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## Chapter

# Opportunities in the Odds; Exploring Adult-Child Interactions and Their Effects on Children's Cognitive and Learning Progress

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## Abstract

This chapter aims to raise awareness on the influence that small changes in adult-child interactions can have on children's cognitive and learning progress. The authors address learning opportunities found through the odds of conventional teaching in an early childhood setting. In an effort to promote good thinking that develops language and cognition in young bilingual children, the authors participated in an action research experience that taught them the benefits of empowering teachers when making curriculum and pedagogical decisions. Teacher preparation and high-quality coaching that emphasized the idea of teaching for understanding Blythe et al. while making thinking and learning visible are vital components for an ever-changing environment. The use of documentation, and asking good questions were important aspects to engage disengaged children and teachers.

**Keywords:** questioning, visible thinking, documentation, disposition, cultural forces, flexible planning and coaching

## 1. Introduction

Childhood and teaching have been radically changing in the past few decades. Despite the efforts to implement developmentally appropriate practices and promote good thinking in the classroom, there are increasing gaps between theory, research, and practice. From a pragmatic perspective, the role of the early childhood educators still seems to be debated. Testing pressure (even at young ages), low teacher salaries, and knowledge-based school readiness occupies a high level of attention from administrators, teachers, and even parents. Consequently, quality of education is then compromised [1].

This chapter aims to contribute lessons learned in an action research experience conducted in a preschool that involved teachers who previously participated in professional development courses through a college and their center. It shows evidence that even small changes in adult-child interactions make a difference.

## 2. Theoretical framework

Upon collecting data from initiatives that implemented innovative ideas in the classroom, Perkins and Reese [2] used the metaphor, “When Change has Legs”, to explain what makes innovative ideas happen. In their research they identify four legs that are necessary to achieve targeted changes; frameworks, leaders, community and institutionalization.

- Frameworks: teaching and learning frameworks.
- Leaders: the literature in both education and the corporate world emphasizes the importance of leaders inspiring and guiding initiatives. There is a practical visionary (usually a teacher or team of teachers) and a political visionary (typical the principal).
- Community: community of teachers, school leaders, and beyond who create a collegial culture.
- Institutionalization: once an innovation has proven effective over 2 or 3 years, it is easy to assume that the innovation is there to stay.

For this study we used the Making Thinking Visible framework. We highlighted the cultural forces developed by Ritchhart et al. [3] including the quality of questioning, documentation, and the teaching for understanding framework. The research team acted as the practical visionary. In an effort to observe the efficacy of the professional development in teacher’s practice and coach teachers to implement what they learned, we found circumstances that delayed teachers to continue growing in the profession and consequently affected the quality of service provided to the children. Despite the efforts to engage the administration in the study, we were unable to have a political visionary.

There was limited room for developing community and institutionalization in the setting. However, the authors’ contribution to this chapter is to share that despite the odds, it is possible to make changes and invite leaders and community to reflect on their role in transforming society. We want to emphasize the importance of good coaching to improve teacher practice. No one can change a teacher’s paradigms; it is their responsibility to make the changes. Salmon [4] claims that good coaching cannot either ignore the teacher’s theories about teaching, learning, and experiences, but can walk with them from their starting point and give them the time to construct new knowledge, just like the children.

In the up forth mentioned courses, there was an emphasis on teaching students to think and become metacognitive, being aware of their thinking. Good thinking is essential to develop language and cognition in first and second language. However, children often lack the metacognitive skills they need to succeed because cognition and metacognition are barely taught in the classroom.

### 2.1 Making Thinking Visible

The Visible Thinking Approach is a flexible and systematic research-based conceptual framework that aims to integrate the development of students’ thinking with content learning across subject matters [5]. The framework values student thinking, promotes it, and makes it visible. Vygotsky [6] claims that children grow

in the intellectual life of those around them. Adults play an important role in scaffolding children's thinking and learning. To help adults understand their roles in valuing, and teaching good thinking, Ritchhart [7] proposed cultural forces that could shape a classroom's culture. He stated that we must understand how group culture is created, sustained, and enhanced. This is not only about good thinking but fostering dispositions of thinking [8]. It is not realistic for teachers to offer a class about teaching creativity, but teachers can certainly enculturate good thinking in the different classroom experiences. Therefore, Ritchhart developed eight cultural forces:

