Play With a Purpose:

Promoting Critical Thinking to Meet Preschool Standards

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Abstract:

"Children must be taught how to think, not what to think." – Margaret Mead

The field of Early Childhood education is always evolving. What was once considered as babysitting or daycare, has been transformed into a necessary stepping stone and foundation to school readiness. With this push for universal pre-k, the importance of play in the preschool classroom has slowly diminished. Being in this field for over 15 years, I have experienced the curriculum pendulum swing back and forth from play based to academic based settings. I find myself disappointed with the lack of play in preschool, with a now stronger focus on academics being considered the current best practice. A large emphasis has been placed on direct instruction, which I feel is developmentally inappropriate for preschool aged children. Current standards are limiting our thinking and creativity when it comes to the Early Childhood classroom environments. The restrictions on curriculum are creating what some refer to as a 'culture of compliance'. (Curtis & Carter, 2005)

In an effort to highlight the need to incorporate more play based learning, this report will explore research on early childhood development, the current Massachusetts Preschool Guidelines and Standards and an analysis of a pilot play based classroom that I have implemented in my program. I will also include a plan for how I intend to continue my research, work with the pilot classroom and how I will apply what I have learned from the experience to create a plan for change.

Child Development Pioneers:

While the Early Childhood Education field has not always been viewed as educationally beneficial, historically many theorists have taken an interest into how children learn, play, develop, and view the world. Theorists such as Leo Vygotsky, Maria Montessori, Jean Piaget, Erik Erikson, Siegried Engelmann and Wesley Becker have paved the way for child development research, theory, and pedagogy.

In the 1920's psychologist Leo Vygotsky was one of the first to study child cognitive development. Vygotsky introduced the Zone on Proximal Development, which had a strong emphasis on interactions and surroundings and their direct impact of cognitive development. Vygotsky believed that children were able to thrive when they are considered to be in the Zone of Proximal Development, which is when they are receiving support and guidance from an adult figure; scaffolding is highlighted as an effective strategy. Adult figures use encouragement and guidance to teach a child a specific skill or lesson. Vygotsky also notes that peers or other children can also be used to motivate through social interactions. (Conkbayir & Pascal, 2015).

Also in the early 1900's, physician Maria Montessori was given the opportunity to open her own 'school' which was home to children from age 1-6 years old. It was here that the Montessori method was first introduced and practiced. Maria Montessori believed strongly that children should take the lead on their learning and education and that an educator's role was to provide guidance, challenges, and open exploration. Much like Leo Vygotsky, Maria Montessori recognized the individuality and uniqueness in each child. (Conkbayir & Pascal, 2015).

In the 1950's Jean Piaget introduced his Stages of Development, which focused on children's cognitive skills, breaking them down into four stages: Sensorimotor, Preoperational, Concrete

Operational, and Formal Operations. The Preoperational stage directly relates to preschool aged children as the age range falls between 2 and 7 years old. During this stage, children are considered egocentric, lacking the ability to see from another person's point of view. Children often engage in parallel play, where they will play in the same room or area along side of others children, but often independently. Both egocentrism and parallel play decreases as the child develops in this stage and they begin to explore pretend play, animism, and cooperative play. Piaget believed that children in this stage were unable to understand logical thinking and reason, therefore their thinking is in preoperational terms, setting the foundation for operational thought. (Ramini, 2012)

In the late 1950's, Erik Erikson's introduced his Theory of Psychosocial Development which focuses on the development of the personality, with the belief that this is shaped by social experiences. Every individual possesses an ego identity, which is constantly changing. Erikson's theory is broken down into eight stages from infancy to adulthood. The third stage, Initiative vs Guilt, pertains to preschool aged children and the ability to become independent through play. Children learn through exploration and develop their sense of leadership and power during this stage. (Conkbayir & Pascal, 2015).

What becomes clear is that despite their differences in theory, there is one common theme in which they all seem to agree upon; the importance of play. However, in the 1960's we were introduced to the alternative to play based learning, which focused on pre-planned lessons and teacher directed curriculum, coined the direct instruction theory, Siegried Engelmann and Wesley Becker argued that this teaching style would lead students to success much more quickly, as it was focused and straightforward. Children are expected to progress at the same pace with little to no flexibility in content and individualization.

Academic vs Play Based:

Based on popular theories in child development, it comes down to two main options for preschool settings: academic or play based. Each environment comes with both its positive impacts and negative perceptions. It is important to understand the intent behind each of these very different preschool environments to identify why I am dissatisfied with the absence of play in our current predominantly academic based early childhood culture.

