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## *From the Editor*

So quickly this year has flown by. It was as if it was just a while ago that we wished all of you a bright 2018 and now we are heading for 2019!

For this last issue of the year, we continue to focus on research from educators in the field. We have five fine ones. From the international scene – one is by Johanna Frejd of Linköping University, Sweden; she introduced the topic of evolution to her preschoolers. Would you have chosen this topic? Highly unlikely! But read what her research threw up; there were a lot of conversations among the children, meaning making and how the materials were used as communicative tools. The second is from Malaysia; Siew Siew Kim and Mariani Binti Md. Nor researched about early writing in their local context, primarily about how children can use self-regulated strategies that help them develop their own strategies towards early writing. From our own Singapore researchers, delve into Sandra Wu's case study on pedagogical leadership, Jacqueline Chung's topic on artwork and young children and Jessica Soh's role of the teacher in children's peer relationship.

Read perspectives from practitioners from our ECE field. Look through their lenses, would you agree with their views? There is much food for thought.

Joy Tim works with the KidSTART Group. She wrote about her experiences after about a year with them. Like the FLAiR programme, she too found this new outreach to be equally enriching. The programme is actively promoting for more volunteers and facilitators. If you are keen, do consider signing up.

AECES has had a very packed 2018. It is lovely that our progress is in tandem with the momentum and increasing development of ECE in Singapore. There's certainly more to look forward to.

From all of us in the AECES Team, happy new year for 2019.

Ruth Wong  
Editor

**“If It Lived Here, It Would Die.”**  
**Children’s Use of Materials as Semiotic Resources in**  
**Group Discussions About Evolution**

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Evolution theory is one of the foundations of modern science and biology education. Traditionally, evolution theory has been introduced in the latter years of primary school or in high school. Researchers and teachers are now probing the potential benefits of teaching evolution theory to even younger children, in primary school and at preschool level. Providing young children with experiences and activities that reflect scientific explanations of evolution might facilitate students’ meaning making and provide them with a foundation of ideas to build upon as they progress in their education (Nadelson et al., 2009). In arguing for the teaching of evolution theory from kindergarten to 5th grade, Wagler (2012) proposes that:

*If we are to fully understand anything about any species, we must first know how it was produced (i.e., via biological evolution), how it has changed (i.e., via biological evolution), and how it is currently being changed (i.e., via biological evolution). This fact applies to all of biology education, whether it is a primary student learning about a spider in a deciduous forest, a middle school student learning about amphibian genes, or a high school student*

*learning about human DNA polymerase. (p. 275)*

Evolution theory has been included in curricula at primary level in many countries in the past decades, including Sweden. However, research has shown that primary students have difficulties understanding evolution theory (Berti, Barbetta, & Toneatti, 2017; Berti, Toneatti, & Rosati, 2010; Evans, 2000; Samarapungavan & Wiers, 1997). Concurrently, primary teachers seem to have difficulties teaching the theory of evolution (e.g. Prinou, Halkia, & Skordoulis, 2011).

Introducing evolution theory for primary students and preschool children calls for new ways of teaching and talking about a complicated subject. In Sweden, the context of the current study, children begin primary school at age 7. The children in this study are age 6 years and attend preschool class. This article aims to explore how children discuss reasons for animal diversity when they have access to different teaching materials, namely, a three-dimensional map of the world, figurines of four different big cats (lion, tiger, jaguar, and snow leopard), and photographs of the same big cats in their natural environment. In addition, the study explores how these materials are

used in the discussions about animal diversity.

### **Theoretical framework**

The following sections outline the theoretical perspectives of the study. From a sociocultural perspective, meaning making and learning are seen as collaborative processes that take place in situated practices where interaction and materials play a crucial role.

### **Meaning making**

While children learn, they are processing ideas, thoughts, and concepts, individually and in inter- action with others (Jewitt, Kress, Ogborn, & Tsatsarelis, 2001). Meaning making is a continual process (Jewitt, 2011; Leijon & Lindstrand, 2012; Selander & Kress, 2010), which is complex, dynamic, collaborative, and contextualized (Robbins, 2007).