- **Expectations:** adult expectations about the students' potential is critical. High expectations demand more from the students, while low expectations hinder students' right to learn.
- **Opportunities:** when teachers have high expectations, they will provide students with opportunities to think and learn. High quality performances involve good thinking.
- **Routines and structures:** adults who value thinking find the use of strategies that promote thinking useful. Thinking routines leverage students' thinking to the next level and promote high quality adult-child-interactions.
- **Thinking routines** are two or three step process that cue up cognitive behaviors related to good thinking. For example, close observation using *Zoom in*. This is a strategy that invites students to pay close attention to details and make inferences while using one section of an image at a time. Thinking routines should be used repeatedly in order to develop patterns of thinking.
- **Language and conversations:** it is important for children to use language of thinking in conversations. Children become metacognitive by using language of thinking. As children hear cognitive processes that accompany these labels, they will internalize the words and use them as part of their own vocabulary. Teachers should give specific instruction in those cognitive functions so that students possess experiential meaning along with the terminology.
- **Modeling:** children learn from what they see. Teachers' actions give children messages; we want them to see how thinking facilitates learning. Modeling is who we are as thinkers and learners.
- **Interactions and relationships:** all children can think; thus, teachers should create an environment of trust, respect, and perspective taking. This is related with listening and questioning.
- **Physical environment:** educators in Reggio consider the environment a third teacher. This innovative educational philosophy originated in Reggio Emilia, a small city in Italy, values the power of the environment to determine the culture and identity of the classroom. When teachers capture children's thinking processes in artifacts, photographs, videos, and so forth, they are sending the children the message that their thoughts are valued and respected. Children, teachers, and parents can revisit and learn from these forms of documentation.

- Time: children need time to think and reflect about their learning. Deep learning takes time and teachers should give students time to focus on conceptual understandings by finding evidence and applying these conceptual understandings.

## 2.2 Typology of questions

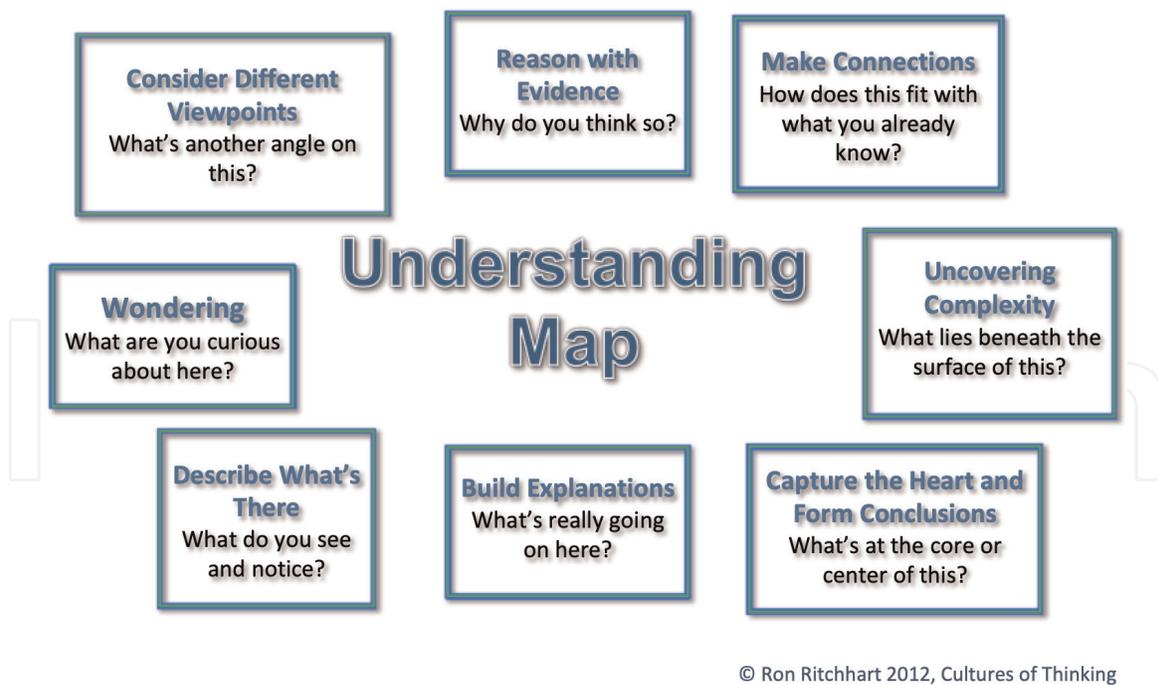
Questioning is an important component to promote good thinking. The quality of adult-child discourse is shaped by the type of questions that teachers ask. Through the questions that teachers ask, they communicate with their students their expectations for thinking. Inviting children to ask good questions sparks their curiosity and helps them become more metacognitive. When a child understands their thinking process, they gain the ability to learn how to learn. Ritchhart [9] considers questions as culture builders, for him, questioning is the chief way in which teachers and students interact around content. Ritchhart [9] proposes the following typology of questioning in the classroom:

- Review: recalling and reviewing of knowledge and information. This involves questions that produce terminology, procedures, content, events, and context.
- Procedural: directing the work of the class by going over directions and assignments, clarifying, checking for attention and agreement, task completion, and organizational and management related questions.
- Generative: exploring the topic. There are authentic questions or wonders that teacher do not know the answer to and essential questions that initiate exploration of a topic.
- Constructive: building new understanding. These questions extend & interpret, connect and link as well as orient and focus big ideas, central concepts, or purposes.
- Facilitative: promotes the learner's own thinking and understanding. These questions request elaboration, reasons, evidence, and justifications. They generate discussions among the class to hear different perspectives while clarifying and uncovering new ideas.

## 2.3 Teaching for understanding framework

Teaching for understanding (TfU) is a framework for thinking. Starting from differentiating knowledge from understanding, it is a guide that can help students learn concepts in depth and then transfer those concepts to another context. TfU is a collaborative approach for effective teaching that was developed, tested, and refined by Project Zero researchers at Harvard Graduate School of Education along with many experienced teachers and researchers [4]. The framework can help keep the focus of educational practice on understanding, while allowing teachers flexibility to design units that fit their priorities and teaching style.

TfU and Making Thinking Visible are two frameworks that complement each other. Both focus on thinking towards understanding. The TfU framework helps educators design curriculum while Making Thinking Visible and cultural forces provide strategies and conditions to promote thoughtful performances of understanding. TfU engages students in deep understanding as a result of good thinking.



**Figure 1.**  
*Understanding map.*

By answering questions from an understanding map (**Figure 1**), children can deepen their learning and go beyond knowledge.

## 2.4 Learning community of practice

A learning community of practice is created by people who engage in a process of collective learning in a shared interest. Teachers are often products of experiences and tend to teach using the ways they were taught [10] unless they are challenged to bring new ideas and theories to their classrooms as a result of their education. The art of teaching is a permanent invitation for teachers to reflect on their practice in connection with theory and their beliefs [11]. According to Ferrance [12], learning communities of practice benefit from action research that can be: individual teacher research, collaborative action research, schoolwide, or district research.

American psychologist and educational researcher Seymour Sarason [14] claims that when you ask teachers to justify the existence of schools, the answer will be that it is for students; it is not for the learning and development of teachers.... Yet, if contexts for productive learning do not exist for teachers, teachers cannot create and sustain those contexts for students.” Learning communities of practice leverage teacher knowledge and empower them to lead their own learning. This is critical for teachers so they can make their own decisions and understand the implications of their teaching in children’s learning and growth.

## 3. Methodology

This chapter refers to an individual teacher research focusing on the quality of adult-child interactions of three teachers from a 3-year old and 4-year old classroom. The research team and teachers focused on creating awareness of cultural forces, the quality of questions, and reflective sessions to improve adult-child interactions.

The research team contributed to this study with a leadership role as well as participant observers. This role involved working with the teachers and making efforts to encourage administrative participation as a means of creating long lasting change.

Their goal was to empower teachers to make curriculum and pedagogical decisions, reflect on the type of adult-child interactions they have, and reflect on the quality of questions that lead to thoughtful conversations. The research team worked with the teachers to create a sense of community by engaging teachers and administrators in reflective sessions to analyze their interactions with their students.

During class sessions, the research team documented class activities with field notes and videos. Teachers were then invited to reflect on their practice during reflective sessions in which the field notes and videos were reviewed and reflected upon using a ladder of feedback structure. The meeting times were limited; however, this was a risk-free environment open for teachers to share anxieties and accomplishments while receiving support for their efforts to implement new ideas.