Academic Preschool settings are grounded upon the teaching style of direct instruction. Although the original intent of this learning style was for higher grade levels, it has become increasingly more common in preschool programs. In this environment classrooms are typically set up for a teacher to deliver lessons or lectures to a large group. This may look like more like a 'traditional' classroom, with tables and chairs facing the front of the room. Classrooms may also have various learning centers set up; however, the children are not able to choose these areas freely. Instead they are grouped for specific learning purposes. Curriculum is research and evidence based, therefore proving to show positive outcomes. Lesson plans are scripted and predictable. Educators do not veer from their lessons and move on to the next concept when scheduled to do so. In this setting the main purpose is to prepare children for kindergarten by focusing solely on the alphabet, colors, shapes, and numbers. Academic Preschools are rigid and do not allow for the opportunity to personalize or tailor teaching to each individual child. Instead, children are expected to remain focused, engaged, and stay on track. Proponents of this style of teaching argue that drilling, rote learning, and repetition are successful strategies for all children to learn. Academic preschools teach for a purpose, whether it be to achieve particular assessment scores and meet standards and expectations. Those in favor of academic preschools

argue that this environment can produce higher outcomes because directed instruction produces higher cognitive gains. A sample academic preschool lesson may look the following:

Topic: Trees	***Date:*** October 11th 2017
Massachusetts Preschool Guideline:	Science & Technology: Inquiry Skills 3). Identify and use simple tools appropriately to extend observations.
Learning Objective:	Children will be able to identify the various parts of a tree.
Materials Needed:	Magnifying glass; leave, branch, bark
Activity:	Teacher will identify each part of the tree by holding it up to the large group and stating the word, asking the children to repeat the word. Teacher will pass around each part of the tree with one magnifying class for each child to look through and pass. This activity will be repeated each day for one week.

This activity would be scheduled for approximately 30-45 minutes. Enough time must be allowed for each child to look at the each object. The children are asked to wait their turn and practice patience, as all 18-20 children get a chance to quickly observe each object they are passed. The children are expected to listen to the teacher as she provides information and they will be asked to repeat or recall this information on a daily basis for one week. After the week is over, the activity will not be conducted again. During this activity the primary purpose was to meet the state guideline of using simple tools to extend observations. The children were able to

learn that if they wish to observe an object, they can use a magnifying glass; therefore the objective of the activity was met.

A typical day in an academic preschool environment is highly structured and rigid. The schedule is made to be followed and there is little to no flexibility. The children navigate through the day as a large group and are often sitting. The beginning and end of the day are typically free play; however, activities are often planned and set up for the children to choose between 2 or 3. This is a transition period in which children are arriving or departing. The following is an example of an academic preschool daily schedule.

- 7:00-8:00 Drop Off; Free Play
- 8:00-9:00 Breakfast
- 9:00-9:30 Circle Time/Story
- 9:30-10:45 Focused Lesson 1
- 10:45-11:00 Focused Lesson 2
- 11:30-12:00 Gross Motor
- 12:00-1:00 Lunch
- 1:00-2:30 Rest Time
- 2:30-3:00 Departure; Free play

Play based environments are the exact opposite. Educators in this learning environment serve more of a facilitator purpose, as the curriculum is driven by the interests and goals of the children. Classrooms are broken down into various learning areas which include: Creative Arts, Math, Science, Writing, Sensory, Blocks, and Imaginative Play. Each area is intentionally stocked with materials that are open ended and engaging for the children to freely explore. The

children are able to navigate the classroom on their own, choosing which areas are of interest to them. The educator's role is to encourage the children to learn through their play by asking open ended questions, asking children to explain their process, promoting independence, and scaffolding. Play is described as 'fun, flexible, voluntary, and intrinsically motivated' Guided play allows the curriculum to remain child-directed and include consistent free play with a focus, while still focusing on learning outcomes by using scaffolding and intentional teaching across all learning domains. (Hassinger-Das, Hirsch-Pasek& Michnick Golinkoff, 2017)

This play based curriculum is individualized by each child, working towards the progression of the own personal goals. The educator will begin the year by observing the children and determining what their interests are, they then will choose a study for the classroom and ask the children three major questions; What do you know? What do you want to know? What did you learn? The study's progression is then guided by the children and when they become no longer interested, the study will change. For example a 'Tree Study' may evolve into a 'Weather' study as the children begin to question why the leaves fall off of the tree in the Fall Season. Shared above was an example of a 'Tree' lesson plan that was in the style of direct instruction; below is a sample of a play based preschool lesson for the same topic and guideline.

Topic: Trees	***Date:*** October 11th 2017
Massachusetts Preschool Guideline:	Science & Technology: Inquiry Skills 3). Identify and use simple tools appropriately to extend observations.
Learning Objective:	Children will be able to identify the various parts of a tree.
Materials Needed:	Magnifying glasses, rulers, measuring tape, writing utensils, drawing utensils, paper, outdoor materials collected on nature walk

	with children, photographs of trees, books about trees.
Activity:	As children choose to use the Science area, teacher will use vocabulary words such as: investigate, predict, bark, stump. Acorn, twig, leaf, branch. Question may include: • What do we already know about trees? • How can we use these materials to learn something new about trees? • Can you tell me about the tools you are using and what it is telling you? • What did you learn in your investigation about trees? • Are they any materials missing that we could add? • Look at what (other child) is doing, I wonder why he is doing it that way. Let's ask him to share his exploration.

