

UTILIZING THE DESIGN THINKING PROCESS TO AID EDUCATORS IN THEIR
RESPONSE TO CHILDHOOD LEAD EXPOSURE

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**Using the Design Thinking Process to Aid Educators in their
Response to Childhood Lead Exposure**

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ABSTRACT

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The Flint, Michigan water crisis has brought national attention to the issue of lead poisoning in our nation's children; still lead exposure is not a new issue nor is it by any means exclusively a Flint issue. Although lead exposure among children in the United States has decreased substantially over the past thirty years, so has the U.S. Centers for Disease Control and Prevention's blood lead level thresholds (2012). During this time, research has also determined that no blood lead level is safe or free from irreversible health problems and prevention is the primary means to combat the neurodevelopmental problems associated with lead exposure (U.S. Centers for Disease Control [CDC], 2015). Because of this ongoing health problem in our nation's children, responding to the educational needs of students who have been exposed to lead is a pressing problem that many schools across the nation continue to face.

The goal of this research was to support educators serving the children who live in Flint and the surrounding communities. The objective was to determine the needs of educators who work directly with children who have experienced lead exposure and to expand their knowledge base of effective strategies for increasing the learning capacity of these students. This project made use of the Design Thinking model as a way to empathize with educators, define their needs, ideate alternatives to address their expressed needs, develop a prototype of a resource for educators and ultimately test this resource with educators.

Through a series of interactions, including face-to-face and electronic communication, with a group of educators from Flint and surrounding area schools, we worked to increase sensemaking and bolster resilience through the Design Thinking process. We cycled twice through the steps of the Design Thinking model to refine our product. This cyclical process allowed for the development of a tool for Flint area educators that best met their expressed needs.

Keywords: educators, lead exposure, water crisis, Flint, MI, Design Thinking, educational strategies, social-emotional learning

DEDICATION

This Dissertation in Practice is dedicated to my wonderful husband, Frank, who loves me unconditionally, who encouraged me to undertake this program, supported me throughout and believed in me when I did not believe in myself; to my mother, Lynn, who taught me by her example that you are never too old to go back to school to follow your dreams and to keep pushing on even when things get tough; and to my father, Darryl, who taught me to be tenacious and to always put education first. This day would not have been possible without all of you.

- Camela Star Diaz

This Dissertation in Practice is dedicated to my wonderful family and supportive school district. To my husband, Keith, your support and encouragement in whatever I do means the world to me; to my terrific sons, Trenton and Garrett, your patience and understanding while I spent countless hours completing this program demonstrated what great men we have raised; to my parents, Larry and Carla, the work ethic and passion for learning you instilled in me is appreciated more than you know; and to Fenton Area Public Schools, I can't thank you enough for helping make this dream come true. Thank you all for everything you have done to support me in this journey.

- Melody Louise Strang

I dedicate this Dissertation in Practice to my loving husband Mark, it was his encouragement and belief in me that saw me through when I didn't believe in myself. To our children, my hope is that in witnessing me complete this you see that you can do anything you set your mind to, so go on and take on the world but know that you make us the most proud with your kind nature and warm personalities. And finally, to my dad, you can't be here on Earth to witness this, but I

know you're watching and are so very proud of me. It is your positive light that shines in me, thank you for that gift-this is for you. -*Amanda Lillian Unger*

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Finally, we would like to extend our most sincere thanks to the six dedicated Flint area educators who volunteered to participate in this project, sacrificed their personal time, and committed to our Design Thinking process for the sole purpose of improving conditions for other educators, not only in the Flint community but in the field of education.

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CHAPTER 1 – INTRODUCTION

Lead exposure is widely considered to be the single most detrimental environmental health threat to the safety and well-being of U.S. children, and it is a threat that is preventable (Schmidt, 1999; Zhang et al., 2013). Though connections between lead and health problems have been suspected for almost 100 years, there has been scientific evidence since the 1940s to prove that low-level lead exposure is harmful to human health in general, but especially to the health of children and pregnant women (Lewis, 1985). The recent water crisis in Flint, Michigan has underscored the negative cognitive and behavioral impact lead has on children, the potential for water to be a source of lead contamination, the impacts of aging lead pipe infrastructures, as well as the economic cost of lead poisoning to our society, which is estimated to be billions of dollars each year (Gould, 2009; Landrigan, et al, 2002; Trasande & Gould, 2011).

The situation in Flint, resulting from a change of water source and lack of anti-corrosive agents within the city's water system, has far reaching consequences for children, many of whom are already considered vulnerable due to living under impoverished conditions. The financial savings realized from the water switch has been negated as the cost of treating the children who have been subjected to lead poisoning in their water is realized. Unfortunately, these circumstances could have been prevented had proper measures been taken to ensure that the water was properly treated and monitored (Hanna-Attisha, LaChance, Casey Sadler, & Schnepf, 2016).

Because the responses of children to lead exposure is subjective, it is impossible to explicitly determine what the influence of the contaminant will be on a child in any given situation. Two children with identical blood lead levels may manifest completely different symptoms and one may manifest no symptoms at all. Nevertheless, research is clear that at some

level virtually all tissues within a child's body are affected by lead exposure with the greatest damage occurring in the brain and nervous systems (Drummond, Jr., 1981). Professionals in the field of education are unable to assist in situations of lead exposure when they are unequipped with sufficient information to respond to the manifested needs. For teachers in particular, having students in their classrooms that have been exposed to lead means that they have a higher likelihood of compounding issues to address with the students. These issues include difficulty teaching academic material because of the learning challenges associated with lead exposure and/or difficulty in assisting students with regulating their behaviors to be appropriate for the classroom setting. It is important that teachers consider all the factors that students are facing as they make individual plans for their learning. Given these challenges, it is important to ensure that teachers are equipped with the best knowledge and expertise to serve students who have been exposed to lead.

First, educators need appropriate training regarding the definitions of lead exposure (<25 $\mu\text{g/dL}$) versus lead poisoning (>25 $\mu\text{g/dL}$) and recommended treatment options for each condition. Second, teachers need information on how to support the elimination of environmental hazards through child and parent/family education as well as updates on current research regarding the long-term outcomes of lead exposure (Phelps, 1999). Determining how the most efficient and effective manner through which this information can be disseminated continues to be a challenge for educators. Through their research, Zahran, Mielke, Weiler, Berry & Gonzales (2009) found that it is not typical to find educators who are aware of lead's neurotoxic effect on achievement or behavior. Stormont et al. (2011) identified that the "vast majority of schools today are not prepared to support children's social/behavior needs" and "one challenge is that teachers may not be knowledgeable of evidence -based practices that can be

utilized with children” (p.19).

Although special education teachers report being more confident than general education teachers in utilizing evidence -based practices to address the behavioral needs of students, all teachers can be trained to become more competent in the selection and implementation of evidence -based interventions (Stormant et al., 2011). For instance, all children should be monitored and supported for potential negative cognitive and behavioral outcomes, not just the percentage identified as having special needs. Children who have been exposed to lead need to have teachers who understand the implications of lead exposure and who are willing to make adaptations as needed for the child to be successful. Thus, Flint, Michigan teachers are charged with an urgent and immediate endeavor to support the needs of their lead impacted students due to the recent water crisis.

Purpose of the Study

This Dissertation in Practice aimed to improve educator knowledge regarding the impact of lead exposure on children in addition to determining best practices to use in response to those children who have been lead exposed. Based on preliminary conversations with Flint educators, we believed that developing a set of resources to support those who provide a direct service to children who have suffered from lead exposure would be a valuable contribution to the education profession.

Given our experiences as educators, our ideas concerning the resources that might be helpful to educators responsible for servicing lead exposed children are outlined below:

- Foundation for product development designed to support educators
 - Information about lead poisoning
 - Sources of lead

- Developmental impact of lead exposure
- Emotional trauma as a result of lead exposure
- Teaching practices to combat the effects of lead poisoning
 - For optimal brain development
 - To build foundational skills in English language arts and math
 - To improve thinking skills
 - Social/emotional development
- Home support to engage families in the process of overcoming lead poisoning
 - Strategies parents can use to support student learning
- Coordination of wraparound services to better serve students with lead poisoning
 - Agency partnerships
 - Schools
 - Medical
 - Emotional/Behavioral

Educators and administrators serving children in the Flint area are in the best position to determine the supports that would be most useful to them in their classrooms and other settings. Therefore, our Dissertation in Practice utilized the Design Thinking (Brown & Katz, 2009) process to investigate, create and implement resources for educators based upon their expressed needs. Through a series of conversations, we conducted with a group of educators from Flint and surrounding area schools, collaborative efforts engaged participants through the five phases of the design cycle (Brown & Katz, 2009) which is outlined below:

- **Empathize** - Engaging educators in order to gain insight into their goals and challenges as well as collecting ideas for resources

- **Define, Ideate** - Interpreting the data from initial conversations
- **Prototype** - Designing resource prototypes
- **Test** - Involving collaborators in testing prototype
- **Critical reflection** - considering adjustments to prototype and re-testing

Through our collaboration, we aimed to produce authentic and valuable resources meaningful to the educators of Flint children. In addition, we sought to equip educators with tools and learned strategies for supporting lead impacted children through the use of the Design Thinking process, a valuable tool having multiple applications. Use of the Design Thinking model is not intended to serve as a temporary solution to the challenges facing our Flint and surrounding area colleagues. Our goal was such that collaborators on site in Flint would embrace the process of Design Thinking as a means of continuous improvement to and expansion of resources identified as useful to their schools and communities. A projected timeline for this Dissertation in Practice is included in Appendix A.

Research Questions

For the purpose of this study, the researchers attempted to address the following questions:

1. What are the needs of educators who provide a direct service to children who have experienced lead exposure?
2. How do we provide supports to educators which will enable them to build their knowledge base of effective strategies for increasing the learning capacity of these students?
3. How will the needed supports be developed into a tangible product for maximum dissemination to educators?

Significance of the Study

This study intended to utilize the Design Thinking process as a vehicle to develop educational supports for children exposed to lead as a result of the Flint water crisis.

The impact of lead on children is pervasive, can impair intellectual functioning, and cause behavioral difficulties that can last a lifetime. While research on the impacts of lead on the development of children is clear, the role of schools in the identification of and providing appropriate educational support services to children is less clear. Studies that examine that impact of childhood educational interventions on cognitive or behavioral outcomes for children who have been exposed to lead are dismal. This study is significant in that it attempts to provide insight into the needs lead impacted school communities have, and to help develop educational strategies that can impact lead impacted children. It also provides additional examples of the application of the Design Thinking process to educational settings.

The concern surrounding the lead water crisis in Flint, Michigan is correlated to the magnitude of the event. Because all school age children in Flint and surrounding communities have been exposed to the traumatic event of lead poisoning, schools are charged with monitoring a long list of possible negative outcomes with no clear direction as to where to begin. The Design Thinking process enables Flint educators to embrace the notion that “the answer is in the room” and that the implementation of effective strategies in their schools begins first with their reflection upon what is facing them. Schools are uniquely situated to provide structure and continuity for a community’s children in the aftermath of a disaster which is an important part of overall recovery (Cheal, 2010). The relationships that children develop with the educators in their schools help to cultivate feelings of safety and security post-trauma (Cheal, 2010). This study supports educators who are charged with educating students who have been trauma

impacted.

In addition, this study is significant in that it provides targeted, intentional lesson plans and classroom strategies to educators as a result of the Design Thinking process. The lesson plans are grounded in social emotional learning (SEL) and can be implemented at multiple school levels and in multiple settings. Educators with strong SEL competencies have more positive relationships with their students, are more effective in their classroom management, and implement schoolwide SEL programs with greater fidelity (Jones, Bouffard, Weissbourd, 2013). Competencies in social emotional learning can contribute to not just the success of schools but to teachers and students as well. This study can contribute to the existing studies on SEL as a means to supplement and support lead impacted students in their classrooms and schools.

CHAPTER 2 - LITERATURE REVIEW

As we began thinking about the base of literature that we would need to draw upon in order to most effectively support the work of educators in their response to childhood lead exposure, we determined that knowledge on several fronts would be key to developing a robust deliverable for our participants. An extensive investigation of existing research in areas including the economic and societal costs of lead poisoning, the impact of lead exposure on children, school responsibility in crisis response and recovery, learning and behavioral implications, strategies for responding to the learning gaps lead exposed children bring to the educational environment and school based mental health was conducted. It then became our obligation to connect each of these bodies of research in a way that made sense for our Dissertation in Practice. This chapter provides an overview of the literature investigated and its connection to our work.

Lead Across the United States

The CDC's Educational Interventions for Children Affected by Lead report (2015) outlines the negative impacts blood lead levels can have on children. Exposure at an early age to the lead neurotoxin can result in irreversible cognitive and behavioral effects that cannot be corrected through nutritional or pharmacological means. The CDC estimates that 4 million U.S. homes are inhabited by children exposed to lead. In addition, roughly half a million U.S. children have blood lead levels higher than the intervention level set by the CDC (U.S. CDC, 2016). The National Toxicology Program's Monograph on Health Effects of Low-Level Lead (2012) cites ingestion and inhalation of the contaminant lead as the primary means of lead exposure. Lead sources can come from food, soil, water, paint, tobacco smoke, dust, housing renovations, hobbies, industrial occupations, among others.

Since amendments to the Clean Water Act, drinking water has typically not been a source of lead. However, corrosion in older lead pipes and plumbing infrastructure, along with brass or bronze fixtures, has been documented to cause increases in water lead levels. In the instance of the Flint water crisis, an aging water distribution system underwent a rapid change carrying water from the Detroit Water and Sewer Department that had a low corrosive, low chloride to sulfate ratio, to carrying Flint River water that had a highly corrosive, high chloride to sulfate ratio. The Flint River water lacked a necessary corrosion control chemical, resulting in water pipes leaching lead (Hanna-Attisha et al., 2016). To be clear, the Flint River water was not the source of the lead--it was the corrosion of the underground lead pipes themselves.

Determining Blood Lead Levels and Thresholds

To conceptualize the impact of high blood lead levels among children, it is important to understand how blood lead levels are determined and what blood lead levels represent. Blood lead levels (BLL) are measured in micrograms per deciliter ($\mu\text{g}/\text{dL}$). Lanphear, et al.'s (2005) research on childhood lead exposure and intellect outlined the CDC's change in what constitutes high blood lead levels from 60 $\mu\text{g}/\text{dL}$ prior to 1970, reduced to 60-40 $\mu\text{g}/\text{dL}$ between 1971, to 30 $\mu\text{g}/\text{dL}$ in 1978, and lowered again in 1985 to 25 $\mu\text{g}/\text{dL}$. Continued research and debate into the detrimental effects of lead exposure resulted in an additional reduction to 10 $\mu\text{g}/\text{dL}$ in 1991. The lead limit threshold was lowered once again by the CDC in 2012 to the current rate of 5 $\mu\text{g}/\text{dL}$, yet the CDC acknowledges that there is no safe level of lead for a child (US CDC, 2012).

Absolute indications of BLL through blood tests are difficult to determine since the human body eliminates half of the lead found in blood approximately every 30 days. Given the half-life of blood, tests of bone and teeth are more accurate in determining true blood lead levels, however, such tests are uncommon due to the invasive nature, high expense and need for specialized

equipment (NTP, 2012).

In 2012, the CDC eliminated the phrase “levels of concern,” and instead created a reference chart of blood lead levels. This chart, based on the 97.5th percentile of the BLLs of 1-5 year olds across the country, will be re-evaluated and adjusted every four years. As further research into blood lead levels has been conducted over the past thirty years, a better understanding of lead level thresholds and potential ramifications of lead in human blood has resulted. Based upon the relevant data, it has been determined that there is no acceptable level of lead within the body. Still, there is no current routine testing for lead exposure in either the medical or educational communities. If requested during medical examinations, parents/guardians are notified if their child’s BLL is found to be 5µg/dL or above based on blood lead level testing. Nevertheless, most families will not realize that their child has been affected by lead until significant damage has occurred.

Economic and Societal Costs of Lead Poisoning

It is no secret that lead exposure has an economic cost to our society as estimates put lead costs for our nation in the billions of dollars each year (Gould, 2009; Landrigan, et al, 2002; Trasande & Gould, 2011). Conservative estimates of the costs of lead in the United States are somewhere in the range of \$50-\$270 billion, annually (Gould, 2009; Trasande & Liu, 2011). In an effort to determine potential special education costs of children with elevated blood lead levels (BLLs), Gould’s (2009) research utilized the estimated average annual cost of special education services of \$14,137 per child in 2006. He compared this with an estimated number of children in the same timeframe experiencing high BLLs equal to or greater than 20 µg/dl (microgram per deciliter), to determine an annual cost of educating lead impacted students. Gould’s figures suggest that special education for children with BLL levels of over 20 µg/dl

could have an annual cost of between \$30-\$146 million over the course of just three years alone (Gould, 2009). While beneficial, this data does not demonstrate the correlated costs of BLLs at rates lower than 20 µg/dl, which may prove to be far more substantial.

The correlation of BLL and Attention Deficit Hyperactivity Disorder (ADHD) cases, estimated at 21% of the children diagnosed with ADHD, is another added cost. Gould conservatively estimated an annual cost of \$267 million for individual families and society to cover medical treatment, therapy and parental work loss on account of children diagnosed with ADHD (2009). Zahran et al.'s (2009) research found that blood lead levels “are a more powerful predictor of student performance than poverty (offset with free and discounted lunch) and class size” (p. 6). Their research involved comparing the cost of lead abatement with academic interventions for those impacted by elevated BLLs for 117 schools within New Orleans. Their findings demonstrated that the potential exists for it to be more cost effective to spend \$225-\$290 million to clean the soil of 40% of the city known to have soil with high lead levels than to invest more than the estimated \$3 billion in teachers and educational interventions to raise student achievement levels (Zahran et al., 2009).

Correlations between deviant behavior and crime rates with BLLs also indicate another cost to society. Utilizing research on potential crime reduction correlated with a reduction in BLL, Gould predicts that a 1 µg/dl drop in the average preschool child's BLL would result in approximately 117,000 fewer burglaries, 2,500 fewer robberies, 54,000 less aggravated assaults, 4,000 less rapes, and 700 less murders each year (2009). Gould's estimates suggest that an annual 1 µg/dl decrease in preschool children's BLLs would result in annual savings of over \$12 billion in victim costs, legal proceedings, and treatments due to psychological and physical damage, among other direct costs (2009).

Utilizing research on loss of IQ from lead poisoning, which suggests a loss of one IQ point results in a reduction of overall income earnings of 2.39%, Landrigan et al. estimated nearly \$900,000 in reduced lifetime earnings of 5-year-old males and reduced earnings of \$520,000 for 5-year-old females at the time the research was conducted. This loss translates to \$43.4 billion per year in lost income because of lead poisoning (2002). Gould extrapolates on the wage reduction in calculating a net lifetime loss of \$165-\$233 billion for all children aged six years old and below identified with elevated BLLs in 2006. In contrast, Gould estimates for each dollar spent preventing and controlling the hazards of lead, \$17-\$221 in savings would result in addition to improved health, increased IQ, elevated wages, tax savings, and reduced special education costs as well as costs associated with crime (2009).

Impacts of Lead Exposure on Young Children

The recent water crisis in Flint, Michigan has assisted in shedding further light on lead exposure, including the negative cognitive and behavioral impact lead has on children, water as a source of lead contamination, the impacts of aging lead pipe infrastructures, and the economic cost of lead poisoning to our society. Lead exposure can cause developmental delays including effects on motor functioning, cognitive development, base intelligence, as well as behavioral outcomes that persist into adolescence and beyond (Schmidt, 1999; Zhang et al., 2013). The effects of lead exposure on children's behavior often starts early but is rarely addressed before children enter school as children actively being poisoned by lead may not exhibit obvious outward signs of lead exposure. In addition, overt behaviors may be wrongly diagnosed and attributed to other behavioral or learning issues.

According to the Lead Expert Panel for the U.S. Department of Health and Human Services – DHHS (U.S. DHHS), children that have been exposed to lead often suffer from

impulsivity, short attention span, and aggression (U.S. DHHS, 2015). The U.S. DHHS (2015), reports that the “executive functions” are areas of the brain responsible for strategic planning, control of impulses, organized searching, flexibility of thought and action, and self- monitoring of one’s own behavior” (p.5). Deficits in executive functioning are a common problem associated with students who have Attention Deficit Hyperactivity Disorder (ADHD) and the deficits can severely impact academic achievement and behavior in and out of the classroom (U.S. DHHS, 2015). Ultimately, lead exposure can lead to a higher rate of Attention Deficit Hyperactivity Disorder (ADHD), and the behavioral features associated with ADHD.

Numerous research reports have found a correlation between lead levels in children, reduced IQ and diminished levels of school achievement. Drummond, Jr. (1981) expressed findings that even at very low levels of lead in the body, as blood lead levels increase, learning progress decreases. Zhang et al. (2013) demonstrated that early childhood lead exposure, even at levels below 5 µg/dL, is still associated with lower student achievement levels. Lead exposure among preschoolers has been shown to damage the gray matter in the brain potentially resulting in irreversible IQ loss (Nevin, 2008). In addition, Thatcher and Lester (1985) found in their research that lead toxicity reflects a continuum of deleterious effects, with school achievement and cognitive functioning being most disturbed. Lanphear, et al.’s (2005) international research of blood lead levels and IQs of 1,581 children in seven cohorts across the world observed that as children’s blood lead levels increased from <1 µg/dL to 10 µg/dL, IQ decreased 6.2 points, which is comparable to other research studies. Using these multiple sources of data, it was determined there was no threshold for the consequences of lead poisoning and that cognitive decline was associated with even minimal levels of lead in blood.

Interestingly, Minder, Das-Smaal and Orlebeke (1998) argued in their research that they

found no relationship between low levels of lead (<100 µg/L) and cognitive functioning in young children while Ernhart, Landa and Wolf (1985) revised their own original findings concluding that if there were a connection between cognitive development and moderate levels of lead exposure, it was insignificant. Although there is a preponderance of evidence that lead exposure at even very low levels (<5 µg/dL) can and does impact the cognitive development and resulting achievement levels of children, there continue to be researchers who stand by their findings with dissimilar results.

Using Detroit Public Schools' achievement data on the state of Michigan's standardized MEAP test from 2008-2010, Zhang, et al (2013) found a direct correlation between BLLs and proficiency rates. In what they believed to be the first study of lead's long-term effect on academic achievement levels in math, reading, science and social studies in grades 3, 5, and 8, over 20,000 data sets linking BLL and standardized test scores indicated a significant association between the two. As the BLLs of children in Detroit Public Schools increased, so did the likelihood that the student would not be proficient on the Michigan MEAP tests. Zhang, et al.'s (2013) research in Detroit elicits the question of correlation versus causation of BLL and MEAP test proficiency rates since race, gender, and socio-economic status were not controlled for. A weakness in the research on BLL is the correlation or causation aspect of its impact on IQ, especially when considering other risk factors children may be experiencing.

The NTP and CDC confirm there is sufficient evidence demonstrating that low BLLs less than 10 µg/dL negatively impact academic achievement and IQ of children. The CDC (2015) states, "In general, there appears to be a loss of about 4-8 points in full scale IQ as BLLs increase to 10 µg/dL and at least an additional 2-4 point decrement as BLLs reach 20-25 µg/dL (Lanphear et al., 2005)." According to this research, educators in Flint and surrounding communities are

charged with the need to prepare for both the cognitive and behavioral impacts of lead exposure.

Adding to the Responsibilities of Schools

Although research has provided links between lead exposure and negative trends in student achievement, particularly among poor, African American students, little research exists on how schools can help those students affected (Zubrzycki, 2012). To complicate matters further, educators often do not have information regarding children's lead exposure history, so properly addressing the needs of the students relative to their BLLs is not possible.

Unfortunately, many lead exposed children are channeled into the special education system and educators can become preoccupied with the label ascribed to the child and the assumptions about the learning ability that accompany that label (Zubrzycki, 2012). Nonetheless, all children, whether gifted, average or learning disabled, can benefit from the promotion of optimal brain development (Thatcher & Lester, 1985).

For teachers, having students in their classrooms that have been exposed to lead means that they have a higher likelihood of compounding issues to address. These issues include difficulty teaching academic material because of the learning struggles associated with lead exposure and/or difficulty in assisting students with regulating their behaviors to be appropriate for the classroom setting. It is important that teachers consider all the factors students are facing as they make individual plans for their learning. Teachers can easily become overwhelmed and frustrated with the challenges involved in educating students who have academic and behavioral difficulties. Teachers can feel as if they are alone in the process of helping each of their students find success. In addition, it can be difficult for teachers to know what to do when the classroom plans they have made do not seem to be accommodating the targeted students in the manners intended. Most teachers take their students' success or failures very personally, which can leave

them with a diminished sense of efficacy when lessons do not go according to plan (Thatcher & Lester, 1985).

Though there is much debate in terms of broad school responsibility, the foundation of their duties lie in providing opportunities for students to become college and career ready (whatever that may mean for each individual student), supporting the development of proficient levels of student achievement in all core subject areas, and promoting socially and emotionally healthy individuals who can contribute to society. As the school community in Flint looks toward the challenge of meeting the diverse needs of an entire population of lead exposed children, the necessity of pulling together all resources at their disposal will be paramount. Students cannot reach their individual potential in terms of academic achievement or social/emotional development if they are not healthy, nourished, feel a sense of safety and security, and are supported academically. As such, there is an increased need for the families of lead impacted children to readily access health services, understand the value of nutrient rich meal offerings and take advantage of them, and connect with tutoring opportunities within schools.

Teacher-Student Interactions Around Learning

Despite an abundance of data on lead's impact on IQ, the CDC admits there has been insufficient research and therefore recommendations concerning classroom interventions for children with documented BLLs. According to the CDC, no studies have been published which address specific academic interventions to successfully ameliorate the effects of high blood lead levels, counteract the impact of lead on developing fetuses, or that are intentionally designed for lead poisoned children (CDC, 2015). Without documentation of interventions that improve upon the effects of high BLLs, is it even possible to do so? Is there a false sense of hope in terms of

educational attainment and success for lead impacted children? Or, is it not possible to discern between lead levels, interventions, and causation versus correlation given the current data across the nation? Regardless, this is an important deficit in research to emphasize and one that may be able to be investigated given the present landscape of the Flint water crisis.

In spite of the known damaging effects of lead exposure, research on brain plasticity provides evidence that intellectual capacity is not an immutable trait and thus there is hope for the future of these children in terms of expanding their learning capacity (Zubrzycki, 2012). Considering best practices for educating all children, in conjunction with those that may provide additional supports for struggling learners, is paramount in creating the cognitive outcomes that educators desire. Nevertheless, Phelps (1999) reminds the educational field that children exposed to lead are a heterogeneous group and that educational programming must be developed individually and using a child's current functioning across many domains in order to be effective. Educators recognize this and most find themselves differentiating their instructional strategies on a regular basis, with or without the knowledge of lead exposure in their students, to positively strengthen the cognitive development of their students.

Jones, Brown and Aber (2011) studied the two-year impact of a school-based social-emotional and literacy learning intervention referred to as the "4Rs Program – Reading, Writing, Respect and Resolution" (p. 533). Rather than focusing on social-emotional or literacy interventions in isolation, the 4Rs Program combines the two, embedding social-emotional learning and conflict resolution into the language arts curriculum for K-5 students (Jones, Brown & Aber, 2011). This study showed that those students most at risk for failure, both behaviorally and academically, were the ones who demonstrated the most substantial gains over time (Jones, Brown & Aber, 2011). Social-emotional learning provides a foundation for both safe and

positive learning in an environment where students can have different motivations for engagement.

Coordination of Supports for Students

According to McGhie--Richmond et al. (2007), in order to increase student engagement, teachers need to first master the fundamentals of classroom management and work to maximize instructional time. As students become more engaged within the classroom, their behavior problems will often subside as a result. To best anticipate the needs of students, especially those who have been exposed to lead, it is critical that educators prioritize embedding behavioral supports into the school and the district's culture. Behavioral supports and intervention mindsets develop with time and are dedicated to supporting teachers as they work to meet student need. The effects of lead exposure on children is significant; however, with targeted, purposely planned supports and interventions, schools can face the problem in a straightforward manner and create an environment conducive to student improvement.

According to Wolmer et al. (2011), teachers can build resilience in their students by teaching a foundation of coping skills for life both in and out of the classroom. To do this teachers should (p.347):

1. provide psychoeducation to students to help them understand and normalize their stress reactions
2. address (identifying and replacing) dysfunctional thoughts and beliefs that mediate development of psychological symptoms, for example the world is completely dangerous
3. support students in learning to manage anxiety and regulate emotions, as well as understanding and better controlling the interrelationship between thoughts, feelings

and behavior

4. teach problem- focused coping and imaginal exposure (to develop perspective taking, self--talk, and positive imagery)
5. encourage students to increase activities that foster positive emotions
6. facilitate social support and sustained attachments (to build on and enhance existing support and lasting relationships, e.g., effective listening)
7. instill hope to counteract the shattered worldview and the vision of shortened future characteristic of mass trauma

Through the teaching of resilience strategies in schools affected by a crisis, combined with schoolwide positive behavior intervention supports (PBIS), students are equipped to address their feelings head on. These strategies provide students with the tools needed so that they can see themselves not as defined by the crisis, but rather, as resilient and in control of their reactions when problems arise.

Social-Emotional Learning

Research has suggested that students who develop emotional intelligence and social competence are better equipped to find success in school and in life as young adults (Raver, 2002). An umbrella term for a range of competencies, social-emotional learning (SEL) encompasses three major areas, including (Jones, Bouffard, & Weissbourd, 2013):

1. *Emotional processes* - understanding and labeling feelings, regulating feelings relative to the situation presented (i.e. being calm when problem solving a disagreement), and perspective taking and demonstrating empathy
2. *Social and interpersonal skills* - recognizing and understanding social cues (i.e. voice inflection and tone), interacting and positive and prosocial manners

3. *Cognitive regulation* - maintaining attention and focus, controlling impulses that are inappropriate to a given situation, being flexible during times of transition

SEL curriculum in schools has been shown to improve school achievement, enhance attitudes towards learning, and promote prosocial behaviors, including sharing, kindness, and empathy (Durlak et al., 2011). SEL curriculum can contribute to success in school, careers, relationships, and citizenship with the scope and focus of SEL interventions being variable given targeted needs (Humphrey et al., 2011). Given that manifestations of lead exposure can include challenges controlling behavior and impulses, self-regulation has surfaced as being essential to improving both the academic and social success of children (McClelland, Acock, & Morrison, 2006). Developing self-regulation skills can be developed in all children, despite socio-economic status and IQ (Moffit et al., 2011).

Self-regulation is the ability to monitor and manage emotions, thoughts, behaviors and impulses (McClelland et al., 2010). Being able to self-regulate helps children develop more positive relationships with teachers, peers, and their families. Through the development of self-regulatory skills, children can learn to manage stress, control impulses, persevere through challenges, and cultivate patience (Barkley, 2004). Students with poor self-regulation have high rates of expulsion and receive more frequent discipline at school and are more susceptible to poor academic achievement, peer rejection, and school dropout (Duncan et al., 2007). The tools and techniques of self-regulation, developed through a comprehensive SEL curriculum, can assist children in solving problems encountered in classrooms and other environments.

Implementing SEL Curriculum in Schools

Effective SEL programming involves thoughtful coordination of classroom, school building, family, and community practices that support student development of crucial skills

oriented towards academic achievement. Recent research reviews and meta-analyses found that students participating in SEL programs that are designed and implemented with care experience significant gains in the skills associated with SEL (Durlack et al., 2011). The most impactful SEL programs are integrated into classrooms and whole schools in manners that are meaningful, sustained, and embedded into the regular interactions of all school members (Domitrovich & Greenberg, 2000). Unsuccessful SEL programs are most often the result of irregular implementation (i.e. delivering an SEL lesson on a weekly or monthly basis) or failure to commit to developing and enhancing an SEL program over time (Jones, Brown, Hoglund & Aber, 2010).

Embedding SEL curriculum into school practices and interactions wherever possible can render positive results. Supporting all school staff in understanding the application of consistent SEL routines when communicating, during times of transition, and when social problem solving can model effective use of a program. Collaborative efforts can be reflected in places outside of the classroom (i.e. on the playground, in hallways, on the bus) and within partnerships with families (Ttofi & Farrington, 2009). SEL can also be effective in supporting restorative justice programs in schools as replacements to more traditional forms of discipline (Macready, 2009). When the behavior of a handful of disruptive students is improved through restorative measures, long-term effects of SEL interventions can improve the overall composition of a classroom climate (Macready, 2009).

Durlak and colleagues (2011) determined that an effective SEL program should incorporate the four elements which spell the word “SAFE”:

1. Sequenced activities that are connected and coordinated to specific skills
2. Active forms of learning that aid students in mastering skills
3. Focused on developing one or more personal and social skills

4. *Explicit about targeting specific skills*

Program implementation and fidelity are essential factors in determining the effectiveness of SEL programs even though the literature seems to be sparse on measuring the impact of them (Jones & Bouffard, 2012). This is due in part to numerous definitions of implementation quality and measurement challenges (Domitrovich et al., 2008), although students appeared to benefit more from programs in which their schools provided adequate training to staff, monitored implementation, and integrated curriculum into all aspects of school operations (Domitrovich & Greenberg, 2001). In the context of Flint and surrounding communities, SEL curriculum could support children with behavioral disturbances both at home and school. With active participation and investment from the families, children can be supported in wraparound SEL services and partnerships.

Educator Relationships with Families of Students

Educators hold special status with families for establishing trust benefiting the open exchange of information; however, ensuring that trust is mutual is a vital and often disregarded component of the trust relationship (Moll et al., 1992). Parents and guardians of all students, regardless of demographics including race, ethnicity, gender, poverty level, educational level, family structure or age, want their children to succeed. Therefore, as educators lend their efforts towards the creation of a system for expanding the partnership between home and school in an effort to boost student cognitive development, it is important for educators to consider the homes of their students as rich in funds of knowledge that can represent important resources for educational growth (Moll et al., 1992; McCarthey, 1999).

The communities, families, and children recovering from the Flint water crisis will benefit from their teachers adopting a major role in developing, enacting and supporting the

recovery efforts. Assisting school staff in developing a plan for supporting the children whose lives have been disrupted by a trauma is foundational to any successful recovery effort (Cheal, 2010). It is essential to equip members of a school community with an intentional plan, in addition to emotional and psychological support, so that members can effectively assume recovery functions (Mutch, 2015). A background in education, including special education, does not involve training in methods of support for students and their families surviving crisis such as that which has occurred in Flint. As a result, training for teachers as well as other school staff in the field of crisis recovery cannot be underestimated.

Open and reciprocal communication with the families of students is a pivotal component of sound relationships and is equally or more important immediately after a crisis has occurred. Effective partnerships between school and home is essential in situations such as lead poisoning since parents and other caregivers have a direct ability to mitigate continuous exposure and stimulate progressive cognitive development in their children (Cheal, 2010; Rush, Houser, & Partridge, 2015). It is important for schools to establish procedures for connecting with families regarding the concerns they are expressing about their children as well as ways to keep the lines of communication open so families and teachers can be effective partners in the recovery of a child (Tarrant, 2011). As families, teachers and surrounding communities unite to address the consequences of the lead crisis on their populations, it is essential all parties maintain an open mind and a growth mindset.

School Based Mental Health Programs

Schools are arguably the most efficient places to deliver support services to children post-disaster (Rodriguez et al., 2012). However, when the needs of the parent or child do not match the services which the school can realistically provide, the school assumes the role of connecting

families with outside service agencies (Rodriguez et al., 2012). Still, families can feel uncomfortable navigating support systems on their own and often refrain from accessing them at all (Rodriguez et al., 2012). A leading form of collaboration occurring in school settings and involving multiple agencies is called School Based Mental Health, or SBMH. Comprehensive SBMH programs incorporate a team of behavioral health professionals from an outside organization (i.e. community mental health provider) into the school environment to partner with school staff (Weist et al., 2012). This approach is effective because it enables specialists to triage care for students with the most severe circumstances, including the impacts of lead exposure. As a result, SBMH interventions are being considered more and more as a viable option to address the mental health needs of school-aged children (Weist et al., 2012). Because schools have unparalleled access to school-aged children, providing mental health services in an educational setting can alleviate the barriers that prevent families from obtaining adequate and consistent treatment. Schools as a central access point can be seen as more familiar, less threatening, and more acceptable in terms of location (Stephan et al., 2007).

A comprehensive SBMH program enables a full range of options to schools who create such partnerships. Teaming with community mental health professionals can help to ascertain appropriate levels of care for students with immediate mental health needs (Stephan et al., 2007). Community mental health providers can visit with students under circumstances school professionals are unable to accommodate, including at home in the evenings, while suspended, or while hospitalized (Stephan et al., 2007). Because team members from community mental health organizations can be activated to support students when more intensive services are needed, school mental health professionals (counselors, psychologists, and social workers) can focus on providing education, wellness, and prevention programs to all students (Vaillancourt & Amador,

2015). Community mental health members can also support whole school communities through assisting them in the development of comprehensive interventions, such as SEL curriculum, which is beneficial to all students (Hoagwood, et al., 2007)

Engaging families in SBMH

Providing families with opportunities to be involved in the “life of the school,” which can include helping to draft policies, designing and implementing programs and systems, and serving on committees responsible for making important decisions can cultivate a more collaborative environment rooted in communication and respect (Haines et al., 2015). Families appreciate the commitment to serving all students and their needs, especially in circumstances when a mass crisis has impacted vulnerable children. Professional willingness to develop individualized, strategic interventions with the input of families can facilitate inclusion and support of SBMH programs (Haines et al., 2015). Through their analysis of 11 focus groups consisting of 60 parents, Francis et al. (2015) determined that family-professional workshops targeted at sharing resources and strategies (i.e. positive behavior supports and reading strategies) facilitated support of school-family partnerships.

In addition, Haines et al. (2015) found that when reciprocal communication, listening, and the sharing of resources is established among all partners – agencies, schools, families – collaboration and engagement is enhanced, and, in particular, when a preferred mode of communication is established among partners. Some families might prefer oral communication via telephone or in-person meetings, while others would rather have written communication. Collaboration can be further enhanced when the input of families is valued and solicited by school and agency personnel, and more so when the sought advice is translated into action (Haines et al., 2015). This information is critical when educators and community members

coordinate their efforts in supporting lead impacted children and their families.

This broad literature review has informed our understanding of the educational impacts for students who have been exposed to lead and the need for collaborative efforts between schools, families and communities. It provides a strong foundation for understanding the complex issue of the lead water crisis in Flint where it will take careful coordination to plan for appropriate and impactful responses. Using what we have learned from the research, we have developed our plan for supporting the educators in Flint area schools through a collaborative effort detailed in the next section focused on the Design Thinking methodology.

CHAPTER 3 - METHODS

The primary motivation for this Dissertation in Practice was the desire to assist educators in their response to lead exposed students. Thus, it was imperative that we determine what educators require to meet the needs and potential challenges of students in these circumstances. Although vast amounts of resources are dedicated to addressing the water crisis in Flint, it was not appropriate for us to assume an understanding of what educators needed to support lead exposed students. In order to be helpful in supporting educators as their needs are assessed, we determined that utilizing a process called Design Thinking would be an appropriate tool for this endeavor.

As a distinct process, Design Thinking originated in the 1950s as a means to problem solve and create innovative solutions primarily within the business industry. Through several decades, the Design Thinking process has evolved from a business approach to a methodology that has applications in multiple industries and is used to enhance organizations, products, and systems (Brown, 2009). The human centered, creative approach of Design Thinking is a process that gathers stakeholder perspectives on diverse challenges in an attempt to create practical, resilient solutions with a greater chance of delivery (Curedale, 2016). Companies and organizations around the world utilize Design Thinking, some of which include 3M, Mayo Clinic, the New York Times, Steelcase, Toyota, and the United States Public Policy Lab, to name a few.

Design Thinking consists of several phases that can differ according to numerous models and applications, however, consistent throughout these models is that the process is nonlinear and iterative. Beginning what is given and understood regarding the presenting problem, the process progresses into analysis, synthesis and realization of the problem(s). Following these

phases, participants conceptualize solutions and an end product is proposed and evaluated. Throughout the process, it is permissible for the project participants are collaborating on to move in and out of these various phases based upon new information which can require further research and exploration. The iterative nature of Design Thinking can result in numerous cycles of each of the phases in an attempt to create the most meaningful and potentially successful solutions (Kumar, 2013).

The nonlinear and iterative processes also involve competing constraints which designer Tim Brown (2009) outlines as desirability, viability and feasibility. These three constraints refer to what problem solvers want and whether what is wanted is something that can be achieved has practical applications. The most optimal outcome lies at the intersection of these three constructs. The three constraints might not be equal in the ultimate scope of the project, however, all three must coexist and harmonize in order for the final product to be sustainable. Through shifting their reasoning from problem to project, participants in the Design Thinking process can address the three referenced constraints while focusing on innovation and creating a product that is valuable to consumers (Brown, 2009).

The specific Design Thinking model implemented in this Dissertation in Practice was developed out of the Hasso Plattner Institute of Design at Stanford, also referred to as the “d. school.” The Hasso Plattner Institute of Design’s process is taught at top business colleges and universities in addition to professional development and certification programs around the world. This particular Design Thinking model has been proven to be a valuable process for developing the best solutions to difficult and sometimes constraining problems. The phases of the Design Thinking process that are critical to the model used for the purposes of this Dissertation in Practice include: Empathize, Define, Ideate, Prototype and Test.

Design Thinking “Bootcamp Bootleg Five Step Process”

As facilitators of the Design Thinking process, we realized that we needed a desirable, feasible and viable tool to utilize throughout our process. Upon researching a variety of Design Thinking methods, it was determined Stanford’s d. School Bootcamp Bootleg model was the most beneficial process for this project. The Stanford d. School Bootcamp Bootleg model is an active toolkit to utilize in Design Thinking when the problem to address, and solutions to the said problem, are unknown. Given that the actual problem point of view to be addressed was unknown, and we were intentionally approaching the research process without assumptions regarding the problem, we felt this model provided the most beneficial means to solve ambiguous questions and guide complex thinking.

The feasibility, viability and desirability appeal of the Bootcamp Bootleg model was based upon numerous factors. First, the manageable number of steps in the process was appropriate given we were attempting to develop a collaborative environment with a diverse group of participants. Second, the model provided clear phases of the Design Thinking process, allowing facilitators to work backwards and set deadlines based upon the time constraints of the Dissertation of Practice. Third, the method provided a feeling of shared leadership which emulated each of our careers and professional roles, all while honoring our experience and expertise. Last, the Bootcamp Bootleg model phases were easily partitioned into specific components that could be distributed throughout the Dissertation of Practice. This also allowed for clear online collaboration and communication with participants taking into consideration that the physical distance between facilitators and participants had the potential to create obstacles.

The Bootcamp Bootleg model inherently allows for the synthesis of the information gathered through the process to happen collectively rather than in private (in a person’s head, on

scratch paper, etc.) which sets it apart from other design processes. Through the synthesis of information, we believed the Bootcamp Bootleg model would support the development of trust and allow participants to fully engage in the sensemaking process, despite facilitators being incorporated into the collaboration. We reasoned that through being a part of the process we would create a balance of knowledge to optimize effectiveness. In addition, we hoped our membership would also prevent a hierarchy between us and the participants where we were seen as facilitators who had all of the answers.

While collaborating with educators to design educational supports for lead impacted children in Genesee County, Michigan, the facilitators implemented five distinct steps of the d. school, Hasso Plattner, Institute of Design at Stanford’s Design Thinking Bootcamp Bootleg model: empathize, define, ideate, prototype and test solutions. Utilizing the d. School model, we led our collaborating educators through the iterative phases as represented in Figure 1. (Graphic is available as a separate document in Appendix D.)

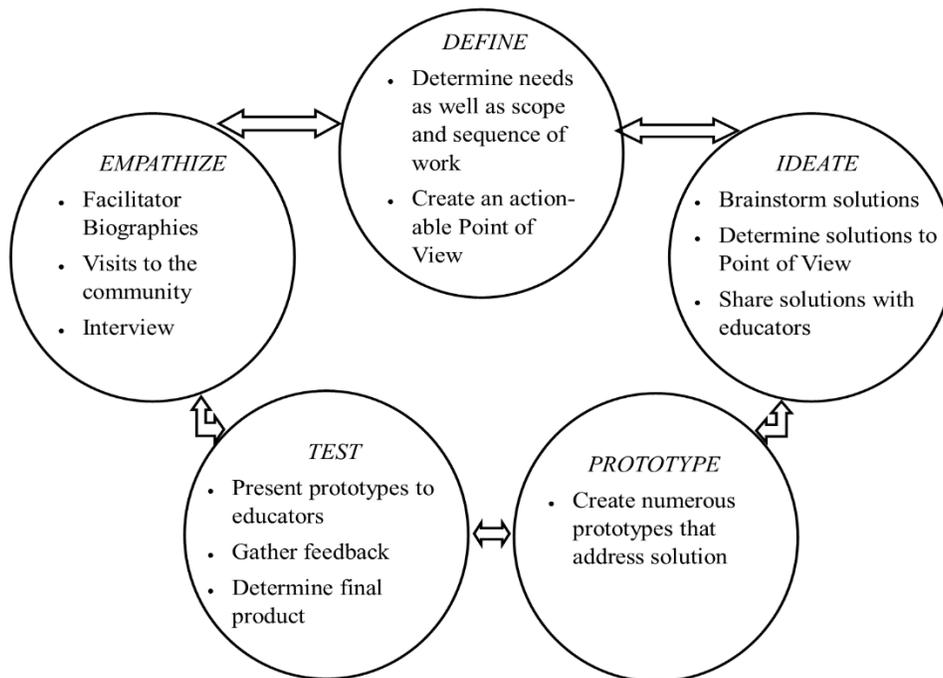


Figure 1. *Using the Design Thinking Process in Flint*

Recruitment Process

Prior to launching the Design Thinking process, collaborating educators from the public and charter schools in and around Flint, Michigan were solicited to volunteer their services to this project. The project was pitched as an opportunity for educators and other professionals supporting children to join forces in an attempt to impact the lead crisis through a solution focused angle. While the goal of the recruitment process was to locate educators who were willing to engage in the Design Thinking process, we determined that the process would be more robust if we were to include professionals involved in enhancing the well-being of children through their additional wrap-around services.