During the gatherings, the research team attempted to model what they wanted the teachers to do. The research team recognizes the value of team work and how constant work must be done to evolve and improve on these practices. Resources utilized for reflective sessions included Cultures of Thinking, Making Thinking Visible, and the typology of questions to promote good thinking in the classroom.

### **3.1 Setting**

This study took place in a learning center located in a shopping mall in a middle-class neighborhood serving young children from 3 months old to 10 years old. The center was randomly selected based on the participation of at least one teacher in sponsored professional development courses at a higher education institution offered by the Children's Trust, an initiative dedicated to improving the quality of child services. This learning center follows the High Scope Educational Curriculum, a program intended to create learning opportunities for children by actively involving them with their environment. This includes allowing children to make decisions and plan how they would like to interact with people, ideas, materials, and events as a means of pursuing their own interest. Spaces in the school are organized in a manner that facilitate this process. These spaces focus on subjects such as literature, science, creative art, dramatic play, as well as cognitive and motor development. The school is accredited by the National Association for the Education of Young Children (NAEYC) and Apple. The schedule implemented in this learning center was one of continuous changes from one activity to the next (**Figure 2**).

### **3.2 Participants**

Three teachers were observed. To protect the identity of these educators they were given pseudo names: Iris, Ana, and Marta. Marta participated in professional development courses provided through a higher education center in which one of the research team members was the instructor. This teacher led the 3-year-old classroom alongside Ana. Most students in this room were 3 years-old with the exception of a few younger students about to turn three and others that had just turned 4. Iris led the 4 year-old classroom that had students from age 4 to 6. The study was initially made up of 40 students. A few new students were brought into the rooms, either permanently or temporarily during the observations. The children

Garden Room Daily Schedule	Pre-K 3
6:30-8:00	Arrival Time/Free Play/Restrooms
8:00-8:30	Breakfast
8:30-8:45	Wash-up/Restrooms
8:45-9:00	Circle Time/Language/Music/Movement/Restroom
9:00-9:30	Outdoor Activities: Gross Motor/Free Play/Language
9:30-9:45	Restrooms
9:45-10:00	Small Group Activity
10:00-10:15	Planning Time
10:15-11:00	Learning Centers
11:00-11:15	Recall Time
11:15-11:30	Wash-up/Restrooms
11:30-12:00	Lunch
12:00-12:15	Wash-up/Restrooms
12:15-2:00	Naptime/Music/Quiet Activity
2:00-2:15	Wake-up/Restrooms
2:15-2:45	Snack
2:45-3:00	Wash-up/Restrooms
3:00-3:30	Outdoor Activities: Gross Motor/Free Choice/Language
3:30-3:45	Restrooms
3:45-4:30	Free Play
4:30-4:45	Clean-up/Restrooms
4:45-5:15	Story Time/Music/Movement
5:15-6:30	Quiet Activity/Dismissal

**Figure 2.**  
*Schedule.*

came from diverse backgrounds: American, African American, Latinamerican, and Indian. Most students were bilingual, with the expectation of two that spoke only English.

### 3.3 Data collection

For 6 weeks the research team visited the classrooms twice a week for almost 3 hours during circle time, planning, morning movement ritual, outdoor time, relaxation time, and time in learning centers. Data were collected through videos that captured circle times, field notes that included the teachers' closing remarks, final observation notes, reflective session notes, and photos that illustrated visible thinking documentation found in the classrooms as well as images of certain interactions between the students and teachers. Video recordings were edited for analysis to highlight meaningful interactions. The analyzed recordings ranged from 9 to 16 minutes in duration.

### 3.4 Data analysis

The research team processed collected data using ATLAS.ti 8.2.3. Data were categorized using Ritchhart's cultural forces, the typology of questions, and the types of thinking that are part of an Understanding Map [2]. Codes were created and used to analyze collected data for the presence of cultural forces. Codes consisted of: environment, changes in concepts, expectations, interactions, language, modeling, opportunities. This analysis was conducted with the intent to provide a glimpse into the possibilities held when exploring opportunities in the odds of adult-child interactions and the outcomes they can have on children's cognitive and learning progress with the implementation of high-quality coaching that empowers educators when making curriculum and pedagogical decisions.