This activity would not have a strict time limit attached to it. The Science area of the classroom would be a choice during the 'Learning Choices' portion of the day. The children are not expected or made to visit the Science area, but a teacher may invite a child to come over and check something out that may be of interest to them. The children are able to stay as long or short as they please. The children will freely explore the materials, with the facilitation of the teacher. During the example activity the state guideline of using simple tools to extend observations was met, however there were also several other learning opportunities. Children may learn new vocabulary, begin to understand cause and effect, practice promoting through their process, using the inquiry process, or working with others to find an answer. Children were also given the chance to learn at their own pace, providing a sense of accomplishment and pride in their work. A child who may already have this information or have had this experience may

expand and extend their learning, while another child is just learning to understand these concepts, both happening at the same time, during the same activity.

In a play based environment the schedule is still predictable and structured, so the child is able to know what comes next, however, there is more flexibility and autonomy embedded throughout the day. Children navigate through the day in a mixture of large, small, and independent play opportunities. Similar to the academic based preschool schedule, the first and last hour is free play during the arrival and departure transitions; however, in a play based environment this time of day will look very different. Free play in a play based classroom would provide the children the opportunity to make choices in all areas of the classroom, but might not have as much focused facilitating by the teachers. A sample schedule may look like the following:

- 7:00-8:00 Free Play; Drop Off
- 8:00-9:00 Breakfast
- 9:00-9:15 Circle Time/Story
- 9:15-11:30 Learning Choices
- 11:30-12:00 Gross Motor
- 11:30-12:00 Gross Motor
- 12:00-1:00 Lunch
- 1:00-2:30 Rest Time
- 2:30-3:00 Departure; Free play

What Happened to Playful Learning in Preschool? is a book written in regards to the current trend of preschool programs gearing their curriculum towards more teacher directed and outcome

focused lessons. Golinkoff, Pasek, and Berk note how detrimental the absence of play can be on children's social, emotional, and cognitive learning. Both societal pressure and the economic achievement gap serve as two of the main causes for the shift to teaching more 'content' in preschool classrooms and decreasing, sometimes eliminating, play all together. A concern is raised that putting such academic pressure on a preschooler has led to social and emotional outbursts and breakdowns, as children are striving to meet unrealistic expectations and some are often left behind. Parents also hold a level of accountability, as the majority of parents struggle to see the value in play based learning in the classroom and prefer a more academic based environment for their preschooler. Children need to acquire skills and knowledge that make them feel like confident and capable thinkers and insist this can be easily fostered and developed in a classroom environment in which open ended play is encouraged and children become lifelong thinkers. (Golinkoff, Pasek, & Berk, 2017) Teacher talk is extremely powerful in the classroom. There is a vast difference between open ended questions in play based environments and close ended probing in academic environments and there is tremendous benefit in assisting children to reach their own ideas and answers. This specific style of questioning strengthens children's thinking skills, as they are encouraged through detail their thinking process. Not only does open ended questioning enhance critical thinking skills, but it shows children that the teacher is engaged and excited to hear what they have to say. (Rainer & Durden, 2010)

Cultivating an Academic Culture:

In 2001, the No Child Left Behind Act was passed, which was intended to focus on elementary, middle, and high school grade levels. The focus was on creating national standards,

which were set with high expectations, measurable goals and student assessment. School systems that performed poorly on assessments would be provided with a tiered level of support that included additional resources for students and teachers but not limited to a complete restructure of the poorly performing school. This is where the term 'teach to the test' became widely noted, as educators began to feel like the freedom in their curriculum was taken away and the only important content to be taught was that which would be on the test. In 2015, this act was revised to the Every Student Succeeds Act, which allowed states to instead set their own standards, goals, and assessment system.

Although the focus of these acts was not directed towards preschool program, there was still a direct impact from these changes. The expectations of a child entering Kindergarten were now much more advanced, which meant that the preschool experiences were not only imperative, but that they needed to enhance their systems of teaching and learning to fit the bill. This is when the pendulum of play based versus academic based preschool began swinging in favor of academics once again. In response to the 'No Child Left Behind' and 'Every Student Succeeds Act', Massachusetts developed their own set of standards and guidelines for preschool programs, in an effort to promote school readiness. The state felt as though these guidelines would help to assure that programs were offering content and curriculum that would help make a successful transition from preschool to Kindergarten. The Massachusetts Standards reads that 'these standards should be used to guide ongoing development, evaluation, and improvement of center-based preschool programs.' The standards are broken down in 11 sections which include: Interactions Between Staff and Children, and Among Children, Curriculum and Assessment, Physical Environment, Family Involvement, Staff Qualifications and Staff Development, Group Ratio and Size , Health and Safety, Nutrition and Food Service , Transportation , Administration,

and Accreditation and Evaluation. For the goal of this work, I will focus in on 'Curriculum and Assessment'.

Massachusetts Standards require that the curriculum should be designed for active involvement by children in the learning process, recognizing that young children learn through play, active manipulation of the environment, concrete experiences, and communicating with peers and adults. However, the term 'play' isn't clearly defined, therefore leaving room for programs to manipulate the term to meet their needs. The state also created the Massachusetts Guidelines for Preschool Learning Experiences that directly relates to the curriculum, in which they do define 'play' loosely as children using materials and equipment in ways that best suit their personal curiosity and understanding. The Massachusetts standards require that programs implement a research and evidence based curriculum, while also using an assessment tool to track children's progress. There are no other guidelines or stipulations that the curriculum chosen must meet, therefore both academic and play based curriculums are options. With no real restrictions or clear definition of the developmentally appropriate learning environment, academic preschools have taken precedent.