Participating educators were recruited through facilitators' relationships with school leaders and Michigan State University's partnerships in Flint. Teachers and principals responded positively to direct recruitment efforts via email and phone conversations. Additional invitations were extended to professionals supporting children through their programs or other services. Michigan State University personnel assisted facilitators in the enrollment of professionals outside of school settings. These individuals included an agency level therapist, a university level professional serving as a parent advocate, and two county level parent advocates. Of the nine recruited participants, two were in their mid-twenties, five in their mid-thirties, and two in their mid-forties. Of those recruited, eight were female, one was male, seven were White and two were African-American.

We disseminated and discussed an informed consent document to ensure that all volunteers participating in the design-based project understood their membership in the research process and their rights as participants. Volunteers were informed of potential participation risks and were invited to share questions or concerns regarding their involvement. A recruitment

document is included in Appendix B. The informed consent documents are included in Appendix C. As communicated to participants, we protected anonymity to the extent possible within a collaborative setting. Additional efforts were made to ensure that all collaborating educators understood the risks associated with collaboration and agreed to support the rights of all others. Correspondence between facilitators and educators during recruitment and throughout the Design Thinking process occurred through emails, phone calls, and face-to-face meetings. Group norms and protocols were created and utilized in an effort to lead productive discourse.

Empathy Phase

The act of empathizing with collaborators is foundational to the Design Thinking process. The empathize phase is crucial to the Design Thinking process because it is predicated upon the fact that design facilitators need to understand what is important to educators involved in the process. To empathize with members of the focus group, the Design Thinking facilitators made use of three actions as the Design Thinking model suggests: observing, immersing and engaging. Through observation, immersion, and engagement, leaders gathered concrete examples, derived meaning from the information provided, and garnered full participation from group members in an attempt to develop innovative solutions. These action items are employed as needed and often in a non-sequential manner.

Because Flint was experiencing large scale media and public attention at the time of this project, it was important that as facilitators we did not present ourselves as being able to “fix” the circumstances of the lead crisis. Rather, we needed to be a resource for the educators to scaffold their awareness regarding their current situations and assist them in planning for their needs in response to the effects of the lead crisis. Through using this relationship building approach in not just the empathize phase, but throughout the project, we attempted to honor the participating

educators as the experts in determining what their needs were. Our roles involved soliciting this information from them and helping to craft applicable supports in their settings.

As an additional step in the *Empathy* phase, facilitators spent time visiting various attractions in the city of Flint, Michigan in an attempt to understand the impacts of the lead crisis on the community. Facilitators visited the Flint Children's Museum, a local restaurant, a shopping mall, and a local elementary school. While the intent of observation and immersion was to gain a better understanding of the Flint area prior to leading the Design Thinking sessions, one of critical observations during the visits were the lead resources available via handouts written in both English and Spanish. The handouts were bright in color, displayed in prominent places at entrances and exits of businesses, and accessible to community members. This observation contributed to the development of products in the *Prototype* phase of the Design Thinking model.

Last, to conclude the *Empathy* phase and move into the *Define* phase, the development of focus groups was required. Based upon availability of the educators, three focus groups were held during the first meeting in Flint. The first focus group consisted of a university professional serving as a parent advocate and a program coordinator from a local museum. The second focus group was with an agency level therapist serving children and their families in the Flint area. Last, the third focus group included a 3rd grade teacher, 5th grade teacher, and two Principals from an Elementary Charter School. Identical agendas, protocols and empathy-framed questions were utilized in each focus group. The purpose of the focus groups was twofold; first, as a means to build relationships and rapport with the educators, and, second, as a source of qualitative data which was then transcribed and coded. The transcriptions and subsequent coding were examined for patterns and consistencies which then served as blueprints for the define phase.

At the first focus group meeting, we were prepared with appropriate tools for conducting the interviews including a recording device, copies of the prepared agenda for each of the participants, consent forms (Appendix C), and refreshments. As the meeting convened, the agenda reserved five to ten minutes for an inclusion exercise so that participants would feel part of the group and safe within it. Next, approximately one hour was devoted to proposing the set of pre-developed questions outlined below. These questions were intentionally developed so that facilitators could first gauge the level of understanding participants had regarding the biological impacts of lead in children. The remaining questions were then scaffolded so that facilitators could gain insight into how these biological impacts are manifested in the classroom. Following this, a wrap-up exercise allowed participants to reflect upon what was uncovered from their own learning and through the dialogue process. The Focus Group for *Empathy* Agenda is included in Appendix E.

The focus group centered around five targeted questions, listed below and outlined in the group interview protocol in Appendix F. Following each question, facilitators used paraphrasing, probing and restating of responses when appropriate as a means to further engage and understand the point of view from the participants. The questions included:

1. As you reflect on your knowledge base on the effects of lead poisoning in children, in what areas do you want or need more information?
2. In thinking of the academic and/or behavioral manifestations of lead poisoning in children, what similarities can you draw from your previous work with other groups of students with exceptional needs?
3. How do you feel about the resources currently available and accessible to you to respond to the needs of students who have been exposed to lead?

4. In terms of accessing community support services, what barriers do you see for students and their families outside of the school setting?
5. As you reflect on all the responses thus far to the lead crisis, what insights have you discovered?

The data collected from the interview questions was then transcribed and coded so that it could be put to further use in the Design Thinking process.

Define Phase

In the *Define* phase, facilitators coded the focus group data from the first meeting and analyzed it in conjunction with the information gained during the *Empathy* phase to determine a focus of the project. During this analysis, the needs and desires of the participants were identified and potential actionable problem statements were created, referred to as points of view (POVs). In Design Thinking, a strong POV incorporates the discoveries from the *Empathy* phase into a design topic that inspires, empowers and guides the group through the remainder of the process. A POV also serves as a reference when confronted with competing ideas, preventing the group from attempting to solve more problems than what the POV represents. Facilitators completed the *Define* phase through developing a set of eleven POVs based upon the data collected during the focus group for *Empathy*. In the end, three potential POVs were created and emailed to participants who ranked the POVs in order of preference. The determining of a final POV prepared facilitators for the *Ideate* phase of the Design Thinking process, however, determining a relevant POV was a challenging process.

When we first met with our committed group of participants, it became abundantly clear that they had little insight into what they wanted or needed as professionals supporting children in response to the lead water crisis. Participants were undereducated and/or misinformed about

the manifestations of lead in developing children. In addition, participants seemed to be looking for easy answers, a quick fix, or a magic bullet to respond to questions they did not know they needed to ask. Despite this, we were aware as facilitators that employing quick fix types of strategies would not provide a foundation for sustainable change. Due to participant's minimal understanding surrounding the lead water crisis, the responses to our initial focus group for *Empathy* questions generated an array of possible themes on which our educators wanted to focus. Themes covered an expansive range from proper nutrition for children to their behavior in the classroom. This chaotic knowledge base led us to develop the initial eleven potential points of view. As we each brought potential points of view to the table based on our individual perceptions of the data gathered, it was clear that we would have to tease out the big ideas that repeatedly appeared within many of the smaller pieces. The range of potential POVs are represented and further discussed in Chapter 4.

Requesting that the educators address the value or accuracy of eleven potential points of view would be overwhelming and had the potential to stifle the momentum of the process. Therefore, as a facilitating team, we put forth the reasoning behind each of the POVs presented and discussed whether or not we believed that the given POV would be functional and possible to address given the time constraints of our Dissertation in Practice. Would finding a solution be feasible? We then considered the possibility of developing solutions to the POV in such a manner that would stimulate a sustainable practice for our group of educators. Which POVs could be viable in their broad reaching environments – a school, therapeutic agency, and university? It was clear moving forward that a significant part of what we would need to do as facilitators in this process was to help the educators in their sensemaking of the lead crisis. Therefore we addressed each of the potential POVs in terms of its desirability; would it make

sense to and for our participants?

We presented three broad reaching points of view to our participants and asked them to rate them according to their own beliefs in terms of each one's feasibility, viability and desirability. We wanted to make sure that we had captured their perceived needs while at the same time providing a framework for responding to these needs within the time limits of our Dissertation in Practice. Also continuing to increase sensemaking within our participant group, we pushed them to consider solutions that could become a sustainable part of what each of them do to support children and families on an ongoing basis. Despite the varied professions within the education field of which our participants were a part, all were similar in their ratings of the three narrowed POVs. Because there was not complete consensus as far as which POV to commit to, as the facilitating experts in the Design Thinking process, we revisited the themes developed through analysis of the transcripts from the focus group for *Empathy* and chose the POV that best reflected the expressed needs of the group participants.

Ideate Phase

During the *Ideate* phase of the Design Thinking process, facilitators generate many diverse ideas that facilitate the transition of focusing on problems to considering solutions and as the basis from which to build prototypes. The goal of this phase is for facilitators to remove themselves from more obvious and overt solutions in order to conceptualize solutions that capture the collective perspectives and strengths of the educators. During the *Ideate* phase for this research, facilitators collaborated face-to-face without the presence of educators in an attempt to maximize the generation of all possible solutions to be developed into prototypes. All ideas for solutions were documented, as indicated in Appendix G, and time was focused on developing a high volume of ideas rather than evaluating the potential solutions. Facilitators

refrained from pre-determining the effectiveness of each solution idea, saving this evaluation period for time spent with the focus group. The *Ideate* phase incorporated an analysis and synthesis of the POV and also served as a brainstorming session during which all facilitators had an equal participation role in developing potential solutions to the POV.

Documentation of potential solutions was done through documenting the facilitators' conversations. The organic nature of the ideate phase involved brainstorming and moving from divergent thinking to convergent thinking. Divergent thinking involves strategic problem solving through developing an exhaustive list of potential solutions and determining the single best fit, while convergent thinking focuses on finding the single best solutions considering the information that is presented (Brown, 2009). Convergent thinking focuses on using speed, logic, and accumulated information to develop solutions so it is appropriate to use in conjunction with the Design Thinking process which has constraints including being time bound (Brown, 2009). The use of convergent thinking was evidenced by facilitators transitioning from the generation of potential solutions to finding consensus and deciding on potential prototypes to present to the educators for their evaluation at the subsequent focus group meeting.

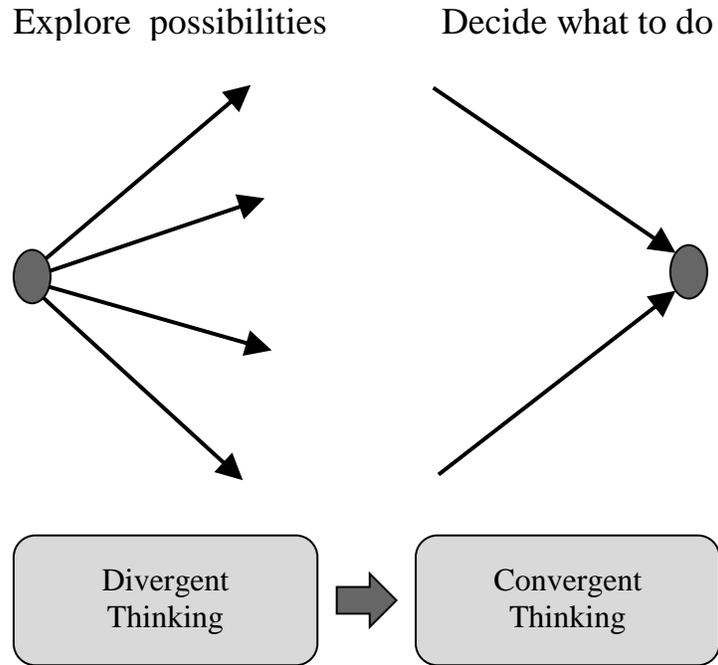


Figure 2. *Divergent versus Convergent Thinking*

Prototype Phase

The *Prototype* phase considered the potential solutions from the ideate phase and translated them into concrete and tangible products. Understanding that prototypes can occur in numerous formats and provide a platform for exploration and evaluation of an idea, our prototypes served as frameworks for potential solutions to the POV. Each facilitator created one or more simple prototypes as indicated in Appendix F. The prototypes created during this phase were not elaborate, expensive, or even functional; the facilitators attempted to enter this phase without pre-conceived prototypes attempting to retrofit the solution. The essential component we adhered to was that the ideas, frameworks, and descriptions were created based upon the POV and would enable the educators to analyze the desirability, viability and feasibility of each prototype. Chapter 4 describes each prototype in greater detail.

Test Phase

The *Test* phase served as an opportunity for facilitators to receive reactions from participants on emerging solutions. In addition, the test phase enabled facilitators to test and refine the POV and prototypes through dialoguing with focus group participants. As with other phases, the test phase reinforced the empathy and rapport the facilitators developed with participants as an enhanced awareness regarding which content participants found helpful was revealed. To accomplish the test phase, participants were emailed the prototypes for their consideration and evaluation prior to holding a second focus group (Appendix G). Utilizing a detailed agenda for focus group for prototypes (Appendix H), all participating educators and facilitators met face-to-face in one meeting, instead of three separate meetings. This was done to consolidate ideas and provide networking among participants. Educators were asked to consider the strengths and weaknesses of each prototype, in addition to suggested improvements for each, so that the most impactful and relevant product could be developed with contribution from all participants. The meeting was recorded, transcribed, and images of the chart paper outlining the educators' input and ideas were documented (Appendix I).

From data collected during the *Test* phase, facilitators could conceptualize and develop a final product. The strategies utilized in creating the final product included: using the POV as a steadfast compass for product development, an analysis of the reactions from participants, accessing information from reviews of the relevant literature, and a consistent focus on a timeline given our design constraints, to be discussed in Chapter 5. Approximately one month after focus group meeting 2 convened, educators and facilitators gathered for a final meeting. The intent of focus group meeting 3 was to deliver a final product that was relevant, desirable, and feasible. In addition, during focus group meeting 3, facilitators gathered valuable feedback

data via a survey on the Design Thinking process. Facilitators were also informed on the potential for the product to evolve into corresponding products. The Design Thinking methodology met the needs of both facilitators and educators in the respect that it honored the needs, thoughts, and time of the educators involved, while also providing enough information for the facilitating team to create a desirable, viable and feasible product having nationwide applications.

CHAPTER 4 - FINDINGS

Setting the Scene

Discussions about this Dissertation in Practice began in the spring of 2016 as we were considering the impact we might have on the education profession. Our dialogue began with the desire to leave something tangible as a means of supporting the educators with whom we have collaborated. It was important for us to provide a tool that has applications both with the collaborators participating in this research and future consumers of this information in Michigan or otherwise. Conversation on this research began with the idea of serving parents and then evolved into serving educators in a broad sense. With our advisors, we were challenged to learn about and consider using the Design Thinking process to complete this research. Doing so, enabled us to participate in this research as learners as much as the educator volunteers are who are collaborating with us.

This research was intended to reveal the needs of educators who have chosen to dedicate their lives to improving the educational and social development of the children in our nation in general, but with emphasis on lead impacted children living in Flint. The impact of lead on the physical, social, and academic development of children is well documented and has been a catalyst for change to the use of lead in numerous products, including gasoline and paint. Still, with increased attention on the recent water crisis in Flint, Michigan that has impacted thousands of children, the importance of providing educators with tools to support them in serving lead exposed children became a critical issue and one which could no longer be ignored or left to chance alone.

As we began to explore the most effective avenue to use in our efforts to support educators and their students, a thorough investigation of the existing research was conducted in

areas including, but not limited to, the impact of lead exposure on children, crisis response, behavioral implications on student learning, and school based mental health. There was no shortage of research on the deleterious impact of lead on developing bodies and the brain; in fact, there was what seemed to be an endless list of research projects on behavioral and educational strategies for settings with both general and special education students. There was also a substantial amount of research on mental health services for children and the effectiveness of such programs in schools. Nonetheless, what was missing from research was the educational practices that could have the most significant influence on the learning and development of lead exposed children. Although the scope of this research was not expansive enough to address this cavernous gap in existing research, the desire to assist educators in establishing such recommendations permeated our motivations and thus became the foundation of our research.

Our main focus of this Dissertation in Practice was launched from the foundational question of how to assist educators in their serving of lead exposed children. We determined that the process of Design Thinking would create conditions suitable for the answers to be found in the room, empowering the educators with whom we were collaborating to examine their own and shared expertise for answers rather than to an outside ‘expert’. The voices of the educators were the most important part of the Design Thinking process as we collaborated in tandem with them to develop a tool that would help fill a gap in their educational practices. In addition, we also sought to inject our understandings and perspectives resulting from our various experiences as professionals and from our review of the literature.

This chapter will follow the design process and the outcomes at each stage as we listened to the voices in the room:

Empathize, determined the scope of the project and developed an actionable point of view;

Define, brainstormed solutions;

Ideate, created prototypes to bring the solution to life;

Prototype, after two cycles through the Ideate phase, determined the final product;

Test, provided to the educators a final product designed in collaboration with them to meet their expressed needs.

Focus Group Recruitment

Our ambitions for this research was to develop a product that would be desirable, viable and feasible for a broad group of educators operating in different capacities with lead exposed children. With that goal in mind, we extended our efforts in recruiting participants across a range of professions including local public and charter school districts, county health systems, community agencies designed to provide stimulating activities for children, and county level school systems. We were also hoping to secure participants that lived both in and around the community of Flint so that their insights could be shared relative to their professional functioning and personal living.

The initial group of committed educators included two principals, a mental health therapist, two teachers, a parent advocate for early childhood programs, an employee from a local community agency, two employees from a county agency and an employee from a children's museum. Of these individuals, there were four who were novices in the field of education or new to their positions. The remaining five were experienced educators. The

participant group was composed of eight females and one male with two being African American and seven White. Their ages ranged from the mid-twenties to mid-forties.

School Demographics

The participating school was comprised of 430 students in grades 3-8. African American students accounted for 52% of the student population, while 26% of the students were White, 16% Hispanic, 5% two or more races, and 1% American Indian or Alaskan. Of that population, 8% were considered English Language Learners. Of the 430 students, 51% were female and 49% were male, while 14% had some form of disability and made them eligible for special education services. Furthermore, 95% were considered economically disadvantaged based upon their free and reduced lunch status. It is also important to note that all but 14 students attending this school resided within the Flint Community Schools residency zone, so the school was composed predominantly of children living and attending school in greater Flint.

Focus Group for Empathy

Feedback from the committed participants had been positive throughout our email recruitment as well as face-to-face contacts. There seemed to be an enthusiasm emerging around the idea for our Dissertation in Practice and participants were eager to contribute their time and effort to our research. As facilitators, we corresponded with participants to schedule our first fact-to-face focus group, splitting the groups into three different time slots and locations in response to when and where the groups were available to meet.

The first focus group meeting included four participants. As we introduced ourselves and began sharing the purpose behind our research, the interest in determining supports for lead impacted children and their teachers became apparent. After introductions, we discussed and disseminated the Michigan State University (MSU) required research participant consent form;

however, two participants were unable to engage in our research at that time due to a conflict of interest between their employer and MSU. Although this was surprising and disappointing, we still had our remaining participants so we continued with the meeting. At two subsequent meetings on the first day of interviews, we met with a single participant and then with four school based participants.

The same agenda and interview questions was used with each group to gain insight into the educators' needs and their connections to our research. We assumed that educators serving children in the Flint area would have been inundated with information, resources, and classroom strategies regarding the lead water crisis but were surprised to learn that educators felt under informed on these topics. However, what we soon realized was that there was a sizable variation in the knowledge base among our participants in their respective positions and settings indicating that information sharing had been absent. In other words, the knowledge participants had in one setting did not intersect the knowledge participants had in another.

As researchers, we knew that the *Empathy* phase was going to be the most important phase of the Design Thinking process as we needed to connect with the group we were collaborating with on a fundamental level. The development of empathy is the most important distinction between academic thinking and design thinking (Brown & Kätz, 2009). We understood the empathy phase could not collapse into a presentation of the information we had gathered through our research, which we wanted to share with them in order to enhance their expertise. Instead, we were charged with supporting our collaborators in their confidence in unveiling viable solutions for each of their settings.

As each of the meetings and conversations progressed, we found the participants increasing their engagement in the Design Thinking process. This was evidenced through their

sharing of information and reflecting upon previous meetings and the comments of others. As collaborators realized that our goal was not to come onto their turf and instruct them what to do, but rather, to engage them in a collaborative dialogue, each of them became more comfortable in the room and with the overall process. This was evidenced through collaborators sharing not just the direct answers to our posed questions, but also through offering additional insight and information. This expanded sharing of their needs strengthened the ability of the researchers to develop a meaningful point of view from the information presented.

We found it quite interesting that although our participants were from different sectors of education, at different points in their careers, and had been heterogeneously organized during initial focus group meetings, some strong common threads emerged. These themes, reflected in Appendix I, were assembled in Figure 3 below to reflect their collective concerns. The word collage was created based on the number of times each word or phrase was mentioned during the interviews. Once all the focus group sessions were transcribed and coded, facilitators were prepared to move into the next phase of the Design Thinking process, *Define*.



Figure 3. *Word Picture of Emerging Themes*

In the Design Thinking process, a critical component of the *Define* phase is to determine a point of view (POV) based upon the participants' expressed needs. This POV further serves as a catalyst to the *Ideate*, *Prototype* and *Test* phases given that the POV is an actionable problem statement on which to base future collaboration. Following the completion of the first round of focus groups, facilitators analyzed the transcriptions in a separate meeting without the presence of participants. The goal of this meeting was to assess the coded transcriptions for common themes, patterns and consistencies among the participants' responses to the questions. From the focus groups, several themes emerged, as indicated in Figure 4 below.

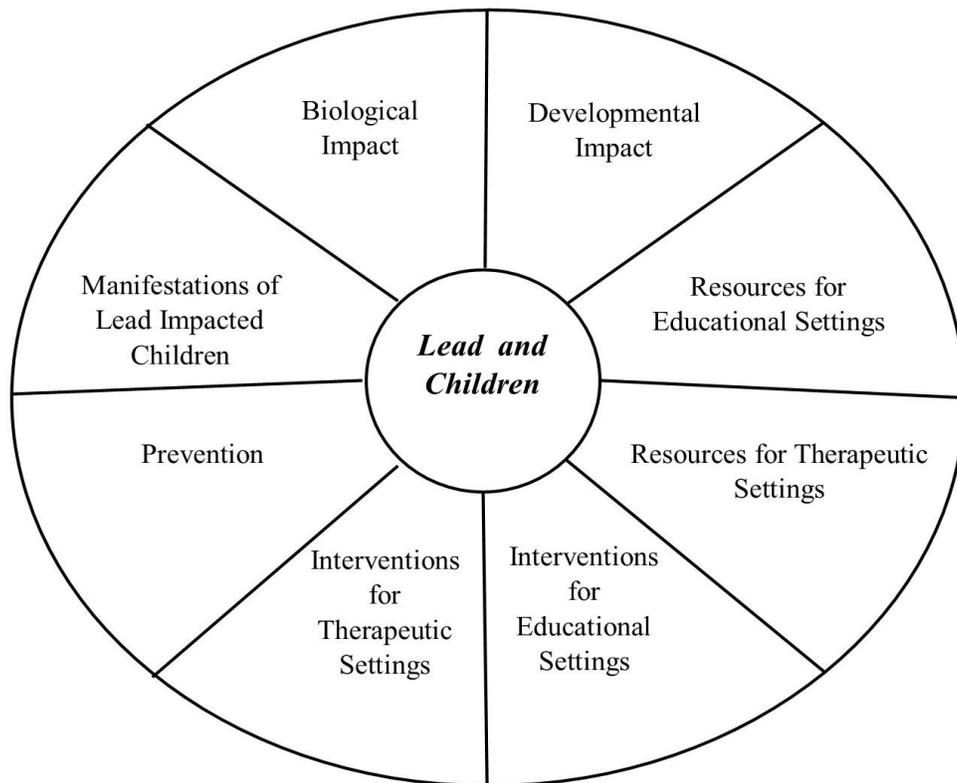


Figure 4. *Thematic Analysis for Point of View*

The purpose behind the define phase of the Design Thinking process is to develop a collection of initial possibilities through divergent thinking, and then through careful analysis of the possibilities (codes in this circumstance), uncover solutions through convergent thinking which result in POVs from which collaborators can consider. From the codes and themes that were the most frequent, we generated 11 problem POVs for the educators as indicated in Appendix J as well as below.

Table 1. Generated Potential Problem Statements to Address Point of View

Assisting Educators with Lead Exposed Children

<p>1. Lack of Complete/Accurate Lead Education: Potential Audience - Educators It came out in the conversations that there has been limited information shared with educators regarding the impact of lead on children. In addition, there seemed to be some confusion regarding the best way to combat the effects of lead exposure/lead poisoning in children.</p>
<p>2. Lack of Knowledge of Resources: Potential Audience - Educators It was apparent in the conversations that ‘resources’ was a predominant theme. Resources were discussed from differing points of view, however knowing what resources are available for families, being able to connect family need with an appropriate resource or navigating the overwhelming list of resources all seemed to be areas of expressed concern.</p>
<p>3. Lack of Access to Resources: Potential Audience - Parents</p>
<p>4. Lack of Complete/Accurate Lead Education: Potential Audience - Parents</p>
<p>5. The potential impact of the Flint Water Crisis on children’s academic and behavioral success is crucial to know and understand. Through increased knowledge, proactive measures may be taken that support the success of each child whether he/she has been impacted by lead in the water. However, through a series of focus groups, it is clear that some educators are unaware of, or have misinformation on, the potential impact of lead on developing bodies. This lack of knowledge may thwart future efforts and cause blame to be on the child, rather than</p>

understanding the limitations as possible inherent problems associated with blood lead levels, coupled with other factors, including poverty. (FOCUS ON EDUCATORS)

6. The Flint Water Crisis has led to an abundance of support from individuals and organizations in and around the state, as well as across the nation. While beneficial and well-intended, challenges still exist, specifically in relation to accessing said resources. Through a series of focus groups, participants identified needs in locating, referring and utilizing resources to assist in meeting the needs of the children that they educate and/or assist. The inability to access needed resources, which may or may not be known as being available to them, has the potential to put undue stress and burden on families, educators, and other individuals working to meet the needs of children. (FOCUS ON COMMUNITY AT LARGE)

7. Parents are their child's first teacher, as well as their strongest advocate. The Flint Water Crisis has brought about the need for many advocates for children, especially parents. Through a series of focus groups, it was evident that educators and individuals working directly with children are experiencing interactions with parents who lack the information they need to be knowledgeable about the potential impacts of lead on their child. This lack of understanding may be caused by numerous things, including literacy rates, trust and relationships, lack of communication, stigma, among others. In order to advocate for, and assist their child, barriers to knowledge need to be considered and reduced, leading to a common level of understanding and awareness so that proactive measures may be taken to best meet the needs of their child. (FOCUS ON PARENTS)

8. Flint educators and service providers have reported a desire to have an increased understanding and access to resources available in their communities to support lead exposed children. A website with an outline of resources will be created to serve as a central registry for educators, families, and other stakeholders to access pertinent information. (ACCESS TO RESOURCES)

9. Flint educators and service providers have encountered a challenge regarding the identification and support of lead exposed children. Using the Design Thinking process, an intake form, in addition to other supports, has been considered to assist practitioners in the identification and development of teaching interventions and strategies to support lead exposed children. (IDENTIFYING LEAD EXPOSED CHILDREN & STRATEGIES)

10. Flint educators have expressed a need to have an increased understanding of the biological and developmental impacts of lead on children. With this increased awareness, educators have also requested an enhanced access to educational resources and strategies that can be implemented in both educational and otherwise therapeutic settings. (LEAD IMPACTS AND STRATEGIES)

11. Educating children with varying levels of need, both academically and behaviorally, is both challenging and rewarding. However, through a series of focus groups, Flint educators and

service providers shared that they have encountered a challenge regarding the identification and support of lead exposed children. Flint educators have expressed a need to have an increased understanding of the biological and developmental impacts of lead on children and how these impacts may manifest themselves. In addition, educators have requested enhanced access to educational resources and strategies that can be implemented in both educational and otherwise therapeutic settings to intentionally address the needs of these potentially lead exposed students. (FOCUS ON IDENTIFYING LEAD EXPOSED CHILDREN & EDUCATIONAL STRATEGIES)

From the list of 11 possible POVs, three were chosen that best represented the needs identified in the focus groups as indicated below. When determining the chosen POV, facilitators were cognizant of the fact that two of the POVs were specific in nature to one aspect of need, whereas one POV encompassed multiple areas as participants indicated. The identified areas included the lack of understanding of the implications of lead exposure in children, parent understanding and advocacy as related to lead exposed children, and increasing educators' awareness of lead exposure implications while providing educational strategies to utilize in their teaching practices.

Table 2. *Narrowed Set of Potential Problem Statements to Address Point of View*

Point of View (POV)	Description
Educators	The potential impact of the Flint Water Crisis on children's academic and behavioral success is crucial to know and understand. Through increased knowledge, proactive measures may be taken that support the success of each child whether he/she has been impacted by lead in the water. However, through a series of focus groups, it is clear that some educators are unaware of, or have misinformation on, the potential impact of lead on developing bodies. This lack of knowledge may thwart future efforts and cause blame to be on the child, rather than understanding the limitations as possible inherent problems associated with blood lead levels, coupled with other factors, including poverty.
Parents	Parents are their child's first teacher, as well as their strongest advocate. The

	<p>Flint Water Crisis has brought about the need for many advocates for children, especially parents. Through a series of focus groups, it was evident that educators and individuals working directly with children are experiencing interactions with parents who lack the information they need to be knowledgeable about the potential impacts of lead on their child. This lack of understanding may be caused by numerous things, including literacy rates, trust and relationships, lack of communication, stigma, among others. In order to advocate for, and assist their child, barriers to knowledge need to be considered and reduced, leading to a common level of understanding and awareness so that proactive measures may be taken to best meet the needs of their child.</p>
<p>Children and Educational Strategies</p>	<p>Educating children with varying levels of need, both academically and behaviorally, is both challenging and rewarding. However, through a series of focus groups, Flint educators and service providers shared that they have encountered a challenge regarding the identification and support of lead exposed children. Flint educators have expressed a need to have an increased understanding of the biological and developmental impacts of lead on children and how these impacts may manifest themselves. In addition, educators have requested enhanced access to educational resources and strategies that can be implemented in both educational and otherwise therapeutic settings to intentionally address the needs of these potentially lead exposed students.</p>

Upon determination of the potential POVs, each collaborator was contacted via email to gather their input. Participants were asked to rank the POVs in order of preference as well as provide critical feedback if none of the POVs represented their top three areas of need and concern. These rankings are captured in the Table below as well as in Appendix L.

Table 3. *Rankings of Problem Statements to Address Point of View*

Participant	First Choice	Second Choice	Third Choice
1	Children & Ed Strats.	Parents	Educators
2	Parents	Children & Ed Strats.	Educators
3	Parents	Children & Ed Strats.	Educators
4	Children & Ed Strats.	Parents	Educators
5	Children & Ed Strats.	Parents	Educators
6	Children & Ed Strats.	Educators	Parents

The sharing of our discerned POVs with the participants via email was designed with intention to respect the time this group was putting into our research without compensation. There was not a need for face-to-face interaction during this phase and the prioritizing of their needs in this manner allowed us to expedite a transition to the *Prototype* phase and leaving more time to cycle through the *Test* phase and the development of the best deliverable outcome possible. After receiving participant rankings of the possible problem statement points of view, we charted their responses, noting that four of our respondents ranked Children and Educational Strategies as their first choice while two of the respondents ranked Children and Educational Strategies as their second choice. No respondent ranked Children and Educational Strategies as their third choice. As a result, we committed to adopting the POV focused on children and educational strategies.

Through a series of focus groups, Flint educators and service providers shared that they have encountered a challenge regarding the identification and support of lead exposed children. Flint educators have expressed a need to have an increased understanding of the biological and developmental impacts of lead on children and the manifestation of these impacts. In addition, educators have requested enhanced access to educational resources and strategies that can be implemented in both educational and otherwise therapeutic settings to address the needs of lead exposed students with intention.

Promising Prototypes

After the POV was established, our process cycled again, this time moving from divergent to convergent thinking as we brainstormed alternative visions for what potential prototypes might be developed to respond to their chosen POV. In putting this list of possibilities together, we evaluated the different categories of materials we encountered during interactions in the Flint area and through our Michigan State University contacts. Through our assessments, it was clear that the Flint community was being inundated with paper documents, so much so that most of them were being ignored. Nevertheless, pamphlets were included in our possible prototypes for the group as we had been surprised to learn that the documents in circulation contained little information on lead, the lead crisis and the impact of lead on school-aged children.

We presented to our collaborators via email four possible prototypes for providing the information desired according to the selected POV along with an idea for disseminating additional information about lead and its impact on children. We shared the prototypes in advance of our face-to-face meeting to encourage the educators to consider possible solutions

through the identification of prototypes that held promise as well as those to be discarded. The following prototypes were presented to the participants:

Pamphlets

The final product could provide the information requested through a pamphlet. Pamphlets are designed to provide the reader with key information on a topic but it is difficult for pamphlets to become a comprehensive tool for users. Pamphlets provide information in small pieces to readers and the design of a pamphlet does not allow for in-depth information to be shared. Rather, pamphlets provide main points and then information to guide the reader to a more comprehensive resource through websites or research documents. The pamphlet(s) could be designed as a single sheet flyer, a tri-fold, booklet or rack card. Information could be presented horizontally or vertically and could be one sided or double sided. Pictures could be included which represent the content or instead a graphic design in the background. There could be a set of pamphlets created to address each of the core needs separately or one pamphlet with very limited information on each.

Professional Development Sessions

The final product could provide the information requested through face to face professional development sessions specifically designed for educational staff members. These sessions could be offered on district PD days as well as through after school or evening sessions. After school or evening sessions could be voluntary or would require funding set aside to pay staff additional hours. The professional development sessions could be presented at a school level or on a district wide level. A professional development session could include a general presentation of information and then offer additional interaction through a panel type discussion. Sessions could also be designed to offer a general presentation of information and then offer

break-out sessions where staff could choose the content area of most interest to them. Sessions could be designed as Ted Talks where there is little interaction with the participants. Last, the session could be delivered entirely through a group presentation with opportunities for participants to then work together in small groups to process the information provided.

Web Page

The potential exists for information associated with lead and the point of view to be shared around the world via a web page. The webpage could consist of tabs across the top that specifically address core needs related to the lead crisis. Each tab would have user-friendly definitions, explanations, links to further information, and possibly videos or other means to share the information with interested educators and readers.

A sample Web page design was pictured in the document provided to the educators and is included in Appendix M. While this was a shell of what could be developed, if chosen as the prototype, input would have been gathered regarding further design ideas and feedback on ease of usage from participants.

YouTube Video

Several YouTube videos that address the Flint Water Crisis exist currently. However, something that we have not been able to find is a video that describes the crisis, gives information, but also has a positive spin. Something that is empowering, provides hope, and encourages resilience.

T-Shirts and Wristbands (could be incorporated with any of the prototypes)

T-shirts and wristbands are effective ways of getting a message out and uniting people around a cause. We provided the participants visual representations of what these T-shirts could

look like. Those examples are included in Appendix M On the first shirt the word ‘epic’ means to be known for...so “be known for good”. These examples could be worn by whomever does the YouTube prototype. Proceeds from the sale of the T-shirts and wristbands could go back to serve the Flint community in response to the lead crisis.

Cartoons

Note: this prototype came to our attention just before the second focus group meeting occurred and was presented only in person to the participants.

The idea for creating a cartoon came from a presentation concerning a new program in northern Michigan and was being introduced at a large community event. The program is called Rocketoons and is sponsored by a local hospital system. Rocketoons is a series of 3.5 minute cartoons that were developed to address the social stressors that students face.

One of the facilitators of this research was an audience member at the Rocketoons presentation and the idea of creating cartoons to address the issues educators are facing in Flint as a result of the water crisis seemed possible. Based upon the feedback from the focus group up to that point, which included the need for more general information on lead and its impact on children, access to resources for educators and parents, as well as strategies to support students that have been exposed to lead, the cartoon idea seemed to be a potential prototype that could fulfill the needs of collaborators and the existing POV.

Currently, Rocketoons is available for use in schools throughout five counties in Northern Michigan. Some of the issues that the cartoons deal with are friendship issues, problems with social media, and feeling left out. The cartoons have the potential to address the social and emotional issues that children bring to school which are often manifested through

negative behaviors. Educators often struggle because there are limited avenues available to assist students in dealing with such stressors which can impact children being equipped with what is needed in a classroom environment in preparation for learning.

Cartoons are impactful teaching tools for numerous reasons (Ieva & Weiss, 2016):

Brief: Cartoons tell a complex story in a limited number of images, allowing use in both a classroom or small-group setting, without taking up a lot of instructional time.

Current: Cartoons provide real-life examples related to appropriate behavior without bias and/or stigma. Students are seeing and processing information on their own and can discuss their observations in a controlled setting.

Differentiated: Cartoons are appropriate for numerous learning styles. Cartoons provide images for visual learners and deliver appropriate behavior messages through direct (auditory learner) and indirect (visual) messages.

Diverse and Inclusive: Characters can be developed to be reflective of students in a school. Characters can also be inclusive in that non-human forms (animals, cars, foods) can be representative of all without targeting certain groups of students.

Flexible: Cartoons can be used in many ways for a lesson: as a catalyst/introduction for a lesson, as the lesson itself and/or as the summary to process a lesson.

School-appropriate: Cartoons are developmentally appropriate and school-appropriate (e.g., language, content, characters, behaviors) and can be tailored to meet numerous levels within a school

The creator of Rocketoons suggest that each cartoon be paired with conversation cards (which are called “Cartoonversation” cards) that help teachers lead discussion around the subjects represented in the cartoon. The cards are designed have open-ended questions to help students engage with the topic at a deeper level, as well as “factoids” which are concise, bulleted points of information that provide students and cartoon facilitators with a better understanding of the topic. In addition, the creator suggests that a set of vetted websites be provided for educators and/or students to access for further research on the subjects represented in the cartoons.

Each of the cartoons and conversation cards are tied to the state of Michigan content standards which enable educators to meet the standards, increase learning time, and help students to process their own feelings. It is important to consider that Rocketoons is an intervention that empowers students to engage and to be an active participant in the learning process. For educators, Rocketoons serve as a launchpad from which discussion can be generated with the understanding that additional resources are available to support students and their needs surrounding the topic being presented.

The cartoons can be used to stimulate relationships between students who might have similar issues so that connectedness, camaraderie, and a positive school climate can be generated in a school environment. In addition, school principals are using Rocketoons as a form of restorative justice. When a student demonstrates an undesirable or destructive behavior, rather than suspending the student, the principal requires that the student and his or her parent watch a cartoon relevant to appropriate school behavior and then answer the corresponding conversation questions together to reteach the expectations.

Each area of concern the focus group identified could be translated into a separate cartoon and the cost of each cartoon is ~ \$22,500 to produce, so funding would need to be

secured prior to committing to each cartoon concept. Considering the extensive resources that are being allocated to the Flint area, there is a real possibility of obtaining funding through a local health system or foundation in the area. The idea of securing funding from a donor would allow the schools (and perhaps doctor's offices, community agencies, parents, churches, etc.) to access the cartoons free of charge through the Web. These cartoons will be called 'Flintoons' as the domain name has been purchased and is available to the project.

For a cartoon concept to be realized into a tangible product, facilitators would need to develop all supporting documents for each topic area serving as the foundation for the cartoon, including lesson plans connected to the content standards, conversation cards, student handouts, assessments, rubrics and parent letters. From that point, the facilitators would distribute this information to the Rocketoons creator so that the development of a script to produce a cartoon could be initiated. Facilitators anticipate the actual production of the cartoon will occur after the Dissertation in Practice is finished and funding is secured; nevertheless, the focus group would have immediate access to all the supporting deliverables for the topic.

It is important to acknowledge that when one of the researchers proposed the idea of using cartoons to provide a framework for addressing difficult topics with children, a wall sprang up blocking the remaining researchers' clear view of the possibilities. The idea seemed overwhelming and too big for us to attempt due to being unfamiliar with the development of cartoons and the developer. We thus began to generate a list of all of the negative aspects associated with the idea and closed off our view to the potential of this prototype. Some of us did not see the cartoon as plausible or as a viable part of a sustainable model within the schools or therapeutic environments we were hoping to strengthen. Some of us also doubted a cartoon would be credible or be respected among educators and other professionals.

This disparity of vision created tension within the collaborative group of researchers that was uncomfortable for all of us. Through several difficult conversations, accessing additional research addressing the value of cartoons, and an intentional nudge from one another and our advisors to return to our original commitment to address the needs of lead exposed children, we were able to regain our focus and move together in the same direction focused on the same goal. These times were painful and exhausting, however, through pushing forward together, communicating with one another, respecting the professional expertise of all researchers and being unwilling to give up on the process or each other, an outcome was achieved that all of us were satisfied with.

Focus Group for Prototypes

At the second focus group meeting, facilitators explained that upon completion of this portion of the Design Thinking process participant feedback would again be assessed to identify and secure the development of a single prototype solution to meet their expressed needs. As before, the entire interview was audio recorded to allow facilitators to engage with the participants and for later access to the transcript to evaluate emerging themes relative to our research questions. The challenge of this phase of the Design Thinking process was narrowing the scope of the prototypes while remaining consistent with the established purpose - providing educators with a tool that has immediate application.

We furnished the meeting with large chart paper to create a visual for the participants to refer to as we discussed the advantages and disadvantages to each of the shared prototypes. The chart below captures the participants' specific feedback regarding the benefits and shortcomings of each prototype. (Appendix R)

Table 4. *Participant Feedback from Focus Group for Prototypes*

Processing Potential Prototypes

Prototype	What Do You Like?	What is Lacking?	How Can it be Improved?
Pamphlets-for teachers -develop needs -cycle of testing -food	-flyers to get rides to groceries	-lots of overlap -coordination issues -gets “lost in the shuffle”	-need to address coordination issue rather than info.
PD Sessions-new resources are constantly emerging	-need learning to be on-going PD -need networks to be created (such as in a PLC)	-lack of quality -lack of coordination	-desire to put an end to “drive-by” PD -great to get the good info but what can we “do” with it?
Webpage-tie together with PD sessions?, Flint Cares Website-good partnership?, application level MANAGEMENT??	-must be connected to PD and a resource able to go back to, one destination is dynamic -always changing, -available to everyone -easy to make connections between resources	-ease of use/navigation issues -find what you need? -what can we do here?	-print off issues -ready to go -different levels? -webinars -discussion board? -different tabs for parents, administrators, teachers?
YouTube-What’s going to make	-manageable amount	-boring?	-info and strategies

<p>someone want to watch it?</p> <p>Maybe linked to a webpage?</p>	<p>of time</p> <p>-parents/teachers' opportunity for discussion</p>	<p>-factual?</p> <p>-Negative tone? - Could be overwhelming to the viewer</p>	<p>-needs to be entertaining</p> <p>-fast draw style?</p> <p>-good access, competition is an issue</p> <p>-coordination of resources</p>
<p>T-shirts/Wristbands (connected to another prototype)-</p>	<p>-can be an 'accessory' to get the word out</p>	<p>-don't want this to get in the way...</p>	
<p>Cartoons (final product that starts with lesson plans & conversation cards)-</p> <p>great jumping off point...</p> <p>-lots of potential topics</p> <p>-identifying delays and provide better service</p>	<p>-best way to get info to students</p> <p>-gives kids a voice</p> <p>-builds empathy</p> <p>-could teach how families look different</p>	<p>-teacher identifier, how do teachers know what to look for?</p> <p>-don't make lead the "buzz" word</p> <p>-don't be just a Flint issue</p>	<p>-don't make "end all, be all" ...remind educators</p> <p>-not too much lead focus more on resilience/empowerment</p>

After all prototypes were discussed as a group, facilitators requested that participants consider which prototypes should be eliminated as options. The participants were swift to eliminate the pamphlet prototype due to the plethora of paper materials in current circulation in and around Flint, as well as the professional development prototype as facilitators expressed the short-term value of the 'sit and get' interaction. The next prototype to be eliminated was the idea

of a web page, which left the YouTube video and the idea of the cartoon. Collaborators discussed the fact that both prototypes were similar but also believed that the YouTube video had the potential of being “boring” for viewers. In no time a consensus was reached to pursue the development of a cartoon and supporting materials for immediate implementation.

Once the prototype for development was determined, facilitators used additional time to reiterate what deliverables would result from this dissertation of practice. We committed to providing them with the foundational elements needed for the creation of the cartoon and these developed materials would also be able to stand alone (without a cartoon) for immediate educator use. Facilitators would then begin to research funding sources to create the cartoon as soon as the dissertation of practice was complete. In addition, through the Design Thinking process participants expressed a desire to help the facilitators brainstorm ideas for the lesson plans based upon their identified areas of need. While the facilitators did not anticipate this development, it was embraced as the natural movement of the Design Thinking process and facilitators created another chart to capture the thoughts of participants on potential lesson plan ideas relative to their expressed needs. Table 5 below is what resulted from that work. (Appendix T)

Table 5. *Participant Feedback on Lesson Plan Ideas for Flintoons*

Lesson Plan Ideas for Flintoons

<p>Lesson 1: Prevention</p> <p>Possible Cartoon Title: <i>Healthy Bodies</i></p>	<ul style="list-style-type: none"> -care of self, eating properly, getting enough sleep -importance of consistency and structure/routine -value of a schedule and what it does for a healthy person -help students to feel empowered about their
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	<p>bodies</p> <ul style="list-style-type: none"> -healthy air, healthy food, healthy water -” don’t do that in front me”, kids having a voice
<p>Lesson 2: Social/Emotional Health</p> <p>Possible Cartoon Title:</p> <p><i>Healthy Mind</i></p>	<ul style="list-style-type: none"> -sometimes things are “bigger” than you -identify the words kids feel: scared, anxious, sad -normalize that for kids
<p>Lesson 3: School Success</p> <p>**needs to be a connection to home-reinforce, set purpose, explain**</p> <p>Possible Cartoon Title:</p> <p><i>Healthy Student</i></p>	<ul style="list-style-type: none"> -how to ask for help in school -how to give themselves a break -mindfulness: positive imagery (group and indiv. level) -safe distraction, time to regroup -appropriately communicated needs -how to take cues in the classroom
<p>Lesson 4: Transition to Learning</p> <p>Possible Cartoon Title:</p> <p><i>Healthy World</i></p>	<ul style="list-style-type: none"> -don’t give up -practice -set goals -grit -way to ‘show’ it for kids, teachers just guide -learn more when they choose
<p>Lesson 5: Relationships</p> <p>Possible Cartoon Title:</p> <p><i>Healthy Relationships</i></p>	<p>Peers, relationship w/teachers, building community, sharing stories-teachers have also been through lots, being a good listener is so important.</p> <p>Build respect but watch for the ‘hierarchy’ associated with this word, empathy, supportive</p>

*possibly make this the first lesson	
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Balancing the Input of all Collaborators

The focus group for *Prototypes* was the first-time facilitators could bring all participants together in one place at one time. We felt at this step of the process that having all the voices in one room was vital to determining the desired prototype that had the potential to meet the needs of all the educators. Despite our efforts to prepare the framework for this meeting, it became clear that one voice in the room would need to be moderated to allow all voices to be heard. It was also important to us as the designers in this process to be sure that our voices were heard in terms of the expertise we brought to the table through our vast educational experiences in addition to the expertise gained through our literature reviews. It was challenging as facilitators of the meeting to balance the voices in the room without offending or silencing the one individual who was having a difficult time leaving space for the remaining group members. Nevertheless, we were sensitive to this imbalance and actively sought to engage all the voices involved. Through asking quiet individuals what their thoughts were and requesting their contributions, additional feedback was discerned.