## 4. Findings

The research team witnessed the development of various cultural forces as a result of coaching teachers to leverage thinking in the classroom and encouraging them to reflect on their practice. Due to various changes that occurred during the collection of data, the research team determined that providing hard numbers for the outcomes seen could be misleading, therefore a decision was made to provide a fully qualitative description of the most common advancements that occurred. In a short time, the teachers became aware of the importance and impact of cultural forces in children's learning such as those of expectations, interactions, questioning, listening, opportunities, thinking routines, environment, and time. The teachers uncovered how these cultural forces become intertwined among each other. All these cultural forces came to light as can be seen by the stories that will follow, but certain combinations of some of these forces were more prominent.

### 4.1 Finding from the cultural forces lenses

#### 4.1.1 Expectations

The research team emphasized a child-centered approach that values thinking and promotes it. Upon reflecting on the teacher's role in fostering thinking in children, a shift was seen in one of the teachers. One of the challenges when planning curriculum is time. You need to take time to be more thoughtful in the process of curriculum development to get more information from students and promote their thinking. Upon coming to such a realization Marta noted how it was no longer about having students do things such as drawing, for example, a little house. She said, "now we ask how did you come up with a house? How did you make it? and so forth". The challenge is to create better questions, to step back and let the children take control.

The expectations were not only about the children, but also the teachers themselves. Iris became more reflective and intentional about her teaching. In one occasion, during circle time, when she was asking the children questions, she noticed that her questions were not engaging, and the children were losing focus. This prompted her to involve the children by telling them, "Listen please, I need your heads". The research team interpreted this action as the teacher's efforts to empower children by inviting them to participate.

#### 4.1.2 Opportunities

Implementation of rich thinking opportunities in which teachers ensured that students were actively engaged in metacognitive processes throughout planned experiences, rather than simple completion of activities were observed. During one instance Iris invited her students to draw their thinking while discussing their seed planting process. Salmon's [13] study states that a "drawing and telling" technique helps children deepen their thoughts. Iris asked the children: "how do you think your plant is growing? We will draw it." As a result, this aided students by providing them with a visual of what they were experiencing metacognitively. Daisy, one of Iris' students held up her drawing that depicted a small plant submerged in dirt and stated, "I think it's growing, but it's just inside the dirt". The researcher asked, what makes you say that? To which Daisy responded, "because I was observing my plant and can't see it, I imagine it was growing" (**Figure 3**). This example highlights



**Figure 3.**  
*Daisy explaining her hypothesis.*

the importance of creating opportunities for children to develop and practice metacognitive abilities as well as language of thinking.

#### *4.1.3 Routines and structures*

The process of using thinking routines allowed teachers to dedicate a specific amount of time for students to think, make observations, use the language of thinking, and listen to one another. During one observation, the research team witnessed the implementation of a “Zoom In” routine.

Marta began the process by sharing with her students that she had something to share with them, but it was hidden behind a plain piece of paper and that she did not know what it was. She then proceeded to guide the students by telling them to observe a small portion of the item after exposing part of it. “What do you observe?”, she asked.

Many of the students responded, “with our eyes!” Marta acknowledged their statement by nodding and responding with, “let’s think, what could it be?”. She lowered her voice and once again asked, what the object could be while allowing time for the students to look at the small area that was visible. After some time one student spoke up and said, “I see a mouth”. Marta responded, “you see a mouth?” as she moved the hidden item closer for the students to have a better view of it. The children silently observed what Marta held in her hands. She then asked, “where do you see a mouth? Is this a mouth? Do you think this is a mouth? Angel, do you think it is a mouth? What do you see?” Another student, Daniela responded, “a house”. Marta then stated, “Daniela thinks it is a house. Why do you think it is a house?”. Daniela responded, “because I like houses”. Marta pressed further, “what do you observe?”. Daniela responded, “because there are windows”. The teacher went on to explain to the other students that Daniela thought the item was a house because she could see windows and windows would not be found somewhere else, like the floor. After doing so she went on to individually invite other students that had been sitting quietly by asking them what they observed. When the full image was finally revealed, it was actually an image of horses. This dialog of sharing what the other students saw and why they thought what they saw was valid continued. Some students noted a specific color that could be seen while others noted more concrete images such as a window or a door. As time went on and thinking routines became more readily practiced the teacher noted its effect on the daily experiences faced in the classroom. Marta shared with us how using these routines helped planned experiences. She said, “it flows better, in how they (the students) participated more, they waited for their turn to share, they were engaged. The most important

thing I have learned by using these thinking routines has been how I can see what my students are thinking, how they think, and I have come to the realization that they can say incredible things”. Ana noted how the routines extended her students’ abilities to think beyond the obvious. “I learned how to help the children express their thinking, expand their thinking and their vocabulary and make connections by using these routines”.