Creating a Pilot for Change:

In my role as the Education and Operations Manager at a large Head Start preschool program in Lowell, Massachusetts, I oversee 4 center based programs. Currently, the Head Start performance standards are aligned with the Massachusetts Standards and Guidelines, requiring that programs must implement developmentally appropriate research-based early childhood curriculum that are based on scientifically valid research. However, the Head Start performance

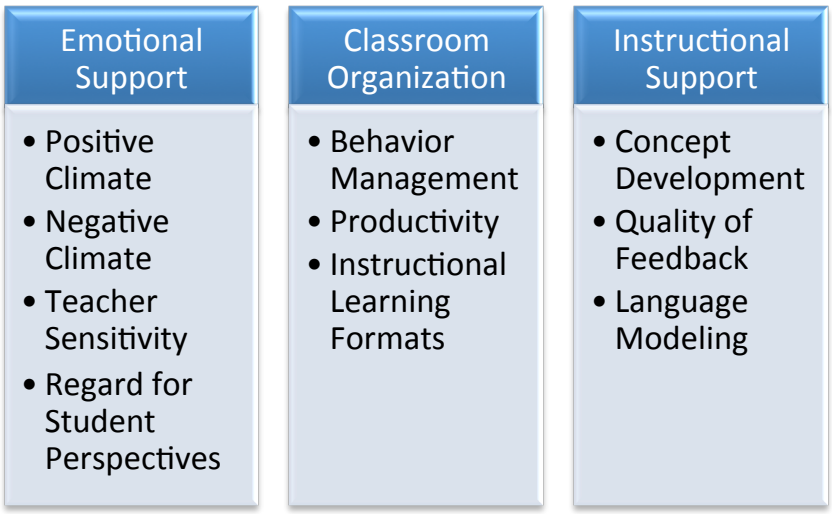
standards also state that a program can make adaptations to a curriculum to better meet the needs of the population. Using this leverage, I began working on a pilot play based preschool classroom in one of programs in late September 2017. Currently my program uses the Creative Curriculum; however, it is implemented much more in the style of academic teaching. After proposing my ideas on the pilot classroom to the educators in my programs, I began work with a set of teachers interested in piloting the play based classroom, as well as set of teachers who agreed to be the academic setting control group, in which we would compare our data. As a team, we met on a weekly basis to determine what adaptations we needed to make in order to create a play based environment, while still meeting the standards and guidelines from the state of Massachusetts and the Office of Head Start. Together we created our goal for the year, including benchmarks to track progress.

Goal: The team will demonstrate that school readiness is achievable through play based learning environments that meet the required standards and guidelines.	***Expected Date:*** ***June 2018***
Benchmark 1: • *Creative Curriculum will be implemented in an open ended environment in which children can explore as a choice.* • *Classroom schedule will be altered to support more choice and autonomy.* • *CLASS observation will be completed in September & December on Educators; results compared to control group and shared.* • *Children's outcomes from Teaching Strategies compared to control group in September & December.* • *Create action plan for improvements needed.*	***December 2017***
Benchmark 2: • *Determine progress of action plan.* • *Teacher interviews in pilot and controlled classroom.* • *Revise action plan if needed.*	***February 2018***
Benchmark 3: • *CLASS observation will be completed again on Educators; results compared to control group and shared from September until now.* • *Children's outcomes from Teaching Strategies compared to*	***April 2018***

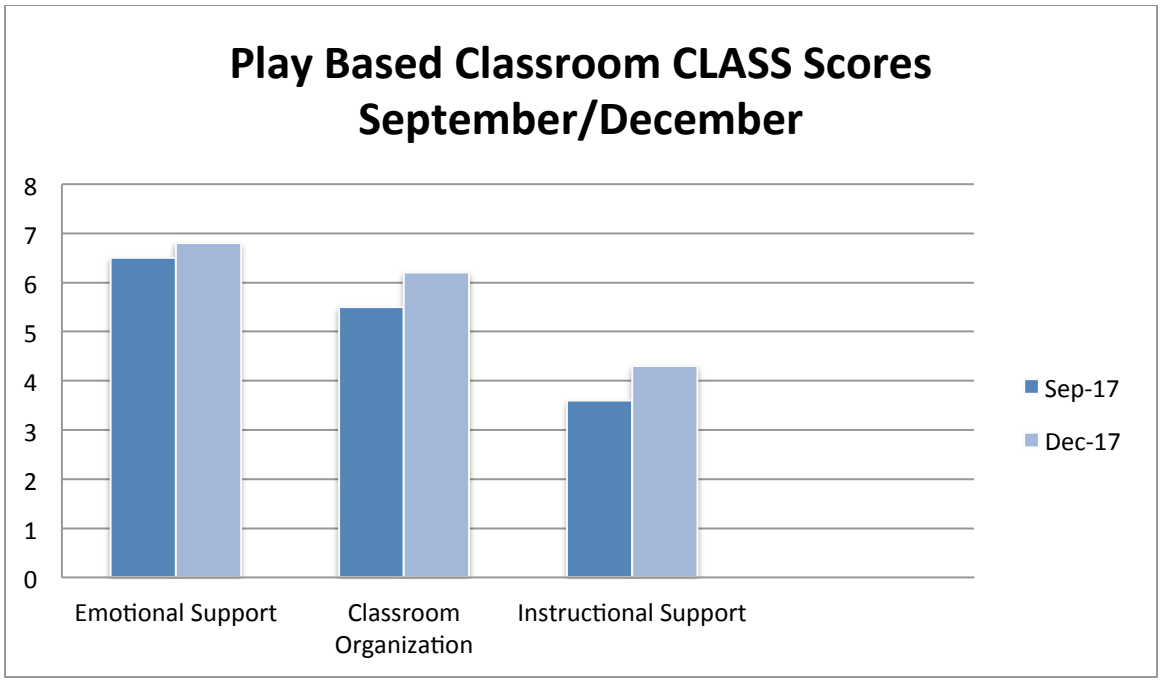
control group from September until now. • *Create a plan for change.*	
Benchmark 4: • *Propose plan for change to leadership team.* • *Invite 2 more pilot classrooms to join.*	***June 2018***