In addition, after the focus group for *Prototypes*, it was essential that we as facilitators develop products that fit both the scope and sequence of the POV that were manageable to create within our time frame. After reflecting upon our conversations with participants, all four of us found patterns in each participant discussing the challenges surrounding the behavior of students who have been exposed to lead. In addition, because of the diverse membership within the focus group - administrators, teachers, a mental health therapist, and university professionals - we determined it was important that the final product developed accommodated these diverse needs.

Given this, our understanding that lead exposure could manifest as problematic behaviors in children, and that success school is contingent upon the behaviors students have when in the classroom, we explored the idea of developing a product grounded in social and emotional learning (SEL). Because our research revealed that children exposed to lead often manifest challenging behaviors in the classroom, learning self-regulation strategies could assist teachers in their instruction and students in their learning. An SEL curriculum could impact all diverse members of our focus group and our collective expertise as practitioners and facilitators could assist us in the creation of a relevant product. Chapter 5 discusses these developments in greater detail.

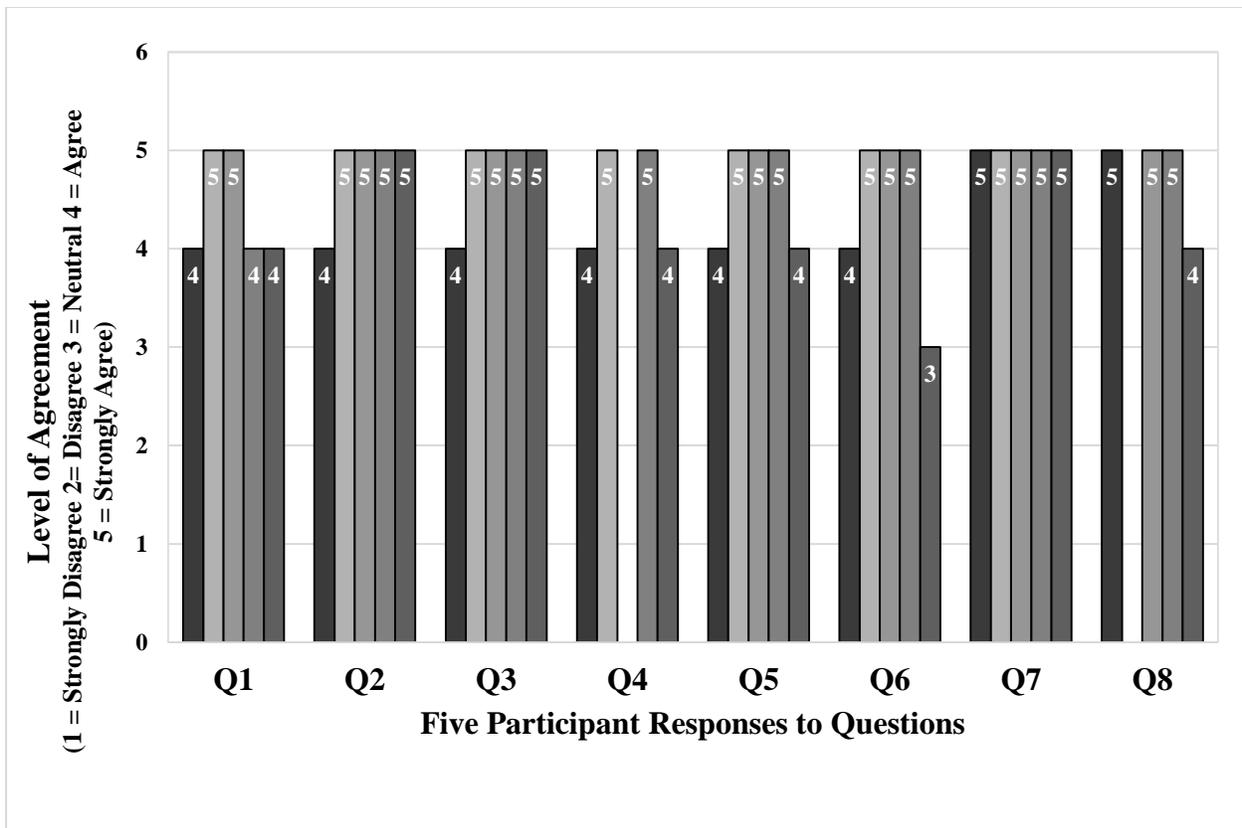
Focus Group for Prototype Testing

In an ironic turn of events, the boisterous group member was unable to participate in the third focus group meeting where we provided the final deliverables to the educators. Still, as we entered the final *Test* phase, we were still unsure as to whether we were successful in reflecting the needs expressed during initial meetings in our final product. Our concerns were eliminated as we observed the responses of our participants while we were presenting the final product. Because we had developed strong, positive relationships with the participants throughout this process, collaborators felt comfortable sharing with us in an open forum. Again, we chose to audio tape this session so we could revisit the conversation and reflect upon the interactions that would occur during that time.

Initially, collaborators listened as we reminded them of the process their efforts contributed to this year, thanked them for their participation, and went through each item in the folder that was provided to them. Included in the folders were: lead FAQ sheet, unit plan including 5 mini lessons on self-regulation skills, student journal and relevant handouts,

parent/guardian letter, and Flintoons Cartoonversation and Factoid Card (see Appendices). Once we completed the verbal and visual presentation of the materials we asked the participants if we had met their expectations in terms of the expressed need for resources to support educators in serving lead impacted children. The answer was a resounding “Yes!” followed by “Now will you just come and do it all?”.

Although not an initial part of the plan for our Dissertation in Practice, it was a great extension of trust by our participants to invite us to return to provide a professional development session for their staff so that all school members could in turn utilize the plans with their students in an effective manner. We hope to be able to schedule a time to oblige them prior to the end of the school year. Since the Design Thinking process was instrumental for this Dissertation in Practice, we believed that garnering feedback from the participants on the process, and whether value was found in using it, would be an important part of our findings as we consider recommending the use of this framework for future research. As a result, we developed a short answer and Likert scaled survey for our participants to complete before the group disbanded. Participants responded to the question of ‘What would like to have seen done differently’ with ‘better scheduling for teachers and a little more direction in the beginning about what the process entailed’. They also provided narrative feedback on a second question ‘What was the most valuable part of this process’ with ‘having my input valued, the result, receiving resources we can use with students and getting to collaborate and connect with other community members’. The results of the Likert portion survey are reflected in Figure 5 Process Survey Responses below. (Appendix EE)



Q1	At the onset of the project, I was provided with enough information so that I felt I could participate effectively.
Q2	My thoughts, ideas, questions and concerns were reflected in the process.
Q3	Efforts were made to ensure that all voices were heard equally in the face-to-face meetings.
Q4	I felt the researchers understood the struggles we are facing in Flint.
Q5	The time I spent participating in this Design Thinking collaborative project was worth it.
Q6	I am interested in using the Design Thinking Process for problem solving other educational issues in the future.
Q7	Do you feel as though you had a voice in the development of the prototype?
Q8	Do you believe there was an ample amount of communication from the researchers via email so that you knew what was happening throughout the process?

Figure 5. *Design Thinking Process Survey Results*

Evaluating the Impact of the Self-Regulation Unit Plan

“Did it work...? Did it have the outcome I was hoping for...?” For educators, these are the questions reflected upon after delivering their developed lessons each day. We anticipate that an

educator using the self-regulation unit we provided could still result in the same reflection questions. With all lesson plans it is important to revisit the presentation of information and to evaluate the outcomes. As a result, we also developed a pre/post assessment for the students and for the adults participating in the facilitation of the lesson. These assessments have an accompanying rubric so that both educators and students can see with ease the value of the unit presentation over time. (Appendices FF-II)

Unique Group Features

As was our intent from the outset, we were pleased to be able to conduct our Dissertation in Practice with a heterogeneous group of participants spanning age and job responsibilities across an assortment of education focused agencies. The educators brought unique insight from the levels of university, county systems, public and charter school sectors, and community organizations. While there was a shared concern expressed, the multiple efforts to support children and families that existed were not having the impact desired due to a lack of coordination of these efforts. Through this Dissertation in Practice, participants came to recognize that there was a disconnect between different sectors of the various communities, including educational and mental health organizations, which led to students being underserved. The need for an overarching system to bring all the available resources together for the benefit of the children and families each participant serves was apparent.

Funding Prospects

One of the outcomes of the third focus group meeting was the establishment of a potential funding contact with a local community agency. One of the participants was excited about the development of the deliverables and expressed the desire to help see to it that the cartoon could gain the funding and traction needed to be produced. That participant sent an email

to her upper level administrator who then contacted us to gain more information about the project. In addition, the administrator sent an email to her contacts at a well-established foundation that is associated with funding unique projects that benefit the Flint community. The foundation has an online application process to garner more information about potential projects. We have submitted the required information and are awaiting word as to if the foundation is interested in funding the creation of Flintoons. In addition, there has been email communication with the community agency upper administration contact in order for her to share information with others within her agency who determine funding outcomes.

In addition to the two contacts listed above, we have been sharing information about Flintoons with multiple individuals to gain additional ideas for funding sources and connections with other agencies. Thus far, we have sent interest letters, emails and made phone contacts with the following stakeholders:



Figure 6. *Visual Representation of Potential Funders*

An unintended consequence of pursuing the cartoon deliverable was that a secondary, parallel Design Thinking process began as we were collaborating with the artist to develop the cartoon and supporting documents. As we connected with the artist and learned about Rocketoons, we discovered that he had a need for lesson plan templates to connect the cartoons he intends to create to help teachers embed Rocketoons into their curriculum in a seamless manner. In addition, we learned that the production of the cartoon itself is part of another,

separate design cycle. Going through multiple design cycles at once has proven to be quite challenging as all were independent of each other while connected at the same time. In the end, we chose to focus on seeing the cycle through with our Flint participants, as this was the foundational to our research problem, prior to moving toward completion of the remaining two cycles.

As we began this venture of using the Design Thinking process in an effort to support educators in serving lead exposed children, the anticipation of becoming comfortable with chaos was a bit overwhelming. However, what we learned was that if we trusted the process and reflected upon each step, the knowledge generation, recommendations for the education field and implications for future research, would be powerful. Chapter 5 interprets these and other findings in greater detail.

CHAPTER 5 - DISCUSSION

Throughout the process of this dissertation in practice, growth in both ourselves as facilitators and participants occurred. Initially, two of us attended the Town Hall meeting at University of Michigan - Flint to begin gathering background data on the unfolding crisis in Flint. The meeting included a panel of medical, educational and community professionals who shared information on what they were currently working on and it ignited in the facilitators what might be our focus for moving forward as it related to the Flint crisis. Collectively, the partners applied the nickname ‘save the world’ group at the onset of the project as our passion for impacting children and families in a meaningful way was undeniable. We came to understand, as facilitators using the Design Thinking process within the dissertation in practice, that addressing issues one piece at a time would ultimately influence the educational community in a more significant manner. The following sections address this discovery.

Critical Analysis

This analysis responds to the three research questions posed in Chapter 1 of this Dissertation in Practice. It provides insight into whether our research addressed the three guiding principles of this research, 1) determining the needs of educators supporting lead impacted children, 2) assisting educators in developing learning strategies to support their students who are lead exposed through a collective process, and, 3) developing tangible a product that is appropriate, relevant and can be implemented to support educators and their students. This analysis assesses the use of the Design Thinking process as a tool to achieve these ends.

Research Question One

What are the needs of educators who provide a direct service to children who have experienced lead exposure?

Design Thinking as a process enabled the facilitators and participants to effectively embrace inquiry toward an unknown, unspecified product for application in educational settings. The Design Thinking steps created a platform for all to recognize the potential for reflection and strategic problem solving to identify solutions to problems that had previously seemed unapproachable. Practitioners in education can often become fixed in a mindset that inhibits the partnership that logic and imagination can have on finding solutions. Blinders can develop as a result, leading them to the same conclusions in each situation, despite having different questions and corresponding remedies right in front of them. Using the Design Thinking process allowed all the participants to recognize that the answer was ‘in the room’ and gave them permission to consider solutions that were previously invisible to the group.

Upon first interactions with Flint educators, we noted the intense feelings of being overwhelmed and hopeless. While participants were eager to engage in conversation, there was a larger desire to have immediate fixes from facilitators for their perceived problems. “What do you have for us? We just need to know what to do.” These were comments that our partners made throughout our conversations and were laden with a desperation of where to begin the process of helping lead exposed children. Upon posing the question to Flint educators, “What do you need?” to begin identifying their perceived needs for their schools, we came to understand that they were unaccustomed to anyone asking them this question or prompting them to reflect upon their situation. We came to this conclusion from the way that the participants required further probing and many questions to draw from them ideas beyond solutions that money could

provide. At the initial meeting, we observed a group of Flint educators consumed with the demands of accommodating the basic needs of their lead exposed children.

Through the stage of *Empathizing* with our participants, the educators were most concerned with providing immediate needs to students. Themes throughout our meetings suggested an overwhelming need to be connected to resources that provided clean water, safe nutrition, and support for families and parents raising children caught in the middle of the water crisis. There were times it felt as though participants were so consumed with meeting basic means of survival that classroom learning was a distant second. Participants reported having to act, at times, as counselors not only to students but to parents as well. One participant stated,

“Yeah when [parents] come here we have to spend so much time calming them down and then really, I mean every time we have someone coming in here they’re...it’s like a counseling session...they come in mad, I walk them through it and then they cry and then they just want help...and their kids are that same way. I feel like...they come in and you try to correct them or talk to them...but I’m new to this position too so I don’t know if that’s lead or if that’s just how it is.”

It became clear that the teachers and administrators within our collaborating school were serving the roles of case managers, nurses, and other service providers, perhaps due to their feelings of isolation from other sources of assistance. Through active listening and offerings of compassion, facilitators attempted to give participants permission to consider what their needs were, as educators in the classroom and other settings, if all the other student needs were met, to help mitigate the impacts of lead.

The stages of *Define* and *Ideate* invited participants to consider POVs from all areas of impact in their roles as educators. These stages involved challenging the assumptions that had

perhaps prevented the educators from being able to consider their dilemmas with fresh perspectives. For instance, participating educators had learned that lead exposure could manifest as problematic behaviors in children. While their solutions to address challenging behavior had involved considering special education or a referral to the one social worker in the building, participants began considering the idea that all teachers could become equipped in their handling and supporting of challenging behaviors from students as a result of lead impact. Because children that have been exposed to lead often suffer from impulsivity, short attention span, and aggression (U.S. DHHS, 2015) potential classroom strategies and interventions could then be used with all students, lead impacted or not. These strategies had implications for changes to the handling of student discipline from administrators, in the form of restorative justice, which will be discussed in a later section. Because of these stages, participants could align with the POV that was most relevant to their needs.

Through the *Prototyping* and *Testing* phases, products were generated and then pitched to participants for their reactions. Participants demonstrated that there was consensus in the “been there, done that” products as less effective means to solve their POVs. These included pamphlets, additional professional development, and most website ideas. So, even though participants had a reluctance to engage in conversations regarding their needs, they were quick in their identification of prototypes they were certain would not fulfill their needs based upon prior experience. We found that with support, participants were satisfied from the fact that narrowing in on an appropriate prototype the group could agree upon was done with such ease. Again, the notion of converting divergent thinking into convergent thinking, which involves selecting the best solution from a multitude of options (Brown, 2009), reinforced that educators were

equipped with knowing what their needs were before entering the room. The process of Design Thinking enabled this knowledge to surface and be extrapolated.

Research Question Two

How do we provide supports to educators which will enable them to build their knowledge base of effective strategies for increasing the learning capacity of these students?

This research and the use of the Design Thinking process confirmed that student success in school is contingent upon the behaviors students have when in the classroom. Students who can self-regulate their feelings and corresponding behaviors are better equipped to succeed in school environments and as adults (Raver, 2002). Educators with strong emotional intelligence SEL competencies have more positive relationships with their students, are more effective in their classroom management, and implement schoolwide SEL programs with greater fidelity (Jones, Bouffard, Weissbourd, 2013). Competencies in social emotional learning can contribute to not just the success of schools but also to teachers and students. The Design Thinking process revealed that educators charged with serving lead impacted children require SEL strategies in order for solid instructional practices to impact student learning outcomes.

Through the Design Thinking process, it became apparent that collaborators were interested in increasing their expertise relative to effective classroom strategies that could enhance student learning. Participants commented that the current efforts to support children in Flint were more focused on resources for families and the providing of clean water, in particular. In addition, participants felt there were insufficient energies being devoted to supporting children while attending school. For example, one participant said, “Community supports help our students, but not while the students are at school...so, if you’re asking if there have been resources on how teachers can help [lead impacted] students, I don’t feel like we have anything.”

If representative, this comment made during our first focus group meeting suggests the deficit Flint and surrounding area schools are experiencing relative to the supports schools could provide to lead impacted children. While schools were providing nutritious meals, safe water and other clean water related resources, the educators in the school felt as though there was an impasse as far as what teachers could do using their expertise as educators.

Relative to research question two, the notion of “expertise” was revealed as critical to the Design Thinking process. Evidence accumulated through the use of this process that both participants and facilitators were wiser than first assumed. Upon first meeting with participants, there was an obvious sense of being overwhelmed. “What do you have for us?... What can we do to fix this [in our schools]?” were comments shared with facilitators at initial meetings. Through an assessment of the several transcripts created from our meetings, we saw represented in participants’ comments, though often subtly, expertise among their group that contributed to the direction of the Design Thinking process. While at first participants reported being at a loss and confused with where to begin supporting their students, comments shared indicate more expertise and insight than first thought. As one participant shared, “[Our students] seem emotionally stunted or not as far along as you would expect...not able to handle their emotions the correct way...there’s a lot of emotional behaviors going on that we haven’t seen in the past...to the extreme [in terms of] the amount.”

Participants revealed that the challenging behavior of students in the classroom were preventing the students and teachers from creating an optimal learning environment. The Design Thinking process, as a cyclical approach to educational improvement, enabled participants to provide a glimpse into their concerns regarding their situation and provided facilitators with the framework to uncover these concerns more fully. The expertise both groups possessed prior to

launching the process was integral in propelling the process forward. The expertise facilitators possess exceeded the often technical learning that resulted from preparation of literature reviews. Our individual roles span the educational spectrum: educational leaders in rural, suburban, and urban environments all with different levels of socio-economic status, and responsibilities as central office leaders, building leader, special education supervisor, school counselor, mental health counselor, and teacher. The lenses through which these professional roles enabled us to conceptualize POVs diversified our approaches to the design work and, therefore, the level of expertise we could offer participants.

Research Question Three

How will the needed supports be developed into a tangible product for maximum dissemination to educators?

As diverse are the facilitators of this Design Thinking process and subsequent dissertation in practice, so, too, are the participants. Participants in this research included teachers, building administrators, a university liaison, and mental health therapist. Therefore, using Design Thinking, participants could connect with other professionals who could lend their expertise to areas of need within the school and surrounding communities. In addition, collaboration amongst participants revealed the significance of affirmation that resulted from hearing the similar challenges faced in different settings. Participants from outside the focus school served a role in providing resources into the educators' networks. This was done through sharing information on existing resources for lead impacted families and children with which the school was otherwise unfamiliar.

The participants from outside the school functioned as boundary spanners, infusing information and materials from outside agencies into the social networks of the school. Thus,

social networking was proven to be a more effective tool for disseminating information in a meaningful way than traditional systems (i.e. flyers, pamphlets, websites). Teachers' social networks became more diverse and included specialized experts as a result of forming ties with non-traditional resources--shifting from ties of homophily and proximity (Coburn et al., 2013). As was witnessed at the final two focus group meetings, educators within the focus school were eager to utilize the resources and expertise of collaborating agencies. After thirty minutes of brainstorming potential prototypes, participants discussed the importance of resource coordination. The following excerpt highlights the collaboration participants were developing with one another.

Facilitator: I'm so excited about what happened in the last ten minutes. You can see that the communication coordination is not there, that's why I kept asking, "are you getting what you need? Because they [teachers] need a lot.

Participant: And coordination is big so it's like you can make another pamphlet but unless that pamphlet translates into people knowing the information to feel comfortable enough sharing it with somebody else, that's where the problem is...like I can learn it, even if the flyer's not that good, I have to spend a pretty significant amount of time on figuring out.... If I'm going to refer a resource, it better be working, you better not violate my relationship with my families.

This exchange at the end of the design process indicates that teachers' social networks are more amenable to influence from outside collaborators than what was apparent at the start (Coburn et al., 2013).

Collaborative relationships between schools and outside agencies enables the sharing of resources and ideas that could not be achieved in isolation. Social capital theory can be used as a lens through which these collaborative relationships are examined (Forbes, 2009). Most research on that point holds that optimal social capital is indicative of relationships that are rooted in

reciprocal trust and cooperation (Coleman, 1998). Authentic collaboration, consisting of a cluster of norms, values and expectations embraced by group members, can therefore be understood as social capital (Mellin, 2009). The Design Thinking process revealed that participants possessed social capital that was complimentary and applicable to multiple settings serving children. For instance, contributions from the therapist regarding SEL and behavior regulation, proved useful in educational, therapeutic, and home environments. Further, the design process supported Putnam's (1995) research into the social benefits of associations built through social capital connections called "bridging social capital."

Bridging social capital involves the building of social connections among more heterogeneous groups of individuals (Putnam, 1995) and can foster more collaboration among individuals from differing groups and systems (Forbes, 2009). Bridging social capital can be foundational in creating role expectations and responsibilities for mental health professionals from agencies and schools who are in collaborative relationships (Waxman, Weist & Benson, 2009). This suggests that schools could tap into the resources mental health agencies offer through partnerships with similar goals in supporting lead impacted children. Paternite et al. (2006) determined that bridging social capital can be useful in facilitating interagency collaboration through helping to educate clinical professionals on the unique culture of schools and the related legislation and policies.

Thus, through the Design Thinking process, participants could conceive of a tangible product that could be disseminated to educators by way of social networking and bridging social capital. Both constructs provided participants with deeper insights into their own roles and the roles of others. Educators learned about existing resources that can be shared with their colleagues, students, and students' families, while collaborators from outside of education were

given a clearer glimpse into the challenges schools face and the manners through which their efforts might support the health and functioning of a school. The unit lesson plan developed on self-regulation and the subsequent supporting cartoon under construction can be used immediately in school and agency environments. Both also have additional applications, with great promise and potential, discussed in detail in the next section of this document.

Implications for Practice and Research

Given the emphasis participants placed on behavioral challenges as a central challenge for schools working with entire populations of students negatively impacted by lead, we discuss two specific applications of our work in addressing mental health and social justice. We also consider how Design Thinking can organize continuous school improvement, referencing advantages and limitations of the process. Finally, we outline what surprises we encountered during the Design Thinking process and reflections upon the group nature of completing this doctorate degree.

School-Based Mental Health

The results of this collaboration through the Design Thinking process suggest that School-Based Mental Health (SBMH) programs through interagency collaboration could be useful in supporting lead impacted students. Because of the massive impact the lead crisis in Flint and surrounding communities has had on children, the needs of children can overwhelm current support systems in schools. As one participant noted, “[We need] more social workers. We have two social workers not a [single] counselor and they do a great job but I think...they are still spread so thin. As suggested, mental health professionals and teams in schools, including counselors, psychologists and social workers, are often unable to meet the needs of students with significant mental health concerns due to competing responsibilities and

limited budgets (Kratochwill, 2007). Even in schools where there is adequate staffing and appropriate prioritization of professional duties, it is rare for schools to have the capacity to meet the mental health needs of all students (Vaillancourt & Amador, 2015). An unintended consequence of overwhelmed services can be that students with untreated emotional needs contribute to the number of inappropriate special education referrals (American Psychological Association Task Force on Evidence-Based Practice for Children and Adolescents, 2008).

The SBMH interventions that are developed to meet mental health needs often help schools better meet student learning goals and standards as a consequence (Capella et al., 2008). Hoagwood et al. (2007) determined that most of the interventions utilized in SBMH programs improved both mental health outcomes and academic gains for students. Common interventions include classroom-wide programming for normative events (i.e. transitions throughout the school day), or class-wide routines (i.e. sustained silent reading or group instruction), can often ameliorate their difficulties (Hoagwood et al., 2007). Having a strong social-emotional learning curriculum could also help support this. Because children with mental health needs are more vulnerable to emotional disturbances when disruptions occur in their daily lives, these interventions can help to mitigate their challenges while benefiting all students (Hoagwood et al., 2007). Interagency collaboration in the form of SBMH could be both preventative and reactive in nature to supporting lead impacted children in the Flint area.

Professionals serving in education and public health have recognized for decades that the problems encountered have fluid connections across home, community and school environments. Because no single group of professionals has the capacity to solve the problems of all children alone, agencies have been supported to align and coordinate their services through interagency collaboration (Hodges, Nesman, & Hernandez, 1999). A comment made by a participant reflects

this: “From the standpoint of teachers using strategies to help with [children’s] emotional behaviors, I mean we don’t know what we can immediately use while teaching...you know we haven’t really seen [support] in that area either.” Interagency collaboration in systems of care unites professionals in school settings, children, and their families to external resources that become embedded into school-wide interventions (Hodges, Nesman, & Hernandez, 1999, p.8).

On a small scale, interagency collaboration was simulated through the natural evolution of the Design Thinking process used in this research. Teacher participants of this process could engage in conversation with professionals from the mental health field (a participant and a facilitator) while generating ideas. The expertise from mental health members of the process could combine with the expertise of teacher members to create a comprehensive product targeted at supporting student behavior. As referenced in response to research question two, expertise was revealed among members of the Design Thinking process. The expertise accessed through implemented SBMH programs could perhaps support the expressed needs of participant. One participant shared, “[Students] need to have more people to talk to...like mentoring or counseling programs...teachers just have so much pressure on them that they don’t have the time to just check-in with kids.” SBMH could provide teachers with practical check-in strategies and fill in the gaps where needed for students facing a more significant mental health need.

Restorative Justice in Schools

As mentioned in our literature review, restorative justice (RJ) as an initiative in schools has been gaining traction over the past decade. RJ redirects the notion that the “offender” should be punished to, instead, that all those who an offense or incident impacts are a part of finding a solution moving forward. The product of this Design Thinking process, a lesson plan unit and cartoon under construction, has direct applications to an RJ program in schools. Upon mass implementation of a self-regulation and/or SEL unit in schools, the program can start to be

embedded into the culture and daily functioning of the school. The most impactful SEL programs are integrated into classrooms and whole schools in manners that are meaningful, sustained, and embedded into the regular interactions of all school members (Domitrovich & Greenberg, 2000).

Because of the brief and differentiated nature of cartoons as discussed in Chapter 4, the use of an SEL cartoon when an offense or an incidence has occurred could be useful in schools and as reinforcement with families. Students involved in an offense at school could use the cartoon as a reminder of SEL programming and expectations in a school. Often, it is easier for students to recognize problem behavior in others than in themselves. Watching the cartoon allows students to observe conflict situations from afar, reflecting upon parallels drawn from their own behavior and the cartoon. Supplemental cartoon conversation cards, which facilitate discussion on topics covered in the cartoon, provide intentional talking points and are valuable in that they can be adapted to different ages and grade levels for optimal use.

In addition, families of the student(s) in conflict could watch the cartoon at home as a means of supporting the more desirable behavior. This reinforcement of the appropriate behavior creates an opportunity for the families and students to be involved in a cooperative effort to promote positive behavior. Collaborative efforts of SEL programming can be reflected in places outside of the classroom such as within partnerships with families (Ttofi & Farrington, 2009). Because SEL can be effective in supporting restorative justice programs in schools as replacements to more traditional forms of discipline (Macready, 2009), the lesson plan unit and supporting cartoon have direct applications. Long-term effects of SEL interventions can improve the overall composition of a classroom climate when student behavior is improved through restorative measures (Macready, 2009). SEL programming, embedded into RJ practices and

supported through SBMN programs, could help serve lead impacted students, their families, and teachers in the Flint area.

Advantages and Limitations to Design Thinking

Advantages to the Design Thinking process include that it focuses on the end user and places participants of Design Thinking at the center of the process. The human-centered, organic nature of the process enables facilitators to develop a product in conjunction with participants that is relevant and will have a lasting impact on improving the lives of educators in school settings. In addition, the Design Thinking process leverages the collective expertise and experiences of the participants. In doing so, the multiple “camps” represented through the process are heard and considered. Through our iterations of the Design Thinking process, we attempted to integrate the voices and desires of professionals from different settings into the final product. This required some probing and nudging of the more reserved participants. Participants who were more monopolizing of conversations required frequent redirection, which proved to be challenging and a limitation of the Design Thinking process.

Another limitation of the Design Thinking process is that it is a time consuming process that confines users to particular steps. This was felt especially in this situation considering facilitators and participants were from across the state of Michigan and not in the same location. There were moments when facilitators felt that the expectation that the process be organic confined us and that we had to be married to this notion throughout our interviews. This was challenging when participants either seemed to lose focus on the direction of the conversation or when the willingness of others to participate was compromised due to the dominating communication of another participant.

Reflecting upon this, there were moments when facilitators could have been more proactive in redirecting these behaviors to facilitate a more collaborative and inviting conversation. Because of these constraints, the creation of innovating ideas and contributions might have been jeopardized. It is recommended that future professionals who use the Design Thinking process as a problem-solving mechanism have a plan for addressing these circumstances before encountering them. In general, we believe the use of Design Thinking process produced better results for ourselves and our participants than if had we chosen to depart from the constraints of the model. The dichotomy of an organic process that has boundaries grounds Design Thinking and prevents users from being either too ambiguous or too rigid while innovating together.

The three Design Thinking constraints, desirability, viability and feasibility, all proved to be both an advantage and limitation to the process (Brown, 2009). Conflicting constraints among the educators in determining the desirable POV to address, followed by determining a viable product that was feasible and sustainable for the future, caused movement in and out of the various design phases. While organic in nature, and truly an indicative part of the Design Thinking process, movement in and out of the phases caused tensions to emerge. As the facilitators worked to create a product that best suited the needs of all participants, at numerous times participants were pushed to regain focus on the research questions at hand.

Given the various needs of the educator participants, and the discussions from the Focus Group for Prototypes, a pivotal point in this research was when the facilitators realized they were deviating from assisting educators with lead exposed students. This deviation to a more generic, albeit universal need of supporting all children unprepared for success in school was spearheaded by a single participant. Despite tensions within the facilitator group, all worked together to regain

a focus on lead exposed children, while collaborating to find a way to have each of their ideas incorporated into the final product. While challenging at times, the conflicting constraints and tensions led to a more impactful product for the educators.

In addition, it is important for those considering the use of Design Thinking to remember that this instance of the process utilized facilitating experts to stimulate conversation and product development. Our use of Design Thinking was such that we had an idea of supporting lead impacted students and their educators and solicited participation in our research to fulfill requirements for our degree program. Educators on the front lines using the Design Thinking process would need to be comfortable with the fact that the process is not linear and can become repetitive as participants iterate and refine ideas. Due to this, users of Design Thinking would need to embrace the growth mindset at the core of the process and be willing provide intentional disruption the status quo of their organizations. Because the process encourages experimentation and the exploration of ambiguity as a means of innovation and personal growth (Brown, 2009), those committing to the process would need to do so with open minds in order to reach similar levels of idea and solution diversity as our group was able to accomplish.

Overall, we believe that the Design Thinking process was valuable and one we would utilize in future efforts to bring about continuous improvement in our workplaces. For example, during challenging times such as the Flint Water Crisis, the Design Thinking process brought to light the true needs of the participating educators. In schools, various needs exist on a regular basis. The sheer acts of empathy, define and ideate, allow educational leaders and participants to determine a clear scope of the improvement focus, or POV. Once the POV is determined, participants are involved in the prototype and testing phases, allowing them to be a part of the solution, rather than being told to do something they may or may not have ownership in. We can

envision Design Thinking occurring throughout the school year as educational leaders and teachers work to address the school's needs utilizing a continuous improvement model.

Surprises and Reflections

Several surprises occurred during our time collaborating with Flint educators. First, because the Flint water crisis had received regular national attention for over a year in the time leading up to our collaboration with participants we assumed that educators would have had an extensive amount of professional development concerning the multiple implications of lead exposure. We soon learned that what little professional development participants received did not include information on the implications of lead exposure on child development nor did it explain the circumstances leading to the lead crisis in the first place. Second, the little awareness participants had regarding available resources in Flint and surrounding communities disconfirmed previous assumptions we had made going into this research. We assumed Flint educators had been inundated with information on the biological impacts of lead and would therefore just need support in developing classroom strategies to support their students.

In addition, we were surprised to discover in retrospect that while we had focused on a single POV to serve as a template for the development of a final product, the three POVs from which participants chose from were incorporated into our multiple final products. The POV chosen to steer the Design Thinking process involved providing educators with information on the biological impacts of lead and classroom resources that could have a direct impact on student learning. While the FAQs and lesson plan target the needs of our chosen POV, these products, in addition to the Cartoonversation Cards, Letter to Families, and Cartoon under construction, all fulfill POV statements A and B. This serves as a reminder of the convoluted nature of the lead crisis in Flint and the multiple levels of impact it has had. During our interviews, participants

shared there had been significant gaps in communication and coordination which left them in a reactive state rather than a proactive one. Our hope is that the products delivered to them will help to close this gap.

It was this gap in coordination and the trauma children were experiencing that motivated us to start and conceive of this process. Because schools are situated to provide structure for children in the aftermath of a disaster, the relationships that children develop with the educators in their schools help to cultivate safe and secure feelings post-trauma (Cheal, 2010). This research supported educators charged with educating students who have been trauma impacted. Through this organic process, facilitators determined with the help of the participants that more than just educators could benefit from products and relationships developed through the Design Thinking process.

The group nature of the Ed.D. dissertation in practice pushed us to find an equilibrium as we negotiated our topics, roles, and final products. Collaborating as a group and constraints such as our other responsibilities in our roles as full-time educators proved to be a rewarding challenge. This facilitative process enabled us to grow as researchers, educators, and collaborators; the answers we found in the room could not have been revealed without this format. Our thorough research with the literature review of the impact of lead on children, paired with our own experiences as educators, and our commitment to the Design Thinking process, elevated us to the role of experts. This is a powerful and humbling realization that leaves us committed to seeing that our research lives on.

APPENDICES

APPENDICES

Appendix A: Projected Timeline for Capstone Work

Weeks of October 10, 17 and 24

Finalize group of volunteer collaborative educators

Empathize: provide educators with a short biography of each of the facilitators

Weeks of November 1, 7 and 14

Complete initial school observations

Hold initial face-to-face meetings with participating educators at each school

Weeks of November 14, 21 and 28

Define: Determine point of view

Complete transcription of meetings with participating educators

Analyze and code observation notes and transcriptions

Weeks of December 5 and 12

Ideate: Explore solutions to the point of view

Prototype: Create various prototypes and decide which to present to educators

Complete first iteration of prototype and provide to participating educators no later than December 20

Weeks of January 16 and 23

Hold second face-to-face meetings with participating educators at each school to gather feedback on the initial prototype

Weeks of January 23 and 30, and February 6

Complete transcription of meetings with participating educators

Analyze and code transcriptions

Weeks of February 13 and 20

Ideate: Explore solutions to the point of view

Prototype: Create various prototypes and decide which to present to educators

Complete second iteration of prototype and provide to participating educators face-to-face no later than March 1

Thank participating educators

Weeks of March 20 and 27

Test: If needed, hold final face-to-face meeting with participating educators at each school to gather feedback on the second-round prototype

Weeks of March 27 and April 3

Complete transcription of meetings with participating educators

Analyze and code transcriptions

Week of April 10

Personal delivery of final product to participating educators

Defend in April

Appendix B: Capstone Project Collaborator Recruitment

To: Prospective Collaborators

From: Camela Diaz, Melody Strang, Amanda Unger, Sarah Van't Hof

Date: September 18, 2016

The Challenge

The Flint, Michigan water crisis has brought national attention to the issue of lead poisoning in our nation's children, though lead exposure is not a new issue. Over the past thirty years, research has determined that no blood lead level is safe or free of irreversible health problems; thus, it is certain that children living in Flint have been negatively impacted. Responding to the needs of those students who have been exposed to lead is a pressing problem that the educators in Flint and surrounding area schools will face for many years to come.

We are students in the Doctor of Educational Leadership program at Michigan State University. As part of our studies, we are engaged in a Capstone project that seeks to improve educational practice and conditions for citizens in Michigan. Based on preliminary conversations with Flint educators, our group believes that developing a set of resources to support those who work directly with children who have suffered from lead exposure would be a valuable contribution. We bring a variety of experiences to this work with backgrounds in school counseling, school administration, central level curriculum and technology development as well as central level special education programming and oversight.

The Project

Given our experiences as educators, we have ideas about the kinds of resources that might be helpful:

- Foundation for product development designed to support educators
 - Information about lead poisoning
 - Sources of lead
 - Developmental impact of lead exposure
 - Emotional trauma as a result of lead exposure
 - Teaching practices to combat the effects of lead poisoning
 - For optimal brain development
 - To build foundational skills in English language arts and math
 - To improve thinking skills
 - Social/emotional development
 - Home support to engage families in the process of overcoming lead poisoning
 - Strategies parents can use to support student learning
- Coordination of wraparound services to better serve students with lead poisoning
 - Agency partnerships
 - Schools
 - Medical
 - Social/Emotional

We believe that educators and administrators in the Flint area are in the best position to specify the types of support that would be most useful. Therefore, our Capstone project will utilize the design thinking process to investigate, create and implement resources for educators based upon

their expressed needs. We will conduct a series of conversations with a group of educators from Flint and surrounding area schools and work collaboratively through the five phases of the design cycle, as follows:

- Engaging educators in order to gain insight into their goals and challenges and their ideas for resources;
- Interpreting the data from initial conversations;
- Designing resource prototypes;
- Involving collaborators in testing prototypes;
- Critical reflection leading to new refinements.

Potential Benefits to Collaborators

Through our collaboration, we aim to produce authentic and valuable resources that are meaningful to the educators of Flint children. Educators will gain tools and strategies for supporting children impacted by lead in addition to learning how to use the design thinking process, a valuable tool that has multiple applications. This work is not intended to serve as a temporary solution to the challenges facing our colleagues, rather, it is designed to be a dynamic and evolving model that will continue to affect positive change after our collaboration has concluded.

What is Required of Collaborators

Over the course of the next seven months, we will work with approximately 10 collaborating educators. Through the design thinking process, collaborating educators will provide valuable information in terms of their needs as educators who work with students affected by lead poisoning. A tentative schedule is provided below:

- Initial Meeting - Information Sharing
 - Mid-October to Mid-November
 - Face to face (Genesee County)
 - Approximately 2 hours in length
 - Outline of Capstone project
 - Collaborator input and clarification of needs
- Ongoing Meetings - Feedback on Product Prototype
 - Mid-January and end of March
 - Face to face (Genesee County)
 - Approximately 1 hour in length
- Final Product Delivery
 - April
 - Final face to face (Genesee County)

Next Steps

If you would like to participate in this dynamic collaborative work or you know someone who would bring a strong voice to this work, please contact Amanda Unger at aunger22@msu.edu or Sarah Van't Hof at vanhof3@msu.edu If you have questions or would like additional information about the project, please contact Melody Strang at strangme@msu.edu or Camela Diaz at diazc64@msu.edu

We look forward to working with you.

Appendix C: Consent Form for Participation in Research

CONSENT FORM

Utilizing the Design Thinking Process to Aid Educators in their Response to Childhood Lead Exposure

The purpose of this form is to provide you (as a prospective research study participant) information that may affect your decision as to whether or not to participate in this research.

You have been asked to participate in a research study for a Capstone project that seeks to improve educational practice and conditions for citizens in Michigan. Based on preliminary conversations with Flint educators, our group believes that developing a set of resources to support those who work directly with children who have suffered from lead exposure would be a valuable contribution. We bring a variety of experiences to this work with backgrounds in school counseling, school administration, central level curriculum and technology development as well as central level special education programming and oversight. You were selected to be a possible participant because of your role as an educator supporting children impacted by lead.

If you agree to participate in this study, you will be asked to participate in a series of four to five interviews

This study will take place at the participant's school building or a public location of the participant's choice and will last for one to two hours each meeting. The risks associated with this study are minimal and are not greater than risks ordinarily encountered in daily life. You will receive some direct benefit from participating in this study in that you will gain tools and strategies for supporting children impacted by lead in addition to learning how to use the design thinking process, a valuable tool that has multiple applications. This work is not intended to serve as a temporary solution to the challenges facing our colleagues, rather, it is designed to be a dynamic and evolving model that will continue to affect positive change after our collaboration has concluded.

Your participation is voluntary. If you decide to participate, you are free to refuse to answer any of the questions that may make you uncomfortable. You can withdraw at any time without your current or future relationship with Michigan State University, your job, benefits, etc., being affected.

This study is confidential. The records of this study will be kept private. No identifiers linking you to the study will be included in any sort of report that might be published. Research records will be stored securely and only Camela Diaz, Melody Strang, Amanda Unger, Sarah Van't Hof and Dr. Susan Printy, the instructor of record, will have access to the original records.

Additionally, all audio tapes will be stored securely and only Camela Diaz, Melody Strang, Amanda Unger, Sarah Van't Hof, and Dr. Susan Printy will have access to the audio tapes. The audio tapes will be used for capstone-completion purposes only and will be held for up to seven years before being destroyed.

If you have concerns or questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact the researcher (Camela Diaz, 6077 Pinch Highway Potterville, MI 48876, 517-881-9712).

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at Olds Hall, 408 West Circle Dr Rm 207, East Lansing, MI 48824.

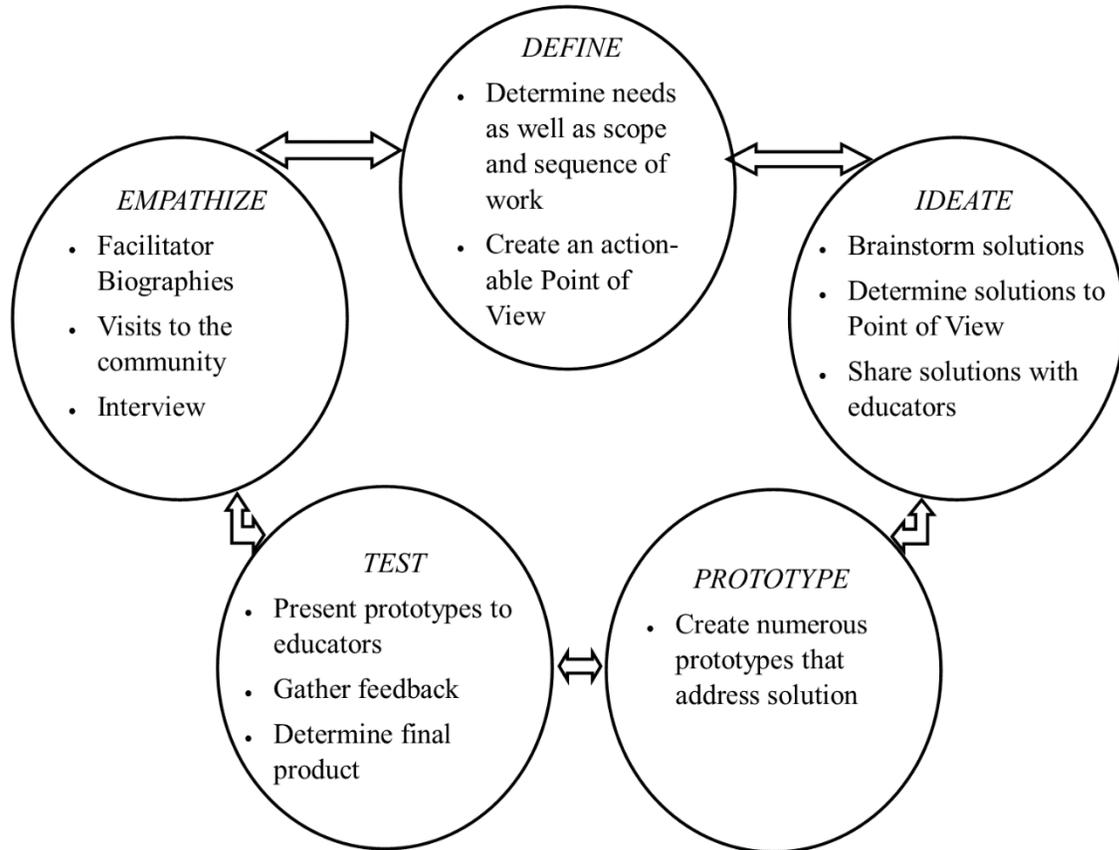
For research-related problems or questions regarding subjects' rights, you can also contact the Social Science, Behavioral, Education Institutional Review Board (SIRB), 207 Olds Hall, Michigan State University, East Lansing, MI 48824-1047. Phone: (517) 355-2180. E-mail: irb@msu.edu.

Please be sure to have read the above information, asked questions and received answers to your satisfaction. You will be given a copy of this consent form for your records. By signing this document, you consent to participate in this study.