#### 4.1.4 Language and conversations

While analyzing language and conversations the research team noted an increase in the use of verbiage that supported thinking. Teachers began making efforts to use this language and encouraged students to expand their responses by using them. Using questions such as “what did you see in this little plant, what did you observe?” and phrases such as, “you are connecting!” when responding to one student’s comment about the safety symbols being studied indicated the teachers attempts to name the students’ thinking. The previously mentioned instance occurred as Iris held up a phone symbol. The student connected back to the poisonous symbol Iris held up earlier during circle time and said, “If that person gets that potion and they die and they call the emergency”. Iris followed this statement with, “you are connecting, you are right!” Connecting is a thinking word.

#### 4.1.5 Modeling

Actions such as the teachers showing their students that they are also learning with them was also witnessed by the research team. During one circle time the group shared flowers with one another. As the flowers were being passed around one student, Chris exclaimed, “This paints! This little thing paints!”. Marta the teacher responded with, “why does it paint?” and Daniel stated, “Because look, it got me dirty”. At that moment Marta exclaimed, “Ah! You touched it and it painted you! I didn’t know flowers could paint!”.

#### 4.1.6 Interactions and relationships

Adult-child interactions that emphasized respecting one another’s thoughts and that indicated that students are their own leaders and elaborate on their ideas were witnessed. Instances in which the teachers emphasized listening to one another and interactions that show genuine interest in what students want to share support these notions as could be seen in the following transcription that occurred one morning while discussing the weather:

*Marta: Winter!*

*Students: Winter!*

*Marta: Where there is a little bit of cold. Here in Miami there is a little.*

*Child 1: Teacher, when its cold snow comes out, snow!*

*Marta: Yes! In other states where snow falls. Here in Miami snow does not fall. We need to go to other states where there is snow.*

*Child 1: Yes.*

*Marta: To see snow men.*

*Child 2: I like it!*

*Marta: Lets listen to what Fia is saying.*

*Child 3: I was throwing snow at my dad. On his body.*

*Marta: Fia did go! Where did you go with daddy?*

*Child 3: With my grandma and Santa and I was playing with the snow.*

*Teacher: Wow! And how is the snow, Fia? I have never seen snow, how is the snow?*

*Child 3: Its flat like this.*

*Marta: Its flat? White?*

*Child 3: Nods.*

#### 4.1.7 Physical environment

The physical environment played a large role when it came to creating opportunities for making the children's' thinking visible through documentation. When this occurred, students became engulfed in the experience at hand. During one of the research team's observation sessions Marta invited one of her students to document what his fellow classmates was writing. She handed him a piece of paper and pencil and guided him by saying, "Luke, write down what Shay said that it is very important". After scratching his head Luke proceeded to jot down what was being said. As the students took turns sharing during another Zoom In thinking routine being implemented, Luke continued jotting down what he heard his classmates said (**Figure 4**). At the end of the session Marta said, "Okay let's look at what Luke wrote, what did you write?". Luke then proceeded to read everything his friends had shared during the routine. Prominence in this practice of displaying the student's thinking appeared more as the study continued.

#### 4.1.8 Time

The students and teachers work under the pressure of a tight schedule that eventually affects the quality of interactions. While analyzing documented adult-child interactions we discussed the benefits of giving children time to think. The teachers determined that it was powerful to provide students with the time to think and respond. In an exciting interview Annie stated how she has learned to wait and listen to her students' responses. This new practice taught her how to remain calm as they work through the process of thinking before responding and has helped her develop her patience. She went on to later share how she would advise other educators to practice thinking routines with their students, to listen to them and



**Figure 4.**  
*Luke documenting.*

give them the opportunity to express what they feel and give them the time to think. By doing so, the teachers talk less, students likewise follow suite and implement the same practice as a means of encouraging their fellow classmates to also quiet down and focus.