CLASS:

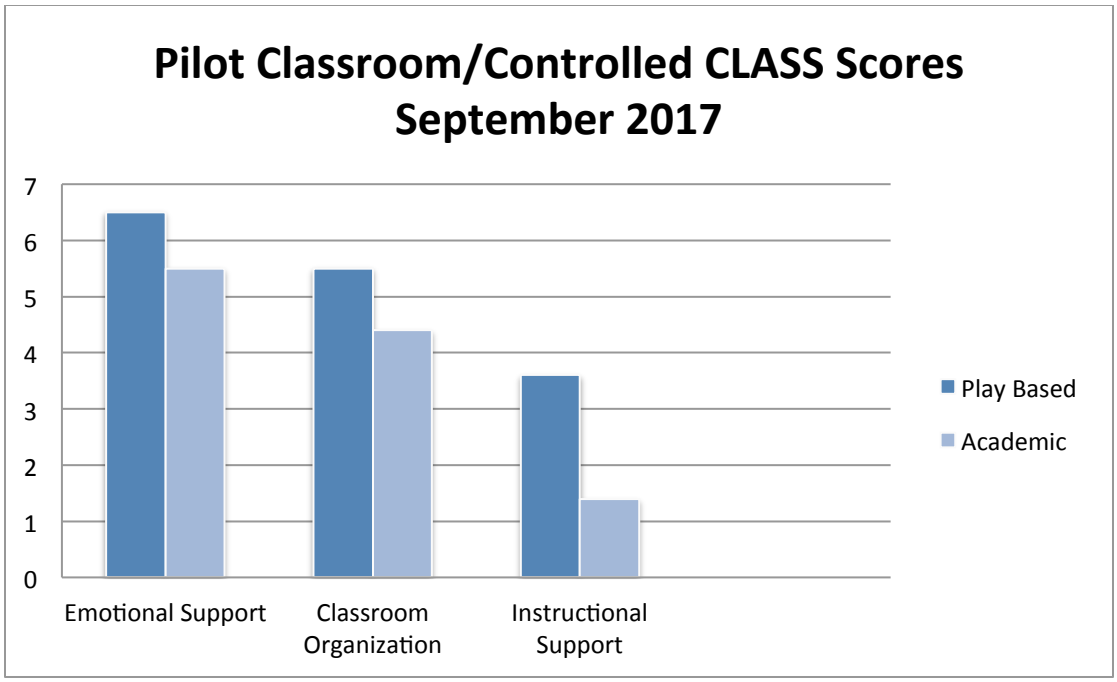
In an effort to measure the progress and success of the pilot classroom, the Classroom Assessment Scoring System (CLASS) will be conducted 3 times this school year; September, December, and April. The CLASS observation will be used in both the pilot play based and controlled academic based classroom to compare data. CLASS is an observational tool used to measure classroom quality and teaching practices in grade levels ranging from preschool to high school. CLASS observers must be trained and certified in order to conduct the observation. The main focus of the observation is on teacher-child interactions and how the teacher creates an engaging learning environment. The tool is broken down into 3 dimensions which include: Emotional Support, Classroom Organization, and Instructional Support. The scores range from 1-7, with a 1 indicating that something was not observed and 7 being consistently observed. The observation is done in 6 20 minutes cycles and scores are averaged. The table below highlights the 3 dimensions and a breakdown of the indicators that an observer would be looking for during a CLASS observation.