Signature of Participant: _____ Date: _____
Printed Name:

Signature of Person Obtaining Consent: _____ Date: _____
Printed Name:

Appendix D: Design Thinking Process Graphic



Appendix E: Focus Group for Empathy Agenda

*Utilizing the Design Thinking Process to Aid Educators in their Response to
Childhood Lead Exposure
Meeting #1 Agenda November 16, 2016*

Participants

Facilitators: Camela Diaz, Melody Strang, Sarah Van't Hof and Amanda Unger

Participating Volunteers at Elementary Charter School: 3rd Grade Teacher, 5th Grade Teacher, Principals, Superintendent

Participating Volunteers within Flint Community Schools - To be determined

Purpose of the Meeting:

1. Build relationships with participating educators
2. Inform participants of the scope of the design thinking project, MSU's Ed.D. program, and answer questions they may have
3. Hold a focus group in which participants answer questions related to lead exposed students

Materials:

1. Recording devices
2. Snacks, including water
3. Copies of the agenda
4. Cell phones for ice breaker activity
5. Paper
6. Pens

Agenda:

1. Facilitators will welcome the participating volunteers by shaking their hands and introducing themselves by stating their name, place of employment and position.
2. Ice Breaker Activity - Each person will get 1-2 minutes to find a picture on their phone that represents them, something they are proud of, or a picture they want to share with the team.

Participants and facilitators will be put into groups. Each group will have three minutes to share the photo and describe its significance.

Upon culmination of the three minutes, groups will switch and everyone will repeat the sharing of the photo.

Depending upon the number of participants and size of the group, the groups will continue to switch until each participant has shared their photo with each facilitator in the room.

3. Description of Michigan State University's Ed.D. program and the capstone project will be shared with the group.
4. Focus group

Protocol for Questions and Data Collection:

The interviews will not only serve as a means to build empathy and relationships with the educators, but also as a source of qualitative data which will be transcribed and coded. The transcriptions and coding will be analyzed for patterns and consistencies that can be translated into a problem statement in the next phase of 'define'. The codes that will be utilized include the following: teaching routines, responding to inattention and misbehavior, teaching content, strategies for families, community partnerships/resources, knowledge of lead's effect on children, and areas of concern.

Before the first meeting with the groups of participating educators, we will be prepared with the necessary tools for conducting the interviews such as a recording device, copies of the prepared agenda for each of the educators, and a small snack as a token of appreciation.

A typical agenda for the meetings will include: five to ten minutes for an inclusion activity so that educators feel part of the group and safe within it, fifty to sixty minutes will then be spent asking the developed questions using the Cognitive Coaching model, and at the end of the meeting time there will be five to ten minutes devoted to a wrap-up activity that will allow participants to reflect upon what they have uncovered about their own learning through the dialogue process.

After asking each of the questions we will incorporate Cognitive Coaching strategies for reflective thinking by listening intently, pausing, paraphrasing what the teacher said, then posing a follow up question based upon the educator's response.

Appendix F: Impact of Lead Group Interview Protocol

Introduction to be Read by a Facilitator:

The purpose of this interview is to gather information from educators in and around the Flint, Michigan area in relation to the lead crisis. As students of Michigan State University's Ed.D. program, we are interested in utilizing the Design Thinking Process as a means to assist you, the collaborating educators, with areas of concern and/or need based on the current and potential impact of lead on the students you educate.

The Design Thinking Process we will utilize consists of five phases: Empathize, Define, Ideate, Prototype and Test. During this interview, we are in the state of empathy as we are asking thoughtful questions directly related to your experiences in an attempt to get to know you, your school, and your community. We will be utilizing cognitive coaching as tool to paraphrase and probe throughout the interview. Upon completion of this portion of the Design Thinking Process, we the facilitators, will analyze your information, along with those of the other collaborating educators, to define a central point of view problem that we may work to address. It is important to note that the entire interview will be audio recorded.

Following the determination of a point of view, we the facilitators will develop potential solutions which will be shared with you, including various prototypes of the solution as we move through the various phases of the Design Thinking Process.

Before we begin, please read over the Consent Agreement and show your willingness to participate by signing it. If you are no longer interested, please feel free to decline the offer to take participate.

Transition Sentence: We will now begin the interview. Please begin by telling us your name, position and building in which you work.

Questions to be Read Round-Robin by Facilitators:

Transition Statement: Let's begin talking about the lead crisis through a series of open-ended questions. This is an important part of our research project and as an educator we would like to know your beliefs.

1. As you reflect on your knowledge base on the effects of lead poisoning in children, in what areas do you want or need more information?
2. In thinking of the academic and/or behavioral manifestations of lead poisoning in children, what similarities can you draw from your previous work with other groups of students with exceptional needs?
3. How do you feel about the resources currently available and accessible to you to respond to the needs of students who have been exposed to lead?
4. In terms of accessing community support services, what barriers do you see for students and their families outside of the school setting?
5. As you reflect on all the responses thus far to the lead crisis, what insights have you discovered?

Final Statement: That concludes our prepared questions. Is there anything else that you would like to share with our research team?

Thank you for your time and participation in this capstone project and Design Thinking Process.

Appendix G: Focus Groups for Empathy Transcriptions November 16, 2016

Parent Advocate/Museum Employee

FACILITATOR 2: We have some questions we want to take you through and they are very open ended. We already talked about design thinking entails and some insight into what we've done and we are looking forward to what you guys have to say. When we ask a question we may have some follow up questions, so be prepared for that, but we would like to begin with: as you reflect on the impacts of lead, what comes to mind? What do you need more information on? And you can take a minute to think about it...you know there is all this information out there but what might you need more information on?

PARTICIPANT 1: I think the water system as a whole. Like how is it being fixed and how it works...because it is something that I don't completely understand and I've made an active effort to try to understand it. And I think, if I don't understand it, and parents who are busy don't understand it either, could it be relayed in a way that helps people understand it. I think this could help people move forward.

FACILITATOR 4: that gave me chills because that is such a simple thing but yet so complex.

PARTICIPANT 1: People know the water is bad, but where did it stem from, like what exactly is the problem and how can we fix it. You know when it will be good enough to say, ok, it's safe again.

FACILITATOR 1: And I think there's certainly missed information out there as well. And unfortunately we tend to grab onto missed information if it supports our concerns that already exist...so if I can find some misinformation that supports what I already think or what I'm worried about, then it just exacerbates the problem.

PARTICIPANT 3: So I think for residents it also plays into this trust question, so I went to a community meeting two weeks ago I believe, and I think the **** was there and the **** and I

think they were shocked that there were still residents there that were still yelling at them. I think they thought, wait, aren't we passed this part? And I think the residents, first of all, are not, they are still feeling mistrust and they are still feeling physical effects in some cases and so they're afraid for themselves, they're afraid for their children, and so they really don't trust anyone who is telling them anything and so that is a really hard position to be in and I think that is a part of why we are seeing families who are able to move away...and I have to say I live in the city and going to that meeting was bad for my soul. I have a three year old, I'm fairly confident that if he was exposed it was fairly low, because of circumstances I won't get into...I'm a water snob from the upper peninsula and I was never ok with the water here so I kept myself and my son pretty safe, but pretty safe, we still dined out and stuff, and going to that meeting and being around other people who were feeling so frustrated was really hard, so, I think for the actual residents they are still feeling a lot of that and now they are feeling some backlash from the rest of the state because of Flint fatigue. So they are still living with it and the rest of the state is saying get over it. So I think that is a really difficult position for families and I saw a lot of resilience at that meeting but I also saw a huge need for social emotional support...and I was thinking about all of these **** people and they live in different parts of the county and the nation and they were pulled to Flint to work on this? Who's taking care of them, like a day of getting yelled at, people are shouting at them, and you're not even in human services, so I just had a lot of thoughts about all of that. All of us then after that are going home to our kids. So kind of that toxic stress that is still ongoing.

PARTICIPANT 1: One of the things that I haven't seen yet that I would like to, especially in the realm of early childhood, just knowing that we have hundreds and hundreds of infants and toddlers in ****and we are building capacity but what is the plan, we are building short term

plans, like we are going to build this and we have funding secured for a few years, but one of my great concerns is ok we are securing funding for the children who have been lead exposed before august 12 I think is the cutoff for the state of Michigan, and that's for all of these free additional services...I'm trying to remember the beginning date, it's something in 2014

PARTICIPANT 3: you can look at the legislature for the state of Michigan because they have opened and closed the window. And so if you were pregnant before this August 2016 then that child may be grandfathered in as well. So we're looking at a little more time if the mom was exposed, but we are definitely looking at this window having a cutoff time and we are living in a county that has extreme poverty and an array of toxic stress and trauma.

PARTICIPANT 1: And birth outcomes are already not that great, so if you think of someone like me, I'm not yet 30 and I could definitely have more children that have been lead exposed. I live and work in Flint. So when I get pregnant again my metabolism will speed up and the lead that has been stored in my body could then potentially impact a fetus, which there are of course things I could do if I was planning a pregnancy I mean 50% of all pregnancies are unplanned so we are thinking about tons of women who have been lead exposed who were probably not taking the precautions that they should have if they knew they were going to become pregnant and there's no help coming for them.

PARTICIPANT 3: That's the biggest problem for me, when this first happened it was like oh my gosh we need to mobilize we need to build systems here and address this quickly, let's get together, fill up a room, let's get moving now because we can't lose any more time. And so now that we are getting some of these services in place, kind of my next fear is will this burst and then trickle down and then it's going to disappear.

PARTICIPANT 1: Because we haven't seen the full effects of the lead, that won't come until later. Like the developmental delays, that's gonna come later and we're gonna need more support with that and the funding will probably be gone. It probably won't be there.

PARTICIPANT 3: I think funding, the long term funding, is a big concern especially for the babies that will be born next year, you know, do they matter, are they part of the context anymore.

FACILITATOR 2: So the long term funding is a big concern, maybe you can give us some more ideas as to why it is a big concern.

PARTICIPANT 3: I was just gonna say if you develop a bus route for example and nobody has used it before it takes a while for the community to know where the bus stops are, what time it is going to be there, and my concern is that we are building that now, we are building a new system here and by the time we get the community on board and we know where these resources are and how to connect with them and that its making a difference, now our barrier won't be the public and how to participate, now the issue is that getting information out is difficult and like what you said the people are not trusting of agencies that have always had trust, now in **** and in Flint people are not feeling that sort of default trust with agencies so we have to as providers work extra hard so that people know that we are genuine, that we are being intentional, that we are really trying to serve the community as a whole. Its hard work so by the time we are going to build this trust again, get families on board, they are going to be familiar and trusting with the systems we've built, now how are we funding those systems? That's my primary concern.

PARTICIPANT 1: And to add onto that, when the kids get older...you said you deal with special ed, I don't feel like that's going away, you know, I feel like with the lead issues it will only add onto that. And there needs to be more funding in place for that for when these kids get older

when they actually...and it will be hard to say, yes, this is a direct result to that, to the lead exposure, and I know that's gonna be hard to say, but the number will increase and there needs to be something in place for these kids when they get to that point.

FACILITATOR 4:: And then in my line of work, when something becomes, you know, if you look at special ed as a tier 3 intervention when something becomes so widely spread it's no longer tier 3 because everyone or nearly everyone needs that level of support then it's system wide level 1 support, and you know how does that look different.

PARTICIPANT 3: Does that impact class size, are you a 1:17 class size as a tier 1? You know? There's a lot of questions, you know, right now it seems like there is a large focus on early childhood which is great, but you're right, that focus is gonna shift and I think what we are arguing for is that instead of shifting that it widens and it would be great to have unifying language with agencies now, initiating, as we are building these systems how are they sustainable and that all of these great programs have some longevity instead of oh, here's a few for early childhood because we are going to patch some funding here and then it disappears, or for special ed for a few years they are going to get some additional funding to get everybody's third grade reading scores up and then everybody forgets about it. Cause it's time to develop long term strategies.

FACILITATOR 2: Well what you just talked about the agencies ties in with one of our questions, number 3, FACILITATOR 1:, maybe you want to read number 3 and then we can go back to number 2 because I think that's a great segway..

FACILITATOR 1: Yes, because we are thinking about the resources that have been made available to you, where is that funding coming from, what are they putting in place, how are they providing those additional supports, particularly for that unit of kids right now who have been

exposed which is younger. So if you can share a little bit about how you feel about those resources that are currently available and accessible and whether or not they currently are meeting the needs in terms of where things are right now.

PARTICIPANT 3: So we talked briefly about stigmas before and one of my observations was that when we are talking about lead exposed children part of the dialogue we are talking about is poverty level and income. What's interesting about exposure here is that even children who have two parents, own a home, are 250% above the poverty level, those children still could have been exposed to lead, so how we are talking about qualifying families is interesting in this context. And so we have a Medicaid expansion, and so families that never qualified for Medicaid, never qualified for great start readiness program because they weren't income eligible are now eligible and so now what I'm not seeing is that facet of the population, they don't feel like I'm the, I don't need services, they've never historically needed them and they're not taking advantage of them now.

PARTICIPANT 1: I think a lot of that is that people don't know, because as you said they've never qualified for any services so why would they all of a sudden qualify, so people, I've gone to meetings with Flint workers and they live in **** and they didn't know that they qualified for all of this and she was pregnant and well, the whole lead crisis was going on, and she didn't know, and she was one who you wouldn't think, you know, she didn't fall below the poverty line, so if she doesn't know and she works with this stuff...no one else is finding this out either...

PARTICIPANT 3: so there's a lot of assumptions from the community on who these "lead exposed" children are and I think some of those assumptions are not connecting all of the children to all of the resources available and that's something I would love to see happen,

because here's the reality. So we have basically universal pre-k in Flint right now which is amazing, and not only for residents, so this is another interesting thing, if you lived in Flint during the two year window that we talked about earlier in the legislative boiler point language, so say you moved to **** 6 months ago, there's no income restrictions you are still eligible you could be making 300k and qualify for universal free pre-k and this is a message that for some reason is not moving out as quickly as we want because here again, we are talking about families that normally wouldn't have qualified so how are we informing them you do qualify, its not for "those" kids, it's for all kids, so it's kind of shifting the dialogue from those kids to all kids and I think that would be a really great healing message and would get in all the kids in that we need...so the stigmas are big.

PARTICIPANT 1: We had a free day here, a couple of weeks ago, sponsored by great start readiness program to get more people registered because we have this great program and people aren't signed up for it, they're not full at all.

FACILITATOR 4:: Cause that's the opposite problem where I live and I supervise **** programs in those three counties and then early childhood special ed programs and the problem that we face is that there's nothing for our kids so unless I can put them in one of my special ed programs, which we know is not optimal because we want to connect them with their typically developing peers, then **** is full.

PARTICIPANT 3: so are you full, is it because your head start program is small and your ****families are using ****?

FACILITATOR 4: Both, I mean yeah, head start is full, no spots there, **** is full, so then there's only tuition based...

FACILITATOR 2: So would you say we got more slots for ****?

PARTICIPANT 3: I would. So right now we have expansion funding, in the city, for ****. But I still feel like we are potentially missing 30% plus or minus children, and, I feel like these families that we've never connected with historically who have two children in the elementary school who were told 5 years ago they didn't qualify for ****, they get a raise, they qualify, they're really stable, they're not going to take advantage of that because of a stigma, or because they don't know because of a lack of information...so I think investigating why...

PARTICIPANT 1: cause I think, I go to a lot of meetings at schools, or health fairs, that try to bring families there and you start to recognize the same families are at every one. And that's great that these families know about it, but where is everyone else that isn't here that would benefit from this and it is trying to figure out why aren't those families here that would benefit from knowing about this stuff.

PARTICIPANT 3: I think anytime you are building a system that you have this sort of lag when you start up, you're trying to move the information and you have to figure out how to allocate a certain amount of time which is what we are trying to figure out, which is great, and we are kind of asking these questions internally right now, how are we going to better serve families, which populations are we missing, is there an overlap in the population with Medicaid expansion, is it this kind of above 250% of poverty, is this the same segment of the population we're missing with Medicaid expansion and the same we are missing with ****...did they get their bridge cards over the summer and throw it away because they thought this was a mistake...

FACILITATOR 2: When you say "we" tell me what you mean by we

PARTICIPANT 3: So I think there's a lot of partners right now that are advocating and this is a big discussion in **** county so the **** is a large group that's constantly trying to figure out how to better serve children in the county whether it's through literacy opportunities, preschool,

or early on expansion or even programs like **** where children are supported due to the loss of a loved one I mean so there's lots of different partners, it's not just healthcare providers, school providers, you know it's larger than that it's policy support...****would be at the table sometimes, local ****...the **** is a large collection of agencies that in some way touch early childhood and the direction of it for children past age 8 so it really is a large window I think age 0-22. Part of the collaborative is that it has subgroups. So you have early care and education which specifically are the early childhood providers in the community whether **** and **** would be represented there, different agencies that are grantees of **** would be there so it provides kind of...and there is a day care and a gsrp subgroup so the **** subgroups are coming to the table and we discuss monthly what is our capacity, what are we noticing, so we do have a way to exchange information and that is through the ****.

FACILITATOR 2: which is overseen by the ****?

PARTICIPANT 3: Well the **** is overseen by the office of **** but is housed by the ****

FACILITATOR 2: I just know that when all of this happened there are all of these entities who are trying to help, but who is overseeing it? Who's managing it? Because you know how it goes, we have people who say I want to do this I want to do that, how are we going to make all of this work. Ok, anything else you want to share about the resources and what you are seeing happen?

PARTICIPANT 3: I am interested to see how the door to door water distribution and water filter checks are going to happen and what kind of system and how quickly that system is built. So that is on my radar and I am watching it because as providers we've been working with parents asking do you have a filter, what color is it, green or red, do you need a cartridge replacement, how comfortable are you with the use of it, we are asking these questions to parents all the time, we're having monthly surveys just checking in with parents on what their strengths and what

their needs are so it will be interesting to see who takes on this door to door service of delivering the water, and how are we using this to our advantage, each home has a contact and this has been one of the arguments maybe we are missing this over 250% of poverty level families, but we also have to believe we are missing the extremely poor, the families with many many barriers, so is this door to door delivery system a vehicle for now connecting with more families than we thought, is this a way of strengthening our system, how is this going to roll out.

PARTICIPANT 1: A couple of months ago I was talking to people and they were saying that there are still people within Flint that do not know about the water crisis and that is something we have to address.

FACILITATOR 1: and that's crazy to us. It's so hard to think about that.

PARTICIPANT 1: and here we are talking this issue to death and there's still people who have no idea that this is going on and those are the really poor that are harder to reach and maybe they don't have an address

FACILITATOR 2: My husband went door to door over the summer, he's a ****, so they went door to door installing the filters with people and they were looking for lead pipes so they were hired by the state and they were going in and testing the pipes. Some people wouldn't let them in the house, some people met them with guns because of the trust issue and why should we let you in, then when they got in they were asking so many questions of whether they should trust the state and it was just really interesting for my husband when he came back I was like how many kids did you see and did anyone mention the resources available? And he said, no, no one told us about the resources so it is a missed opportunity. So that is where that coordination can come into play.

PARTICIPANT 3: coordination is the word of the day. So even on the bottles of water people were going in with stickers and what ideas can we give and then it ends up just being dependent on which agency is handling it, they have certain guidelines and well that won't work, we can't put a poster up in a fire station, maybe some posters are ok and others aren't and you have to go through this huge approval process. So that type of coordination is very difficult and the fact that our coordination isn't optimal is evident in the empty holes we have in these great programs.

FACILITATOR 2: Right, because you have way more kids who could be here. Ok well thank you for sharing about that. FACILITATOR 4, do you want to take number 2?

FACILITATOR 4: ok so in thinking about the academic and behavioral manifestations of lead in children what similarities might you be able to draw upon in your previous work, so are you seeing this already, are you seeing these behavioral effects in children is it different from then in the past

PARTICIPANT 3: I would say working with families that are in transition, so a great deal of homeless families for instance because my previous work was in a shelter, you see lots of issues because you have children who are living in potentially violent situations, living in extremely transitional situations, many times they are going from shelter to shelter and have just about as many barriers as you could possibly have and they are exhausted, they could not have optimal nutrition, so when you see a child that's sleepy or dehydrated you see somebody that doesn't appear to be developing typically as their peers, however, there's all of these possible reasons and now we've just added lead exposure on top of it so even abuse and neglect of a child, that could look like a cognitive impairment. Potentially, right? So when you are serving families that are really in the trenches and are experiencing high levels of toxic stress and are going through traumatic situations whether its physical, sexual or emotional abuse, severe poverty, which we

have, it's really hard to say what is causing this. I think it is really pretty reckless to try to identify a cause like that.

FACILITATOR 4: can you speak more about that being reckless? Can you take that further?

PARTICIPANT 3: So I think we have to be cautious about making assumptions as educators and as advocates of families, we have to be cautious. A family situation can be extremely complicated, you know, being really poor can be complicated, any family really, it doesn't matter if you are living in an impoverished family those that appear on paper to be really stable may be aren't. So I think as educators we have to be really careful across the board to not make assumptions and to meet each situation where it is and get as much information as we can to come up with a plan to support that family and part of doing that is not going into a situation with judgement or preconceived ideas, and instead going in as a learner yourself and develop a customized approach to servicing families.

PARTICIPANT 1: I think difficult questions need to be asked and they're not being asked. Each family is different so you need to know exactly what you are dealing with.

FACILITATOR 4: what aren't they being asked?

PARTICIPANT 1: part of it is just that they're difficult. We have these preconceived ideas of you are exposed to lead, that is your issue. When there could be so much more going on. It doesn't know money, label, families that make 200k a year have plenty of issues and could have a lot going on that you don't know about so you just can't assume. That's why I think people don't trust us because some come in with that attitude and there is so much more about my family that you don't know and you don't even care to ask.

FACILITATOR 4: so in some way, this lead crisis has opened a window to this problem that was always there. You know, upper income families there still can be issues and higher income

doesn't have to mean you are functioning well. So it's kind of a window into a way that we are more alike than different but then it's what to do with it.

PARTICIPANT 1: Right because then its highlighting the negative. So this can help us come together, but, now what are we going to do about it.

PARTICIPANT 3: I think it also makes us think about as providers, as a community, about relationships so when we are building these systems we need to think about how these systems are not going to be as effective if they are not designed with relationships in mind. But when we are working with children and families and we have all these horrible words like exposure and cognitive delays, we think about the words that are in the soup right now, it's not a very nice soup. People are scared, they're not trusting and we have to think about as providers what types of relationships and how do we invest in them to help these systems to be more effective. I think relationships is one of the huge words we could focus on in the years to come.

PARTICIPANT 1: and I think that there is a big divide between the people that are getting the information and the people they are serving. To build better relationships we need to become more relatable. Do you know what I mean? We are taught to be professional, but sometimes you have got to drop that. You know you can use your experience, for instance I'm a parent. I understand the problem and how serious it is.

FACILITATOR 4: First of all we are both humans here.

FACILITATOR 2: now you mentioned something about behavior way back at the start and I know the county has been looking at behaviors of children is there anything you are seeing at the county level for behaviors?

PARTICIPANT 3: So even before the water crisis one of the focuses of the collaborative has been noticing higher levels of behavioral issues than we had noticed before. So this was before

Dr Mona came out with the lead and lets be aware, the early childhood providers were getting together and saying we need to do a group cause analysis here because we are seeing higher rates and we can't quantify it but we definitely need to have a discussion as a group and figure out what our observations are at a minimum. So then a consultant came in and gathered some data for the context of our discussion so that we had a little bit more information when we got together as a group. We are definitely seeing more issues all over the county, so maybe in the city it is more severe because they are dealing with some different issues but we are all noticing it and examined it for a few months and discussed how we move forward. Is there a parent piece, is there a staff piece, like what pieces can we bring together to support this. Then as this is happening in parallel the water crisis comes out and we are having language overlap in these two areas of discussion and so that becomes very interesting and very scary because the observations we had been making are what we would be making with lead exposure and these two issues are on top of each other.

FACILITATOR 2: and those behavioral issues, are you talking ADHD issues, or...

PARTICIPANT 3: so we looked at a collection of them actually and we looked at children that maybe don't have an aggressive behavioral issue where they are pushing other children but maybe they are just really isolated and their social emotional development isn't happening in the same way it is with their peers. So even that we need to think about when it is atypical it isn't just violent behavior. It's a spectrum of different behaviors. Definitely the children that have the transition issues, we are seeing a lot of that, that's something that we would anticipate because that is a part of the day that is difficult for some children and some are having serious issues with it. During a work time a kid might be able to self sooth or find some sort of interest but during a

transition where there is less control or they are feeling frustrated is when we are seeing challenging behavior.

FACILITATOR 1: And part of that **** is helping students find their own direction and make choices and then when you have a child that struggles with that sort of transition and suddenly you are handing it to them to develop then that adds another layer to that.

PARTICIPANT 3: Exactly. And I think that is one of the great things about **** is it is very intentional about building these skills before these friends go to kindergarten and it is interesting that in these programs that are similarly designed that you see some of these same issues. So that overlap is interesting too. So part of the outcome of these conversations was to have learning communities so that there was common and shared language of **** and other entities and providers and some common information, the **** is not just interested in children that are in state or federally funded programs, it is concerned about all of the children. So part of that is acknowledging childcare centers and in-home providers and even unlicensed providers any place where a child is in ****county the **** has an interest in supporting that child's school readiness.

FACILITATOR 2: I know a little bit about the unlicensed providers and the concern that's in the county so could you share a little bit about that? Maybe some pitfalls that you've encountered?

PARTICIPANT 3: So the unlicensed providers are typically hard to get to the table, I can tell you that. They are also providing care all day so it is hard for them to get to the meetings and network because the work we do together is typically during the traditional school day. And as a board member with ****? That is something we work particularly hard on, to have meetings in the evening. So we are coming together on multiple fronts to move information.

FACILITATOR 1: what types of community services have you seen sprout up as a response to this lead crisis and what barriers to you see prevent people from getting to them? For parents, in particular, where are we missing?

PARTICIPANT 1: transportation might be an issue for a lot of families...having a reliable vehicle is not something a lot of families have. So instead of expecting them to come to us we need to go to them more.

PARTICIPANT 3: so I feel like that is a great observation. One of the great things that has happened in the last 30 days is that **** has purchased small cars to be able to take children directly to the doctor, grocery store and this is billed out to Medicaid which is another reason the expansion is such a powerful tool here so even families who don't feel like they qualify but their car is broken would have access to this great service. So transportation I feel like is improving but again it isn't just the service existing but spreading the information about it being there. The funding has been guaranteed to last for a year but getting people to participate, what that looks like. I will probably develop a flier for my site because I have so many people I have who I want to participate in it.

FACILITATOR 2: and I live in the county and this is the first I've heard of it.

PARTICIPANT 3: it's great the first trip costs \$15. And something else that we are doing at cummings that hasn't even hit the press yet to develop nursing programs....and how great would it be to have an NP go to the house. We are thinking about attendance and thinking about these high quality services we are providing we have to think about how we are supporting these with wraparound services. So at ****, for example, we are hiring a transfer shuttle to avoid all of the transfers and it is a direct route to and from. As providers we have to be thoughtful about those type of things.

FACILITATOR 2: you mentioned ****. Who would be paying for this nurse practitioner to go to the house?

PARTICIPANT 3: so the NP would be paid for by the ****.

FACILITATOR 2: was that a grant you wrote?

PARTICIPANT 3: it was a grant, I didn't write it, but in conjunction with the nursing department they came forward immediately and said we are here, what can we do to support? And then we just had a meeting this week about what does this actually look like, what does it look like having this coordinator go with you? If we were to walk into a home do they have chemicals covered, how can we make this opportunity even more valuable experience. It's really looking at these opportunities to develop long term benefits. It's not about programs right now, if we can think about building systems with our funding that we have we will be more powerful as a community and be making more long term impacts instead of just having a program. What does this mean, if we have nurses that can visit children's homes, what does this mean? How does this change things as a community and what kind of impact could that have?

FACILITATOR 2: and not just in Flint. So it could be a model for the rest of the country...

PARTICIPANT 3: and I think that is what we think about at the end of the day when we see so much suffering, confusion and fear how can we develop systems so that when another community goes through another crisis like this that there are quality systems that have been thought through with great expertise and commitment...that could be what Flint is able to provide everywhere.

FACILITATOR 1: that framework

FACILITATOR 2: so if someone wanted to start that framework, where would you begin? How would you begin? Because you have so much expertise about what is going on, you would be a perfect person for building systems, but where would you go?

PARTICIPANT 3: So I think the hope is that the research that happens in the next 18 months is amazing. This is the opportunity for credible research to come forward so none of these great ideas will be able to go to another community unless they are credible. Because you can have as much anecdotal evidence as you want but this is a time for research.

FACILITATOR 2: and its funny you say that because I was told by someone, I won't tell you who they are, but oh you can go out in the community and deliver water and get your picture taken with your capstone...no this is way bigger than delivering water.

FACILITATOR 1: so the NP goes in along with a community support specialist and they are thinking how we support this family. And as they develop a relationship with that family and that trust starts to rebuild, that family is going to tell somebody else and that is going to be a valuable tool because that word of mouth. So if we can one family at a time build this trust and these relationships that will be a very powerful piece of that communication tool.

PARTICIPANT 3: that's the best scenario because I don't think we can go and heal these other situations, we don't have time. We need to rebuild the credibility of the existing agencies and organizations that people feel have failed them.

FACILITATOR 2: we also are in a community where people may not feel safe about going into the community and talk to other people, right? There are some zones where it is very vacant so how do we get the families to even meet other families?

PARTICIPANT 3: I feel like that is a part of the role of a high quality early childhood center. Like having an NP is great but having a family to family coordinating consultant is how

that person is going to get in the door. The families are going to trust that family service coordinator. We have to think where do these relationships exist and how do we build on them.

PARTICIPANT 1: I don't work with parents that much so is some of the problem that they don't want to ask for help? Do they want to admit that they don't have a car or money if they need a ride to the store?

PARTICIPANT 3: People are afraid a lot because there is also a feeling in our community that if you aren't a good parent you are going to get your children taken away. So that is why people don't want a home visit. One of the interesting things about home visits is that people don't want to show their dirty laundry and have a fear of having their children taken away. They don't want to take a risk asking for help and then get in trouble. The other thing I've noticed is Flint fatigue. I think even people in Flint have this because they are so exhausted...its ok for you to spend 5 hours to get \$7 worth of water, you don't really matter. And that's why people are angry.

FACILITATOR 2: and they are angry because people are fighting the water delivery law and how is it going to be funded.

PARTICIPANT 3: I feel like it would be a good staff training for people to have to go get water on the bus. Because we talk about empathy a lot but what a better way of developing empathy then to see what it is really like. Because at some point, those who have been exposed have just stopped caring. Even agencies struggle with knowing what to do half the time and agencies have experts.

FACILITATOR 1: we do at times set up such internal barriers to even access such basic things such as school and enrolling in school. The piece of **** that is tough is that even if I go through all of the steps and qualify, what if I don't have transportation?

PARTICIPANT 3: In **** a birth certificate is \$25. There are a lot of systems like that that are supportive, in theory, but then there are obstacles.

PARTICIPANT 3: so I don't know a lot about her diaper bank but I know there is a great need in ****. So I know the **** is a distributor and **** raises diapers instead of money.

FACILITATOR 2: some kids are wearing the same diaper all week.

PARTICIPANT 3: and people don't think about it. If you are on cash assistance, but if you are on WIC and don't have an income how are you supposed to get them?

FACILITATOR 1: and that's crazy to me. Why wouldn't it be on food stamps or through WIC...it's a part of what is needed by a family with a child.

PARTICIPANT 3: and **** does not have enough high quality childcare facilities. Between **** and **** we have 200 and with the new facilities we are building through state funding we will be able to have another 200 and we are talking 0-5. So the real deficit exists for 0-3. For infants and toddlers....this isn't even a profitable model that will break even. Why do we have all of this research on early childhood and we still aren't doing enough? What will it take for all children?

FACILITATOR 2: so as you reflect on everything we've talked about, are there other additional insights you want to share?

PARTICIPANT 3: I feel like it's great that agencies have taken on more significant roles. There have been more after school opportunities which is great. Different agencies are really taking on an expanded role which I think is great.

Therapist

FACILITATOR 2: OK Participant 5, go ahead and tell us your name and what you do.

PARTICIPANT 5: I'm a clinical therapist with ***, I provide home-based therapy to children and families and will be transitioning to provide mental health consultation to childcare centers in Genesee County.

FACILITATOR 1: Well as colleagues we share your passion for working with families and children trying to see how we can support them and help them move forward to be productive members of our society in the future and so our focus as Facilitator 2 shared really has to do with this lead crisis and the impact it's having on the children that are now coming into our schools, the children that have been in our schools, and the resulting cognitive and behavioral impacts that that exposure has. Although there is a ton of research in the impacts of lead on children there is very little research as far as what do we do about that in terms of the education world. So what we are hoping is that we can get some insight into what is needed from the people on the frontlines. So we will provide some framework questions but feel free to expand or derail or go in any direction that as you are thinking comes to mind cause we really want to hear all of your thoughts.

PARTICIPANT 5: OK

FACILITATOR 4: Question 1, just thinking about your knowledge on the effects of lead poisoning on children what information comes to mind, what do you know, and what areas of information do you need more information about?

PARTICIPANT 5: Well the things that I've been to and learned about has been focused on nutrition and how better nutrition can help negate some of the negative impacts of lead so that has been something we've had a big focus on in our agency is how to inform families of that and then the other piece of it is the behavioral issues that we see as a result of it the hyperactivity,

impulsivity and of course the concerns that it leads to in the school setting of being able to keep them in the classroom and keep learning...umm regulating their emotions, things like that.

FACILITATOR 4: To just take that a little further, you know that's one thing as educators we think, well, this is what my knowledge base is but then how does that compare to the people you are encountering, like what do people know and what don't they know...what are their misconceptions...

PARTICIPANT 5: I find that a lot of the families I've worked with haven't understood the lead levels and the impacts and when they get the lead level testing seeing the lower number and not understanding that that number could have been higher at one point. It's tricky to provide that information to my families without completely shattering...I'm thinking of a case that I've worked with that they've had heavy lead exposure and I think parents thoughts were that because they got the blood test level and at that moment because it was lower that it was ok and the behavior that we see in the child is kind of indicating otherwise, so...I feel like in the beginning there was a lot of talk about it and now its kind of drifted off a little bit and I think we are forgetting that that could be impacting the children still.

FACILITATOR 2: are children still getting tested for lead? Are you seeing that happening?

PARTICIPANT 5: The families I'm working with aren't. I know that when they come in for foster care that's something they have to do but I don't think that the children that are with their regular biological families are regularly getting tested.

FACILITATOR 4: it's really just up to them, they can choose that or not?

PARTICIPANT 5: Yes, correct.

FACILITATOR 4: Is there something that happens different if their levels come back higher?

PARTICIPANT 5: I'm trying to think, I don't have a case that has had significantly high lead exposure...I just thought of this too we have some families that don't even live in Flint but they noticed...at the *** center they were coming in almost every day for services drinking water out of the water fountain and they live way north but they have significantly high lead levels in their blood, so I think that's another concern too people who don't live in that area not being aware of what other ways could it all have effected your family.

FACILITATOR 2: Can you talk a little bit about that family you worked with you said the behaviors are indicating otherwise...what kind of behaviors are you seeing with that family where the levels aren't high but they might have been higher at one point?

PARTICIPANT 5: Incredibly impulsive and dysregulated. It almost seems at times that there's not really a trigger for it, it just kind of happens...he's got some sensory overload and I wonder if part of that is the lead or if that is something that was already there but...most of the families I've worked with have had some kind of trauma history and I can make the connection but with this child there was no history of DV or substance abuse or anything like that but he has such aggressive and impulsive behaviors that I really wonder how much of the lead has effected that piece of his brain.

FACILITATOR 2: do they live in Flint?

PARTICIPANT 5: they do, yes

FACILITATOR 2: and how old is he?

PARTICIPANT 5: he is 4

FACILITATOR 2: and are you finding anything that is working and helping him?

PARTICIPANT 5: it ebbs and flows. We've had periods of time where we were able to do some regulation stuff, so deep breathing exercises, when mom can do it consistently that is helpful and

he's really responded to being wrapped up tight in blankets that sensory piece of it to help regulate his body too. But at school I think he gets overloaded with all of the other kids too and it's really hard for him to bring himself back down.

FACILITATOR 2: is he in GSRP?

PARTICIPANT 5: where is he now...he's at Head Start

FACILITATOR 2: are there other kids in the home?

PARTICIPANT 5: Yes, mom has two younger children and now she's pregnant again.

FACILITATOR 2: any signs with the other kids?

PARTICIPANT 5: I haven't seen anything they seem to be developing appropriately. I know the youngest wouldn't have had any lead exposure because I don't think she had even been conceived yet. And the other child seems to be developing appropriately, he's got some language delay so I wonder about that too, but that's kind of the only thing I've seen with him.

FACILITATOR 2: Can you tell us how you got to work with that family?

PARTICIPANT 5: they came into services with me over two years ago because the oldest child was having behavioral issues they were originally with Early On services and then they recommended that they get services through *** to address the behavior problems.

FACILITATOR 1: and that would have been right around the onset of when the lead water crisis came out

PARTICIPANT 5: yes

FACILITATOR 2: So along those lines you talked about Early On could you talk about some of those resources that have been available to you to support the student? Early On connected you with this family but what about other resources do you have access to that are assisting?

PARTICIPANT 5: Um I'm trying to think of ones I use pretty regularly. If they are school age children I'm able to use the school setting with them, so everyone, teachers, counselors, they've all been really helpful for every child I've worked with to help observe and kind of collaborate on what's going on and come up with a plan. I've participated in almost all of my kids IEPs to make sure that their services are being provided for them. *** center I haven't worked with directly but I know co-workers have to get assessments because sometimes behaviors might come up that look like autism so we will have screenings through them to see if that is a service they need. I work a lot of *** and *** because the majority of my caseload is Foster Care so kind of collaborating with them on cases too.

FACILITATOR 2: And then in terms of resources, how do you feel about what you have and the accessibility that you and your families have to get resources that they need?

PARTICIPANT 5: Most of the families I work with seem ok with what they've gotten, they've had access to clean water which has been really helpful, the food boxes through farmers markets stocked with fruits and vegetables. One thing I think would be really helpful would be to have nutritionists available to our families because that is something we have talked about in our agency, we had a nutritionist on board at one point but she was for adults, so we've talked about bringing one on board that is available to children and families.

FACILITATOR 2: What about those families, they have the food bucks, but are they able to get to the farmers market?

PARTICIPANT 5: The families I've worked with are able to I know that they have, but other families I've worked with have had a hard time accessing the farmers market, there is often confusion as far as which ones do the double up, that's been frustrating for families, that came up

in a meeting last month that WIC was providing services over the summer for certain types of food but they didn't explain that you couldn't double up on those, it's hard there's a lot of mixed messages. And then I think they were providing additional bus services to get to grocery stores and things like that, I'm not sure if they are still doing that. I don't know who that was through. *** does now have a mobile bus, and I don't know if it's up and running yet but the point is to try to bring service and information to families who aren't able to get to our offices and that is a result of the water crisis and expansion of services that we were able to put that in place.

FACILITATOR 2: you mentioned mixed messages...can you talk a little more about that?

PARTICIPANT 5: I think a lot of agencies are providing a lot of information and sometimes they aren't making sense or adding up. Like I remember getting a bunch of fliers that these churches were providing water and that might change two weeks later and would become really frustrating for families.

FACILITATOR 4: I wonder...you say you work a lot with children who are in Foster Care do you think those families might be better equipped than the families they were with, their own bio families, might that be why they have more access to some of the resources?

PARTICIPANT 5: I think part of that is through the agency too the agency has that as a part of their checklist to make sure they are getting the blood testing, water, making sure all of that is in place...a family that doesn't have those additional services doesn't have someone coming into the home as frequently to look at those specific items and keeping those things on a checklist. And often times the children are placed with a family that might live in *** or *** who might have more resources and they're not in this mess as much.

FACILITATOR 1: as you think about all the different ways that communities, agencies, governmental agencies have tried to respond to this crisis what insights do you feel you've developed or where do you see additional needs and I know you were saying in terms of being in the FC system predominately in terms of the families you serve and clearly those families should be more well established to provide the needed services did they have a clear understanding of what was available to the children that they are fostering and if not how does that connection happen?

PARTICIPANT 5: I guess I hadn't even thought about that...I don't know that any of the FC families I've worked with have talked about the lead crisis that has been mostly with the bio families who are in the Flint area and that is concerning too because you think about the children...that's where they live that's where they grew up and where they experienced all of this exposure that still effects them even though they've moved into a different area...so I think helping outside cities that are on outside edges of the county to understand and keep thinking about this and how it can effect the children that are in their home...I think I missed the first part of that question.

FACILITATOR 1: in terms of insights when you think about the responses where you go, oh gosh that's awesome, kind of an aha, or are there other things where you go why aren't people thinking about this? Why isn't there that piece coming into play in the conversation...just is there any insights in that way that you've come to think about?

PARTICIPANT 5: I guess I can't think of anything because it has probably been 6 months since I've been in a meeting on it which is concerning because when it first happened we were all like it's important that we are all on top of it and now that it's kind of drifted past us and I remember when we were working with our cases we had to be asking if they had bottled water, if they had

filters on their faucets and everything like that and I can't remember the last time it was told to us to make sure and keep that in our forefront so...ummm I guess I worry now that the crisis itself in the moment is over that we're not gonna worry so much about all of these kids that are gonna be coming through the pipeline that are still effected by all of this.

FACILITATOR 2: Now when you mention the meeting, 6 months since a meeting, is that through your own work? Or is that a collaborative meeting?

PARTICIPANT 5: I'm thinking out in the community I went to a ... it wasn't a board meeting it was a giant community training sort of thing it was two hours sort of telling us about the way that lead is effecting brain development, the way that children think and process information...

FACILITATOR 2: was this the town hall meeting?

PARTICIPANT 5: yes!

FACILITATOR 2: we were there, Facilitator 1 and I were there

PARTICIPANT 5: I know that was the last one I went to and I know they just had "jury" day, I missed, but I think it was primarily focused on the water crisis and it was an all-day sort of thing so I wasn't able to attend that.

FACILITATOR 1: I'm just thinking about...I remember talking about this when it first hit the media that everybody wanted to do something to help and it's kind of like the homeless shelters on thanksgiving or Christmas where people do something to say they gave back but the other 363 days of the year they don't think about the fact that there are families on those days, everyday, that don't have what they need to survive. And I think if you hit that real clearly in terms of when it was this massive thing and the government has the responsibility and who is going to take the fall and that sort of thing...but now it's kind of like we've all moved on in our lives and there are still people that are here umm and I think that is still a very concerning part of this

whole process is how to we figure out how to support moving forward even though the crisis in and of itself is not still active the immense fallout from this crisis will be there for years.

PARTICIPANT 5: And I wonder about the intergenerational effects of this too and how these kids' kids' will be grieving from this too and will be effected by it...even this sense of mistrust and fear that will be a part of all of this intergenerationally too.

FACILITATOR 2: have you seen some of that?

PARTICIPANT 5: not directly, just from other co-workers they've hosted other counseling meetings and how this was effecting you and the general feeling is that they were lied to and it's hard to trust the process and the government...

FACILITATOR 1: I was gonna say lied to or mistrust of whom, of which agencies?

PARTICIPANT 5: I think the government. And unfortunately sometimes that comes back to us as an agency because we are part of ***and we are trying to combat that...I have not experienced that personally but that is what some people have been saying.

FACILITATOR 2: And a government that was under emergency control

PARTICIPANT 5: right

FACILITATOR 2: Ok so we focused on the school and you talked about going to IEPS and stuff, when you go to these IEPS do you offer resources to the teachers on what they can do to help students who might be impacted by lead?

PARTICIPANT 5: Like community resources?

FACILITATOR 2: just anything in general

PARTICIPANT 5: so what I'll offer is some intervention ideas and some things like that...I don't know that I make any community referrals in those situations because at that point they're

already in services with me and I usually work with the family, but that would be a good idea to have teachers that can help the students in the classrooms too.

FACILITATOR 2: are you here when teachers ask for help?

PARTICIPANT 5: not specifically on the water crisis,,it's almost always based on the child's behavior and I think that's where I get worried that we are losing sight of where this behavior might be coming from and now it's on the child vs what happened to the child.

FACILITATOR 2: when you are at IEPS how often are you with Flint or with outside districts?

PARTICIPANT 5: umm lately I am more outside districts because the children I work with in Flint are 0-3 and typically don't have IEPS yet...most are outside of the county

FACILITATOR 2: and I wonder if those teachers aren't thinking about that yet. Because I know they're not where I work.

FACILITATOR 1: in terms of the community services that are available to you feel like you have a really good handle on everything that's out there available to families or do you feel like there's a disconnect between what's out there and who could use that information to push out to families?

PARTICIPANT 5: I feel like I don't have a good grasp on any of it...I feel like we were thrown so much at the beginning and I could not keep track of where my focus was supposed to be and how to distribute that information to families...so I had the lists of where you could get the cases of water but trying to sift through everything else was so overwhelming that I didn't even know where to start to help direct families to the services that they needed.

FACILITATOR 1: and that's interesting to me and I was concerned that might be a response in that if we're not doing a good job communicating to our folks who are supposed to be providing those referrals or supports to our families then how do we ever expect that information to trickle

down accurately or efficiently to our families, we're not even doing a good job at providing the information to our folks on the frontline.

PARTICIPANT 5: And I think so much focus was on specifically water, so I feel like that was drilled into our heads a lot making sure we brought out cases of water and making sure they knew where to get them and get refills when needed and filters and things like that...and I remember being given a binder of stuff and being like I don't even know what to do with this or provide these resources to families...there was so much and then it would change and they would be like take this page out and put this in and I'm like I don't even know where I am now.

FACILITATOR 2: do you remember there being any flowchart or anything like if this happens you go here?

PARTICIPANT 5: nope, it was like divided into tabs and this one was for a food resource, then another for a church who was providing cases of water, things like that

FACILITATOR 2: do you remember who put it together?

PARTICIPANT 5: I think it was somebody at my agency and it was given to each staff member but it just sat where it has been.

FACILITATOR 4: if you had to say one thing, can you think of one additional resource that is really needed here?

PARTICIPANT 5: I just keep thinking education, being able to provide information for families, caregivers, educators, everybody so that there is an understanding of how this can impact each developmental stage and what you can expect...I guess my biggest concern is what my new role is going to be...making sure these kids aren't expelled or kicked out of school because of these behaviors they are exhibiting as a result of the lead.

FACILITATOR 2: and in all of this if there's one thing you can say that you've learned, what would it be?

PARTICIPANT 5: That's a really good question...the thing that's coming back to me is that the connection and the importance of connection and relationships in helping to support any crisis but I think especially in this, I think one good thing that did come out of this is that it did bring the city together and I know that is similar to what happened with hurricane Katrina, you know it really unites people.