Meaning can be understood as the synthesis of what a person communicates through several modes (Jewitt, 2011; Jewitt et al., 2001; Streeck, 2009). Meanings in any mode are always intertwined with meanings made with other modes in an interaction within a particular context (Goodwin, 2000; Jewitt, 2011). In a study focusing on the meaning of action in learning in science classrooms, Franks and Jewitt (2001) claim that action is not just an illustration of language. Instead, action and speech do different things. However, during interaction, action and speech can mutually elaborate each other (Goodwin, 2000). Jaipal-Jamini (2011) has developed a four-level discourse analysis framework to analyze meaning making in science contexts,

where one of the four levels is conceptual aspects of meaning. In science educational discourse, this type of meaning indicates conceptual aspects of the denotative meanings (also see Jaipal, 2010). In this article, meaning is defined as an idea or a message about animal diversity, which can be represented by spoken language and/or other modalities.

### **Semiotic resources**

In addition to human interaction, the use of semiotic resources is crucial in the meaning making process (Jewitt, 2011; Selander & Kress, 2010; Van Leeuwen, 2005). This study adopts the definition of semiotic resources as “actions and artefacts we use to communicate” (Van Leeuwen, 2005, p. 3). All semiotic resources have a “meaning potential” based on past use that is actualized in concrete social contexts. Van Leeuwen (2005) states that a semiotic resource is always a material, social, and cultural resource at the same time. However, a material or an object is not always a semiotic resource. For example, a rock lying on the ground is not a semiotic resource if not used in communication.

Providing tools for children to use while making meaning about science phenomena may not only support meaning making, but also can reveal a more complex understanding than if they do not have access to such semiotic resources (Robbins, 2007). With the purpose of critically analyzing previous findings about children’s understanding of astronomical concepts (such as gravitation and the shape of the earth), Schoultz, Säljö, and Wyndhamn (2001) allowed

children to access a globe as a “tool for thinking” during interviews about gravity. In previous studies (e.g. Vosniadou & Brewer, 1992), children expressed misconceptions in response to questions such as “Is there an end or an edge to the earth? If there is, could you fall off this edge?” When the children in Schoultz et al.’s study consulted the globe in front of them while answering questions similar to the ones in Vosniadou’s studies (e.g. Vosniadou & Brewer, 1992), none of the previously reported misconceptions was revealed. Instead, a majority of children said that gravity caused people to stay on the earth. Thus, having access to a globe influenced what the children said. Furthermore, in a study investigating preschool children’s exploration of interactive causality during play with a pair of toy sound blocks, Solis and Grotzer (2016) discovered that the children focused on perceptual aspects of the blocks. Here, the children relied on the information provided by the materials for developing their causal understanding. The results from Schoultz et al. (2001) and Solis and Grotzer (2016) highlight the notion that children’s reasoning is tool dependent and that the meaning potential of provided semiotic resources is actualized in the social context where there is a mutual understanding of the resource (Selander & Kress, 2010).

### **Children’s understanding of evolution theory**

Previous studies of how primary students understand speciation and the origin of species have revealed somewhat conflicting results. In a study by

Samarapungavan and Wiers (1997), 9-year-olds and 12-year-olds tended to explain speciation in essentialist terms (i.e. that animals have immutable features or essences). When Berti et al. (2010) interviewed students who had undergone formal education as well as students without formal education, there were significant differences in their explanations of the origin of species. Students without formal instruction depicted creationist conceptions, whereas those who had been taught that animals have evolved from other animals expressed a mixed conceptual framework, mentioning creation and evolution. Berti et al. (2010) concluded that their results highlighted “the role of instruction and cultural mediation in the development of children’s conceptions of the origin of species” (p. 528). In a more recent study, Berti et al. (2017) constructed an intervention for 3rd-graders (age 8 years), which taught different concepts related to evolution over 10 lessons. The same group of students were interviewed before and after the intervention, with the objective to investigate how formal instruction affected their conceptions about the origin of species. In the pretest, fewer creationist conceptions were reported than in previous studies by workers such as Berti et al. (2010) and Evans (2000). Berti et al. (2017) explain the variation in the range of creationist conceptions as a result of different levels of exposure to religious teaching. This finding reinforces that fact that understanding evolution theory has a sociocultural dimension. A great number of the students in the later study by Berti