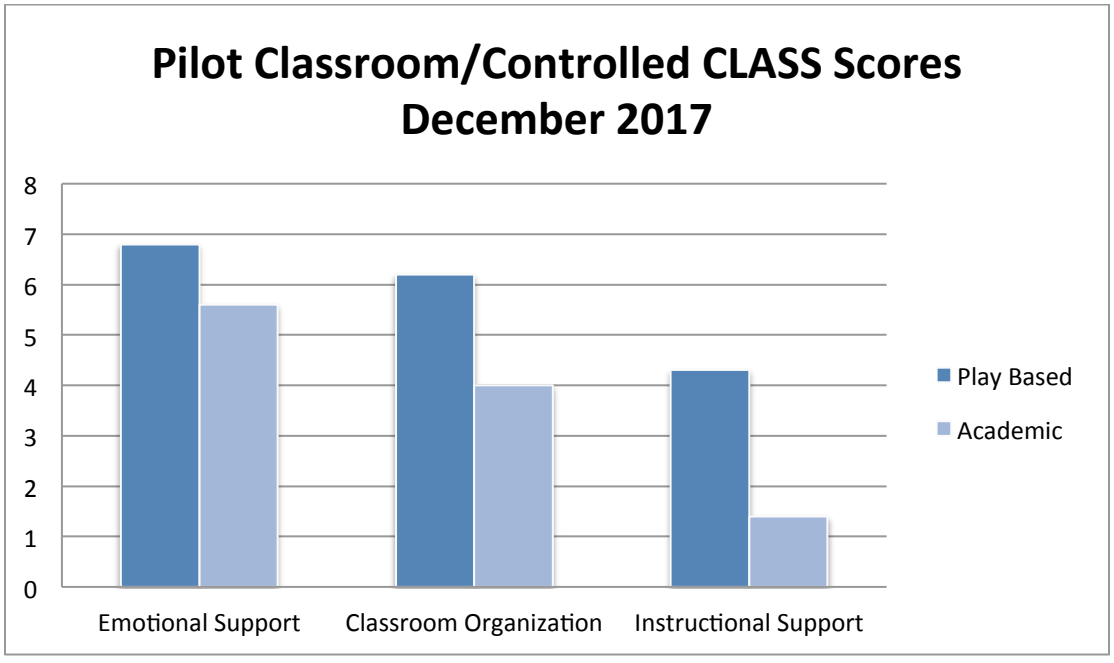
Below the table highlights the pilot classroom scores comparison between the September and December observations. There were small gains in all areas of the CLASS observation within just the short 3 months of changes in teaching style. Instructional Support focuses largely on teacher practices and critical thinking skills and while the observation showed growth from a 3.6 in September to 4.3 in December, that still falls into the mid-range in terms of scores, indicating that the observer was able to see these skills demonstrated some of the time, but not consistently. However, with the positive incline in such a short time, I am hopefully that the scores will continue to increase for the April observation in 4 months. This data is useful for the pilot classroom educators, as it allows them to create an action plan to increase their scores.



The next table compares September scores in both the pilot and controlled classroom. These scores show that the pilot classroom was already scoring higher than the controlled classroom within the first few weeks of implementation. In September the controlled classroom scored 1.4 in Instructional Support, which indicates that these skills were not observed, while the pilot classroom was already exhibiting some of these skills at a 3.6. While it is positive to see that pilot classroom performed higher during the first comparison, it also does raise the question as to whether the pilot classroom started with an advantage over the controlled classroom.



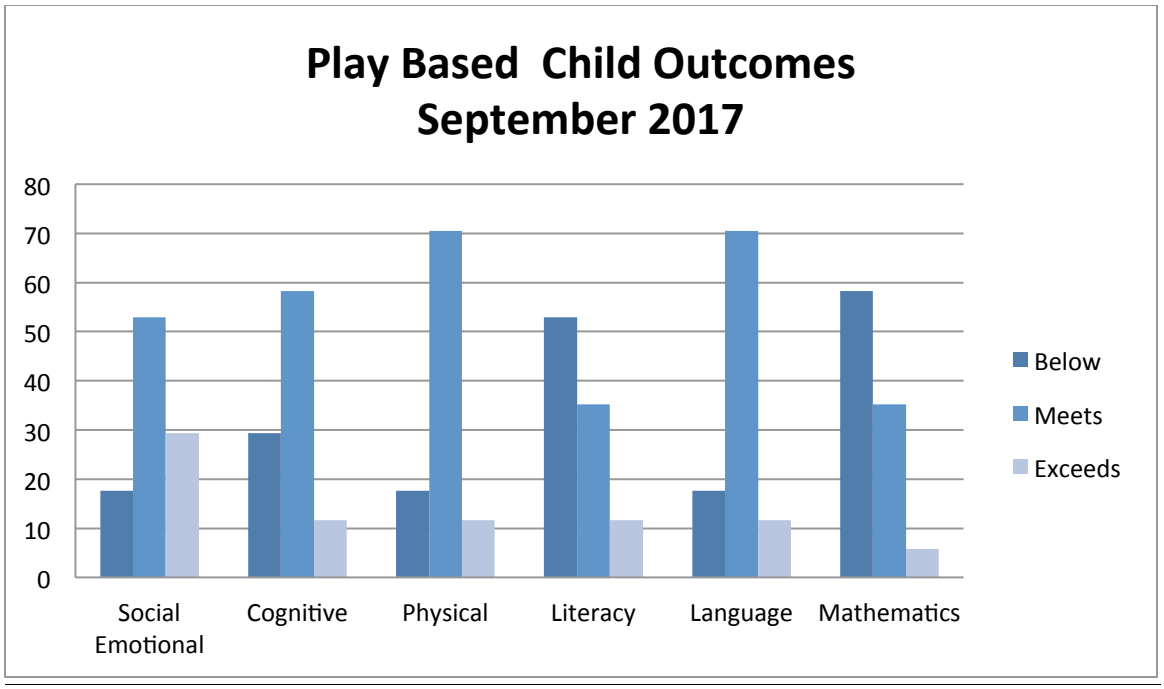
The final table highlights a comparison of December scores between the pilot and controlled classroom. The controlled classroom scores stayed pretty much consistent from September to December, where the pilot classroom saw gains in all areas. Again, the pilot classroom scored higher in all areas compared to the controlled classroom.