FACILITATOR 2: is there anything you want to tell us? Anything else?

PARTICIPANT 5: I'm just thinking there's been a lot of focus on physiologically your brain development and all of that and I don't think I've seen a lot of resources in the social and emotional...you know we know that brain development can influence the way we are able to regulate ourselves and impulsive behaviors and things like that but I think it's harder for families to make that solid connection that this may be a result of this versus you're not sick because of the lead, if that makes sense

FACILITATOR 2: good point

FACILITATOR 4: sometimes parents are really opposed to medicating their children and what you said makes me really think about that if a child had diabetes...you wouldn't say I'm not going to give you insulin because you just need to tell your pancreas make some insulin so it's like that if there is a mental need for that it's getting that acceptance and getting the child the resources and helping everybody understand this isn't the child being bad.

FACILITATOR 1: and I think taking the blame out of it...everybody often tries to find who do we blame for this instead of saying at this point it doesn't matter, what we have to do is move forward with these children and their families

FACILITATOR 2: and what you said made me think of something else, do you think there's enough medical resources to help the families with the social and emotional needs in terms of doctors and therapists and so forth in the area?

PARTICIPANT 5: I don't think so. So we created a new program as a result of this water crisis that is specifically for case management for families that have been impacted by the lead crisis and it is also an expansion of Medicaid so it goes up to 21 and a big concern we had is that in doing this we are gonna find a lot of kids who need more intensive therapy services and we don't have the people to provide that so I know that in my office we are getting lots of intakes and nowhere to put them.

FACILITATOR 2: is there any recruitment going on to bring doctors into the area?

PARTICIPANT 5: So I know a big piece of that is Mott children's their mental health unit closed so all of their kids are coming to our office, and it's like 500, so that has been craziness in addition to the kids coming in as a result of the water crisis and everything too so I don't know what efforts are being done as far as doctors, I know we did get an additional psychiatrist in our office that does web based just to have another person to see the kids...its impossible for our one child psychiatrist to see everybody.

FACILITATOR 2: that's all you have?

PARTICIPANT 5: yep. Some families like the tele-psychiatry but I think it's really hard for the little kids because they can't process a person via camera.

FACILITATOR 2: is there anything else you are short on?

PARTICIPANT 5: money. I know we've had some serious cuts to our funding and that is how we service kids who don't have Medicaid for services and my concern is that as policymakers

are going through the next few years will there be a priority on mental health and Flint's water crisis because again it isn't in the news anymore.

Charter School

FACILITATOR 1: As FACILITATOR 4 suggested, we share your passion we are all in the education field, we've been in it for many years and we see the current situation in Flint as one that reflects not only an immediate crisis here but one that is actually existing across our country. And, although the spotlight is on Flint at the moment, this is by no means only a Flint issue. There's lots of research out there on what lead does to students, developing brains of children, but there is little to no research that says here's what you can do to best impact those students who have been exposed so we thought there was a real gap there, but we didn't want to come in and say "we have the answer, here it is" and put it on you and that it's going to fix everything. We felt we really wanted to gather the input and the insight of the people on those frontlines to say here's what's there, here's what's being given to us, provided to us whatever way that might be happening...but we're still missing something we really need and here's something as far as what that thing is...and it's not defined, yet. But our hope is that through these conversations and interactions of the prototypes that you'll be able to take a look at things and say, "yeah, you guys missed the mark totally, we need to go back to the drawing board, with a recommendation of how we might refine it, we go back and refine it and give it another look. So each time we do that it won't necessarily be face to face meetings, it might be potentially over zoom or just through email. But we want you to know that it's really important to us that you give us honest feedback and that it's perfectly ok to say through this process, this isn't it, you missed the mark and we need you to go back and think again. It's a cyclical process

for a reason and ultimately we want to walk away leaving something that will make a difference. So, that honest and open feedback is really important for us.

PARTICIPANT 2: Ok.

FACILITATOR 2: Ok, so as you reflect on your knowledge base on the effects of lead poisoning in children, what is it that you know about lead and what might you need more information on? And you can go ahead and take a minute to think on it because it's kind of a heavy question.

PARTICIPANT 6: I would say one of the things we got a little piece of is the nutritional aspect and one of the things we got from our ISD last year was a lead reducing snack but...I had some information but never felt like I fully understood why, or I should say how, this was going to help our students. Because just the name lead reducing, I'm not sure if it could actually take the damage away or not...so I guess more of the biological, more of how it can impact the students.

FACILITATOR 2: We will have to apologize, this is the third group we've had today. The three of us, along with Sarah, have spent the entire summer doing a lit review on lead and the biological impact and we have a wealth of knowledge. But yeah that is one thing, I remember the lead reducing snacks being passed out, and do you remember there being anything other than that? Was there any PD that the ISD provided?

PARTICIPANT 4: They did, they came out later, after we got it...and we did get a little bit of information about it...it was a nurse

PARTICIPANT 6: And they weren't the best snacks they were on a budget...I think it was 40 cents per kid...they picked a snack and...yeah.

FACILITATOR 2: Do you remember what the snack was?

PARTICIPANT 6: It was different every day. It was string cheese sometimes, fruit, vegetables, every once in a while there would be a cereal bar...that was the one we felt like wasn't quite as

healthy. But I guess when the nurse came out and we had our PD she indicated pretty much that if they were overall healthier it would help their bodies kind of fight against the damage that was done and maybe not have things get worse. Is the way I understood it.

PARTICIPANT 4: And we don't really know that...does it get worse? We don't know...

PARTICIPANT 4: And that's something that she talked about also was that she indicated that once it's been, almost that with children it's heightened and that things move faster than with adults who are exposed to it and they were saying that after 28 days it doesn't show up in your blood stream so they were telling people that, children and parents that they should go get blood tests and so we asked that question how are they really going to know, would they have to have full out body scans and people can't really afford that...so I guess we don't fully know the impact.

FACILITATOR 2: Right.

FACILITATOR 1: And unless the lead exposure is continuous and ongoing, the half-life of lead and those blood tests are not going to give you an accurate reflection.

PARTICIPANT 2: One thing to add on that is obviously there's mental or issues effecting the brain, I don't know if this is what you guys are going for but, we've had, not at this building but at our younger buildings we've had a sharp increase in the number of speech students or the number of students qualifying for speech services, I think it has tripled...last year there were 4 kids and the K-2 building who qualified for speech and I want to say this year it was something like 16 and we had to hire another resource over there so, you know, what's the connection.

FACILITATOR 2: Now, do you know is it for articulation, for processing, or bot

PARTICIPANT 2: I do not, it was students at the other building but I do remember that the numbers were huge.

FACILITATOR 2: That is a big jump, isn't it?

PARTICIPANT 6: At preschool specifically.

PARTICIPANT 2: Coming from preschool to K-2.

PARTICIPANT 6: This year I think she said she had 7 or 8 kids at speech. She spends her whole day there on Thursdays.

FACILITATOR 2: so you hired your own speech and language pathologist?

Unison: we already had one

PARTICIPANT 4: and the one that's at our building spent part time at the other building but now she's there Thursday all day which she didn't have to do before.

PARTICIPANT 2: So is there a connection? Or is it a fluke.

PARTICIPANT 4: And I don't know if this is something too, but I feel like we are seeing it at school with academics and stuff but the kids are feeling the stress of it from their parents. And the stress that this causes at home comes to school. Don't you feel like...especially when we first found out about it...parents are just extremely stressed and overwhelmed? We are seeing that here.

FACILITATOR 2: what might you be seeing with that?

PARTICIPANT 4: just that parents that are, I mean I don't know it could be other things that are going in I'm not really sure, but I just feel like...

PARTICIPANT 6: Like the kids are discussing it a lot, they're sharing it a lot and their feelings about what is going on...like I can remember one girl last year that didn't have recycling at her house and we have recycling here and she came with a bag full of water bottles that big that was only from about 2 or 3 days in their home... I mean just to see this girl, she looked like Santa

clause with this huge thing dragging behind her... and she was like in 4th grade. I mean, I don't know.

PARTICIPANT 4: They didn't know if they could take showers or baths, what was safe what wasn't safe, you know. Just from fear. I feel like you could just see it in the kids. Not so much this year, but they're used to it now...we don't drink the water we have to have water bottles but that was all a big thing last year.

FACILITATOR 2: is there anything else you can think of as far as what you might know about lead?

PARTICIPANT 2: We had one huge PD on it.

FACILITATOR 2: Ok was it BM and...

PARTICIPANT 2: there were two nurses...I believe two from the ISD

FACILITATOR 2: But it was a 45 minute PD, right?

PARTICIPANT 2: yeah there was a lot of information...well, in only 45 minutes

FACILITATOR 1: too much to process maybe...sometimes that's what happens, you come in and try to tell people everything they need to know, and if you don't have that background you don't have that foundation and then it's just like this dumping that you don't go back to...

Unison: [laughter] yeah

FACILITATOR 1: So as we think about the academic and/or the behavioral manifestations that we're seeing with our students who have most recently been lead exposed, what kind of connections or correlations can you draw with your previous work with students who just manifest behavioral or academic difficulties that you don't necessarily think would be tied to lead and these new students and these new behaviors within students that you are seeing that are perhaps connected to the lead?

PARTICIPANT 2: I think um emotionally stunted or not as far along as you would expect. Like being able to handle their emotions the correct way, especially at the K-2 building. I think there's a lot of emotional behaviors going on that we haven't seen in the past...to the extreme. In the amount.

FACILITATOR 2: We're hearing a lot of that. What are you guys seeing? And I know I'm seeing some of the same stuff...

PARTICIPANT 2: Students who just lose it and can't get it back and can't be in the classroom...destructive...throwing things.

PARTICIPANT 4: Having to be physically removed, like on a daily basis.

PARTICIPANT 2: It hasn't carried over to this building to the extreme yet.

PARTICIPANT 6: And I think I don't know if it will just because from what I've heard the effects are so much more impactful on children under the age of 5 or 6...so I don't know...like right now we're just so early into it that it doesn't mean that in the next two years or so we're not going to see it....you know by the time those students transfer to this building.

PARTICIPANT 2: Yeah lower emotional skills for sure. I'm not sure if they're behind academically or in academics or not, I assume they are.

PARTICIPANT 4: And some of that I feel is hard to know if it's our demographics or if it's the lead...

PARTICIPANT 6: That's the thing it's hard to really know that.

PARTICIPANT 4: You know because that's the population of students that have been here, students that typically struggle academically.

PARTICIPANT 2: But I don't think we've had that many extreme behaviors before.

PARTICIPANT 6: No

PARTICIPANT 4: No...really we should have D here. He's the principal over there who's really feeling the effects.

FACILITATOR 2: and it's across the county. The greater start collaborative started a task force last year to look at it in preschool coming on up. We have several kindergartners this year who are doing the same thing...throwing the chairs, hiding in lockers, running out...and it's like what is going on...it's all over.

So you mention demographics, can you tell us a little bit about your demographics here?

PARTICIPANT 6: High poverty.

PARTICIPANT 2: 70 something percent African American

PARTICIPANT 4: FRL, like 93%

PARTICIPANT 2: The next highest percentage is White and then Hispanic I think is our third highest subgroup

FACILITATOR 2: And then are you drawing from __ kids, Flint community schools...

PARTICIPANT 2: Flint Community schools. We do have some kids from the K district but the majority of them go to K.

FACILITATOR 2: Anything else with academic or behavior? And maybe not something you're seeing yet but that you are concerned about given what you are hearing from the k-2 building?

PARTICIPANT 4: All of its concerning.

PARTICIPANT 2: well our students are already pretty far behind, some students, the majority of them, are behind grade level or lower than grade level...so the students who come to us how far behind are they going to be behind, like ***** co-teaches in a room with ***** and they have the low room so that there are two teachers...so are we going to see even drastic changes to that when they come over here

PARTICIPANT 6: And this could be just...not even related but the principal, he's lost probably 7 teachers this year

PARTICIPANT 2: m-hmm

FACILITATOR 2: Is that typical?

Unison: Nook

PARTICIPANT 6: And you wonder if it's because of the challenge or the kids or...

PARTICIPANT 4: And I know there's more job openings...but you wonder what it is

FACILITATOR 2: And that was at the early childhood building?

Unison: Yes

FACILITATOR 2: And I know you guys aren't really transient like that with staff so what typically would you have had, one teacher leave?

Unison: one or two

PARTICIPANT 6: I mean he's lost a lot...I wanna say at least 7.

FACILITATOR 2: Wow.

PARTICIPANT 6: well because even if they get a replacement that replacement eventually leaves.

PARTICIPANT 4: So that low room right now for second grade hasn't had a second teacher for two months? Two people have quit since then in that room.

FACILITATOR 1: and that's so hard on the kids. Yes it's hard on us as adults but for the kids to have that instability...

PARTICIPANT 4: and with this type of population we are probably the most stable thing that they have

PARTICIPANT 6: So they like coming, one thing that they like is that our district is very very structured and I think they like it you know they know what to expect they know what to predict or they can predict what's going to come next and I think a lot of them that leave here, several do return several that don't but the ones you see that come back to visit will say oh it was so much better here, you know and they'll say things like that about behavior and the discipline and the teachers and things like that too, so...

FACILITATOR 2: Do you do any kind of exit survey with the teachers when they leave?

PARTICIPANT 2: I don't think he has...I was thinking about that the other day actually. I'm not sure if there is a district policy but I think there should be.

FACILITATOR 2: Right. It's just interesting because we are wanting to be helping educators and you wonder, does it tie into this? The stress you guys were talking about that the families were exhibiting?

PARTICIPANT 6: I feel like it makes parents come in on edge before they come in and we even get a chance to talk to them you know because their stress level at home is so high

PARTICIPANT 4: Yeah when they come here we have to spend so much time calming them down and then really, I mean every time we have someone coming in here they're...it's like a counseling session...they come in mad, I walk them through it and then they cry and then they just want help...and their kids are that same way I feel like...they come in and you try to correct them or talk to them...but I'm new to this position too so I don't know if that's lead or if that's just how it is.

FACILITATOR 1: I think that is a great segway into the next question, A with the resources...

FACILITATOR 4: So if you think about the resources that have been made available to you to support students who have been exposed to lead, if you kind of get those in your mind, how do you feel about the resources currently available? Are they enough? What are you short on?

PARTICIPANT 2: We had a huge influx of water bottles for our school because all of our water is shut off except for in the bathrooms, so we've had a huge influx of that but that's kind of steadied out we've gotten donations for these water machines that filter

PARTICIPANT 4: Well and then even too our district from what I understand we weren't even testing positive enough and they shut it off as a precautionary measure I think...it was last February when there were two people that came in from the state and they were looking at our sinks in our classrooms because the lower wing has the drinking fountains right in the room so they were looking at...and I was being nosy so I asked what's going on here? And they said they were bringing in a team, schools are our priority, homes with small children things like that and they were going to change out all the fittings...and they said they had a plan to flush out all the lines and then we were going to be good to go and we haven't seen them I don't think since then...

PARTICIPANT 2: the only water that works is in the bathrooms

FACILITATOR 2: and you said that was the state that came in?

PARTICIPANT 6: yes, three people...one doing the work and two watching.

FACILITATOR 2: it's interesting you say that because my husband was a part of the group that was running around that time...

Laughter

FACILITATOR 2: it was interesting though how they had to do this, they had a state person, they had a pipe fitter, and then a community member because people weren't letting them in the house and one of the houses they were met with guns because people weren't trusting

PARTICIPANT 6: They put up all these codes and stickers behind the drinking fountain and I don't even know what these things mean...and they put up the signs by the drinking fountains in the hallway that said do not drink and I don't know if our facilities manager has seen the back. We haven't had anything change in our rooms.

FACILITATOR 2: Wow that's kind of surprising

FACILITATOR 4: So this was happening while kids were in school?

PARTICIPANT 6: This was in February

FACILITATOR 4: So kids were seeing that, too

PARTICIPANT 4: They came during the school day and the kids saw them and everything

FACILITATOR 2: Ok, so you talked about the water bottles and this situation but what about other resources, have Salvation Army, the United Way or anyone else like mental health reached out?

PARTICIPANT 2: Umm I will add to those before we go into that that we had a drive with a bunch of well two different kind of filters, we had to keep track of them and we still have some actually in the closet...but we had those kinds of drives too. We are in partnership with Health Care System A and I think they've done some sort of lead clinic at one of our parent event nights.

PARTICIPANT 6: Yes, they did. Like lead testing, m-hmm. We've done a lot of water giveaways, food distributions that are fruits, vegetables things like that. We've had several of those. But I feel like a lot of it, and I mean I don't know for sure, but I feel like it's us and our

parent liaison initiating most of that though. Not them coming to us. People did in the beginning, but...Just at our conferences last month we had a health fair in the gym but it was our parent liaison that set it up. It wasn't necessarily just pertaining to lead.

PARTICIPANT 4: So if you are thinking resources for teachers on how to help kids, I don't feel like we have anything.

FACILITATOR 2: Really, ok.

PARTICIPANT 4: I feel like we are doing more to help the community, which helps our kids, but not while they're at school.

FACILITATOR 1: well regardless of what has happened whether you think it is more or less at the moment it's clear that it hasn't been impactful because what you are expressing is well I think that was and I guess that was, and they came in and did something but it didn't resonate with me, it didn't connect

PARTICIPANT 6: And the stuff that we are saying our parent liaison she sets a lot of this stuff up and this is all stuff that is normal that I feel like she does every year. Not just because of lead. Like she does this for the district all of the time.

I mean the only difference was when Health Care System A came in and she might have had a health fair at one time but the difference this time was that they would test your blood for lead, so that was really the only difference. To me it doesn't feel that different from what our school normally does.

PARTICIPANT 2: I don't know if there is a connection here but there's going to be a **** health clinic in the school and in the other school.

FACILITATOR 2: yeah I saw a sign out there.

PARTICIPANT 2: I don't know if there's a connection between the two but that is going to start I think in December. So that is another resource, whether it's tied to what is happening or not I don't know.

FACILITATOR 2: Ok and then are they here just to help the students or the community.

Unison: the community it's open to all.

PARTICIPANT 2: but the students have to sign a consent form but the community members can come in and it's like a mini health clinic for the school.

FACILITATOR 2: that's a nice idea. Can you think of any other resources?

PARTICIPANT 6: We want more.

PARTICIPANT 2: What do you got?

FACILITATOR 4: Well I was thinking I spoke to someone from the ***, have they been in or DHS have they come to reach out to schools to say hey if your parents need this or this, then hook them up with me.

FACILITATOR 2: We're seeing a lack of coordination. And we saw it going in and being in the county and I'm close with the administrator she's my best friend and she works with the great start collaborative and stuff but I kept saying who's coordinating it because all of these entities are trying to do all of this stuff and people get left out and you're not getting the information that you would like and you want help, but you don't even know how to help your teachers...I'm not trying to be sarcastic, but how do you help them?

PARTICIPANT 4: And how do we identify which kids it is effecting? So I guess we don't really know who is effected.

FACILITATOR 2: Can you tell me more about that? Are the kids saying I don't have a filter on...

PARTICIPANT 4: I mean I feel like they talked about it a lot last year and maybe in this position I don't hear about it, but it's not something that's really a topic of conversation any more I don't think.

PARTICIPANT 2: And the Intermediate School District people said that when some people came in and they said that some people just...it is what it is. That I'm just gonna continue to do it the way I was doing it.

FACILITATOR 4: it just doesn't rise to the level of it being an immediate need

PARTICIPANT 4: I think it was in the beginning but I think it has fizzled out.

FACILITATOR 2: Apathy, right? Ok. We touched on this last time we're going to try it again and I apologize if it sounds redundant but are you aware of resources where you can refer families to who might help, other than getting the Community Health Group here.

PARTICIPANT 6: I usually just put us in touch with our parent liaison. She is the one who knows about a lot of resources in our county and she will set them up. Most of them know to call her when they need help. They just call and ask for her. She's our person.

FACILITATOR 2: you are lucky to have someone like that.

PARTICIPANT 6: yes we really are.

FACILITATOR 2: is she here full time?

PARTICIPANT 6: She just walked in. She's full time. And I was thinking she could probably run a PD on resources and here's a contact person for this need.

PARTICIPANT 4: Getting our parents to come to things is challenging.

PARTICIPANT 2: We found the only events that they come to is if the student has produced something and they want them to come see it. Like science fairs are a huge thing. Anytime there is a coordinated dance or activity they come to that but if it's just an educational night

they don't come to that...it used to be if we could feed them then that would help but that has changed.

FACILITATOR 2: Do you see any barriers? Does your parent liaison ever come to you and say I'm trying to help this family and I can't get them there, I mean do you ever hear her talk about problems she encounters?

PARTICIPANT 6: She's good at staying in communication with us if there's an issue going on she will come and speak to us so she's good about it and if we know so and so needs this we can just shoot her an email and she's good about getting right on it.

PARTICIPANT 4: She's pretty determined. I don't think she's told no very often.

FACILITATOR 1: what about in terms of transportation? Like if she is really pushing a family to get into counseling but they say they don't have a way to get there does she have resources that she can provide to them?

PARTICIPANT 4: if they signed up for the Community Health Care then they provide the transportation

FACILITATOR 1: OK

PARTICIPANT 4: I know we had them come to our title 1 carnival last year and they had some people sign up I don't know if they've used it or what the follow up is but I know that they were provided the transportation if needed. She's our liaison with Community Health Care.

FACILITATOR 1: It's been interesting hearing you talk about in my opinion the lack of resources the lack of reaching out to you as a school or as a district and capturing the students that are here as Flint co students but not in the schools and have you been missed by some of the agencies that are here to help students and families, but if you think about some of the responses

that you are aware of or have experienced do you feel like you have gained any insights into how to move forward in terms of supporting students and families?

PARTICIPANT 4: I guess I feel like we can support them and guide them to what they can do outside of school, the resources that are available but not necessarily what we can do while they are here.

PARTICIPANT 2: We don't say come on in and we will help you through this because I don't know exactly what to do with that. I can say here's some water bottles and a filter, but I don't know what else.

PARTICIPANT 4: And from the teachers standpoint of using strategies to help with their emotional behaviors, I mean we don't know what we can immediately use while teaching. You know we haven't really seen that either.

FACILITATOR 4: if you could have parents do something, or I wish parents would do this, what would it be?

PARTICIPANT 6: Read. Read every day and have conversations with your kids. Everywhere you look they are on their cell phones which I think is a huge reason there is such a need for speech because they're not having conversations...just asking what did you read about? Tell me about his book you just read?

PARTICIPANT 4: And it seems easy on their end but when they are stressed about work and stressed about showers and stuff and having to cook and using water bottles this is something you could do.

PARTICIPANT 6: And I don't think they realize what an impact this has on their kids. You know when I was doing my masters and doing research on kids in poverty it was the amount of books that kids in poverty read compared to those who aren't, just even middle income it was

like hundreds vs thousands of books before they get to school. The number of our parents who are illiterate is a huge number. And just knowing can they get to the library and I don't know if Genesee county does the imagination library or not but it is a wonderful resource. My niece got a book every month from birth to age 5. And I think if those things were available in Genesee County and if parents were aware of these things it could make a difference.

PARTICIPANT 4: And being on this end doing more of the discipline reading is seen as more of a punishment. If kids are sent home suspended they are told you are going to go home and read all day tomorrow and it is used in a negative way. And being forced to read changes the mentality of reading.

FACILITATOR 4: I think going back to the old books on tape...

Unison: our parent liaison! (she enters and then leaves)

FACILITATOR 2: now you mention illiterate parents. We were at the children's museum holding some sessions this morning and I grabbed every lead hand out I could get and there's some big words on those so what have you done to help parents that are illiterate. Do you see this as something that is county wide?

PARTICIPANT 6: Oh gosh yes.

PARTICIPANT 2: Most of our literacy initiatives are focused on students. I think that we have parent nights, we have wash day Wednesday where there is literacy built in but most of these are run for the students.

PARTICIPANT 6: Wash day Wednesday is where we pay for the parents to do laundry and there are reading strategies the parents can get for their kid. And unfortunately I've opened it up to all kids k-5 and 0 people have shown up so far.

PARTICIPANT 4: There is a center up the road where the parents would wash their clothes. But you know something I've noticed this year is that a lot of the parents are working way more than in the past so a lot of parents are saying oh I won't be able to make it I'm working, my mom can take so and so, they are trying to find a way but most of them are working now.

PARTICIPANT 4: And the teacher that does it she does work with parents as well and I know they really appreciated it and they could go over their homework with her or whatever questions they had in addition to the reading strategies that would help their child. She would give them books to take home, which was great.

FACILITATOR 1: So if you could have whatever you wanted like what additional things would you want?

PARTICIPANT 4: People. Money to pay for more staff.

PARTICIPANT 2: she's talking about lead level, right?

PARTICIPANT 4: I think ultimately that would help

FACILITATOR 1: What ultimately is going to be a good strategy to work with kids who have been exposed to lead is going to work for all kids. It's kind of like the RTI model whereas Amanda explains it really well you take those tier 3 interventions and they become tier 1 because you have so many kids who are needing that level of intensity in terms of support so what you are going to provide to kids who are lead exposed is going to be beneficial to everybody because you have so many more of them that those supports are getting pushed down the tiers. But when you mention funding for additional staffing, what then would you have those staff doing?

PARTICIPANT 4: More social workers. We have two social workers not a counselor and they do a great job but I think...we are still spread thin. We need another special ed teacher we are short on that and they are over on their caseload.

PARTICIPANT 6: That's the other thing too for instance at child study or at conferences that becomes the topic of conversation is have they been tested for lead. And that's always the question. But like you said we are also seeing quite a spike in our special ed population too.

PARTICIPANT 4: Just having more people to talk to. Like mentoring programs. Teachers just have so much pressure on them that they don't have the time to just check-in with kids in the morning, you know, did you have breakfast, this goes so far and the teachers are worried about the test scores and what they need to do that they don't have the time to do that. So support staff to do that. It doesn't necessarily have to be a teacher.

PARTICIPANT 6: We don't have para professionals anymore and we used to.

FACILITATOR 2: Are your social workers able to work with all kids? In my district they can only work with special ed because of how they are funded.

PARTICIPANT 6: They can but if you ask them they are great about coming in and teaching a lesson.

PARTICIPANT 2: We have a self-contained room and they do a lot of stuff in there on a weekly basis to work with those kids

PARTICIPANT 7 enters and signs consent form

FACILITATOR 1: S1 are there any things that you've thought of while you've been listening to all of this that you might want to add?

PARTICIPANT 7: I was curious if you are familiar with having liaisons who are dually employed by agencies be stationed in your school? In Kent County on the west side of the state there are a couple of schools that have partnerships with local agencies that offer emotional and behavioral support. These individuals are usually funded through 31a funding and I'm wondering if anything like this has been discussed or considered?

Unison: never been discussed with us, Pamela would know. I think it would definitely work. Who do we contact?

PARTICIPANT 6: But our funds went down a ton...so how do we do that? Reallocate?

PARTICIPANT 4: what is 31a?

Unison: at risk

FACILITATOR 1: what about connecting with Medicaid? Working with agencies to see if they can provide services but then billing the child's Medicaid. Special ed does this and can be done for general ed populations as well if you find an agency that is willing to service them and bill that way. So this might be another avenue to explore. Where it wouldn't then be funding out of the school or district budget.

FACILITATOR 4: you just have to be careful saying this kid needs this because once you say that then you're on the hook for it.

PARTICIPANT 4: But once you have the clinic they will be providing a practitioner several days a week

FACILITATOR 4: Have your families already been told about this clinic?

Unison: yes, they've already filled consent forms out. It's in our welcome packet the first day they come to school

FACILITATOR 2: ok so Sandra you teach 5th grade? We're just going to go back and ask a few questions and you all just feel free to chime in again if you think of something else. We asked a little bit about what your knowledge is of lead poisoning and children who have been exposed to lead?

PARTICIPANT 7: you know it varies, it's like the internet you have to question whichever source the information comes from so the knowledge is limited based on heresy. So the research

I have done personally is just coming from the individual agencies that have come in. And I learn from being out in the community and listen to the news and things like that. I definitely need some education myself on what exactly it is. And the effects of the exposure.

FACILITATOR 2: and given your classroom experience what resources are you aware of that might be available to you that you could use...we know there are more at the early childhood level and not so much at 5th grade, but have you had any resources made available to you outside of what your own building has done?

PARTICIPANT 7: just within the community? Oh there are things all of the time a lot of the churches have thing on the weekend but once again I just think it's that lack of...they don't know people don't know about it, I don't even live in Flint, I live in ***, my mom lives in Flint and they don't know about it so it's just getting that word out and making sure that population who really needs it that they receive it because I don't think its advertised as much as it could be

FACILITATOR 4: what would be the best way to get information out to a mass group of people? An app, the news, social media?

PARTICIPANT 7: I think on FB...I'm talking about 30-40 year olds who are working in the mornings. Like those amber alerts people get those and are like what is going on, even billboards, advertisements within the community...who pays attention?

FACILITATOR 1: you said something about a community blast? I like that

PARTICIPANT 2: we use PowerSchool and we can send a blast to all phone numbers in the system

PARTICIPANT 4: and unfortunately I think we do them too often...so that eventually people just stop listening to them

FACILITATOR 1: and back to the billboards, with the literacy rate as it is will a billboard be the most effective thing, if it is just written and not audio are we going to miss people?

FACILITATOR 4: it leads me to think of a central registry where we track them after they've accessed any type of service

PARTICIPANT 4: and it's hard to contact our parents because they have different numbers weekly

FACILITATOR 2: I talked to an administrator in Flint schools and she said a lot of parents are coming in and asking for a special end evaluation so that brings up the question are you having a lot more of that this year with the lead?

PARTICIPANT 6: I had one at parent teacher conferences ask but she brought it up herself. Although she had concerns when he enrolled too about his abilities...

PARTICIPANT 2: we have a higher population than we did last year but that's because of people coming into the district from mostly Flint and Beecher, stem academy all with preexisting IEPS

PARTICIPANT 6: our students who only qualify for speech right now we are getting a lot more questions about their abilities in the classroom and we almost want to test all of our speech students too...do you think this is because of lead?

PARTICIPANT 4: I don't think this is because of the lead but we are being targeted because we have a lot of AA kids who are CI. I think we have 12 but I think 6 came to us this year from a different school but we are looked at that we are over qualifying. So a lot of it right now is the review process.

FACILITATOR 2: that's interesting too because you are a charter school so you don't have boundaries but then you are saying that they think you over identify

PARTICIPANT 2: and because there is a complaint there has been 30 days to do a review of 6 kids who are identified and we are having several meetings in just a couple week period.

PARTICIPANT 6: So they are taking up all of our time right now.

PARTICIPANT 4: But it trickles down, last week the teacher I teach with we had a meeting during every single one of our preps last week... we feel it.

FACILITATOR 2: Sandra with academic and behavioral manifestations of lead how familiar are you with that and do you see anything different in your classroom this year?

PARTICIPANT 7: as far as resources?

FACILITATOR 2: well just academics and behavior.

PARTICIPANT 7: Um I think it's more emotional at this point. They were just scared. They don't know what to expect or what is going to happen. And they have what they've heard in the news or whatever so I can't tell them what to do as far as their exposure.

FACILITATOR 2: is there anything that you would like to add about lead that we haven't asked or the insights you've gained from this process? Not our process, but the crisis.

PARTICIPANT 2: I can't think of anything because I feel my knowledge of lead is not what it should be.

PARTICIPANT 7: yeah I think it is just knowledge. We need to do research and have an understanding for ourselves and without this can we really make a valid point either way and the kids need something kid friendly that they can understand, this will help some of the parents.

FACILITATOR 2: we're hearing a lot of similarities as we talk to people today. Participant 7, I just want to go back, we met with many groups today and we are going to go back and determine what are the central problems all of our groups are feeling and then design something to meet that need. WE don't have all the answers either but we want to hear what do you need and

develop something. We will be sharing some prototypes with you and you can tell us you like it you don't like it we want honest feedback. As you know this isn't just Genesee county. Amanda is experiencing this in northern MI as well.

FACILITATOR 4: Yeah I supervise early on in some of the poorest counties, Lake, Mason and Oceana. There's a lack of funding and a lack of resources available and there's this big geographic distance and some of the schools there are starting to get their water tested and finding elevated levels.

FACILITATOR 2: and it isn't just in water. Windows, in soil, paint..especially in our urban areas.

PARTICIPANT 6: One thing I remember about that nurse that came in and did the PD was is this situation bad, yes but she was very optimistic in how Flint could come back from this...so it really goes back to do they have the education on what is needed to come back from this...I was just surprised about her positive outlook and how we can get through this but our families don't feel that way.

PARTICIPANT 4: I think our families feel defeated. Like they don't have that sense of I can get help from what is out there...its not just the lead but the job opportunities

FACILITATOR 4: what was it that made her be positive?

PARTICIPANT 6: she was talking about our resources and the plan the state had to fix this... she was very hopeful

FACILITATOR 2: but you haven't seen anything since have you

Unison NO! Where's the action? They are here!

FACILITATOR 2: if you could say one thing that you would like to see come out of this, what would it be?

PARTICIPANT 4: Knowledge, help for our teachers. Strategies which would help the kids once our teachers know what to do.

PARTICIPANT 6: and we want to help the families, but this is what is most in our control is when they come here.

PARTICIPANT 7: I think something short and sweet that parents can do for support. They are getting so much that they don't go through it all. Ideas that can be accessed quickly.

Appendix H: Coding Transcripts from Focus Groups for Empathy to Generate POV



Appendix I: Emerging Themes

Focus Group for Empathy			
	Number of Times Addressed		Number of Times Addressed
<i>Topic: Feelings and Systems</i>		<i>Topic: Education</i>	
Empathy	1	Teacher PD on Lead and Interventions	10
Fear	3	Emotional and Behavioral Problems	8
Stress and Emotions	2	Speech Delays	2
Understanding and Reaching Parents	3	Multiple Causes	7
Stigma	2	Parent Ed/Reading	5
Trust and Relationships	8	Developmental Delays	2
Systems (coordination, roles)	4	Staffing Problems	2
Credibility of Organizations	3		
Communication	1	<i>Topic: Local and State Concerns</i>	
Teacher Turn Over	1	Flint Fatigue/Lack of Priority	8
Customized Approach	1	Unknowns of Water System	2
		Need for Research	2
<i>Topic: Systems/Organizations</i>		Long Term Funding	2
Access to Resources	20	Lack of Resources for Teachers	2
Stress in Teachers, Students	3	Focus on Early Childhood	1
Mentoring for Teachers	1		
Transportation	2		
Lack of Knowledge of Lead	11		
Connections w/ Families/Parents	15		
Medical Resources	9		

Appendix J: Potential Problem Statements to Address Point of View

Directions: Each group member should attempt to write three potential problem statements based upon the focus groups and coding data shared in the capstone folder. On Monday, December 12 at 8:00 PM, our group will zoom to collaboratively determine problem statements that will address the needs of our design thinking participants.

1. Lack of Complete/Accurate Lead Education:

Potential Audience - Educators

It came out in the conversations that there has been limited information shared with educators regarding the impact of lead on children. In addition, there seemed to be some confusion regarding the best way to combat the effects of lead exposure/lead poisoning in children.

2. Lack of Knowledge of Resources:

Potential Audience - Educators

It was apparent in the conversations that 'resources' was a predominant theme. Resources were discussed from differing points of view, however knowing what resources are available for families, being able to connect family need with an appropriate resource or navigating the overwhelming list of resources all seemed to be areas of expressed concern.

3. Lack of Access to Resources:

Potential Audience - Parents

4. Lack of Complete/Accurate Lead Education: Potential Audience - Parents

5. The potential impact of the Flint Water Crisis on children's academic and behavioral success is crucial to know and understand. Through increased knowledge, proactive measures may be taken that support the success of each child whether or not he/she has been impacted by lead in the water. However, through a series of focus groups, it is clear that some educators are unaware of, or have misinformation on, the potential impact of lead on developing bodies. This lack of knowledge may thwart future efforts and cause blame to be on the child, rather than understanding the limitations as possible inherent problems associated with blood lead levels, coupled with other factors, including poverty. (FOCUS ON EDUCATORS)

6. The Flint Water Crisis has led to an abundance of support from individuals and organizations in and around the state, as well as across the nation. While beneficial and well-intended, challenges still exist, specifically in relation to accessing said resources. Through a series of focus groups, participants identified needs in locating, referring and utilizing resources to assist in meeting the needs of the children that they educate and/or assist. The inability to access needed resources, which may or may not be known as being available to them, has the potential to put undue stress and burden on families, educators, and other individuals working to meet the needs of children. (FOCUS ON COMMUNITY AT LARGE)

7. Parents are their child's first teacher, as well as their strongest advocate. The Flint Water Crisis has brought about the need for many advocates for children, especially parents. Through a series of focus groups, it was evident that educators and individuals working directly with children are experiencing interactions with parents who lack the information they need to be

knowledgeable about the potential impacts of lead on their child. This lack of understanding may be caused by numerous things, including literacy rates, trust and relationships, lack of communication, stigma, among others. In order to advocate for, and assist their child, barriers to knowledge need to be considered and reduced, leading to a common level of understanding and awareness so that proactive measures may be taken to best meet the needs of their child. (FOCUS ON PARENTS)

8. Flint educators and service providers have reported a desire to have an increased understanding and access to resources available in their communities to support lead exposed children. A website with an outline of resources will be created in order to serve as a central registry for educators, families, and other stakeholders to access pertinent information. (ACCESS TO RESOURCES)

9. Flint educators and service providers have encountered a challenge regarding the identification and support of lead exposed children. Using the Design Thinking Process, an intake form, in addition to other supports, has been considered to assist practitioners in the identification and development of teaching interventions and strategies to support lead exposed children. (IDENTIFYING LEAD EXPOSED CHILDREN & STRATEGIES)

10. Flint educators have expressed a need to have an increased understanding of the biological and developmental impacts of lead on children. With this increased awareness, educators have also requested an enhanced access to educational resources and strategies that can be implemented in both educational and otherwise therapeutic settings. (LEAD IMPACTS AND STRATEGIES)

11. Educating children with varying levels of need, both academically and behaviorally, is both challenging and rewarding. However, through a series of focus groups, Flint educators and service providers shared that they have encountered a challenge regarding the identification and support of lead exposed children. Flint educators have expressed a need to have an increased understanding of the biological and developmental impacts of lead on children and how these impacts may manifest themselves. In addition, educators have requested enhanced access to educational resources and strategies that can be implemented in both educational and otherwise therapeutic settings to intentionally address the needs of these potentially lead exposed students. (FOCUS ON IDENTIFYING LEAD EXPOSED CHILDREN & EDUCATIONAL STRATEGIES)

Appendix K: Narrowed Set of Potential Problem Statements to Address Point of View

Points of View (POV)	Description
Educators	<p>The potential impact of the Flint Water Crisis on children’s academic and behavioral success is crucial to know and understand. Through increased knowledge, proactive measures may be taken that support the success of each child whether or not he/she has been impacted by lead in the water. However, through a series of focus groups, it is clear that some educators are unaware of, or have misinformation on, the potential impact of lead on developing bodies. This lack of knowledge may thwart future efforts and cause blame to be on the child, rather than understanding the limitations as possible inherent problems associated with blood lead levels, coupled with other factors, including poverty.</p>
Parents	<p>Parents are their child’s first teacher, as well as their strongest advocate. The Flint Water Crisis has brought about the need for many advocates for children, especially parents. Through a series of focus groups, it was evident that educators and individuals working directly with children are experiencing interactions with parents who lack the information they need to be knowledgeable about the potential impacts of lead on their child. This lack of understanding may be caused by numerous things, including literacy rates, trust and relationships, lack of communication, stigma, among others. In order to advocate for, and assist their child, barriers to knowledge need to be considered and reduced, leading to a common level of understanding and awareness so that proactive measures may be taken to best meet the needs of their child.</p>
Children and Educational Strategies	<p>Educating children with varying levels of need, both academically and behaviorally, is both challenging and rewarding. However, through a series of focus groups, Flint educators and service providers shared that they have encountered a challenge regarding the identification and support of lead exposed children. Flint educators have expressed a need to have an increased understanding of the biological and developmental impacts of lead on children and how these impacts may manifest themselves. In addition, educators have requested enhanced access to educational resources and strategies that can be implemented in both educational and otherwise therapeutic settings to intentionally address the needs of these potentially lead exposed students.</p>

Appendix L: Rankings of Problem Statements to Address Point of View

Participant	First Choice	Second Choice	Third Choice
1	Children & Ed Strats.	Parents	Educators
2	Parents	Children & Ed Strats.	Educators
3	Parents	Children & Ed Strats.	Educators
4	Children & Ed Strats.	Parents	Educators
5	Children & Ed Strats.	Parents	Educators
6	Children & Ed Strats.	Educators	Parents

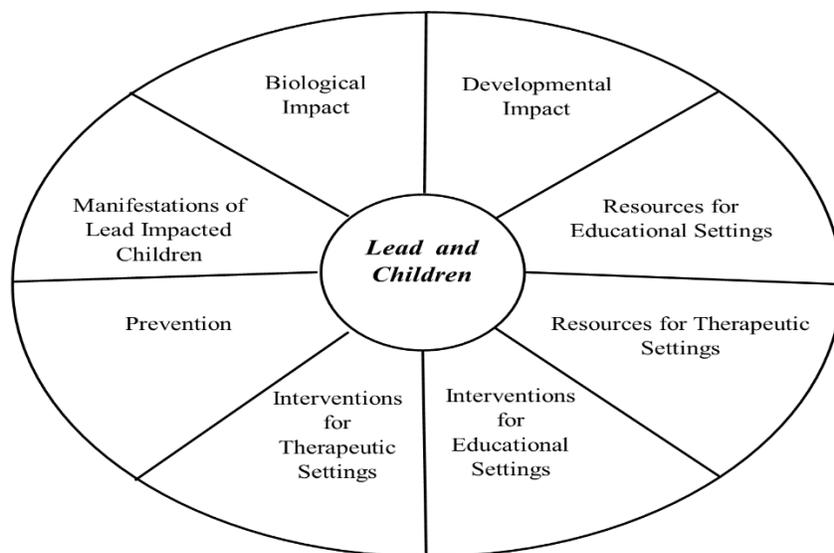
Appendix M: Sample Prototypes

Based on the following chosen point of view, a set of core needs were extracted.

Point of View: Educating children with varying levels of need, both academically and behaviorally, is both challenging and rewarding. However, through a series of focus groups, Flint educators and service providers shared that they have encountered a challenge regarding the identification and support of lead exposed children. Flint educators have expressed a need to have an increased understanding of the biological and developmental impacts of lead on children and how these impacts may manifest themselves. In addition, educators have requested enhanced access to educational resources and strategies that can be implemented in both educational and otherwise therapeutic settings to intentionally address the needs of these potentially lead exposed students. (FOCUS ON IDENTIFYING LEAD EXPOSED CHILDREN & EDUCATIONAL STRATEGIES)

Core Needs:

- Biological impacts of lead exposure in children
- Developmental impacts of lead exposure in children
- Manifestations of lead exposure in children (ie. what does it look like)
- Resources
 - In educational settings
 - In therapeutic settings
- Interventions
 - In educational settings
 - In therapeutic settings



In this phase of the Design Thinking process, we work to develop several prototype options for disseminating the desired information. These are not complete products but rather a framework of ideas to generate thoughts about the best way to provide the information we want to share with the people who need it.

We have included four possible prototypes for providing the information desired.

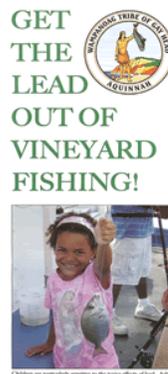
Pamphlets

The final product could provide the information requested through a pamphlet of some type. Pamphlets are designed to provide the reader with key information on a topic but can in no way become a comprehensive tool for users. Pamphlets provide information in small chunks to readers. The design of a pamphlet does not allow for in-depth information to be shared. Rather it would provide a few main points and then possibly information to guide the reader to a more comprehensive resource through websites or research documents.

The pamphlet(s) could be designed as a single sheet flyer, a tri-fold, booklet or rack card. The information could be presented horizontally or vertically and could be one sided or double sided. There could be pictures included which represent the content or simply graphic design in the background. There could be a set of pamphlets created to address each of the core needs separately or one pamphlet with very limited information on each. Potential designs could follow any of the patterns of the samples shown below or be something completely different.



Single Sheet - one sided



Rack Card



Four-fold - double sided

Professional Development Sessions

The final product could provide the information requested through face to face professional development sessions specifically developed for educational staff members. These sessions could be offered on district PD days as well as through after school or evening sessions. After school or evening sessions would either be voluntary or would require funding set aside to pay staff additional hours. The professional development sessions could be presented at a school level or on a district wide level.

A professional development session could include a general presentation of information and then offer additional interaction through a panel type discussion. Sessions could also be designed to offer a general presentation of information and then offer break-out session where staff could

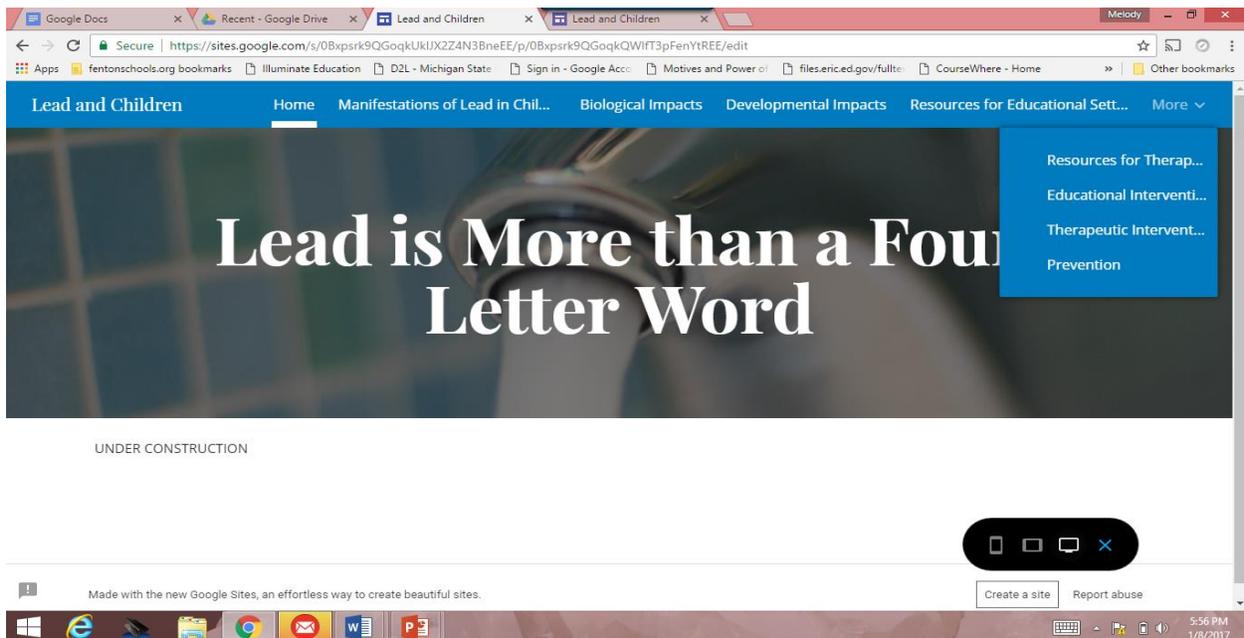
choose the area where they desire the most information. Sessions could be designed as Ted Talks where there is little interaction with the participants. Finally, the session could be delivered entirely through a group presentation with opportunities for participants to then work together in small groups to process the information presented.