et al. (2017) showed a “no conceptions pattern,” giving “don’t know” answers to most questions during the pre-interview. Creationist and “don’t know” answers decreased after the intervention; instead, most students provided evolutionary answers to the questions. However, the researchers concluded that the students had learned about evolution in a fragmented manner, which manifested naïve or primitive evolutionary answers.

Due to the fragmented understanding shown by most students even after the intervention, Berti et al. (2017) suggest that evolution should not be taught earlier than the 3rd grade. However, there are alternative ways of introducing evolution theory to young children. In this regard, formal instruction combined with modeling and drawing (Nadelson et al., 2009), narrative texts (Browning & Hohenstein, 2013), and picture books (Emmons, Smith, & Kelemen, 2016; Kelemen, Emmons, Schillaci, & Ganea, 2014) have been studied and proposed as fruitful methods. Nadelson et al. (2009) have developed standardized lessons, including instruction and hands-on activities, to teach evolutionary concepts to kindergartners and 2nd-graders. The results from their study show that children are capable of learning simplified versions of the concepts of speciation and adaptation and that the products generated during the lessons can be used as sources of evidence, which reflect children’s learning and understanding of evolution.

In an exploration of 1st-graders, 2nd-graders, and 3rd-graders (age 5–8 years) learning about evolution, Browning and

Hohenstein (2013) presented children with narrative and expository texts. They concluded that narratives and imagination are tools that can be used to teach evolution. Compared to more traditional expository texts, narratives have an explicit chronology that “helps children to link events with ease and understand causes and consequences of events more clearly, thus encouraging understanding of the more specific aspects of a story, or theory” (Browning & Hohenstein, 2013, p. 14). Their results have been supported by Emmons et al. (2016) and Kelemen et al. (2014), who conclude that picture books have been shown to be useful in introducing a simplified understanding of natural selection.

#### **Aim and research questions**

In contributing to previous studies on alternative ways to introduce evolution theory in preschool and in early years of primary school, the aim of the current study is to investigate how preschool students make meaning about animal diversity in interaction with other students and with access to different teaching materials. By analyzing how materials are used as semiotic resources in the meaning making process about evolution and speciation, there is an opportunity to offer new perspectives on science learning. Thus, the specific aim of the study is twofold, with the objective to examine how children explain reasons for animal diversity, but also to explore the function of the materials in the discussions.

The following research questions were posed to guide the study:

- (1) What are the conceptual themes when children discuss reasons for animal diversity?
- (2) What are the functions of different materials in children's meaning making about animal diversity?

### Research design and methodological perspectives

The study took place in a Swedish preschool class. The analysis is based on video data from eight group discussions conducted with three or four 6-year-old students in each group (10–25 minutes each).

### Participants and context

Preschool class is a voluntary stage of education in the Swedish school system that is led by preschool teachers. Almost all children attend preschool class the year they turn age 6 years, the year before compulsory primary school commences. Swedish schools are non-confessional, and preschool class combines social skills and free play with activities to stimulate children's curiosity and interest in literacy, mathematics, and science.

In total, 27 six-year-old preschool students from two different classes in the same school participated in the study. None of the students has any formal education on evolutionary theory or speciation. This was a selection criterion, which made it possible to study a meaning making process in its early stages.

By analyzing group discussions instead of individual interviews, it is possible to investigate the use of semiotic resources

in a social context similar to the everyday setting of a Swedish preschool class. According to Murphy, Murphy, and Kilfeather (2011), when given the opportunity to discuss their ideas, children can help "scaffold" one another's ideas. Furthermore, the situated practice of group discussions prompts children to argue for their ideas, which makes it possible to capture elements of their meaning making process.