#### **4.2 Finding focusing on questioning**

The art of questioning takes time; a close look of the teacher's questioning was critical to help the teachers improve the type of questions they ask their students. Throughout this process, we witness small instances of progress. Initially, most questioning that occurred at the start of this investigation was for revision and procedures. Eventually an occurrence of more open-ended questions commenced. At times this type of questioning was stomped as it was followed by a close ended question. During the first session the following pattern of questions was noticed: open ended questions were initiated by the teacher, the children responded, and then the teacher would follow up with another question, which instead of helping continue the conversation brought it to an end. In other words, the children would respond, and the conversation was over. The research team first noted this occurrence during circle time. The teacher proceeded by stating that she brought a laminated image of fish. She then invited students to observe the image and asked, "what do you see here?" Many of the children responded, "a fish". Other stated, "a fish in water". The teacher then asked, "who remembers what letter fish starts with?" She continued, "with the letter, F, very good."

The following part of the conversation illustrated another pattern: the teacher asks a question, the children respond, and the teacher evaluates. In one instance the teacher stated, "fish have scales and their skin is not like ours, it is hard. To eat them we need to remove the scales, right? Your mom has to remove them at home. Let's see another fish, that lives where?" One student responded, "in the water", while another responded, "there" while indicating with their hands. The teacher then followed with, "they live in the water? Why do you say they live in water?" The student responded with, "because they swim" and the teacher said, "and if they swim, it has to be in the water. On land do fish swim? You cannot swim on land, on land we walk". This occurred during the early sessions that were observed, before the teacher started using thinking routines. These types of responses seem to have the intention of being generative, but it becomes irrelevant.

Upon analyzing the type of questions, the teachers gained more awareness about the intentionality of their questions. However, as previously stated, the art of questioning takes time and good questions are developed through practice and reflection. Despite this obstacle, generative questions that were not stomped by close ended ones began becoming more of a norm. Questions such as, "what we can do when there is sun?", "what do you observe here?", "what makes you say fish live in water?", and "why do you think it's not real?" were the types of questions that began emerging.

### **5. Conclusions**

Although there are several factors influencing teacher performance, it is important that teachers lead their own learning. The opportunity to reflect on their expectations about children as thinkers and the opportunities they provide for children to be cognitively engaged are two of those factors. If we want to consolidate experiences, the group being coached must remain intact, to create a sense of

support and community among the group. This allows for progress to occur in a manner that will carry on beyond reflective sessions.

Despite the odds being faced in educational settings, opportunities can be created to nurture learning experiences that promote thinking. Experiences like this raise awareness on the influence of small changes in adult-child interactions. Through reflective sessions that focus on areas of growth for educators facing certain pressures from the centers in which they are employed, including a lack of administrative involvement in which the vision of the practical visionary leaders were unclear and support methods were blurred, improvements still occur.

The study had strong research-based frameworks that were attractive to the teachers and a research team that took action and acted as the practical visionary leaders. The political visionary leaders were not involved in the process. It was uncertain if we were supporting or enriching their educational program and goals, values.

The use of documentation and a strong framework to support authentic teaching and learning [4] helped the research team in its many roles such as that of participant observers. The research team provided coaching to support teachers in the implementation of the frameworks that they learned about during reflective sessions. The documentation was not only useful for the teachers, but for children who took ownership of their experiences and began participating in the documentation process (**Figures 3 and 4**).

With the results witnessed during a short time frame and despite accommodating to the ideals of the center, we believe that expanding on such work by providing more time for coaching opportunities could lead to the promotion of superior thinking and learning in the classroom. Even when working with a strong framework, the practical visionary cannot make large advancements without the support and involvement of the political visionary.

Schedules are important to set up routines that help children predict what comes next and lower anxiety for the unknown. However, the schedule can also become a cause of stress if the teacher and children lose control of the learning process to serve a schedule. It should be the opposite. Allowing time for thinking creates the opportunities that children need to think. As Bennett [15] points out, schools often become places in which teachers are meant to comply with policy rather than contribute to its development.

When teachers can analyze their interactions with children, they can provoke thinking through the use of good questions. Ritchhart [9] argues that teachers can use questions in different contexts to achieve specific goals around thinking. Thinking routines are research-based strategies that help teachers ask good questions. This is an on-going and non-linear process that is supported through the implementation of such routines.

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## **Conflict of interest**

There are no conflicts of interest.

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