCE

Dunbar Intermediate School - Media Specialist 2016-Current

- Library and literacy skills
- STEM program development
- Grant writing
- Technology integration

- School Computer Specialist
- Administration – as needed
- Innovation Zone development

West Virginia State University 2014-2016
- Coordinator- STEM+Literacy
- Budgeting
- Curriculum Development and Implementation
- Professional Development
- Problem Solving
- Coordinating of Services
- Working with teachers and students

Teacher • August 1998 – 2014
- Classroom Teacher for grades PK, K, 4th, 5th, 6th grades
- Technology Integration Specialist for 5 years
- Acting building administrator as needed

ADDITIONAL TRAINING
Kanawha County Leadership Academy, WVCPD ELI, Multicultural Education, Strebe, Poverty Education, Early Childhood Cognitive Development, Creative Curriculum Training, Highscope, Reggio Emilia Method, Montessori, Hawthorne Model, 3D printing, , TechSteps, Maker Education, Beginning Programming, Microsoft Products, Apple Products, 1:1 program development, Smart Products, Numonics Products, Probeware, Document Cameras, Projectors, Trout in the Classroom, School based gardening, Archery in the Schools certified instructor, Grant Writing, laptops/desktop management/usage, Project Based Learning, UBD, Facilities Planning, Common Core, Expeditionary Learning, Various additional technology products and programs

PRESENTATIONS

WVAYC
Using computers in the Early Childhood setting

KCS PRINCIPALS' MEETING
Project Based Learning

WEST VIRGINIA STATE TECH CONFERENCE
1:1 Laptop programs in the elementary classroom setting
Project Based Learning – How one classroom transformed learning for students
Collaborative Professional Development
Using online tools for portfolio assessment
Makered in the elementary classroom
Minecraft and beyond: gaming for learning

WEST VIRGINIA STATE READING CONFERENCE
STEM, Literacy, and Partnerships: Driving change in a challenging school

NYSCATE
1:1 Laptop programs in the elementary classroom setting

ICQI
Encountering the Common Core

WV LIBRARY ASSOCIATION/SELA CONFERENCE
Makerspaces: The library as the change agent in public schools

CO-TEACHING OPPORTUNITIES
(Marshall University)

EDF 610 Trends and Issues in Education
In collaboration with Dr. Elizabeth Campbell

CI 551 Writing to Learn in Content Areas
In collaboration with Dr. Elizabeth Campbell

UNDERGRADUATE TEACHING
(West Virginia State University)

EDUC 318 Science Methods
West Virginia State University
Spring and Fall 2015

GRANT WRITING

Lowes in Education
Lowes Community Partnership
Fall 2018

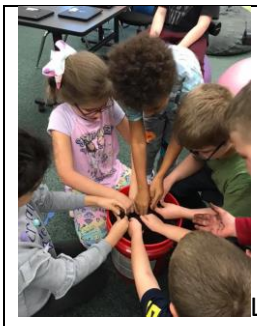
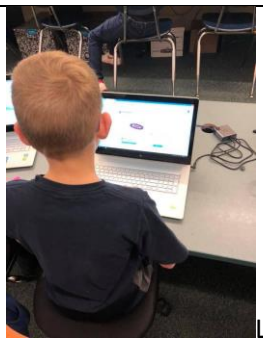
Innovation in Education Zone Grant
West Virginia Department of Education
Spring 2017

Governor's STEAM Grant
West Virginia Governor's Office
Fall 2016

APPENDIX C

PROJECT IMAGES

 The Imaginarium	 The Imaginarium
 The Imaginarium	 Creating geometric shapes to create art
 Makey Makey creation	 Working to create geodesic domes
 Working as a team to build personal flashlights	 Turtle Blocks computer programming converted into a 3D printable file to create pottery tile

 Learning where our food comes from	 Learning to design in Tinkercad
 Littlebits	 Learning to code
 Creating marble runs	 Creating a school store
 Engineering a house; lighting to follow	 Building a Buddy Table