As all of us are familiar with professional development opportunities, no sample of a professional development session is included. However, if you have not ever viewed a Ted Talk, the following link will provide you with a sample. <https://www.ted.com/topics/education>

Webpage

The potential exists for information associated with lead and the Point of View to be shared around the world via a webpage. The webpage may consist of tabs across the top that specifically address the core needs. Each tab may have user-friendly definitions, explanations, links to further info, and possibly videos or other means to share the information with interested educators and readers.

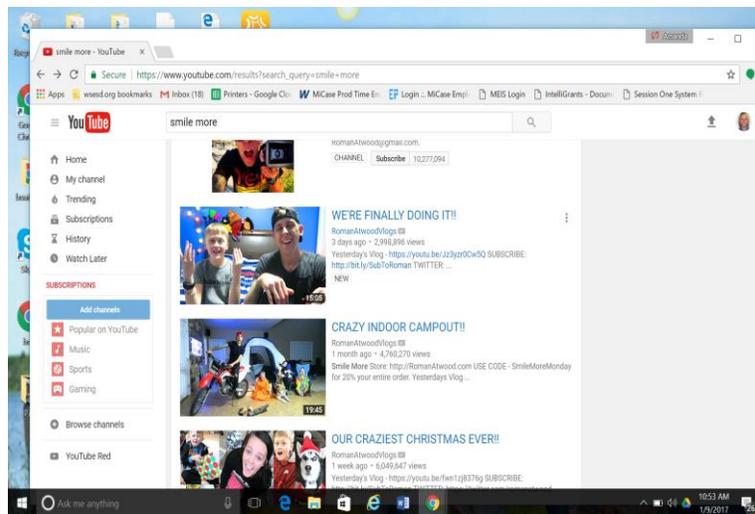
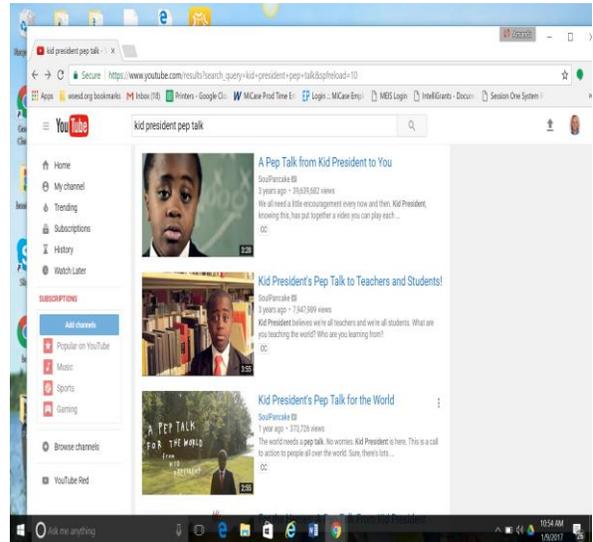
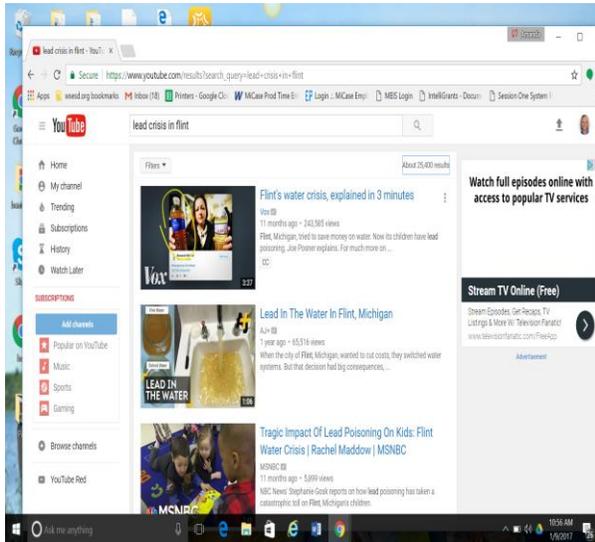
A sample webpage design is pictured below. While this is a shell of what may be to come, if chosen as the prototype, input will be gathered as to further design ideas and feedback on ease of usage from participants.



YouTube

There are already a few YouTube videos that explain the Flint Water Crisis. Therefore something that we haven't been able to find yet is a video that describes the crisis, gives information, but also has a positive spin. Something that is empowering...provides hope...encourages resilience.

Some examples of people who have been successful with a positive message on YouTube are Kid President and Roman Atwood. Both of these people have also branded their slogans for t-shirts and other merchandise to spread their message.

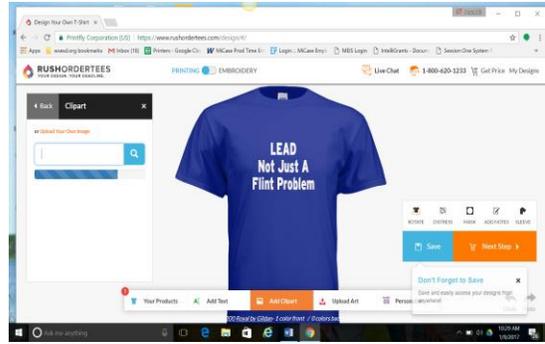


T-Shirts and Wristbands

T-shirts and wristbands are effective ways of getting a message out and uniting people around a cause.

On the first shirt the word 'epic' means to be known for...so "be known for good". All of these examples can be worn by whomever is featured in the YouTube spot.

Proceeds from the sale of the t-shirts and wristbands can go back to serve the Flint community in response to the Lead Crisis.



Appendix N: Focus Group for Prototypes Agenda

*Utilizing the Design Thinking Process to Aid Educators in their Response to
Childhood Lead Exposure
Meeting #2 Agenda and Protocols February 27, 2017*

Participants

Facilitators: Camela Diaz, Melody Strang, Sarah Van't Hof and Amanda Unger

Participating Volunteers at Elementary Charter School: 3rd Grade Teacher, 5th Grade Teacher, Principals

Participating Volunteers Associated with Flint Community Schools and/or Genesee County, Michigan - Early Childhood Programs, Parent Advocate, Parent Coalition, Parent Liaison/Facilitator, Therapist

Purpose of the Meeting:

1. Reintroduce ourselves and the combined members of the group to expand relationships with participating educators
2. Review with participants the scope of the Capstone project, MSU's Ed.D. program, and answer new questions they may have
3. Conduct a focus group in which participants discuss and share their thoughts on the various prototype ideas presented to them two weeks prior

Materials:

1. Recording devices
2. Snacks, including water
3. Copies of the agenda
4. Chart paper with the guiding questions
5. Paper, Pens

Agenda:

1. Facilitators will welcome the participating volunteers and re-introducing themselves by stating their name, place of employment and position.
2. Review of Michigan State University's Ed.D. program and the capstone project will be shared with the group.
3. Focus group

Protocol for Questions and Data Collection:

The interviews will not only serve as a means to expand empathy and relationships with the educators, but also as a source of qualitative data which will be transcribed and coded. The transcriptions and coding will be analyzed for patterns and consistencies that can be translated into a problem statement in the next “define” phase of the design thinking model. The codes that will be utilized include the following: teaching routines, responding to inattention and misbehavior, teaching content, strategies for families, community partnerships/resources, knowledge of lead’s effect on children, and areas of concern.

Prior to the arrival of the participants, we will prepare the necessary tools for conducting the interviews such as testing a recording device, distributing copies of the prepared agenda for each of the educators, and providing a small snack as a token of our appreciation for their continued participation. Our agenda for this meeting will include: five to ten minutes for introductions so that educators build rapport and group membership, sixty to ninety minutes discussing the provided prototype models as well as generating additional possibilities. At the end of the meeting there will be five to ten minutes devoted to a wrap-up activity allowing participants to reflect upon what they have uncovered about their own needs for support in response to the lead crisis and its impact on children and schools.

After asking each of the questions we will incorporate Cognitive Coaching strategies for reflective thinking by listening intently, pausing, paraphrasing what the educators said, and then posing a follow up question based upon the educators’ responses.

Appendix O: Evaluation Focus Group for Prototypes Interview Protocol

Introduction:

As a reminder, the purpose of this interview is to gather additional information from educators in Flint and surrounding areas in relation to the lead crisis and support that is needed by educators. As students of Michigan State University's Ed.D. program, we chose to use the Design Thinking Process as a means to assist you, the collaborating educators, with areas of concern and/or need based on the current and potential impact of lead on the students you educate. Although there is a great deal of research on the health impacts of lead exposure in children, there is little research on how educators can help combat the effects of lead poisoning through the implementation of targeted educational practices. We have chosen to pursue this area in an effort to make a dent in this gap through this research project.

Upon completion of this portion of the Design Thinking Process, we the facilitators, will again analyze your feedback and information to identify and move forward with the development of a single prototype solution to your expressed needs. It is important to note that the entire interview will again be audio recorded.

Appendix P: Focus Group for Prototypes Transcription January 27, 2017

FACILITATOR 2: Thank you for meeting with us again. We're here to get your feedback on the prototypes that we sent you. If you don't mind, if you could go around and say your name, we know who you are, but when it comes on the tape, it was kind of hard for us last time. So

FACILITATOR 4: can we begin with you?

PARTICIPANT 5: ****, clinical therapist from the ****

PARTICIPANT 2: ****, 3/5 co-principal.

PARTICIPANT 6: ****, 3/5 co-principal.

PARTICIPANT 4: ****grade intervention.

FACILITATOR 2: Thank you. Okay would you like to start with what we have?

FACILITATOR 4: Okay, so for the purpose of the meeting, I guess, we'll start right there, so we probably should go through and just introduce ourselves and just say where....

FACILITATOR 4: I am ****, I work for **** and I'm all special ed.

FACILITATOR 2: ****, *****

FACILITATOR 3: **** and I am a school counselor in **** and I'm the lead high school counselor for the district. We have about 10 thousand students.

FACILITATOR 1: And I'm **** and I am the assistant director for student learning in the ****.

FACILITATOR 4: And so our Capstone Project that you've been a part of, we're using the Design Thinking process to address the issue of the lead crisis here and so bringing that together with what it is that you'd like to see us focus on and to come up with a prototype so we're at the

prototype phase. And today we've brought six different ideas to discuss with you and get feedback from you and to see what you like, what you don't like, what we need to change and then ultimately kind of hone in on one to pursue.

FACILITATOR 2: And please don't feel that you are going to hurt our feelings in any way, shape or form. If there is something that does not benefit you, you do not like, feel free. We try to look at what our last notes said about what you needed and we had three different focus groups that day, so it was kind of hard trying to meet everyone's needs and that's why we wanted to get you together today and see how we can make this all work for you.

FACILITATOR 4: I think we can just go to actual work. Do you want to explain this piece here? And kind of hone us back in on...

FACILITATOR 2: Did you all have a chance to look at the prototypes? It's not a first glance at it. And we did add a prototype on there at the very end, the *****, and those I don't know, I mean you know most about that, if you want to give them a little background on that, that might be the only thing that would be maybe completely new to you guys in terms of the options that we put out there.

FACILITATOR 4: Okay, so the ***** is the last one and the way that this came about, just to give you a little background, I was sitting, the ***** started this initiative with a grant and they partnered with ***** and they're trying to address, kids are with us 6.5 hours a day where it's the other 17.5 that we have little control over, and so they got the money from ***** and they took on the issue of these social issues that kids face, you know bullying, poverty, divorced families, all those things that kids struggle with, they come to school with, and they keep bottled inside and there's not a good avenue to get them to deal with that so that they can get their basic needs met so they can get onto learning. So I was sitting in a big presentation about ***** and it's for *****

so four of our counties in the north. And listening to this guy named **** present this and the idea that he had is that interviewing bunches of kids that he asked them, do you want to listen to adults talk about bullying or talk about this?, and the kids are like, you know, no. But cartoons are a safe way to do that and it allows kids to process in little bits and some people would say, well at the high school level, high schoolers aren't going to want to deal cartoons, but given the choice, cartoons or listening to adults talking at them, kids still choose the cartoons. And so what he did was, he took these social issues that kids have and made just 3.5 minute cartoons that address that issue. Then from there, he developed conversation cards that help teachers to talk about these subjects and then he worked with ISD to tie them into the standards so that this is not taking away from learning time but it's hitting your standards, getting kids to be able to talk about these issues and it comes from the kids so then it's safer. It's not something being done to them. And then you can go from there and it gives you a jumping off place to either dig deeper or find resources to help the kids or pair kids up that have the similar issue to deal with. So he has actually won a bunch of awards for his work with the cartoons with ****. So it was just like one of those, oh my gosh, this is the avenue, and I had been talking with my husband, we need something to be able to get to kids, that teachers can use, that families can use. But what does that vehicle look like? And I was just thinking, oh my goodness, this could be a way to do it. And I just went up to him afterwards and it turns out he is good friends with my husband and I didn't even know it and I was like, oh my gosh, this is supposed to be or something. So just talking to him, he's a really dynamic person, he's like, well what if we called it Flint Toons, kind of like Flintstones or whatever, Flint Toons, and then he just kind of brainstormed this little business marketing plan where it would have the different topics, but really the topics would be the things that you guys identified as needing to be addressed, so we could have a cartoon on

each one. There's a possibility we'd have to get the funding through a local health system, which he seems to think it's not a hard thing to do because there are so many resources being put in and they have to use those health systems, the money for it. But our work in order for this Capstone Project would be to develop the lesson plans based upon those areas that you identified, tie them to the standards, and have them ready to go. From that point, we would give them to him to make a script and the actual production of a cartoon would be after the Capstone was finished but then at least it's something that would still live on. So the schools in our area are able to access all of these free because it's paid for by the health system. Other than that, it's like 49 cents per kid if a school wanted to purchase them. And then from there, if it was to continue, whatever other areas so you're saying, okay so we're really having an issue with cyber-bullying, then you can take the standards, do the same thing, have him write up the cartoon and then you have something to address it. The thing that he's noticed is that kids, why do we buy our kids candy in the checkout lanes? it's because they won't shut up. You know you want them to, they get it in their heads they want it and they talk about it. So this gives kids a voice that they can take to their families, the families can access it from the website and it gives them a common language to talk between school and home.

FACILITATOR 2: It was hard to put into writing and this is something that just came about in the last two weeks maybe and so that's why we wanted her to explain it and given the price, I'm sure we can work out something so that as a participating member of this we could get them a deal so they wouldn't have to pay for it, correct?

FACILITATOR 4: Right, and that's why we would look for a health system here. So we kind of already brainstormed a short list of different health systems here that would have these funds that come from the government level...

PARTICIPANT 6: So the 49 cents per student is like per lesson?

FACILITATOR 4: No, that's per subscription but it wouldn't necessarily.....hi there.

FACILITATOR 2: Hi PARTICIPANT 3: how are you?

PARTICIPANT 6: Why do you have to pay by kid?

FACILITATOR 4: That is if it's not funded through a health....

PARTICIPANT 6: I was wondering, if you bought it, if you just put it under Smart Board the one time and everybody watch it.

FACILITATOR 4: Maybe you could, just like you can copy lesson plans.

FACILITATOR 2: PARTICIPANT 3, this is FACILITATOR 4:

PARTICIPANT 3: Hi, nice to meet you.

(Reintroductions)

PARTICIPANT 3: I'm **** from the ****, I advise the Dean on early childhood.

(More reintroductions)

FACILITATOR 4: So what we were doing is just talking about, we had one other prototype that just kind of came about and it's called the **** so it's this last page just giving a little background information on that. And basically it was a, this guy named ****, he worked with **** in the north because of the 17.5 hours a day that kids aren't in school, like how to address that. And so what he came up with is these short 3.5 minute cartoons that address an issue like divorce, poverty, bullying, whatever it is and he made conversation cards so to help teachers talk about these things in a way that's safe and then he worked with the **** to tie them to those standards. And the last part we were getting to is that when kids, kids are motivated by the cartoons at whatever level, so they are tied to the common core from first grade through 12th grade but when kids are, when it's put to them this way, it's much more motivating than having

an adult talk to them and then it gives them a way to talk to their parents about these issues and it comes from them so it's not something being done to them. I brought a little newspaper clipping, you can just pass that around. But it's just for any of the life stresses and so we were thinking about the Flint water crisis and what you guys have identified as needing to be addressed and so the idea would be for this project, we would develop a lesson plan for each of those areas and then the conversation cards and then after the Capstone is completed, we would give them to him and he would make the cartoons out of it and given the scripts. That piece we will have to get backing from a local health system, someone just to finance the cartoons, so that would take place after the Capstone is finished but that would be the work.

FACILITATOR 2: And we have the lesson plans for you. And *****, we mentioned before, please don't feel bad about saying any criticism about our prototypes because we don't care, we won't be hurt in any way, shape, or form, we want to create something that's best for you. If you guys look at this and don't like anything, tell us to go back to the drawing board or give us more suggestions, we'd be more than happy to do that.

FACILITATOR 1: That's the whole purpose of the design thinking process so please be transparent, please be candid, and I don't think that's going to work for us either.

PARTICIPANT 4: There's a question about the cartoons. So say you have one particular topic like poverty. So is that cartoon different for different age groups or is it like do you split one to third grade and that's a particular cartoon and a particular set of conversation cards and then does it become more complex, do the conversation cards become more complex but the cartoon stays the same?

FACILITATOR 2: Yes. And it might even be more than a conversation card with some writing and some other things incorporated with it, with a lesson plan or....

FACILITATOR 4: Or extension activities too. Cause like the conversation cards are obviously based upon the ELA standards so then if you want to branch off you could, into science, and you can look at like the water cycle and how that affects. I remember the last time we were here hearing about how people weren't told that the water filters, the mother is throwing them in the trash and they go in the landfill and then we have this cycle of pollution happening. So we could spread education that way too of safe ways to dispose of those things.

FACILITATOR 2: Okay so knowing all that and knowing that your core needs dealt with the biological impacts, developmental impacts, manifestations of lead, what does it look like in children, resources for educational and therapeutic settings and interventions in educational therapeutics, we came up with our numerous prototypes. And so now what we're going to do is just go through and you're going to tell us what you like, what it's lacking and how it can be improved. If it's something you don't even like at all, we're not even going to talk about it being a prototype.

FACILITATOR 4: Okay, we're just taking that right off the list.

PARTICIPANT 3: In the end are we coming up with just one?

FACILITATOR 4: Yeah, just one.

FACILITATOR 2: And if you don't like any of them, we can go back to the drawing board with your feedback and see what else we can come up with.

FACILITATOR 4: Or they could be overlapped, if you like some components from one we can blend. Okay, so the first idea is campus and there's kind of an example of trifold. Just shoot out what you like, what do you not like.

PARTICIPANT 3: The question I've got is, the reader you speak about, is this going to be geared towards educators or parents?

FACILITATOR 2: It would be towards educators because when you gave us your feedback, what you're asking for is support for teachers, so it would be geared toward teachers.

FACILITATOR 4: Now that doesn't mean we can't do something for parents, something could be created to go with it.

PARTICIPANT 3: So on the pamphlets, in **** currently, what we have are some real, and they're not in my car but they were yesterday, so there's, **** was right on the front of developing some really good materials in the beginning which talked about, they had developmental flyers about the developmental needs of children, also food needs, and also several that linked to resources, so they really did have some great information. Now that other people saw how great Michigan State did with developing those materials the **** has really great ones now too, including nutrition, talking about the cycle of lead testing and what you're looking for and I don't feel like there's that huge of a difference between information that parents are looking for and educators. There's a lot of overlap there, so there are a lot of great materials out there...

FACILITATOR 4: That are existing in pamphlet form?

PARTICIPANT 3: Yeah, that are existing so I mean in thinking about that it might be a coordination issue that people don't have, I mean the first time I saw the ones from the **** was Tuesday, they're great, they're really good. Also, flyers about free rides to getting groceries and then listing out how you can act with those resources because nutrition is such a great thing, so teachers are wanting to support parents. They don't really know about the emergent resources and there are flyers and there are programs. So if your flyer addressed a coordination issue instead of a content issue, then I would say maybe that would be something to consider.

FACILITATOR 4: Otherwise, it might be a duplicate.

PARTICIPANT 3: Exactly

FACILITATOR 4: And I guess kind of the same thing along those lines too because there's already so much out there I think sometimes anything in hard copy such as flyers, pamphlets, they just get lost in the shuffle and then we kind of forget that we got that three months ago and it just kind of sets on the desk, me personally, I know I do that. Like this is awesome and then wait, where was that?

FACILITATOR 1: So are we hearing a new pamphlet is not the answer?

PARTICIPANT 3: It wouldn't have my first vote.

FACILITATOR 4: So PD session, what do you think?

PARTICIPANT 3: So I'm going to make a similar comment about coordination and quality professional development so, and I'm coming from a different perspective. I don't know what type of professional development for the various different agencies here, so one of the things that I've noticed about the water crisis is the resources are constantly emerging or existing resource providers are expanding, we're doing those 20 things that we weren't doing two years ago. So PD if it's kind of like the drive-by PD, I'm not so much in favor of it because that's been a real standard delivery method for these resources that educators sit and then it's blah, blah, blah, here's a lot of information and then it's done, everyone feels really good cause they just got a lot of information. So I don't know, if we're really thoughtful about the intentionality behind the PD, then maybe that would be, and maybe if it was PD that was more like a learning community where there were some networks cause that's another thing, we have some like siloed, like I've never seen you guys before and we work in the same community in education.

FACILITATOR 2: PARTICIPANT 3, that's a great plan. They haven't had PD because it's so much focused at the early childhood level, it's not making it up the tier.

FACILITATOR 1: You guys had one session with a nurse for a block of time and that was it and no one has ever come back. And that was our whole district.

FACILITATOR 4: So no hard drive, like PD, that would be totally good, the networks when you get that up there.

FACILITATOR 4: Like PLCs, PARTICIPANT 3, that would develop learning community networks.

FACILITATOR 2: PARTICIPANT 5, what do you think about PD sessions?

PARTICIPANT 5: I mean the information is always good and helpful I think, but we need, what do we do?

PARTICIPANT 2: What do we do with the information, and here's all this information we know.

PARTICIPANT 4: The information is a resource but we need like something for the teachers to go use and do.

FACILITATOR 4: And going off that, I almost kind of wondering if going into the webpage, if that could be connected somehow with the PD, that it would be a place for us to get more information or share ideas or like I say, become more of a community? I was thinking of the webpage if we could, say we get all this information through PD but then if that could be a resource that we can continually go to.

FACILITATOR 4: So when we're talking about what do you need to refine the answer that was just another thing, another idea. I just want to reconnect somehow.

PARTICIPANT 3: But like specifically for teachers, so this becomes a teacher resource web site only.

FACILITATOR 4: It could be for parents but I guess what we were thinking is the core here, their focus was more on educational strategies I believe. So it's not that I don't think we should help parents but I'm just looking at what we do here at school.

PARTICIPANT 3: It's like classroom, like Tier I intervention.

FACILITATOR 2: Yes.

PARTICIPANT 3: Do you guys currently use like MTSS? like a multi-tiered system of support?

UNISON: No.

FACILITATOR 4: Can you think of anything else lacking in that page? Or what you'd see as an issue with it, a barrier?

PARTICIPANT 2: Ease of use, ease of finding what you want or need, the occasional things, and the amount of time you're spending outside of your own time looking through this and making sure you're finding what you need and I guess that would be a concern for some of our teachers, how much time are they going to have to search for all the stuff I need. But a like would be destination for all the information that's continually, that's dynamic, what's changing and adding to it.

PARTICIPANT 4: I think that's evident of the web page versus the campus or PD sessions, like you said, there's so much stuff coming out constantly, and new ideas or new resources that I think that's a very easy way to make that accessible and be able to see when that happens.

FACILITATOR 4: Okay, so is everyone finished with PD and web pages? Sticking with those two, anything else you'd want to add? Is there one or two that we can cross off the list right now?

FACILITATOR 1: I guess what I'd like to know is when you think of informational web pages that currently exist, what are some features that could help you prove all they are, when you

think of things, maybe not existing as to what our purposes are about, other go-to sites, like *****, those type sites, what is it about them that could be improved? That you think would be more user-friendly?

FACILITATOR 3: Like as a teacher, what would you want to be able to click on in that web page?

PARTICIPANT 2: Resources that I can either print off and use or not just a web page that has all this information that I have to convert into something to use with my students but it's there, here's what you could use, here's videos on it or a power point or whatever it might be, I can download this and have the kids work through it as we're talking about it.

PARTICIPANT 4: And going with that, it would have to be at different levels to be challenging.

PARTICIPANT 2: It would, if 3rd graders are going to be able to do some of the stuff that the 2nd graders could, the level, yeah.

FACILITATOR 4: Any more about those right now?

PARTICIPANT 2: I feel like you could connect things that you have up there, I know we're using web pages as a hub I guess or whatever, but I feel like a lot could connect and make this resource that's huge, like you could put YouTube videos on the web page that connect to the standards or to the content as a resource or you could take the cartoon thing down at the bottom and it could be part of the web page. Here's a lesson, print these things off, watch this video, and have a discussion with your kids.

PARTICIPANT 3: Or even including like webinars for new information instead of having to....., I'm sure it's difficult to schedule for teachers to be able to attend a lot of PD sessions especially when so much stuff comes out so maybe having it available in webinar format to be able to kind of get that information whenever people could do that.

PARTICIPANT 2: And have separate tabs for parents, for educators, for students and it depends on what tab you're in, that's what you're going to get.

FACILITATOR 4: And would we want the webpage to be constantly under construction where different people could constantly upload their findings?

PARTICIPANT 6: That would be a nice resource if educators could upload their ideas for something that's worked really well.

PARTICIPANT 4: Yeah, lesson plans.....

PARTICIPANT 6: Almost like a discussion board too?

PARTICIPANT 2: Yeah.

PARTICIPANT 3: I mean a discussion board with threads for the first couple of weeks would probably be manageable. After a huge amount of time, after a year, it's going to be like a mess. So what if people are uploading their lesson plans there, so that would maybe have to be a different place with lesson plans and then it will probably need to be vetted.

FACILITATOR 4: Okay, YouTube or a video type thing. Now when I was kind of coming up with this, I think I referenced it in there, I went to my expert at home, a 12-year-old, cause they're talking about these things, like that's what they do, that's how they find out any sort of information is they look up videos. There's this guy, I can't even remember his name in there, but he has a company, so they had t-shirts, and that's where the t-shirts, wrist bands, that type of thing, so with more of a resilience type of idea going with it and making like, I think a kid president like I really like him, so then you have to find that personality or something or could it come from a student within one of our schools.

FACILITATOR 4: At this point, for Capstone purposes, we can't use a student because we don't have that clearance to work with them, but is there an idea there that we could start with and then move on? So I guess, one throw out what your feelings are.

PARTICIPANT 2: Are you using YouTube as a source or as a place to create?

FACILITATOR 4: A source of information or a place to create?

PARTICIPANT 2: Within our classroom we could upload things or are you saying get information from?

FACILITATOR 4: Get information from

PARTICIPANT 2: We would put information on there that would then be accessible.

FACILITATOR 4: So looking at those areas you identified, having a video that goes with each one that you could send out a link on your web page.

PARTICIPANT 3: I'm a You Tube fan for this because I feel like if there is a professional development opportunity and there's a five-minute video that's on there that's talking about, I mean depending on what framework, say you go to strengthening families as part of how you want to build a framework that allows for professional development to continue to happen cause it's originally in a framework. If there were videos tied to that that were good for staff to watch and then the discussion with the staff, the expectation might be that it evolves faster and at a different level but the video, even if parents could see the same video, and maybe the expectation is, oh my goodness. So if the videos were like a catalyst for discussion, so I mean it's like we have different things that are happening here, if resources to help provide information about what this looks like and we're talking about how lead manifests biologically and what indicators we're looking for, like that's one thing. Talking about resiliency which is kind of a Tier I, that's a little bit different. When we're looking for biological indicators, it's really specific, like there's going

to be behavioral issues that you're definitely going to see, there's going to be cognitive delays potentially, it could be speech or hearing issues and measurable things sometimes. So I'm kind of interested in specifically whether or not it's identifying or whether it's strategies that everyone's going to gain from.

FACILITATOR 4: And you would lean towards wanting....

PARTICIPANT 3: I think teachers are like, what am I looking for? How do I fix this? That's where teachers are like...

PARTICIPANT 3: Maybe some of each, some relational and knowledge based, factual based, and also some ideas and strategies to use.

FACILITATOR 4: Right and then, that's what brings people together, there's a need for both, a huge need for both.

PARTICIPANT 3: And does that exist in the same platform? Can we do the same thing with You Tube? Will that address both of those things?

FACILITATOR 4: Yeah, so I just put in You Tube, and there are informational videos. There's hour-long talks, there's five-minute talks, there's all different things, and there's even things about Flint already up there. So then the question is, well so what's different?

PARTICIPANT 3: Yeah, what's going to make a parent want to watch it cause it's probably not like a person with a plain background like, welcome to Flint. I have a sad story for you. Sit down, enjoy this slow, terrible ride for the next 15 minutes.

FACILITATOR 4: And that's like the idea that you need a personality, you need a...You need a kid president, a lead president.

PARTICIPANT 3: When I think of the You Tube videos too, the ones that I've watched and really benefitted from, it's kind of the cartoon-y ones that I think about, Brene Brown and some of the ones she's done where she kind of creates her talk into an animation.....

FACILITATOR 3: Like a fast draw?

PARTICIPANT 3: Yeah, yep.....

FACILITATOR 4: Love a fast draw, love it.

FACILITATOR 1: Right, I don't know how we'd do that but.....

FACILITATOR 4: Who does that, like who can draw like that?

FACILITATOR 4: Yeah, it's like my favorite. It could be anything and it just like lulls me, ah, love it.

PARTICIPANT 3: And I feel like that helps people retain the information a little bit better and be then able to integrate into it.

PARTICIPANT 3: Yeah, it keeps your interest regionally, right. And it's not very condescending, it's not like a zany cartoon character talking about it, it's still basic enough where it's, multiple people can enjoy it.

FACILITATOR 4: Yeah and then having to consider the academic level, making accessible to whomever. Anything else lacking in You Tube videos? There's that potential to be kind of boring, that could happen.

PARTICIPANT 3: Yeah, there's a potential to be boring, there's a potential that it's not true, like that it's very editorial as opposed to science-based or it can also have a really negative tone which I think is frustrating for people sometimes, they want information and then it's overwhelmingly awful. I think that's a problem with You Tube.

FACILITATOR 4: I think accessing, helping families and teachers access the ones we want them to access instead of, cause there's tons out there, about lead, about Flint, and trying to navigate ours versus the competition. Something too, maybe even to think, I see everything in that format, like when you use those two videos into the web page. I guess that's what I was thinking in the webinar format is doing like short clips of information.

PARTICIPANT 3: If the webpage were simplified to act more as a portal so it provided some very topical information and then linked out to You Tube, so maybe....

FACILITATOR 4: So like a clearinghouse?

PARTICIPANT 3: Kind of. So if there were some other really great information about, that already existed, let's say so you don't have to develop a video but there's a fantastic one that goes into a first grade classroom, has a checklist, it's really cool, about things that you can do to help, then that might be, it might also be an identifying existing You Tube information vetting it.

FACILITATOR 4: A lot of prevention information on the ***

PARTICIPANT 3: Exactly and then so your clearinghouse page, depending on, it would just organize it in a way where people could access it easier.

FACILITATOR 4: Okay, in thinking about that, kind of thinking about too but what do you think about t-shirts, wristbands, is there any of that...

PARTICIPANT 3: I think it's a nice idea but not necessarily what I think will reach the goal, what you guys are going to reach.

FACILITATOR 4: Kind of fluffy.

PARTICIPANT 3: No, I mean it's for a great cause but I don't know if it's necessarily going to give teachers the strategies they need or help them in identifying, like you said, what they'd be watching for.

FACILITATOR 4: More of a marketing chain, right.

PARTICIPANT 3: We know there's a problem with communication cause as we're talking here we can see, and you guys noticed it too, so you've heard some things, you haven't heard some things, how do we get the word out? And I think that's kind of where that started so I appreciate you saying that because we don't want it just to be this extra thing that gets in the way of the message.

FACILITATOR 2: So PARTICPANT 3 mentioned there's a ton of stuff out there, right, but then PARTICIPANT 1, there's only so much time in the day to go and look at all these things...

FACILITATOR 1: And try to find the right thing.

PARTICIPANT 3: So the other thing just to be mindful of is the **** website. Do you guys use that at all? So that's a really good resource for families, like when we're talking about getting all these resources kind of in a place, that's really what **** tries to do is keep the community really updated on how to know if your filter isn't right, who to call if you don't know how to put it on properly or think it's not installed properly, or if you need water delivery or they connect to your services, I'm pretty sure you guys are....., but that's something that the leadership has tried to so even, not in duplicating, but so that's like a resource. If there was some kind of partnership where yours is almost like application, like here's resources but if you need some additional support, whether you're a student, teacher or whatever, here's some..... Like I said, coordination is an issue so I don't want to make something that's not thoughtful about coordination already being a problem. And maybe the You Tube videos go to ****, you don't have to be the clearinghouse, you work through **** and the system they already have developed because they have. Don't they have a mental health tab? Have you seen the website lately?

PARTICIPANT 5: Not recently.

PARTICIPANT 3: About education, water, like it has different categories of things, so even if it was an additional tab and they're super nice.

FACILITATOR 4: Okay so are there any ones we can cross off before we get down to cartoons?

PARTICIPANT 6: I'd say cross on t-shirts.

PARTICIPANT 2: That's my thought too.

PARTICIPANT 3: Is there anything you could just do to bring awareness and like have a pyramid around it or something? It could be a good conversation just for the kids and parents to

PARTICIPANT 3: Lead is more than a four-letter word, so you have that and it could spark a conversation.

FACILITATOR 4: So this will help the teachers identify, in a sense, stand alone.

PARTICIPANT 4: I love the cartoons.

PARTICIPANT 2: I think it's the best way to get the information to the students.

FACILITATOR 4: And I think that's really similar to what we were talking about with the You Tube video.

FACILITATOR 2: I think the webpage is a great idea but just what we were talking about, it might be, we need to talk about the management of it all and I don't know if it's something that's really feasible.

PARTICIPANT 3: Like it's a great idea but I think it's huge.

FACILITATOR 1: And we felt the same way about the You Tube as well. Clearly, quality video involves money, it involves great editing and voice-overs, all of those pieces. I would say the only thing maybe the cartoons are lacking would be teachers identifying or seeing like the

identifiers, need to know if there is some lead, if the child does have lead poisoning. So I mean how do you make a script then?

FACILITATOR 4: I would say that's the only thing possibly that's lacking.

FACILITATOR 3: But maybe that's an extra lesson for teachers,

FACILITATOR 4: With the cartoons, there is a webpage, it's ****. I don't know if you can make a separate one off that to be Flint Toons.com and so ***, he has all the, work with a lawyer and everything like that. His mission is to get **** throughout the whole state so what's motivating to **** is the idea of branching off into the lower part of the state with something that's specific to it. The only thing about the cartoons is he would do research to make the cartoons representative of the kids living here, the people living here, so they'd have landmarks or something that would identify specific to the area.

FACILITATOR 2: And not that those can't be shared with other places across the United States.

FACILITATOR 4: Right, because...

FACILITATOR 2: I mean in ****, you know there's places, we're not alone with lead levels in the finding. So it originated here but then could become impact more across the country.

FACILITATOR 4: And it does fill the net resilience piece kind of naturally because they're fun and positive but with a... So I think we, up until those educators figuring out how to give kids voice and how to guide through those conversations and they sometimes have the most questions and the most curiosity and for teachers to have something like the discussion cards, like the cartoon as a jumping off point can really, I feel, potentially support them in helping give their kids more of a voice.

FACILITATOR 4: – Can you think of anything, if the cartoon was made, or even thinking of the lesson plans, that we want to be careful of or mindful of I guess?

PARTICIPANT 3: – How attached you connect the lead itself just because it's, I'm sure you guys know when you work with families experiencing poverty there's all different types of things that are happening, not just bad water, so when you can see that a child has a delay, it feels like, oh well that's lead but I mean that's kind of irresponsible to do that.

FACILITATOR 4: It's not making end plays. Be a know, be all, the answer, the magic bullet so it must be...

PARTICIPANT 3: – Yeah if a child has a delay what's important is that you address the delay not really the origin of the delay necessarily.

FACILITATOR 4: I think that would be really important in the component that we would develop for educators that reminds them not to jump to this conclusion and maybe some lessons on what poverty can look like and the implication of it.

PARTICIPANT 3: – I mean they're having a huge lead focus so like I said, any type of toxic stress and trauma you're going to see lots of the exact same things, so we have tons of toxic stress and trauma, so for us, it doesn't even matter why, it could be because your mom drank or did drugs while you were in utero. After children come to us our duty is not to figure out and backtrack where this comes from but I mean we've had a dose of everything so I don't know how lead focused it has to be really. I mean it's just about identifying delays and providing better services to children and families.

FACILITATOR 4:– It's about what?

PARTICIPANT 3: – It's about identifying delays or concerns and then providing better services to families so whether its lead or whether it's because this parent, they've been bouncing around because of incarceration and that's why they're having behavioral issues, I mean we can't...

FACILITATOR 4: – It's almost like lead is the buzz word, it's catchy and it draws people in but it's helping to kind of dispel that notion, that belief, that it's just lead that's contributing to some of these things. So we can catch people but then how do we help?

PARTICIPANT 3: – I mean lead concern might be part of it but there's a whole lot of things that cause behavior issues in children and a lot of it, when we look here county-wide, it's....

FACILITATOR 4: – And state-wide and it's long before

FACILITATOR 2: – It was going on before the lead crisis.

FACILITATOR 1: – And its nation-wide you know.

FACILITATOR 4: – I'm thinking too about how to target this for the whole county versus just Flint cause I wonder about some of the outer cities, how invested they would be in some of these, if it's really focused on the lead crisis and then.....

PARTICIPANT 3: – If it says Flint, is that going to deter some people?

FACILITATOR 4: – I think it could because they might, I think other writers and I don't know if that's been your experience out in ****, too.

PARTICIPANT 3: – I think, this has nothing to do with them, why do we need to know?

However, we have many students who have suffered from traumatic situations, we have numerous schools of choice.

FACILITATOR 4: – And would it create empathy though? Even other students in other areas. I mean we've had what, a school down in Detroit where the kids came up and brought us water last year. I mean it might be more to other people too not just the people of Flint.

PARTICIPANT 3: – Right now even with imagining some library, so imagination library targets specific Flint zip codes and then they figure out a little bit into the township and what has happened is parents in county that are experiencing poverty that can't afford books are feeling

very angry. They feel like what that says is literacy matters for these kids but it doesn't matter for these kids. So I mean anything we can do to, and also for Flint, I think it gets a little like, oh you're a Flint kid, oh Flint, Flint, Flint. So I mean the more it becomes like we all experienced times where we would need resiliency.

FACILITATOR 4: – So is this like, we're learning lessons from Flint. Flint is our brand, we're learning lessons from them but it's applicable to kids all over the state in all different settings. So maybe that's our catch-all of lessons from Flint, what are we learning through this process?

PARTICIPANT 3: – Yeah, you look up here, I mean which one of you guys are from here, you know the poverty rates up there, you know the child up there, it's a bad scene.

FACILITATOR 4: – And that's the thing with the cartoons, then they'd have access to the other ones that have already been produced on cyber bullying and whatever else, divorce, single parent homes, foster situations and whatever.

FACILITATOR 3: – And it's almost like the consequences of lead exposure confirms what we already know that all of this exists for kids who are in impoverished, toxic situations where they're being exposed to neglect, abuse, trauma.

PARTICIPANT 3: – But even to say you have families, so taking something simple like that. So we're looking at situations here in Flint where we have families where a parent is incarcerated. We have children living with grandparents. We have foster children. Same thing for you. But just that idea of families, so now this opens up a discussion about how families live different. So if we step back from it and we teach children about, maybe not about how there's a foster care system, but in this idea of what a family is, how there's lots of different types of families and some families are experiencing, some families are homeless and what does that mean. Well how do you embed some vocabulary into that where they think about themselves as having a family

but they're also really learning that okay, it's not like that, and if I'm the child whose parent isn't here because maybe my parent's in the military but this isn't all families, they're different.

FACILITATOR 1: – I love that. My only concern is that, does that distance ourselves too far from educational strategies for teachers?

FACILITATOR 4: - Well, and I think that's where the jumping off point. We can always have the lesson grounded in those things that have been identified...

PARTICIPANT 3: – But then having shoot-outs.

FACILITATOR 4: – And having extension activities.

FACILITATOR 4: – I'd like to pause real quick. Thanks for coming and giving up your planning time, PARTICIPANT 7. So to kind of recap what we're doing, we went through the prototypes that we came with and I don't know if you got a chance to look at what I sent. We kind of talked about different pros and cons of these things and as we go through, please let us know anything that you're really drawn to or you don't really like, you're opposed to. The one that we kind of gave a little extra talk to because it was new and just sent out was the idea of the cartoons. I was in the north, this man named **** put together this idea that we have kids 6.5 hours a day and they're gone 17.5 hours a day, how do we affect that? And he kind of gives analogy of the kid in the candy aisle, like why do we break down and buy the candy bar, cause the kid won't stop talking about it, is crying. So cartoons are a safe way for kids to kind of process through this stuff, so what we're looking at is the idea of, for our Capstone Project, what we would do is take those things that you identified about, can you read them off?

FACILITATOR 3: – It was biological impacts, about mental impacts, and the stages of lead exposure, resources, and interventions and educational therapy.

FACILITATOR 4: – So use those and take and develop ELA, lesson plans hitting ELA standards and then have conversation cards that would help teachers talk about those issues with kids and then it also gives them a way to go home and say, hey I learned this. You can pull this up Mom, look at this. And it's at a level that the parents can also access that and understand what's going on and kids can move past those feelings so they can get to other learning too. So we just kind of brainstormed some things.

PARTICIPANT 3: – It's kind of like this program. Okay, I like that idea.

PARTICIPANT 3: – Can you give me an idea just about, like walk me through a cartoon, just hypothetically so I understand what this cartoon would really be, so we're talking about like maybe a 3-minute cartoon?

FACILITATOR 4: – Yeah, they're about 3.5 minutes, they have characters that are developed...

PARTICIPANT 3: – Is this like a little scene?

FACILITATOR 4: – Yes, like a scene playing out, so them having this conversation, one character to another character, and then from there the teacher can take it and ask the questions that go along with it, to elicit more like how are you feeling, and to just....

PARTICIPANT 3: – So what would an example be of a theme for a video or a scene for a cartoon?

FACILITATOR 4: – So there's one on bullying, there's one already developed on divorced families, on the stressors of social media, that type of thing.

PARTICIPANT 3: – So for here, the themes would be this circle, so...

FACILITATOR 4: – That's kind of what I was thinking, like if we can, cause I think what we could do with this work next is brainstorm more specifically what those cartoons would entail if you want to spend the energy doing that now or is there anywhere else that you want to focus?

PARTICIPANT 3: – I think it would be the same, so if you make a You Tube video, whatever the content it's going to be the same, so what does it look like?

FACILITATOR 4: – So say we're going to have five lessons to start with so that would be five cartoons. Maybe start with the top three first of all and then get up to five. What would those be?

PARTICIPANT 3: – So whether it was a cartoon or it was a You Tube video, what would be the content of the first three visual, educational modules?

(much conversation that I could not decipher)

PARTICIPANT 3: – And because we're dealing with, and what year we're targeting here is first grade to 12th grade.

FACILITATOR 4: – Right. And so the cartoons are at one level and then they're connected to the standards at 1st through 12th grade level. So those things that we identify we have to kind of encompass those... We did talk about wanting this and we talked about water, culture....

FACILITATOR 1: – Just a possibility, we're just throwing these out here because this really just came to us within the last week or two....

FACILITATOR 3: – We call this prevention?

FACILITATOR 4: – Yeah.

PARTICIPANT 3: – So prevention is really like care of self, so it has to do with getting enough sleep, eating appropriately, we're talking about injury prevention so if there's things in your home that are broken or maybe injury prevention wouldn't fit the web piece but care of self, eating, sleeping....

FACILITATOR 4: – Yeah, so the self-care piece...

FACILITATOR 3: – Do we have a mental health piece too in that prevention of like.....

PARTICIPANT 3: – Mental health would be its own sets of things, social/emotional health. And that's really, sometimes things are going on in your life that are bigger than you, what can you do? You have your school as an outlet, you have your church sometimes as an outlet, your characters have lots of different ways that they can reach out for help.

PARTICIPANT 3: – And that's where we could build in that resilience and growth mindset, some of that ****, ****, **** stuff, some of those pieces all fit in there.

PARTICIPANT 3: – Sometimes things in your life happen that make you scared. I mean even identifying some words in the video, being scared, being confused, being vulnerable, anxious. And being able to realize that for kids too they don't feel like living once they experience that. It is a trauma, doesn't relate to trauma.

FACILITATOR 4: – If you aren't comfortable any time, just say something. Well, we're getting proposals. You can't think of other lessons?

PARTICIPANT 3: – I'm sure there's emotional health.

FACILITATOR 4: – How about from a teacher's standpoint?