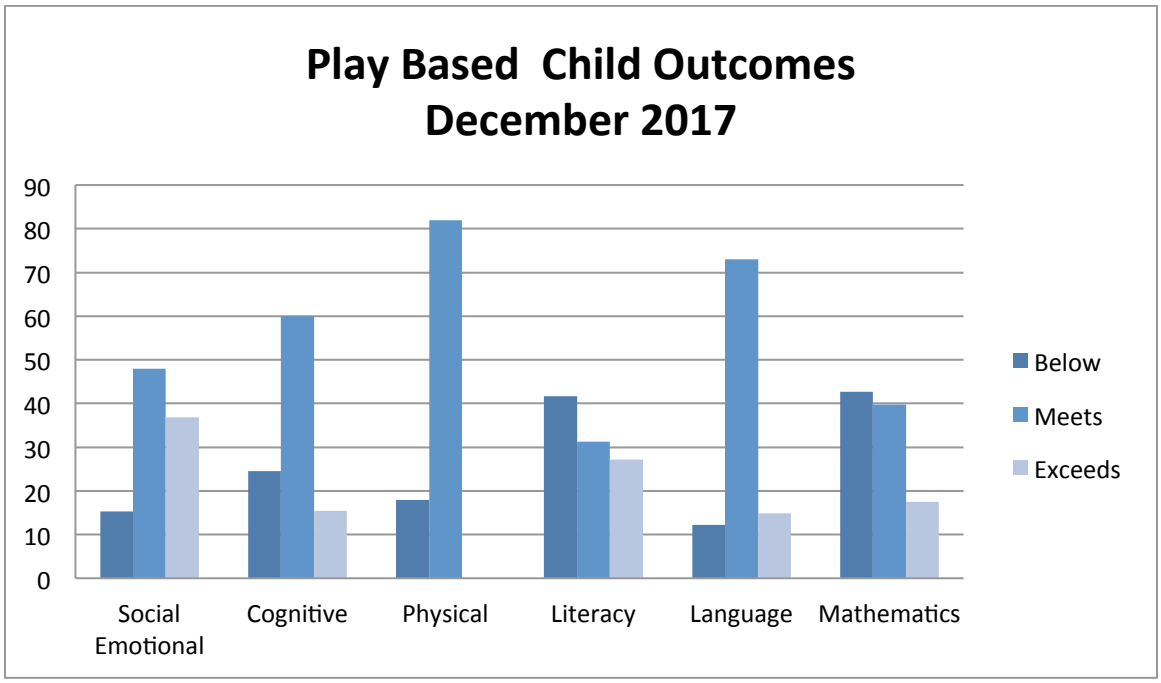


The CLASS scores indicate that there has been a positive impact, although small, in the pilot classrooms modification of their teaching style. When the educators provided more open ended activities and opportunities for free exploration, the ability to offer high quality feedback and higher order thinking became more consistent. This data provides us with information on the educators in the classroom and their capacity to adapt their classroom environment to support the children. However, the biggest piece of data that will help determine the positive effects of a play based environment will be analyzing the children's progress in the pilot classroom from September, prior to the implementation, to December, 3 months after. To get a sense of the children's progress in the classroom, we will need to look at other sources.

My Teaching Strategies:

Individual child development outcomes will be analyzed in the pilot play based classroom in September, December, and April to track children's progress using the My Teaching Strategies database. My Teaching Strategies is an online platform that provides educators access to tools and resources for supporting teaching, assessing, reports, professional development, and family engagement. Each quarter, the children are assessed using the My Teaching Strategies data base. Throughout each quarter, teachers observe and track the progress of each child and enter the info into the system. The children are observed and assessed in the areas of social emotional, cognitive, physical, literacy, language, and mathematics. Each area is broken down into learning objectives, in which educators is able to go in and use their own observation data to determine if the children are below, meeting, or exceeding expectations in each objective in relationship to their appropriate age level. The two charts below show the child outcomes data from the children enrolled in the pilot classroom in September and December.





The data from these charts highlight some pretty exciting results that show in favor to play based learning environments. The percentage of children exceeding in the area of Social Emotional jumped from 29.4% to 36.8% from September to December. There was also a

decrease in this area for the percentage of children who fell below expectations.. Cognitive data also shows that the percentage of children below expectations shifted from 29.4 % to 24.5%. There biggest increase was seen in the area of Literacy which went from 11.7% to 27.2% exceeded expectations. The second largest was in the area of Mathematic, where the percentage of children below went from 58% to 17.5%. The only area that showed a decrease was in the area of Physical Development, where September showed 11.7% children exceeding, however this number dropped to 0 in December.