PARTICIPANT 6: I just keep thinking, like I love all of these things but I still don't know, like if we're having a kid that's going through child study process and we've done all this data collection and we have all this stuff and we're like, could it maybe be lead? How are we identifying what could we do as an intervention for somebody who's been exposed to lead to see if it works? What strategies are out there that work?

PARTICIPANT 3: – That won't be different, that's what's interesting, it won't be different...

FACILITATOR 4: – ADHD use the same types of tools...

PARTICIPANT 3: – Right, so there's not another, we don't get to call in a lead expert when we have a child that we feel like, wow, I mean we could experience it, and this child drank toxic

levels of lead, what my intervention tools for that child are identical to the child over here that was left home alone for three days and had to forage for food. It's identical.

FACILITATOR 1:– But there is no research though.

FACILITATOR 2: – That's why this is a prime area, no research done, interventions for kids who have.....

FACILITATOR 4: – But maybe through those conversation cards, in the classroom now I know these three kids are identifying like, yeah we might all have been exposed, we might all have this, but us three right now today are identifying that yeah, I'm really scared because of whatever, it doesn't matter what it was because of, and so now I have a group and then I could plan my strategy around that group and I could work in-depth with more lessons that hit that area with them.

PARTICIPANT 3: – You're still looking for something that would specifically address for the teacher what can we do, so it could be a cartoon that addresses with the kids, what can you do to help become a better reader?, or what can you do, so then the teacher has the lesson plan and the conversation cards to jump off from.

FACILITATOR 4: – Would that be like a reading and a math one?

PARTICIPANT 3: – Do you guys need something in the room....? Yeah that we can reference or something, something physical.

FACILITATOR 4: – So that's the last cartoon or something where it's....., even though I'm experiencing all of these, now I've got to pull it together for school, like these are strategies that I can do. I like that.

PARTICIPANT 3: – So being a strong student, so like student is your identity, what that means. And when I'm at school, I'm paying attention, what are the expectations? When I go home, I

play with my friends but I also make sure that I do blah, blah, blah, and I definitely make sure I'll tag back into prevention, but I go to sleep on time because I have to wake up early to get back to school because I know that if I'm not there I'm going to miss really important lessons.

FACILITATOR 3: – I'm thinking about like engagement, what does engagement look like?

PARTICIPANT 3: – I like the book idea, give them because like they have anxiety you give them a stress ball or so here, go sit down and read this or we can even partner and read it together, something that they could probably physically have.

FACILITATOR 4: – Do I need a, like, I don't need to split up as far as like math/reading, do I?

PARTICIPANT 3: – No.

FACILITATOR 4: – So do you want this next one to be school success? Alright, can you say back some of those things that.....

PARTICIPANT 3: – So one thing I think you said too like allowing kids to give themselves a break if they need to slow their mind down for a minute or their body and be able to reenter the learning experience.

FACILITATOR 3: – Some of that mindfulness.

PARTICIPANT 3: – Yeah, they just need something that just gives them a moment to check in with themselves and hey, I just need this moment, let me read this quick story, it doesn't have to be a long story, it doesn't even have to be a story, it could be some math problems, some flash cards. I give kids pencils sometimes and I'm just like, hey go roll it on the floor, something simple that they can just do to get themselves together and then come back to the whole group.

FACILITATOR 4: – Is this kind of like communication?, cause what we're really asking them to do is to be able to identify, right now I'm stressed out and I need to go have some peace right now, I'm kind of fidgety, I need to be identified...

PARTICIPANT 3: – And that’s under that big umbrella of mindfulness of kids just knowing, what I need, and then having some arsenal things that they can do.

FACILITATOR 4: – It could be a visual or something, they don’t have to announce it to everybody.

PARTICIPANT 3: – Sounds like a cue that they look for.

FACILITATOR 4: – And I really would like it to be something that they could do actually in the classroom cause sometimes I think when they go out for a break, it’s kind of like targeted, like oh they need a break. The kids know something’s wrong with, something that maybe, cause that’s part of it too, they don’t want to be singled out, some kids don’t want to take a break because they’re like, oh everyone knows I have issues. So maybe something that keeps them in the room but then they can have their little moment at their tables or maybe put something on their table, something just

PARTICIPANT 3: – And mindfulness teaches visualization, positive imagery, and learns deep breathing and some of that stuff is hard for kids to learn. The cartoons could maybe teach some of that stuff.

FACILITATOR 4: – But its all stuff they can do right there with their person, they don’t have to go to a cubby and get something.

PARTICIPANT 3: – So if it was, if you had some mindfulness like a group mindfulness lesson and then an individual one and then the parents, you guys could support the parents by saying, we were thinking about this idea of mindfulness. This is what we’re working on in our class and it’s this five-minute, you can put it up on your screen and it kind of gives the direction with the cartoon character, elevator breathing, or whatever you decide to do. But then parents at home, there could be a single lesson, they could do the group one at home but also the single, so if

you're saying that mindfulness is a valuable tool then we should provide them with some way to utilize it because it sounds weird to somebody that's never heard of it, like what does that mean?

PARTICIPANT 3: – And a five minute video you would probably pull it together pretty well so that a parent understood and when to use it. That would be the part where the school would say, you know when your child at night, you feel like they're staying up till midnight watching t.v., maybe the t.v. goes off at eight o'clock and you do this five minute mindfulness work and try to regulate that sleep time.

FACILITATOR 4: – Is that becoming its own lesson?

PARTICIPANT 3: – I think it depends on the needs of the teachers, if they feel what's useful to them.

FACILITATOR 4: – I don't think it has to be a separate lesson cause we've done mindfulness before and the students are aware of it, but I think the point you made about the parents, I don't know how well we did that part, so just having the parents be involved with it as well, cause we used it a lot, sometimes I still use it, I have the chime and all of that great stuff, but it's full circle cause they are only with us a small amount of time, so that parent involvement I think is the key part there.

PARTICIPANT 3: – And what's the purpose of it? If you're doing it at home when you have a child that is off the wall and if they're like that here, they're like that at home so if it was a parent instead of.....

FACILITATOR 4: – And really it is too, if kids don't practice this on their own when they're in a calm space, they're not going to be able to pull that strategy out when they're really getting?

FACILITATOR 4: – And make it so separate.

PARTICIPANT 3: – Right and it could just be more inclusive. That’s why I think I didn’t want it to be a separate lesson, it needs to be more, cause I think when it’s separate, that’s when it becomes like, oh it’s another list of things to do, but if it’s more intertwined, I think it’s more natural for it to be done.

FACILITATOR 4: – That makes sense.

FACILITATOR 4: – So we have prevention, social/emotional health, school success... Is there anything from those things we’ve identified that would lend itself to another lesson? And it’s not like we have to have five.

PARTICIPANT 6: – Most of the teachers we have, you know the intervention and so forth.

PARTICIPANT 3: – I just think it’s something like, what if we did something like, I’m struggling in reading, I’m struggling in math, I’m struggling getting along with others.....

FACILITATOR 4: – So how to ask for help in school maybe?

PARTICIPANT 3: – Well that might go under school success but switching to the academics in maybe lesson four where the school success is like everything you need to be able to do the academics, so then what do I do if I’m doing all those things but still am not being successful academically? And maybe how to ask for help goes in both.

FACILITATOR 4: – So this is just like getting myself together, getting my thoughts together, getting focused. Now that I’m focused and I’m centered, now the forepart is now I need to learn transitioning that into learning.

FACILITATOR 4: – Okay, so think of its K-12, so what would that encompass? Like because we couldn’t talk about specific reading strategy necessarily, but ...

PARTICIPANT 3: – I don’t know but maybe it really does tie back but I think about the persistence that it takes not to give up, acknowledging that lots of things are going to be hard and

new but think before you came to school, when you were born you couldn't walk, but you kept practicing and every time you fell down, you didn't quit, you got back up again. Somehow but leading at the appropriate age levels to things that would make sense to them and setting goals.

FACILITATOR 4: – My only concern with this one is lead in a positive way instead of focusing on, you might have a lot of hard time doing these things and I'm worried about that looking discouraging for some kids and being able to, like I think setting goals is a great way. Well, here's to be able to take small steps and things like that.

FACILITATOR 2 – I heard a professor speak at **** this week, he's from ****, he talked a lot about grit and resilience and so forth but he said, no matter how much grit some kids have, the system does not allow them to get out of it. And so I don't think we want to forget that along the way because we can tell them they have all the grit and resiliency you want, sometimes there's things that, other factors. So I just want to be able to keep that in mind that there are social justice problems in the country that need to be solved.

PARTICIPANT 3: – And I think that's why when you give children the opportunity to think about when I can't do this, when I'm scared and when I'm overwhelmed that there's some sort of mechanism that you're teaching a child, I need to go to my teacher and tell them. I haven't eaten any food in my house in three days and I'm really hungry right now.

FACILITATOR 4: – Which is great if the teacher listens, because there's some teachers who don't listen, so I would like to see hopefully some kind of teacher piece about how important relationships are because the key to student success is the relationship they have with the adults in the building. It doesn't matter what all....

FACILITATOR 4: – That was my thought too for a lesson on social support or relationships and not only with teachers but I think also with their peers, knowing that I can connect with other people.

PARTICIPANT 3: – That's the second thing that research tells us is that the most important thing, the quality of the teacher, the relations they build, and then the relationships between teachers, the collaboration between teachers.

FACILITATOR 4: – So the video would be for the kid but inadvertently it would be that reminder for teachers too. I think of the one, every kid needs a champion. Like I watch that all the time just cause it always makes me be like, like I matter, my teachers matter for this kid.

PARTICIPANT 3: – I just think, how would that be delivered to students, relationships with teachers? What would that look like? And why it's important in a lesson or in a cartoon?

FACILITATOR 4: – Or is it just one of the teachers?

PARTICIPANT 3: – Maybe it's like building the community, a safe place or just open communication.

FACILITATOR 4: – Building communities....

PARTICIPANT 3: – Maybe things like that or sharing your own personal stories to let them know that hey, you have the same struggles as well even though you're an adult and this teacher, we're still regular people.

PARTICIPANT 3: – I even think about the different degrees of listening. You know there are different degrees of listening, of being an active listener, being an engaged listener and then there's a type of listening where, I'm listening to you but I'm waiting for you to stop talking so I can share what I care about, and it's putting that on a scale where kids can recognize that being a good listener can help to build a relationship, it can help to build empathy and then that also is

reinforcing to adults who sometimes hear these things from kids, yeah, alright, we gotta get moving. Well, they're trying to tell you something.

PARTICIPANT 3: – I think about that too in the context of kids who have like other cities who have not been directly affected by the water, but being able to be empathetic about other kids' challenges and being kind of met with bullying and things like that, just being empathetic of other peoples' experiences and that it's different from yours and how can I be supportive even though I may not have experienced this myself.

FACILITATOR 4: – I want to even say building respect, definitely for some of our students. That comes a long way with them and I think they give you more when they feel like you respect them and what they have to say and the same way going back and forth, so building some type of level of respect for each other. Like we don't have to agree but we're going to respect each other.

FACILITATOR 4: – I almost think that's the lesson type because the relationships, empathy, support and listening are being a respectful learner. I don't know even what you all think but....

PARTICIPANT 3: – Respect is a tricky word sometimes for me because respect sometimes implies like a tier, like a hierarchy.

FACILITATOR 4: – So building mutual respect?, amongst peers, amongst your colleagues...

PARTICIPANT 3: – And maybe we used the language, partnerships, relationships, community, and respect is just kind of infused in there.

FACILITATOR 4: – Have you guys seen any diagrams or information that would tie like home, school, and community together as a support for a student? Is there any information like that that already exists cause that is kind of what that is and I feel like that's something we could probably not reinvent.

FACILITATOR 4: – There's a inter-agency collaboration and if we were to focus on exclusively lead and identifying lead, that's where partnerships could be made with medical, to have somebody come in and test blood lead levels in kids and then that could start kind of a tier system for child study. There's a lot out there.

PARTICIPANT 3: – How would that happen? There is no way. There's no good way to catch that data.

FACILITATOR 4: – No. Other cities do it really well. Dallas is doing it since the 50s where they have actual nurse practitioners and therapists who are from County levels who are stationed in schools. But their setup is different where the entire city or the entire county is one district. It's not multiple districts within the county so it's much more managed and there's much more of those partnerships that are happening at that level. I mean when we have Michigan, we have more districts than many other states do within our one state and within our one region, so it is tricky. Just the setup, the natural setup of our state would make that kind of a challenge.

PARTICIPANT 3: – And will display itself in the....

PARTICIPANT 3: – That's the main thing I'm thinking about, like you could have had a student that was exposed to toxic levels of lead for two years if they've been drinking the bottled water for two months you can't see it. Like you could be seeing behavior that is linked but can't necessarily prove it but if we tested everybody, your programs and my programs I don't know. And I don't know anybody who's actually done that yet. Did you guys have anybody to get their teeth called out for analysis? Seriously, nobody's doing it

PARTICIPANT 5: – It's too expensive and then I'm looking at that, but teeth will show it, it will keep it in there for basically forever

PARTICIPANT 3: – Right, so it's difficult to do this whole lead identifier because of what you said, with all of these individual districts, all piece-mealed together within the technical side of...

PARTICIPANT 3: – There's so many complicated factors.

FACILITATOR 4: – Is there more about any one of these lessons?

PARTICIPANT 3: – Are you guys seeing a model or language from already existing models of resiliency?

FACILITATOR 4: – That would be more FACILITATOR 3's.....

PARTICIPANT 3: – So for specifically students in these kind of circumstances or....

PARTICIPANT 3: – Well so for me like the first thing I'm hearing is some of the strengthening families' language, right. So I'm wondering and I'm not familiar with every single framework, that's just the one I.....

FACILITATOR 4: – I'm just going to put a box here and say, potential frameworks.

PARTICIPANT 3: – I think there might be a framework. What would be very powerful about the work is if you connected it to an existing framework because then you're connecting it to all of the existing resources too. And I don't know if there's like copyright rules on that or whatever, even if it's just, cause you have physical health basically is number one, you have social/emotional health which is number two, school success might be a little bit of an, school success and transition to learning is really going to be those regulatory skills that we're talking about, and then relationships. Those are all ingredients in models that exist.

FACILITATOR 4: – And I think if we...

FACILITATOR 4: – Yeah, as long as we cite something that's similar, but it's so basic. I feel like it would be nice if we could dig deeper into some of that stuff.

FACILITATOR 4: – Yeah, I mean as long as, I think that’s a good thing to look for, even if it didn’t encompass everything, if it was three of them and then you have that kind of common language and that would be...

FACILITATOR 4: – It could help legitimize what we’re doing, see, here there’s something else that’s making these recommendations...

FACILITATOR 4: – And that would be a resource for people to dig deeper so we’d have it cited there and you could tie it back to that and expand on it.

PARTICIPANT 3: – So you wouldn’t mind with physical health or prevention of having good nutrition, sleeping appropriately, having a healthy lifestyle, that’s proven..... There’s going to be great stuff on that.

FACILITATOR 4: – Do any of these potential frameworks that just start here, look at this one first? Do you know any of those names?

PARTICIPANT 3: – No but I mean we’re talking about like a healthy, physical and social/emotional health where the fundamental... And I mean so then school success, developmentally and appropriate practice would fall into that, transition to learning – I don’t know if I particularly know where that one would wedge in, like the school ones are a little weird but I don’t work in the elementary or secondary settings.

FACILITATOR 4: – I think just putting this up here to keep us mindful of that will be helpful and then we’re going to want to cite that stuff anyway.

PARTICIPANT 3: – Well there are things from ****, there are things from ****, there are things, **** and **** are researchers into resiliency and mindfulness, growth mindset.

PARTICIPANT 4: – I’m going to be heading out but I think just for the transition to learning, I wanted to say something about having the kids be able to show that, like maybe some type of

project work that they choose so they're showing their growth themselves. So we're just there maybe to guide them and make sure that when we track it to make sure, but something that they want to do cause I think that they will learn more when it's something that they choose and then it's something also we could have physically to show like, hey they did this, just as evidence. Cause then we can see what they're understanding.

FACILITATOR 4: – I'm crazy kind of excited about this.

PARTICIPANT 3: – In prevention, we have like an overwhelming amount of kids who come in whether their parents are just smoking marijuana in their car, like they're coming in and I feel like as prevention, I don't know, I feel like our kids should be able to say, don't do that in front of me, I don't want to be in the room. Like I don't know, our kids think that's normal, it's everyday life.

FACILITATOR 4: – They don't even smell it on themselves.

PARTICIPANT 3: – No, and it is overwhelming. I don't know if it ties in there but I feel like we could, I don't know.

FACILITATOR 4: – Kind of helping empower them.

PARTICIPANT 3: – Yeah, like definitely the older kids but I mean they just come in and tell you their parents grow it in their house all the time.

FACILITATOR 4: – But the thing I worry about with that is depending on the family setting, what the response would be from parents.....

PARTICIPANT 3: – If they're not. Empowering children to have them be critical of their parents....

FACILITATOR 4: – Would shut down this whole thing and I don't like that.

PARTICIPANT 3: – Well what do we teach kids to say about cigarettes. I mean I said it all the time, my grandparents used to hide their cigarettes, don't smoke in the car with me, I said it to my friends, and I think it's the same thing with marijuana. Marijuana just has more of a taboo to it because it was not legal and now it is legal but still not...

PARTICIPANT 3: – But I think it's a good point, maybe there's a way to think about it, so we're thinking about healthy food going into your body, healthy water going into your body, air going into the body and what is healthy air.

FACILITATOR 4: – Maybe that could be a whole other thing, informing parents of what...

FACILITATOR 4: – Some people smoke and that's not good for your body...

FACILITATOR 4: – That could be a series of cartoons. But I think empowerment is a good idea to help kids feel like they have a voice. I just worry about giving them the exact words to use because even I think about some of the kids I work with, if they went home and told their parents not to even smoke cigarettes that they would not get a very positive response, and just talking at all if they have any power. It's awful but how do we get that to them in maybe the school setting so they can start to build their confidence in that?

PARTICIPANT 3: – And I think the powerlessness is part of the issue, so that's why people sometimes feel scared, like your water isn't safe or you drink water, it does take away some of your power so for them to feel empowered about eating healthy food and their body also with physical and sexual abuse, it kind of goes in there, if a child feels empowered about their body then the work opens up a little bit.

FACILITATOR 4: – And I don't know if there's any way to say it, but like, sometimes adults have decided to make bad choices, I don't know how you say appropriately,....

PARTICIPANT 3: – I mean you could just teach them the facts in the cartoon, it could just say, marijuana, the side effects of this, if they went home and just shared that as a conversation, maybe it would just take their kid telling them, hey I heard this today, awareness and everything.

FACILITATOR 4: – That could just be the model lessons right, because they do touch on these things when teachers model them, parents do get upset, like who says poison is out of the way. But it does give us some verbiage for us to use.

FACILITATOR 1: So each of these would be 3-4 minutes, is that right, FACILITATOR 4?

FACILITATOR 3: Yeah. We got a lot in there.

FACILITATOR 2 – So we know we're running out of time and we don't want to take up too much more of your time so *****, is there anything else that you think that you could use?

FACILITATOR 4: – This is a lot, this is an extra step further that I didn't even know we were going to get to.

FACILITATOR 2: PARTICIPANT 3, what about you? Anything you can think of?

PARTICIPANT 3: – No, I even think like it's still, if you're talking about physical and social/emotional health, I think even with our early childhood parents, cause what we have, we have parents that don't, where they come in at 10:30 or 11:00 o'clock and they don't value like a consistent schedule and they have behavior issues but I mean we can think maybe it's lead, I mean the first blaring thing is, well if you let them stay up until 2 o'clock in the morning every night watching the t.v. in their room, then yeah, they're not on a routine.

FACILITATOR 4: – I send them to bed, put their t.v. and the video game and the phone and whatever, really?

PARTICIPANT 3: – Yeah, they just woke up and they're not eating food at a regular time....

FACILITATOR 4: – What does your six year old have their own t.v. and phone for anyway?

FACILITATOR 2: PARTICIPANT 4: what about you? Is there anything that.....

PARTICIPANT 4: – I think that brought up a good point for me too, just consistency and structure for kids and how healing that can be especially for the little ones.

PARTICIPANT 3: – And even for your kids, you know, when they come home if they can help reinforce a consistent schedule...

FACILITATOR 4: – It's, I need to go to bed by this time, and we just put it in our newsletter this week, cause it's so many hours they need...

PARTICIPANT 3:– And so to have something just about that schedule and sleep and that impacts everything else that's happening on this chart.

FACILITATOR 4: – And it relates right into school too of, a lot of our kids do better when they know what the schedule's going to be and we, as teachers, stick to that and then it ties right back into, you need that at home too.

PARTICIPANT 3: – And then thinking, cause it seems like empower is a big thing, like you mentioned, how to incorporate empowerment into each of these lessons so that kids feel like they have a voice but they can do these things and kind of strengthen their own feelings about themselves.

PARTICIPANT 3: – So how do you empower in each one the child and how do you empower in each one a parent or a teacher would be interesting to be embedded in each one and then have that really thought about and intentional.

FACILITATOR 2:– As always, if you think of something after we leave, feel free to email Amanda and she'll add it to the list.

FACILITATOR 4:– And I'll go through it and type these up and send that out and then I think our next step would be working to do lesson one, what does that look like, what standards are we

going to hit, and going from there. And then we'll call on our friend here to tie it to research and extension it to these.

PARTICIPANT 3: – And so at this point, these are either going to be cartoons or videos.

FACILITATOR 4: – Yeah, and right now just for this purpose, it's going to be a lesson plan, it will start with a lesson plan.

FACILITATOR 1: – And conversation cards. And what we will create for our project, then we will work between now and that time, cause we have to have all this done by mid to end of March, so we're then going to work to get funding to be able to then create the cartoons, so that will happen after we graduate but hopefully before school would start in the fall.

PARTICIPANT 3: – I just want to also let you know that your ****, they're launching 24 hour family channel, so there will be segments in-between there that are like commercial time. Do you guys know?

FACILITATOR 4: – We had a launch in our district last week.

PARTICIPANT 3: – I would talk to ****. She's at ****, and she will connect you with the producer. But if these fit into, and there are particular time slots or if it was edited, I mean I do think that then you might be able to get some funding plus they'll probably think that's cool, especially like the care of self, the physical health, about eating healthy and healthy body, healthy air, that really fits early childhood and early elementary, even if that just one went on there.

FACILITATOR 4 – That's a really good idea.

FACILITATOR 4– Any ideas for hospitals that would fund? Or healthcare systems that would fund the cartoons? They're freaking expensive, for 3.5 minutes it's 20 grand. But they're doing it in the north and there's nobody paying attention to the north really...

PARTICIPANT 3: – They found funding.

PARTICIPANT 5: – Yeah, based on funding but they have money allocated for that so it's just they need someone to help spend it.

PARTICIPANT 3: – You might be able to get a different sponsor for each one, like social/emotional health – you guys over there. Physical health especially, you can put mindfulness in it and that's sort of **** research.

FACILITATOR 4:– Like prevention?

PARTICIPANT 3: – Yeah, I call prevention physical health. I think **** because they're doing mindfulness, they're working in nutrition right now, they have ****funding, and that would be another one, like if it's a nutrition piece, then I would try to connect, you guys might even have people at the university that can connect with **** fund dollars, that lots of different agencies get them. School success, that will be tricky because you've got ISD schools, charter schools, that's a tricky funding piece. If you needed overarching funding though like ****is trying to build support especially if it were linked to ****, that would be how I would develop that funding stream, would be just to review their Flint kids.

FACILITATOR 4: – ****, would that be connected to...

PARTICIPANT 3: – No, it would be the ****, especially if it especially was linked to the **** website cause they're investing in this stuff already so if it was providing support to that system. **** is another organization you might want to think about, it's a community health access program. They have funds and they're going to also target, some groups are early childhood, some people are targeting older kids too so **** would be one of those. I don't know if you guys use them to do like a primary care provider so your kids that don't have a medical home,

they don't have like a doctor and you're noticing something and they really need that pediatrician to connect, I would do a ***** referral.

PARTICIPANT 3: – What does it stand for? Who's running it?

PARTICIPANT 3: – Who's your nurse? Don't know yet? Is it an NP or a regular nurse?

PARTICIPANT 5: – Regular.

FACILITATOR 4: – What does ***** stand for?

PARTICIPANT 3: – It's a community health access plan, so what they're really trying to do is identify a medical home for children, it's really important. And then whoever helped facilitate this, they'll probably want their branding on it but there's lots of kids in Flint that don't know that they have expanded Medicaid or that they could see a pediatrician about behavior concerns or delays as a first step in moving forward.

PARTICIPANT 5: – What about like *****? I don't know how much funding they would have but that might be an avenue too.

PARTICIPANT 5: – Those are the kind of resources I think teachers are looking for.

PARTICIPANT 3: – Funding resources or like *****?

PARTICIPANT 3: – Like *****, like say, a parent comes in, we're having these concerns, I want to direct you to here.

PARTICIPANT 3: – Even these guys, yeah, ***** is like a powerhouse of a resource right now. Even children that are in foster care or that a parent was recently incarcerated, you should refer them and then let them talk through what the schedule is and help them build a schedule to provide that family support.

PARTICIPANT 5: – Yeah, and I think our social workers, we kind of pass that off onto them and we say, talk to the social workers, they're overwhelmed obviously, so if the teachers could have

those cards and know that they can find out.... So it's not always, oh no, I'm going to go talk to somebody I don't know...

PARTICIPANT 5: – I can give you my card in order to access services, it's a totally different number, but obviously I can help connect them with our resource too. So I'll give you a few of these. But what new programs that we have as a result of the water crisis is its just case management for the water, so how we connect families with resources in the community and making sure they're getting hooked up with pediatricians....

PARTICIPANT 3: – So what they will want is to be able to enroll their families who are probably 90% eligible into the case management system so that your case managers are managing them, so you guys should coordinate but hey, I want one of your primary case managers to come here and tell me how do I enroll every eligible child which most of them are, so that it's not about a parent or you have them do it at parent-teacher conference, like that's my new tool. But we've got some hit the rules, let's just do it at parent-teacher conference, we'll spell it out.

PARTICIPANT 1: – They came in and did, I haven't really heard anything.

PARTICIPANT 3: – For like lead testing you went with, yeah, it's totally separate. They have a case manager that's going to be like their private worker to connect them to resources.

****would do like, okay they did the lead test,

PARTICIPANT 1 – They came in.

PARTICIPANT 3: – Or and they probably tried to recruit them to lean on Medicaid. This is totally separate. It's more intense.

PARTICIPANT 5: – So I'm going to chat with management for that program and see if maybe she can even come in and talk to everybody about what that process looks like and how to make

the best cause they have a separate phone number and I can probably look it up that is specifically for the case management provider.

PARTICIPANT 3: – So this is awesome, so if a child had an abscessed tooth they can work through this case manager and try to figure out how to solve that problem, so it saves your social worker a ton of time because their case managers will work through these issues. Okay they have a child in these behavioral services, the case manager gets to manage it.

FACILITATOR 4: – You'll send someone out to talk to them and do a presentation.

PARTICIPANT 5: – If that's something that's helpful or even if you just want.....

PARTICIPANT 3: – Do you have your health system's bags, your water crisis bags with all the resources inside? Have you ever seen those?

PARTICIPANT 5: – So I'm in ****so I just do the clinical therapy, there's a whole different department that does all that. So I have never had access to any of that stuff which would be...

PARTICIPANT 3: – So let me call.....

PARTICIPANT 5: – But **** is the one who is the manager of that whole piece of

PARTICIPANT 3: – So they have a whole entire resource packet, these guys do, in a bag that's all about the water crisis that's double-up food bucks, that has like nutritional support, it has all the flyers that you would want to in a bag.

PARTICIPANT 6: We are doing home visit's giving bags right now of random stuff but that would be great.

PARTICIPANT 3: – And it's a targeted bag. So let me call, they set up, let's call the **** and just see who the person is, I mean maybe they could deliver you some, cause they have a table set up with tons of, and they have, even if you have your social worker wanted to go over there. They have all the grocery free rides, the new guidance from, and it's all pictures, it's all color

printed so it's going to save you guys \$500 in color printing. Do you have a phone number, email I could have?

PARTICIPANT 6: – Yeah, I'll give you my work email, ****

PARTICIPANT 3: – Hi ****, I was wondering if **** has their booth set up in the breezeway today. Thank you so much.

PARTICIPANT 3: – And then do you know what particular days they're onsite? Okay, well we will figure out how to get to them, they have some great resources and we will track them down, thank you very much, ****.

PARTICIPANT 6: – So is that from when they were doing the crisis counseling?

PARTICIPANT 3: – It's not crisis counseling. They're just kind of doing setups with a table and a bunch of resources, but just to save for the print costs and they're all color, they have a nutritional one, they even have one about how to read a label to know if it's healthy food or not and it's a magnified label and then it talks about, so a parent, like you're stressing healthy food, I think this red stuff is juice, I don't realize that this doesn't have nutritional value.

PARTICIPANT 5: – So I think those are, my guess is they're through customer services and that **** is...

PARTICIPANT 3: – One of the women worked at ****, it was two African American women, I had a lengthy conversation with them. We made friends. But they have them, so there was water crisis bags and then they have all the supplemental material, access to it, so when we're talking about that coordination you're going to be looking for new printed materials from the ****which are nutrition, reading a label, then ****, they have resources from **** about getting a ride to the grocery store so that you can buy so it's not a barrier anymore, so they can call a car,

it's like free **** to go get your groceries, it's great. They've put the resources together in a good way. You guys have lots of good stuff on this.

PARTICIPANT 3: – I don't know if that's picked up a little bit, I know when that started it wasn't, I think it's difficult for people to reach out, adults without childcare to participate in the stuff. I know that was starting out slow.

FACILITATOR 4: I'm so excited about what happened in the last ten minutes.

FACILITATOR 2: You can see that the communication coordination is not there, that's why I kept asking, are you getting what you need because they need a lot.

PARTICIPANT 3: – And coordination is big so it's like you can make another pamphlet but unless that pamphlet translates into people knowing the information to feel comfortable enough sharing it with somebody else, that's where the problem is, like I can learn it, even if the flyer's not that good, like I have to spend a pretty significant amount of time on figuring out, if I'm going to refer a family to the free grocery ride, like it better work, cause I've been burned before with diapers, which I could write an essay on. If I'm going to refer a resource, it better be working, you better not violate my relationship with my families.

PARTICIPANT 3: And again, this really goes back to the importance of relationship in connection with all the community members and our families and feeling supported.

FACILITATOR 2: Social capital.

Appendix R: Participant Feedback from Focus Group for Prototypes

Prototype	What Do You Like?	What is Lacking?	How Can it be Improved?
Pamphlets-for teachers -develop needs -cycle of testing -food	-flyers to get rides to groceries	-lots of overlap -coordination issues -gets “lost in the shuffle”	-need to address coordination issue rather than info.
PD Sessions-new resources are constantly emerging	-need learning to be on-going PD -need networks to be created (such as in a PLC)	-lack of quality -lack of coordination	-desire to put an end to “drive-by” PD -great to get the good info but what can we “do” with it?
Webpage-tie together with PD sessions?, Flint Cares Website-good partnership?, application level MANAGEMENT???	-must be connected to PD and a resource able to go back to, one destination is dynamic -always changing, -available to everyone -easy to make connections between resources	-ease of use/navigation issues -find what you need? -what can we do here?	-print off issues -ready to go -different levels? -webinars -discussion board? -different tabs for parents, administrators, teachers?
YouTube-What’s going to make someone want to watch it? Maybe linked to a webpage?	-manageable amount of time -parents/teachers opportunity for discussion	-boring? -factual? -Negative tone? - Could be overwhelming to the viewer	-info and strategies -needs to be entertaining -fast draw style? -good access, competition is an issue -coordination of resources
T-shirts/Wristbands (connected to another prototype)-	-can be an ‘accessory’ to get the word out	-don’t want this to get in the way...	
Cartoons (final product that starts with lesson plans & conversation cards)- great jumping off point... -lots of potential topics -identifying delays and provide better service	-best way to get info to students -gives kids a voice -builds empathy -could teach how families look different	-teacher identifier, how do teachers know what to look for? -don’t make lead the “buzz” word -don’t be just a Flint issue	-don’t make “end all, be all”...remind educators -not too much lead focus more on resilience/empowerment

Appendix S: Feedback Chart from Focus Group for Prototypes - Lesson Plan Ideas for Flintoons

Lesson 1

- Sometimes adults look beyond the whole picture
- What is Scholastic's role in this process?

Prevention - Care of self, eating properly, get enough sleep

- "Don't do what is front of the" → important, studying
- Healthy diet, going in our bodies
- Feeling empowered about our bodies

Lesson 2

Social/Emotional Health

sometimes things are bigger than you, but do you go to? identify words, sound, breaks, recognize that for kids

Empowerment → Kids

Lesson 3

School Success

- give the school a break
- soft distraction, how to manage
- get announcements, what do I read?
- get they look for in the classroom
- provide resources when they do what they want

Lesson 4

Transition to Learning

- don't give up
- practice
- setting goals
- get
- way to stand it for kids
- making just make them not like by choice

Lesson 5

Relationships

peers, relationships of teachers, building community, sharing stories

Appendix T: Participant Feedback on Lesson Plan Ideas for Flintoons

<p>Lesson 1: Prevention</p> <p>Possible Cartoon Title: <i>Healthy Bodies</i></p>	<ul style="list-style-type: none"> -care of self, eating properly, getting enough sleep -importance of consistency and structure/routine -value of a schedule and what it does for a healthy person -help students to feel empowered about their bodies -healthy air, healthy food, healthy water -”don’t do that in front me”, kids having a voice
<p>Lesson 2: Social/Emotional Health</p> <p>Possible Cartoon Title: <i>Healthy Mind</i></p>	<ul style="list-style-type: none"> -sometimes things are “bigger” than you -identify the words kids feel: scared, anxious, sad -normalize that for kids
<p>Lesson 3: School Success</p> <p>**needs to be a connection to home-reinforce, set purpose, explain**</p> <p>Possible Cartoon Title: <i>Healthy Student</i></p>	<ul style="list-style-type: none"> -how to ask for help in school -how to give themselves a break -mindfulness: positive imagery (group and indiv. level) -safe distraction, time to regroup -appropriately communicated needs -how to take cues in the classroom
<p>Lesson 4: Transition to Learning</p> <p>Possible Cartoon Title: <i>Healthy World</i></p>	<ul style="list-style-type: none"> -don’t give up -practice -set goals -grit -way to ‘show’ it for kids, teachers just guide -learn more when they choose
<p>Lesson 5: Relationships</p> <p>Possible Cartoon Title: <i>Healthy Relationships</i></p> <p>*possibly make this the first lesson</p>	<p>Peers, relationship w/teachers, building community, sharing stories-teachers have also been through lots, being a good listener is so important.</p> <p>Build respect but watch for the ‘hierarchy’ associated with this word, empathy, supportive</p>

Appendix U: Focus Group for Testing Prototypes Agenda

*Utilizing the Design Thinking Process to Aid Educators in their Response to
Childhood Lead Exposure
Meeting #3 Agenda March 1, 2017*

Facilitators: Camela Diaz, Melody Strang, Sarah Van't Hof and Amanda Unger

Participating Volunteers at Elementary Charter School: 3rd Grade Teacher, 5th Grade Teacher, Two Principals

Participating Volunteers Associated with Flint Community Schools and/or Genesee County, Michigan

Purpose of the Meeting:

1. Review with participants the scope of the Capstone project, MSU's Ed.D. program, and answer new questions they may have.
2. Present the prototype to the focus group.
3. Complete a survey of the Design Thinking Process.

Materials:

1. Snacks and water
2. Copies of the agenda and deliverables
3. Design Thinking Process Survey
4. Recording device

Agenda:

1. Introduce the Lead FAQ handout
2. Discuss the Social and Emotional Curriculum handout
3. Cartoonversation Cards/Factoids/Websites example
4. Parent letter
5. Complete Design Thinking Process survey

Appendix V: Focus Group for Prototype Testing Transcription March 1, 2017

FACILITATOR 1: Well, welcome to our final time together. It's been really fun for us to get to know you guys and to learn a lot more about the differences that exist amongst schools and school districts. Obviously the four of us come from different districts and so we have our different experiences but it just kind of really brought to light for us maybe the struggles that different districts have that we might not even be aware of.

And even the common struggles too.

And the common struggles right cause you always feel like you're on an island alone and the worst kids must all find your school, but really there's more than enough to share. So just we really want to thank you for being willing to be a part of this and to give of your time and your information.

FACILITATOR 2: Well, and not even the struggles but the positive things. I'm taking your idea about the hundred phone calls, so it's just nice to come in and see the wonderful things you guys are doing.

And just like the late start thing.

PARTICIPANT 2: We just got settled and everybody's here and now we're late.

FACILITATOR 2: Well, if it makes you feel any better, we're looking at 2-2.5 hours, there's no way an elementary kid is going in at 11 o'clock, they're going to take the day off.

PARTICIPANT 6: And in *** they do that, four times a year, and when it pops up, like dang it, it's today.

FACILITATOR 1: Yeah, they do it every week in ***, 2 hours and 20 minutes later every day and we thought people wouldn't bring their kids and they do. Now early release, I think we would see the opposite, they wouldn't bother bringing them at all cause it would be more of a

hassle to get them, but the late start, this is our second year now, and we don't have a reduction in attendance anymore.

FACILITATOR 1: So anyway, just as a reminder, this has been a part of our Capstone Project so you've been a part of our journey, then kind of the final part of our journey towards our doctoral degrees that we hope to defend the first week of April and then actually get our degrees the first week of May so the end is in sight, like the light at the end of the tunnel is there, so thanks again for just being a part of that journey. What we want to do today is go through the deliverables. These are not in final, final form but we wanted to make sure that you had something so that you had an idea of where we went and we will send all of this to you in PDF, electronic, form so that you'll have it to be able to adjust and use the way that you think can be done best. So I guess I'll let you start with kind of where, how we got to this point.

FACILITATOR 2: So if you remember last time, we had that nice chart paper with all those ideas on there. We spent a considerable amount of time thinking, how can we make this all work for you? And so what we decided was, we would create one unit, a mini-unit for you to utilize, and work on getting one cartoon. Okay, so there is one cartoon right now in the works and the mini-unit we chose was self-regulation because we heard concerns about behavior and we know that lead, behavior can be impacted by lead, so we made that connection with the Capstone Project. And if you remember, we had self-regulation, we had sleep habits, we had school success. There were a variety of things on the board and so we do have a list of other things that we'd like to create these FlintToons on, and so we're looking at maybe four more cartoons, but the first one though obviously is this one. And so what we did is we went and looked at, what can we give you?, so we came up with a lesson plan, a unit full of lesson plans, some handouts for you, a parent piece, some facts actually about lead because we heard that there is a need in

terms of you weren't getting a lot of information. And so there's some factoids in there as well as some websites you can utilize. If you look at that next page right there, on the left there, there's some websites and you may have already seen these websites but we found some valuable ones. And we heard your concern about how hard it is to go through when you're searching for all these things so we tried to make it just the key ones that you might need. But we know that there might still be some gaps in what you wanted from us and we did the best we could to meet what we thought we heard. And so then if you go to the next page, so there's a mini-unit right there and then there's some handouts that go along with it. So we tied it in, Sarah's background as a counselor, temperature rising, so that's the name of the unit, I Feel My Temperature Rising, to talk about the emotions that kids have and how they can help self-regulate those emotions as well as some techniques, some breathing techniques, visualization and then a ragdoll robot, relaxation.

FACILITATOR 1: And it's very adaptable for grade level or even pieces of it with grown-ups, with adults.

FACILITATOR 3: Yes. And so we tried to kind of scaffold how we introduced this and explaining to kids, even though the language may seem sophisticated, but explaining what self-regulation is. It's teaching kids that they need to witness their environment, how they fit into their environment, how they're supposed to respond to it, and kind of controlling what they have control over which is their bodies right now, that's really what they can focus on. And so we start the social/emotional curriculum kind of giving them some of that background, giving whoever the facilitator is, if it's a teacher, if it's a parent liaison, whomever comes in to help facilitate kind of has that background, can see the connections to Michigan standards in terms of elementary and there are five lessons embedded within the curriculum, so we kind of start in

scaffolding, you can see on page 3, and we start with lesson one, The Many Faces of Me, and that kind of gives students an opportunity to learn that feelings language. It seems sometimes so simplified to us but it's something that if a family is not being intentional with developing that language, a lot of kids don't have it, they don't know how to express, I feel upset therefore this is what I need. Or I feel upset, what can I do? And so we kind of teach the kids to use those different particular types of feelings, learn how to recognize those feelings on other peoples' faces, what does it represent, why might somebody feel this way, is it possible to feel angry and sad at the same time? Of course it is. Kind of understanding those different dynamics. So with the first handout the students have an opportunity to learn feelings words and then they have an exercise that they can do after a teacher has kind of prompted, what are some feelings words you can identify, writing them on the board, looking at pictures on Google images of different kids who have different emotions on their faces and then expressing those on each person and then indicating what happens to your body physically when you feel these different things. Some kids when they get angry they feel it in their head, some kids feel it in their hands, they want to punch, some kids feel it in their feet, they want to kick, but helping them understand that mind-body connection. And we were intentional to not use the word, mindfulness. That can sometimes be controversial with some families, they can feel like it's touching into some sort of a religious realm, and so that's up to you as the leaders of your school and how you would like to approach that if that's the language you want to use. And then the next lesson, My Feelings Thermometer, gives students an opportunity and we have a handout for that too. It gives students an opportunity to kind of gauge practicing the use of those feelings words, what do those words mean and what do they mean to me. So on each line, a student can write and pick from one word bank, well yeah, I guess at the very bottom I may be a little mad. And then I

guess I get a little irritated when my brother takes my toys from me. And it kind of goes up a certain level and so kids can kind of use that analogy of just like we use a temperature to measure the weather. A temperature can kind of gauge our emotions and our feelings and we know when we're going to hit our boiling point. So it's something that can be a common language for the building and for teachers. Then we kind of shift into the, okay we learned how to gauge our feelings, identify them, use language to describe them, now how do we use that knowledge and develop skills and techniques to help ourselves. And that's where the breathing, relaxation and visualization comes in and that's where, I know PARTICIPANT 7 had mentioned that they were doing some of that in the classroom and that can be kind of an emphasis of some of those practices but the power of those breathing exercises, there's a script in here that teachers can use within the classroom, that kind of teaches them the importance about belly breathing. They can lie on the ground, they can stand up, they can use a balloon that they set on their stomachs to watch their stomach rise and fall or some light object so that they're not doing that shallow breathing and talking about the importance of when we're not and make a scientific connection when we don't get enough oxygen to the brain, we don't think as clearly, it doesn't allow us to be present in the classroom and engaged in learning. We take that one step further in lesson four and we talk about a robot ragdoll relaxation and a lot of kids forget what a ragdoll is, we remember that growing up, Raggedy Ann and all that kind of stuff, but like it needs some sort of a visual to help them understand but it really is progressive muscle relaxation, so when kids are kind of practicing those techniques of stiffening parts of their bodies and then gradually releasing that tension, it allows them to focus on their breathing, be mindful of the control they have over their bodies, and that can always be kind of the connecting piece of control. What do you have control over? Even though you're 8 years old, you have control over more than you

think. Final piece of that is the visualization of helping kids learn how, and it's kind of like the power of positive thinking too, that being able to visualize what it is to calm our bodies and go to a place and have that self-discipline of being able to picture some place that is soothing. We didn't make it a guided imagery so to speak but that can be done, only because the guided imagery is kind of the typical places, we guide students walking to the beach, throw a stone in, get rid of your worries. Some kids, beach, some kids may not have been to a beach, so this gives kids an opportunity to develop their own place, where they go. Some kids, it may be Grandma's porch, it may be a park that they go to, it may be the playground here at school, but they can find a place within their minds that they can go to, learn that technique of visualization and imagination and finding calm through that. So we're hoping that the social curriculum can be a nice supplement and then we also gave a little bit of background at the top on the first page that kind of talks about the connectedness of self-regulation, executive functioning, emotional control, and impulsivity to that lead impact, so that that connection can be made.

FACILITATOR 2: We also incorporated the learning sciences so you can see there's modeling, guided practice, reflection, there's reflection journal and so we used a variety of strategies to help your teachers with this.

FACILITATOR 2: And it also kind of mentions the 5D, I don't know if you use the 5D values.

FACILITATOR 1: So then the next thing I think maybe, oh no go ahead and finish with that parent piece.

FACILITATOR 1: To supplement the lesson planning, there's a letter that can go home to families that talks about self-regulation, talks about prompts that families can ask their students, kind of iterates the deep breathing, robot ragdoll, muscle relaxation, visualization, and then some

more supports on positive discipline that can be used at home and hopefully the parent liaisons could find that useful for them too.

FACILITATOR 3: And of course, M2, when you get the copies you can adjust it however you use it. We just made it to **** for the day.

FACILITATOR 3: So then if you flip to the page, it says FlintToons on the top, that's what we're tagging the cartoons tied to Flint. And I'm going to let Facilitator 4 talk about the cartoon that is in the works. We have a foundation starting but this goes along with it so that when you watch the cartoon with the kids you have some ideas for how to start a conversation with the kids on this topic and then some factoids that have to do with the topic that you're studying so there's one of these that would go with each cartoon and it's kind of like your lead-in, so you can start with this and then it leads into that unit plan.

FACILITATOR 4: And the script for the cartoons is kind of being developed at the same time as the lesson plan so the next step is just kind of merging those together and incorporating the specific aspects of the lesson so that it gives that good foundation set to lead right into the lesson plans. And still trying to keep it light and not too heavy so that it's not overwhelming to students and it doesn't, it's not going to be broad in specific terms but just kind of some of those things where once you go back to it after you've had the lessons, you would be able to notice, oh that's purposely put there and that's this part. So the idea is that you would do it as a preview and then teachers would be able to go back to it. Interestingly, one school district that's working with RocketToons, in my districts, this could be done too or adapted to include the parent piece, but there's one episode on bullying, so if a student bullies another child instead of suspending the child, they're having the parent of that child come in and having them watch the cartoon and then do the conversation card, similarly you could do that for any of these things that happen, so once

the lesson's been presented, you can go back to that in different ways, like when you notice that a kid is acting out and you're not sure why and pull it back to this or have their parent come in and sit with them and it will visit that discussion and stop pointing blame at different people or that kind of thing. So that I think will be beneficial. The cartoon itself, the production of it will happen after we defend but we are right now in the talks with reaching out to some different hospitals in the area for funding and making some connections that way. And a couple of our professors do have some ties in this area so they kind of said, hey how can we help? So we had to kind of put that aside a little bit, I make calls and send emails a couple of times a week and just kind of reaching out, but the hardcore follow-up will take place after this is completed.