What is the Data Telling Us:

The data from both the CLASS observations and child outcomes shows in favor that there is a benefit to play based learning environments in preschool. The educators were able to demonstrate their ability to offer more concept development opportunities, which proved beneficial to the progress of the children. In only 3 months, such positive data is promising in that it will only continue to improve and increase awareness of the benefits of play based preschool. The pilot classrooms is an example that preschool classrooms are still able to meet state standards and guidelines, while offering a more open ended curriculum and individualized approach to learning. Children are already using critical thinking skills in their everyday life and the benefits of incorporating critical thinking skills in the classroom allow for consistency, as children are observed using these skills already outside of the classroom. Classroom environments can be adapted to enhance, support, and encourage critical thinking by making classrooms opened ended with materials that allow children to explore freely. (Davis-Seaver, 1994) Children's critical thinking skills develop at different rates and ages which are dependent on their experiences and exposure they have had to open ended play and free exploration.

Children who are given opportunities to use critical thinking skills such as problem solving, collaborating and designing during their play are having meaningful and last learning experiences.

Plan for Practice:

The work for this project simply cannot stop here. While we are pleased thus far with the work and data that has presented itself, there is so much more that can and needs to happen. In April, we will again conduct a CLASS observation, as well as compare child outcomes to see the progress and growth during a longer span of time. Once we have the data collected and analyzed in April, we are planning to present this pilot classroom and its results to the leadership team within our program. It is our hopes that they too will see the benefits of incorporating critical thinking skills in the preschool classroom in the setting of a play based environment. We will propose to the team that we open 2 more pilot play based classrooms in the Fall of 2018 to track and monitor progress. The educators, as well as myself, who have already participated in the pilot will help to develop a training plan for the new pilot classroom educators, as well as to utilize for all staff in the future. Ultimately, our end goal is to offer a fully play based, high quality, Early Childhood Program.

References

Aubrey, C., Ghent, K., & Kanira, E. (2012). Enhancing thinking skills in early childhood. *International Journal of Early Years Education, 20*(4), 332-348.

Barblet, L., Knaus, M., & Barrat-Pough, C. (2016). The pushes and pulls of pedagogy in the early years: Competing knowledges and the erosion of play-based learning. *Australasian Journal of Early Childhood, 41*(4), 36-43.

Cooper, P. M. (2013). *The classrooms all young children need: lessons in teaching from Vivian Paley*.

Conkbayir, M., & Pascal, C. (2015). *Early childhood theories and contemporary issues: an introduction*.London: Bloomsbury Academic.

Curtis, D., & Carter, M. (2005). Rethinking Early Childhood Environments to Enhance Learning. *YC Young Children,, 60*(3), 34-38.

Davis-Seaver, J. (1994). Critical Thinking in Young Children (Doctoral dissertation, University of North Carolina) [Abstract]. (UMI No. 9520525)

Fernández Santín, M., & Feliu Torruella, M. (2017). Reggio Emilia: An Essential Tool to Develop Critical Thinking in Early Childhood. *Journal of New Approaches in Educational Research, 6*(1), 50-56.

Fuller, B., Bein, E., Bridges, M., Kim, Y., & Rabe-Hesketh, S. (2017). Do academic preschools

yield stronger benefits? Cognitive emphasis, dosage, and early learning. *Journal of Applied Developmental Psychology, 52*, 1-11. doi:10.1016/j.appdev.2017.05.001

Hassinger-Das, B., Hirsch-Pasek, K., & Michnick Golinkoff, R. (2017, May). Retrieved October 20, 2017,from http://www.naeyc.org/yc/article/case-brain-science-guided-play

Kaldor, T. (2017, February 1). The T in STEM: Creating Play-Based Experiences That Support Children's Learning of Coding and Higher Order Thinking. Retrieved October 16, 2017, from http://www.naeyc.org/blogs/early-coding-higher-thinking

Kennedy-Behr, A., Rodger, S., & Mickan, S. (2015). Play or hard work: Unpacking well-being at preschool. *Research in Developmental Disabilities, 38*, 30-38. doi:10.1016/j.ridd.2014.12.003

Rainer Dangle, J., & Renee Durden, T. (2010). The Nature of Teacher Talk During Small Group Activities. *YC Young Children,, 65*(1), 74-81.

Ramani, G. B. (2012). Influence of a Playful, Child-Directed Context on Preschool Children's Peer Cooperation. *Merrill-Palmer Quarterly, 58*(2), 159-190.

Roden, T., & Szabo, S. (n.d.). Play Workshop: Changing Preschool Teachers' Ideas about Play in the Curriculum. *The Delta Kappa Gamma Bulletin: International Journal for Professional Educators*.

Satlof-Bedrick, E., & Johnson, C. N. (2015). Children's metacognition and mindful awareness of breathing and thinking. *Cognitive Development, 36*, 83 92.doi:10.1016/j.cogdev.2015.09.011