FACILITATOR 1: And one of the things we worked to make sure that you could do was use these materials with or without the cartoon, so it can stand alone and you can use, they could potentially look up any video but the way that the FlintToon would be designed would be actually to have like bodies of water that are in Flint so that there would be some real specific ties to, hey this is where I live, and that would be a real nice tie-in. But because we have to secure funding and then do the production, we wanted to make sure we could create something for you that could stand alone.

FACILITATOR 4: The writer too of the script looked up indigenous animals to the area and so then you could jump off that, you know different science lessons and stuff like that.

FACILITATOR 1: Did we talk about our fact sheet? So we also included kind of a what's truth, what's myth in terms of lead exposure and we tailored it so that it would be the most applicable to school setting. A lot of the language that we've put in our reports is very scientific so we tried to kind of scale that down cause it was overwhelming for us too, even though my background is in science, so that there is relevant research that's included in the science piece but it's useable,

it's useable for any kind of consumer, parents, families, teachers, whatever. And it kind of talks about what can schools do and it's all fairly relevant research so we're hoping that that can kind of supplement the knowledge that your teachers had when they had the nurse visit.

FACILITATOR 1: And give a little more foundation. This document may expand in terms of things that come up as we continue working on our project that we think would be important to kind of incorporate. But one of the big things in terms of talking to kids about lead, a lot of times I think we shy away from talking to kids about negative or bad things, there's that part of us that wants to protect them or shelter them from that, but the research really talks about how valuable kids are in terms of a solution to a problem and that the most important thing you can be is honest with them and direct and how do we now, here's what happened, and now here's what we can do together and have them be a part of those solutions, so that's a real important piece that I think we wanted to include so that teachers understood that that was important, that it was okay to talk about it and that it was okay to include them in solution generating.

FACILITATOR 4: And it empowers them, again, in understanding that the lead exposure that Flint is experiencing isn't because of anything they did wrong. And here's what they can do to kind of feel that they're taking some control back in their families, at their school, with that knowledge.

FACILITATOR 4: You have some questions?

FACILITATOR 2: Yeah, the questions you have for us. Do we sort of meet what you were looking for?

Unison: Yeah.

PARTICIPANT 6: Now will you just come and do it all.

FACILITATOR 4: It might be good for us to try out what we created.

PARTICIPANT 6: Alright, what day?

PARTICIPANT 5: As far as funding, I know **** does have some monies that are specifically for the water crisis, so that's through the ****, so that might be a route I can connect you guys with.

FACILITATOR 4: I'll send you an email and we can connect that way. That will be great.

FACILITATOR 4: So the last thing we would like you to do if you would take a few minutes to complete the survey for us. It's tied to the process. You guys were a part of this design thinking process with us which was something we had never done before so it was new for us and you guys were willing to kind of hop off the cliff and we all held hands and went through the process so we'd really like your feedback in terms of the process because part of what we have to include in our final paper is what we would do different. What things worked well, what didn't work well, what did we do a pretty job at and where do we need to think about if we do this process again, what could we do different to make it better. So we would appreciate your honest feedback in that regard.

And then I want to make sure they have enough folders. You have two and then here's another one.

And because this is electronic, we can send it, too.

FACILITATOR 1: So we leave these, though, you can't let your teachers have them until they complete the survey. You have to hold them hostage.

Frequently Asked Questions About Lead

Q. Which groups are most vulnerable to lead exposure?

Lead is most dangerous for children and pregnant women (Lewis, 1985). At some level virtually all of the tissues within a child's body are affected by lead exposure with the greatest damage occurring in the brain and nervous systems (Drummond, Jr., 1981). In fact, two children with identical blood lead levels may manifest completely different symptoms and one may manifest no symptoms at all.

Q. What are the primary means of lead exposure and possible sources of lead?

The National Toxicology Program's Monograph on Health Effects of Low-Level Lead (2012) cites ingestion and inhalation of the contaminate lead as the primary means of lead exposure. Lead can come from a variety of sources including food, soil, water, paint, tobacco smoke, dust, housing renovations, hobbies, industrial occupations, among others.

Q. What biological impacts may be caused by exposure to lead?

Lead exposure can cause developmental delays including effects on motor functioning, cognitive development, speech/language development, base intelligence, as well as behavioral outcomes that persist into adolescence and beyond (Schmidt, 1999; Zhang et al., 2013)

Q. Does exposure to lead manifest in children's behaviors?

Lead exposure can manifest in behaviors including impulsivity, short attention span, and/or aggression. These behaviors are referred to collectively as executive functions and are often the most impacted. The U.S. Department of Health and Human Services (2015) defines "executive functions" as those areas of the brain responsible for strategic planning, control of impulses, organized searching, flexibility of thought and action, and self-monitoring of one's own behavior". These deficits can severely impact academic achievement and behavior both in and out of the classroom (U.S. Department of Health and Human Services, 2015). Ultimately, lead exposure can lead to a higher rate of Attention Deficit Hyperactivity Disorder (ADHD), and in particular, the behavioral features associated with ADHD.

Q. Can lead exposure result in reduced IQ in children?

Yes. Lead exposure among preschoolers has been shown to damage the gray matter in the brain potentially resulting in irreversible IQ loss (Nevin, 2008). Thatcher and Lester (1985) found in their research that lead toxicity reflects a continuum of deleterious effects, with school achievement and cognitive functioning being most disturbed. Lanphear, et al's (2005) international research of blood lead levels and IQ of 1,581 children in seven cohorts across the world observed that as children's blood lead levels increased from <1 µg/dL to 10 µg/dL, IQ decreased 6.2 points.

Q. How widespread is lead exposure today?

The Centers for Disease Control and Prevention (CDC) estimates that 4 million U.S. homes are inhabited by children exposed to lead. In addition, roughly half a million U.S. children have blood lead levels higher than the intervention level set by the CDC (U.S. CDC, 2016).

Q. What can a school do to help children who have been exposed to lead?

First, schools must recognize that they can support children who have been exposed to lead. Schools provide structure and continuity for a community's children (Cheal, 2010). It is important to understand that children exposed to lead are a heterogeneous group and that educational programming must be developed individually using a child's current functioning across many domains in order to be effective (Phelps, 1999). Differentiating instruction is vitally important in order to positively strengthen the cognitive development of students.

Q. How can educators talk to kids about lead?

In a word, openly. Teachers should know that the relationship that children have with their teacher becomes the foundation for building a new sense of safety and security after a traumatic event, such as the lead water crisis in Flint (Cheal, 2010). It is important that children feel safe talking about lead and other trauma they may experience in their classrooms and schools. Regardless of their age, children can be a viable part of the solution after a traumatic event and they need to be included in the conversation around planning for recovery including being given specific responsibilities in the process of recovery (Cheal, 2010; Gibbs et al., 2014; Rush, Houser, & Partridge, 2015).

I Feel My Temperature Rising: A Social and Emotional Curriculum



Level: Can be adapted to all levels K - 6

Author's Note: *This curricula has been prepared with the consideration of lead exposed students in mind. While the target audience of this unit is intended to be for students who are experiencing behavioral disruptions as a result of lead exposure or other health conditions and impairments, all students can benefit from this material.*

Background: Because lead is a developmental neurotoxicant, high blood lead levels in children can impair intellectual functioning and cause lifelong behavioral concerns. Lead exposure in even low levels can impact a child's intellectual ability, attention, social behavior, and executive functioning, which can include impulse control, emotional control and self-monitoring. Through understanding and practicing self-regulation strategies, children can develop the skills needed to calm their bodies, control their emotions, and adapt their behavior in order to prepare for classroom learning.

Purpose: Students will learn the importance of self-regulation and learning. Through a series of five mini lessons students will learn to recognize when their bodies and emotions are becoming out of control. Students will do so through learning appropriate language to describe their feelings.

Self-regulation refers to several complicated processes that enable children to respond to their environment with appropriate behavior (Bronson, 2000). Human self-regulation can be compared to a thermostat. A thermostat senses and measures temperature and compares its reading to a preset threshold (Derryberry & Reed, 1996). Children are often not able to recognize when their emotions are rising and overpowering them. In addition, children often do not have a sufficient understanding of language that can be used to describe the subtleties of feelings. For instance, children can misinterpret fearfulness as anger. Teaching students to take their emotional temperature is an essential step needed in helping them gain the skills of self regulation.

In addition, through this unit, students will learn three self-regulation techniques: deep breathing, progressive muscle relaxation, and visualization. Students will understand that self-regulation techniques help them prepare for and engage in the learning process. Although these strategies will be presented in a group format, students will learn that each of them can be done in a quiet, independent manner as a result of self-monitoring.

Developed by C. Diaz, M. Strang, A. Unger and S. Van't Hof 2017

Connections to Michigan Standards:

ELA - Listening and Speaking

- Students will be able to participate in collaborative conversations with diverse partners about grade level topics with peers and adults in small and larger groups following agreed upon rules for discussion
- Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly
- Speak audibly and produce complete sentences appropriate to task

ELA - Writing

- Using a combination of drawing, dictating and/or writing, students will be able to compose informative/explanatory texts in which they name a topic and supply some information/facts about the topic

Math - Measurement and Data

- Represent and interpret data by drawing a picture to represent a data set (bar graph)

Social Studies

- Public Discourse, Decision Making and Citizen Involvement

Lesson 1: The Many Faces of Me

Purpose: Students will learn to express themselves using “feelings language.” It is important to understand that emotions are physical states that occur in response to our environment (i.e. smiling when seeing a loved one). Feelings are the mental responses to these physical states (i.e. feeling happy when smiling at our loved ones). For the purposes of this unit, students will learn to describe their feelings as a response to their environment.

In order to recognize feelings, students must also be able to recognize what happens to their bodies in response to their feelings. For instance, when we feel scared or nervous, we might experience the sensation of “butterflies in our stomachs”. When we are angry or frustrated, our heart may beat faster and our bodies may become tight and tense.

Learning Target:

- Students will recognize what happens to their bodies in response to feelings by drawing different faces, determining colors that identify each feeling and labeling the emotion and physical response.

Materials:

Images of children exhibiting different emotions on their faces

Faces of Me handout

Reflection Booklet

Anticipatory Set: Students will view several images of children exhibiting different emotions. With each question, students will answer the following questions with a partner. Once the partner conversations have ended, students will share responses aloud with the class.

1. How might the child in the picture be feeling?
2. Why might the child feel this way?
3. Describe a time in which you may have felt the same as this child.

Instructional Input

The teacher will do the following:

- Inform students of the lesson’s learning target and refer to it throughout the lesson.
- Tell students about an emotion they felt either that day, that week, or sometime in the past, and describe how their body felt in response to that emotion. Emotions may include embarrassment and their face turned red, stress and they became angry or had a feeling of nervousness, etc.
- Make sure students know there is not one color that represents a certain feeling, rather the color is what they feel best represents it for their own body. Students can have different colors for the same emotion based upon their own feelings.

- With the students, generate a feeling word wall, anchor chart, or some other visual that will be available to students throughout the unit. Students should say the word and describe the feeling as it is added to the list.

Model

The teacher will do the following:

- Using the Faces of Me handout, the teacher will model the performance task and draw the expression he/she described during the Instructional Input.
- The teacher will ask the students to assist him/her in choosing a color to represent the feeling and color in the body part that was effected. For instance, when an angry face is drawn on the body, red can be drawn on the hands to represent tension. A sad face could be blue and felt near the heart. Feelings of nervousness could be felt in the stomach or head. It is important for students to understand the physical responses our bodies have to different feelings.
- The teacher will model writing the feeling and the body's response under the face they drew. Older students may write a sentence describing the event.

Checking for Understanding

The teacher will inform students of the performance task and make sure they understand they are to complete one facial expression that represents a feeling they recently had by drawing it, choosing a color that matches that emotion, coloring in the body area that is impacted, and writing the feeling underneath.

Guided Practice and Scaffolding

Students will complete one face and all its components while the teacher walks around and assists as needed, allowing students to share their feelings with a partner or out loud.

Independent Practice

Once all students have shared their first face, students will finish the remainder of the performance task on their own. The teacher may continue to walk around and assist as needed.

Reflection

Students will:

- In the booklet, draw a picture of themselves, color label the feeling they have had most today, and color in the body part that is impacted by the feeling with the color that best represents the mood.
- Write what they learned today in the appropriate page in their booklet.

Lesson 2: My Feelings Thermometer

Purpose: Upon learning feelings language, students will be able to communicate when their personal thermometers are rising. In order to develop self-regulation skills, students must be able to gauge the different levels of their feelings. Once students have determined that their temperatures are rising, the self-regulation techniques outlined in the next three lessons can be used to calm themselves.

Just as a thermometer measures rising temperatures, our personal thermometers measure our feelings and when our feelings and bodies can start to become out of control.

Learning Target: Students will be able to identify different levels of their feelings by gauging them on a thermometer.

Materials:

Feelings Thermometer handout

Feelings list from Day 1

Markers, crayons and/or pencils

Reflection Booklet

Anticipatory Set

Connect Lesson 1 to today by asking students to pick one feeling they drew a face for in the previous lesson. Have students share their chosen feeling with a partner(s) and rank the feelings in order of low to high.

Instructional Input

The teacher explains that our feelings run on a continuum from low to high, can be felt at different levels of intensity, and can vary from person to person. Experiencing feelings at different levels of intensity can cause our “temperatures to rise”, resulting in less control over our bodies. Loss of control over our bodies can cause us to say and do things we do not mean, can be harmful to others, and can prevent us from being the best learners we can be.

Model

The teacher will:

- Remind students of the feeling he/she chose in Lesson 1. As the teacher shows the Feelings Thermometer, ask students where the feeling might be on it. (Based on students’ prior knowledge, the teacher may need to explain how thermometers work and what they measure.)
- Help students understand that our location of feelings on the thermometer can be different from one another. For instance, the feeling word “nervous” can be felt as worried, fearful, anxious, a little nervous, or terrified.

Checking for Understanding

The teacher will:

- Choose a word from the feelings list and have students share with a partner approximately where they would gauge it.
- Call on a few students to share and explain.

Guided Practice and Scaffolding

The teacher will:

- Give each student their own Feelings Thermometer.
- Assign half of the students to Group A and half to Group B.
- Ask students to pick feelings from Group A and B they frequently have and gauge them on the thermometer.
- The teacher walks around and assist as needed.

Independent Practice

Students will:

- Finish the Feelings Thermometer performance task by gauging at least six more sets of feelings the teacher writes on the board or from experience. The teacher may continue to walk around and assist as needed.
- Once all students are finished, students may share their thermometer with a partner or group and explain why they gauged each feeling where they did, what might cause them to feel that way and discuss similarities and differences in thermometers

Variation: for young students, a game of sitting, kneeling, bending knees, standing tall, and jumping in the air can be used as a physical representation of a thermometer.

Reflection

Students will:

- Use feeling words to gauge their own thermometers.
- Write what they learned today in the appropriate page in their booklet.

Lesson 3: Just Breathe

Purpose: Students will practice deep breathing techniques as a part reducing their personal thermometers.

Learning Target:

Students will understand when and how to use breathing techniques for feelings highly gauged on their thermometers.

Materials:

Reflection Booklet

Anticipatory Set

The teacher will:

- Ask students to think back to what was highly gauged on their thermometer yesterday. Think of how it makes your body feel when you experience that feeling. Is there anything you do that helps when you feel that way?

Instructional Inputs

Teacher will:

- Introduce and demonstrate the concept of deep breathing as a means to calm their bodies when they have a strong feeling. When our bodies are calm, our thoughts are more clear and we can better prepare ourselves for learning. Students can either stand with comfortable space between each of them or be seated. Encourage students to practice this on their own (on the bus to school, waiting in the lunch line, while lying in bed).

Model

The teacher will read the following directions aloud and model the movements:

1. Stand up straight with feet shoulder width apart
2. Relax arms and hands at your side
3. Roll your shoulders back
4. As you breathe in, focus on your lower abdomen (belly)
5. Watch your lower abdomen rise and fall with each breath
6. Imagine that your lower abdomen is a balloon being blown up
7. Breathe in (inhale) slowly through your nose and imagine the balloon getting bigger and bigger
8. Slowly breathe out (exhale) through your mouth and round your lips. Imagine the balloon getting smaller and smaller.
9. Place your hand over your lower abdomen to feel it go up and down as you inhale and exhale. Your lower abdomen should be going in and out. Your shoulders should NOT be going up and down.

10. Repeat this breathing exercise about three times

Check for Understanding

The teacher will:

- Ask a student to demonstrate the technique while the class watches. Ask that student to describe how the movement makes them feel.

Guided Practice and Scaffolding

The students will:

- Complete one set of the movements while the teacher restates the learning target and the steps involved while walking around assisting students

Independent Practice

The students will:

- Independently complete six repetitions of the breathing technique

Reflection

Students will:

- Draw and describe something that relates to the breathing technique on the appropriate page in booklet.
- Write what they learned today in the appropriate page in their booklet.

Lesson 4: Robot - Ragdoll Relaxation

Purpose: Students practice progressive muscle relaxation techniques as a means to calm their bodies. Upon recognizing that their personal thermometers are rising, students can use this technique to reduce their temperature and soothe their emotions.

Learning Target: Students will utilize their personal thermometers to indicate increasing feelings that would benefit from relaxation techniques by describing their feelings and utilizing the technique.

Anticipatory Set

The teacher will:

- Ask students to visualize a time in which their emotions increased on the thermometer. Now think about what you did to decrease your feelings on the thermometer during this time.

Materials:

Reflection Booklet

Students can benefit from seeing diagrams of human muscles to serve as a reminder of what muscles are in preparation for this exercise

Instructional Input: The teacher introduces the idea that relaxation is a technique used to calm our bodies and emotions and can be utilized when there emotions are highly gauged on their thermometer. Students will do an exercise by pretending to be a robot and then a ragdoll that will help them relax their bodies through the tightening and releasing of different muscle groups in their bodies. Students can either sit in their seats with good posture or lie on their backs (depending on space).

Teacher should explain that robots are stiff and made of machine parts. When we tighten our muscles, we can imagine our muscles being still parts of a machine. Ragdolls are loose and floppy. When we loosen our muscles we should imagine being ragdolls. Teacher should model each step in preparation for their participation in the lesson. Teacher should then read aloud the instructions for students in a group setting. Teacher can remind students that while the class is learning to do this as a group, each student can practice muscle relaxation independently when their thermometers are rising.

Model

The teacher will:

Read the following directions aloud and model the movements:

1. Raise your eyebrows and wrinkle your forehead. Try to touch your eyebrows to where your hair starts on your head. Hold that robot pose for 5 seconds (count aloud once) and ragdoll.

2. Make a frown with your mouth. Hold that robot for 5 seconds (count silently) and ragdoll.
3. Close your eyes as tightly as you can. Pull the corners of your lips back with your lips closed and pressed together. Hold robot for 5 seconds - and ragdoll.
4. Open your eyes and mouth as wide as you can. Hold robot for 5 seconds - and ragdoll. Feel the warmth and calmness come over your face.
5. Stretch your arms out in front of you. Close your fists tightly. Hold robot for 5 seconds - and ragdoll. Feel the warmth and calmness come over your arms and hands.
6. Stretch your arms out to the side. Pretend you are pushing an invisible wall with your hands. Hold robot for 5 seconds - and ragdoll.
7. Bend your elbows and flex your muscles in your upper arm. Hold robot for 5 seconds - and ragdoll. Feel the tension leave your arms.
8. Lift your shoulders. Try to make your shoulders touch your ears. Hold robot for 5 seconds - and ragdoll.
9. Arch your back away from your chair (or off the floor if lying down). Hold robot for 5 seconds - and ragdoll.
10. Round your back like a cat. Try to push your back against your chair (or against the floor). Hold robot for 5 seconds - and ragdoll.
11. Flex your leg muscles and press your legs together as close as you can. Hold robot for 5 seconds - and ragdoll.
12. Flex your feet towards your shins as far as you can. Hold robot for 5 seconds - and ragdoll.
13. Scrunch and curl your toes in your shoes as much as you can. Hold robot for 5 seconds - and ragdoll.
14. Tighten all the muscles in your whole body as much as you can. Hold for 5 seconds - and relax. Again, tighten all the muscles in your whole body as much as you can. Hold robot for 5 seconds and ragdoll.
15. Stand up. Tighten all the muscles in your whole body as much as you can. Stiffen your body like a robot from the top of your head to the tip of your toes. Hold for 5 seconds. Fold your body over and touch your toes, letting your arms hang like a ragdoll. Let your body feel heavy and calm. Hold for 5 seconds. Return to a seated position and remain quiet allowing this feeling of relaxation and calm you come over you. (allow students to sit quietly for a few minutes)

Check for Understanding

The teacher will:

- Ask a student to demonstrate the technique while the class watches. Ask the same student to describe how the movement makes them feel.

Guided Practice and Scaffolding

The students will:

- Complete one set of the movements while the teacher restates the learning target and the steps involved while walking around assisting students

Independent Practice

The students will:

- Independently complete six repetitions of the relaxation technique

Reflection

Students will:

- Write what they learned today in the appropriate page in their booklet.

Lesson 5: Visualization of a Peaceful Destination

Purpose: Students will understand and practice visual imagery as a means to calm their bodies and minds. This technique involves the systematic practice of creating a detailed mental image of a soothing place or environment.

Visualizing is a critical reading comprehension strategy for students K-5. It is also a memory and relaxation technique that can be taught at all levels. Visual imagery is an intervention that can be done independently or with direction, referred to as guided imagery.

Learning Target: Students will be able to indicate feelings in which visual imagery would be beneficial and utilize the technique.

Materials:

Reflection Booklet

Anticipatory Set:

The teacher will remind students that they have worked on breathing and relaxation techniques. Today, we will work on visualization. Ask students to share with a partner what they think visualization means as it relates to the feelings thermometer.

Instructional Content: Teacher explains to students that visualization is the act of imagining or making pictures in our head based upon our five senses - sight, sound, taste, smell, touch. The pictures we imagine can be generated through our own imagination or through what is read or told to us. Visualization is another exercise that allows us to reduce our emotional thermometers and focus on our bodies.

Modeling

For the purposes of this lesson, students will be read a mini-guided imagery script that will help them to create a peaceful and safe space for them to go when they feel their temperatures rising. After being read the script, students will draw their safe spaces and write about the sensations felt there.

Students should be sitting quietly in their seats. Read aloud the following script using a calm, low voice. Leave enough time between each visual prompt allowing students to “see” each prompt. Other scripts can be used based upon developmental level.

Read the following aloud:

Close your eyes. Imagine in your mind a quiet, peaceful place. This place should be somewhere that brings you comfort and you feel safe there. A quiet beach, a park with graceful trees, your grandmother’s porch...imagine a location where you can be still and safe. Go to that place in your mind. Notice what you see in your peaceful place. Where are you? Outside, inside, is the sun shining, is it warm or cold.... Notice the environment and where you are sitting in your peaceful place. What do you feel? Do you feel something in nature, a special pet. What do you smell in your peaceful place? Is it light and refreshing like an ocean breeze, is it the sweet smell

of a favorite meal.... Notice the smell with the inhale and exhale of each breath. What do you hear in your peaceful place? Is the sound faint or is it more noticeable? Is it a soft voice talking to you, birds chirping, the sound of crashing waves...listen to the sounds that bring you peace and shut out all other sounds. What can you taste in your special place? The salt in the air near the ocean, a special meal. Is it sour, salty, or sweet? Notice the taste on the tip of your tongue...Be present in your safe space as you notice all of your surroundings. Take a picture in your mind of this safe space. Remember what you see, feel, smell, hear and taste. Describe in your mind what it is about this special place that makes you feel safe. Inhale and exhale in your safe space and be calm. Know that this place is always there when you need it. All you need to do is close your eyes, calm your mind and go to this safe space. Take one more breath in your safe space. Say goodbye to it in your mind and know it is always there for you when you need to be calm. Inhale, and exhale...when you are ready open your eyes and join us peaceful and refreshed.

Optional: after this exercise, have students share their safe spaces with a partner. Encourage students to practice this calming technique at home and teach it to a family member.

Guided Practice and Scaffolding

The teacher will:

- Ask students to describe the breathing, relaxation and visualization techniques they learned the past few days.
- Ask students to discuss with a partner when they might use the three techniques and how they will know they should utilize them.

Independent Practice

The students will:

- Practice the breathing and relaxation techniques through three repetitions each
- Visualize a safe space for a few minutes

Reflection

Students will:

- Draw and provide information on their safe spot.
- Reflect on their favorite technique and write as to why.

Appendix Y: Flintoons Cartoonversation Card



Flintoons

UNIT 1 - I FEEL MY TEMPERATURE RISING

Cartoonversation Starters

1. What does being in control of yourself feel like to you?
2. What does being in control look like? Can you tell when other people are in control of themselves?
3. How do you know when you are not in control of yourself? What does that feel like to you?
4. What does being out of control look like? What can you do to make sure that you stay in control of yourself even if things around you are not in control?
5. What can you do to help yourself and others stay in control?

Factoids

1. Social and emotional health are equally important to physical health for a child's overall growth and development.
2. When children feel in control of themselves they can process information better and feel empowered to successfully problem solve.
3. Children can feel when those around them, adults or other children, are feeling out of control and that is reflected in their own behavior.
4. Through understanding and practicing self-regulation strategies, children can develop the skills needed to calm their bodies, control their emotions, and adapt their behavior in order to prepare for classroom learning.
5. Adults can support children with using self-regulation strategies by reminding them to breathe, relax and visualize when they are getting upset. (McClelland, Ponitz, Messersmith, & Tominey, 2010)

WEBSITE RESOURCES

developingchild.harvard.edu

<https://flintcares.com/>

<http://www.abc12.com/flintwateremergency>

<http://www.michigan.gov/flintwater/>

<http://flintwaterinfo.com/>

<https://www.umflint.edu/shps/water-crisis-resources>

<https://www.umflint.edu/pubhealth/flint-water-crisis-course>

<http://fpl.info/research/flint-water-emergency-resources/>

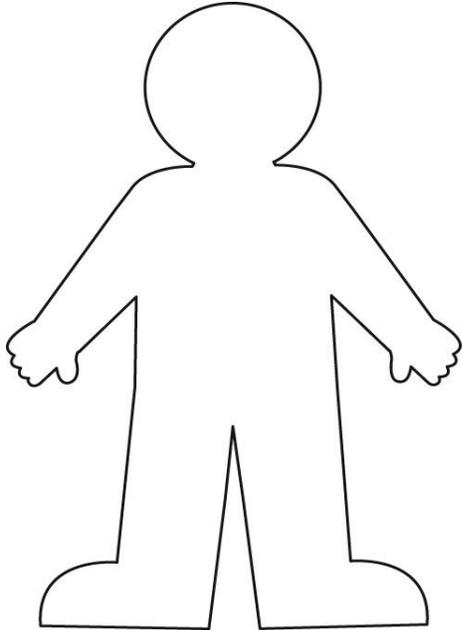
<http://www.geneseesisd.org/802/Water-and-Lead-Information-and->

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The Many Faces of Me

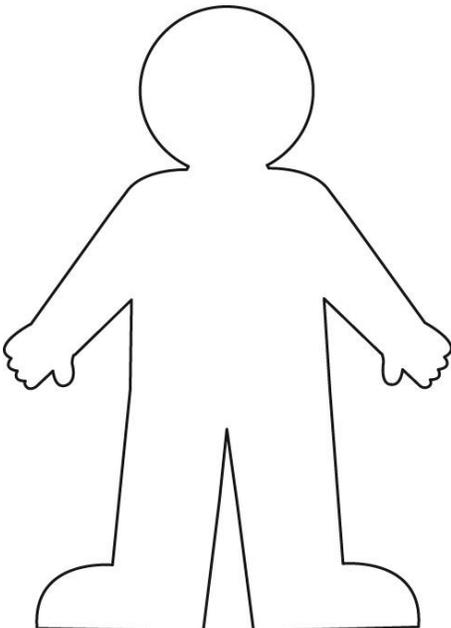
Feeling _____

Where do I feel this in my body?



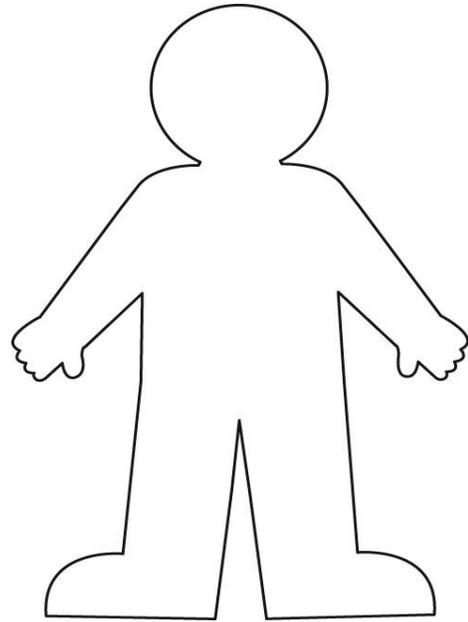
Feeling _____

Where do I feel this in my body?



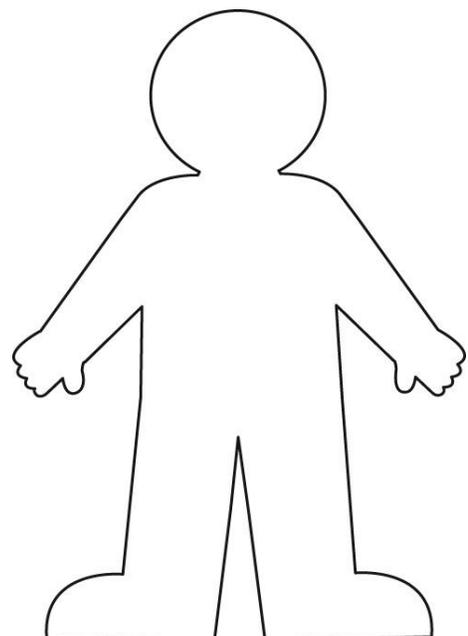
Feeling _____

Where do I feel this in my body?



Feeling _____

Where do I feel this in my body?



I Feel My Temperature Rising Reflection Journal

Draw yourself above. Choose a feeling you have often and write it next to your picture. Color the part of your body where you feel this feeling the most.

What did you learn today? How you will use your new knowledge?

Feelings Thermometer



What feelings do you have most often? _____

Gauge them on the thermometer above.

What did you learn today? How will you use your new knowledge?

Breathing Technique

Draw a picture of yourself using the breathing technique.

What did you learn today? How will you use your new knowledge?

Ragdoll - Robot

Pretend you are teaching someone the Ragdoll-Robot relaxation strategy. Write the Ragdoll-Robot steps below.

What did you learn today? How will you use your new knowledge?

Visualization

What did you visualize during this lesson? Draw and describe it below.

What did you learn today? How will you use your new knowledge?

Appendix BB: Student Handout – Feelings Thermometer

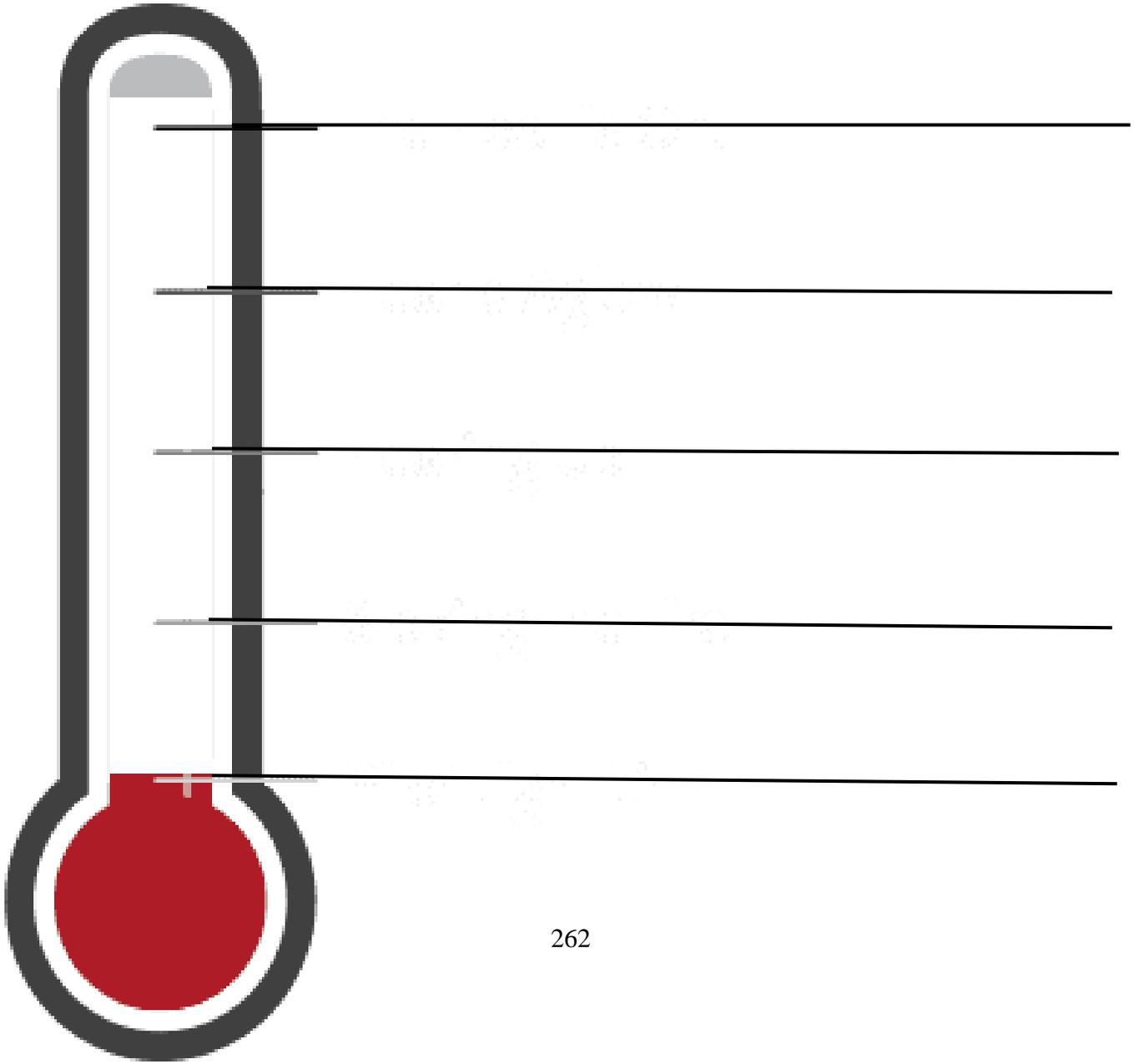
Feelings Thermometer

Our feelings run on a continuum from low to high, just like temperatures do on a thermometer. Experiencing feelings at different levels of intensity can cause our “temperatures to rise”.

Choose 5 feeling words from the list below. Choose where the feeling should be on the 5 lines (continuums). Think about a situation that might make you feel this feeling. What happens to your body telling you your temperature is rising? Write your answers on the lines below.

Group A: Furious A little mad Irritated Very annoyed Enraged Upset

Group B: Terrified Worried Very nervous Kind of scared Frightened Horrified



Appendix CC: Parent Letter

Dear Families,

Children are often unable to recognize when their emotions are rising and overpowering them. In addition, children frequently do not have a sufficient understanding of language that can be used to describe the subtleties of feelings. Teaching children to take their "emotional temperature" is an essential step in helping them gain the skills of **self-regulation**, which refers to several complicated processes that enable children to respond to their environment with appropriate behavior. Understanding self-regulation helps our children be good citizens and to be prepared for learning.

As part of a unit on **self-regulation** techniques, your child learned the following:

- How to express themselves using "feelings language"

- Where in their bodies certain feelings are felt

- How to gauge the intensities of their feelings using their "personal thermometers"

- How to calm their minds and bodies using:

- Deep breathing
- Robot-ragdoll muscle relaxation
- Visualization

Interested in supporting this at home? Below are ways you can assist your child:

Understand that physical and emotional challenges children may have is never an excuse for poor behavior. Help your child understand that it is their responsibility to control their actions.

When disciplining your child, do your best to address misbehaviors immediately and make the punishment fit the crime. For example, poor behavior at the park may result in an immediate, brief timeout, not a week long grounding.

Positive comments go a long way! Catch your child demonstrating positive behavior and tell them what they did well.

Allow and encourage your child to make age-appropriate decisions. Some examples include what to eat for lunch, picking out the clothes they will wear, deciding on play time activities, and more. The act of decision making increases confidence and independence.

Let children explore and create. Unstructured play time indoors and outdoors is valuable to the learning process. Sometimes the best toys are found objects (be sure they are safe) in and around the house.

When you sense your child is becoming upset, or when witnessing a meltdown, assist your child in using the relax, breath and visualize techniques.

(McClelland, Ponitz, Messersmith, & Tominey, 2010)

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Appendix DD: Design Thinking Process Survey

*Design Thinking Process Survey for Focus Group Participants
March 1, 2017*

1. At the onset of the project, I was provided with enough information so that I felt I could participate effectively.

1	2	3	4	5
I had no idea what I was getting into				I felt fully informed

2. My thoughts, ideas, questions and concerns were reflected in the process.

1	2	3	4	5
My ideas weren't reflected				My ideas were fully reflected

3. Efforts were made to ensure that all voices were heard equally in the face-to-face meetings.

1	2	3	4	5
No effort was made -one person dominated				All voices were heard

4. I felt the researchers understood the struggles we are facing in Flint.

1	2	3	4	5
There was a lack of understanding				The researchers demonstrated understanding

5. The time I spent participating in the Design Thinking collaborative project was worth it.

1	2	3	4	5
This was a waste of my time				The time spent was beneficial

6. I am interested in using the Design Thinking process for problem solving other educational issues in the future.

1	2	3	4	5
There is no way I would use this process				I would use this process for sure

7. What would you like to have seen done differently?

8. What was the most valuable part of this process for you?

9. Do you feel as though you had a voice in the development of the prototype?

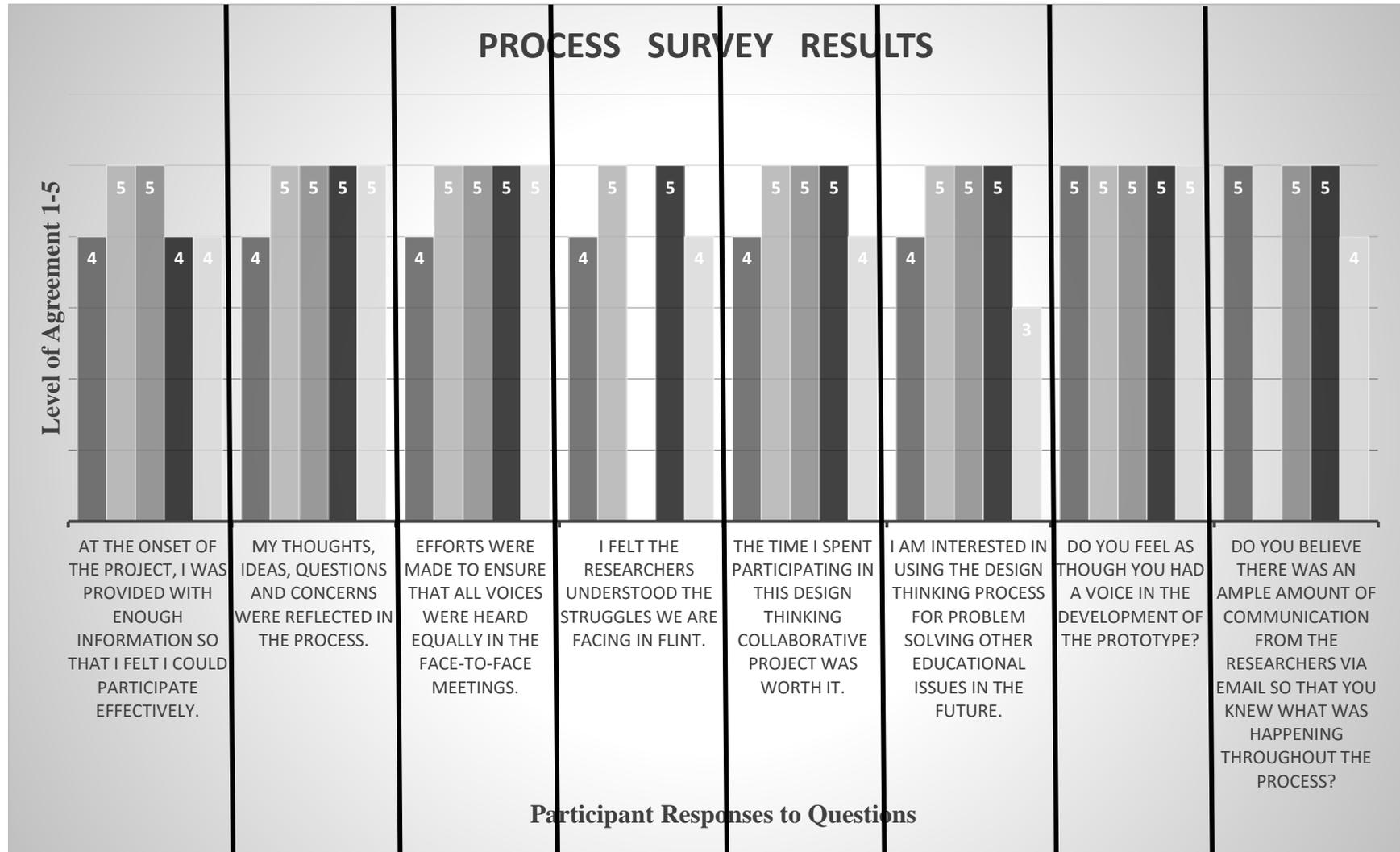
1	2	3	4	5
I had no idea where the idea for the prototype came from				I felt as though my input directly impacted the development of the prototype

10. Do you believe there was an ample amount of communication from the researchers via email so that you knew what was happening throughout the process?

1	2	3	4	5
I was left in the dark				There was ongoing communication

11. Can you think of a different way of collaborating on this issue that might have been more effective?

Appendix EE: Design Thinking Process Survey Results



6. What are some strategies that you can use to stay in control of your emotions?

Run around

Breathe, relax and visualize

Yell at others

Stop and listen

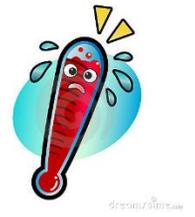
Something else _____

7. Draw a picture or tell how you can help others stay in control of their emotions.

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Appendix GG: Pre/Post Student Survey Rubric for Self-Regulation Unit

**I FEEL MY TEMPERATURE RISING
SELF-REGULATION UNIT
RUBRIC FOR STUDENT PRE/POST ASSESSMENT**



	Beginning	Developing	Capable
Can you describe what it feels like when you are in control of your emotions?	No; is unable to describe feelings	Yes; is able to describe basic feelings (happy, sad, etc.)	Yes; is able to identify specific feelings (upset stomach, etc.) associated with being in control
Can you draw a picture or write some words that describe what it looks like to be in control of your emotions?	Cannot draw or identify what being in control looks like	Can draw or describe with 1 or more adjectives what it looks like to be in control	Can draw or describe with 3+ adjectives what it looks like to be in control
Can you tell when you are not in control of your emotions?	1-2	2-3	4-5
Can you draw a picture or write some words that describe what it looks like or feels like when you are not in control of your emotions?	Cannot draw or identify what being out of control looks like or feels like	Can draw or describe with 1 or more adjectives what it looks like or feels like to be out of control	Can draw or describe with 3+ adjectives what it looks like or feels like to be out of control
Can you tell when someone else is not in control of their emotions?	1-2	2-3	4-5
Do you have some strategies that you can use to stay in control of your emotions?	Chooses 0-1 appropriate strategy	Chooses or adds 2 or more appropriate strategies	Chooses Relax, breathe and visualize strategy
Can you draw a picture or tell how you can help others stay in control of their emotions?	Cannot draw or articulate how to help others stay in control	Can draw or articulate with 2 or more vocabulary words how to help others stay in control	Can draw or articulate the relax, breathe and visualize strategy for helping others stay in control

Appendix II: Pre/Post Educator Survey Rubric for Self-Regulation Unit

**I FEEL MY TEMPERATURE RISING
SELF-REGULATION UNIT
RUBRIC FOR EDUCATOR PRE/POST ASSESSMENT**



	Beginning	Developing	Capable
Educator report of disruption tied to students' ability to self-regulate their emotions	4-5 Significant problem	2-3 Moderate problem	1-2 Not a problem
Educator articulates words that describe what it looks like when students are not in control of themselves.	Educator articulates only student behaviors	Educator articulates student behaviors in conjunction with classroom characteristics	Educator articulates classroom characteristics that prompt less student control over their emotions
Educator report of personal feelings tied to students' being out of control	Educator does not identify significant emotion tied to student misbehavior	Educator ties 1-2 negative emotions to when students are not in control of their behavior	Educator recognizes that his/her negative emotions are directly connected to the level of self-control that students display
Educator recognizes through visual or emotional channels when students are beginning to lose control	Educator cannot recognize when students are losing control	Educator can sometimes recognize when students are beginning to lose control	Educator can articulate both visual and physical cues which reflect when students are beginning to lose control
Educator has strategies he/she feels comfortable using with students to support their development of self-control	Educator has one 'go to' strategy he/she uses with all students	Educator is able to articulate 2 or more strategies for working with students to develop self-control	Educator is able to articulate and demonstrate the relax, breathe and visualize strategy to support student development of self-control

Appendix JJ: Participant Thank You Letter

March 02, 2017

Dear Participant,

On behalf of the College of Education at Michigan State University, we would like to extend our deepest gratitude for allowing our capstone group to engage professionals from your school in our dissertation of practice. Our experience with them has been rewarding and their contributions to our project have been invaluable. The direction of our research, *Utilizing the Design Thinking Process to Aid Educators in their Response to Childhood Lead Exposure*, would not have been possible without their cooperation, insight, and expertise.

Thank you for the valuable partnerships we have forged as a result of this process. While the lead crisis in Flint will have lasting impacts on children, their families, and our schools, we are hopeful our work will provide support and direction to the ongoing endeavor of supporting all those effected. Thank you again for your time, professionalism, and eagerness.

With respect and gratitude,

Michigan State University Doctoral Candidates

Camela Diaz

Melody Strang

Amanda Unger

Sarah Van't Hof

REFERENCES

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