### Data collection

Data were gathered over a period of 2 weeks. The animals used as an example of speciation were four big cats: a jaguar, a lion, a tiger, and a snow leopard. They each represent the same family (Felidae) and genus (Panthera). All big cats diverged from the remainder of modern Felidae about 11 million years ago (Figure 1) (Davis, Li, & Murphy, 2010).

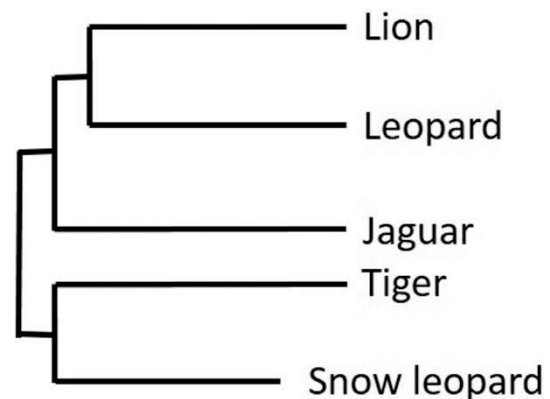


Figure 1. Felidae Panthera species tree showing that all big cats diverged from the remainder of modern Felidae about 11 million years ago (based on Davis et al., 2010, p. 71).

Previously, the snow leopard was not considered to be one of the big cats. However, DNA technology has provided new insights, and now we know that the snow leopard is actually a close relative of the tiger (Tseng et al., 2014). The four big cats were used as examples in the study because children recognize them and often have personal experiences of them from zoo visits, movies, television, or books. In addition, the big cats are found in different parts of the world, which enables discussions about environmental aspects, such as climate and habitat.

The children were asked to answer the question: “Lions, tigers, snow leopards, and jaguars are all ‘big cats.’ Several million years ago, all big cats looked alike. Why do they look so different from each other today?” Photographs of a tiger, a lion, a snow leopard, and a jaguar in their natural habitats, toy figurines of the same animals, and a topographical world map were provided to the children (Figure 2).



Figure 2. Figurines, photographs of the big cats, and a topographic world map were provided in the discussions.

To prepare for the group discussions, the students drew an individual picture showing their ideas and had an individual discussion with the interviewer. The children’s individual explanations for

animal diversity informed the interviewer so she could create groups with diverse ideas.

The children discussed the question collaboratively in groups of three or four. The children were seated at a table with the materials. The figurines were placed in their natural geographical location on the world map and the photographs were placed in front of the children (two children shared a set of photographs). At the beginning of each group discussion, the children looked at the figurines and named the different animals. The interviewer repeated the question about why they are different and then asked the children to tell each other about their ideas. The interviewer encouraged them to speak their mind and to ask each other questions if they did not understand what their peer meant. The discussions were video recorded with two cameras. The video recordings made it possible to collect data on how gestures and other semiotic resources were used during the discussions.

The discussions had an open character in the sense that the interviewer did not have any more questions prepared than the opening question. The approach of using an open discussion format requires awareness of the fact that the way the students are prompted with follow-up questions might affect the discussions. The interviewer followed the students’ reasoning by asking clarification questions (e.g., “What do you mean?”) and probing for more elaborate answers (e.g., “Can you tell us more about ...?”). Although the interviewer did not correct or teach the students, follow-up questions

and other responses and reactions (e.g., nodding) of course might have had an impact on the meaning making.

### Data analysis

A qualitative analysis of the group discussion was conducted in three steps, “moving from macro to microanalysis” (Ash, 2007, p. 209), where each step was more detailed than the previous. This was an iterative process moving between different levels, where the analysis was continuously related to the research questions.

First, a flowchart was generated to describe all video material from the group discussions in broad strokes. While viewing the recordings from each group discussion several times, notes were taken on whether materials were used often. In addition, sequences where the children expressed ideas on why the animals looked different from each other were noted.

Second, significant events (Ash, 2007) were focused on. Sequences were deemed significant when the children talked about why the animals looked different from each other. In line with the first research question, conceptual aspects of the meanings (Jaipal, 2010; Jaipal-Jamini, 2011) were linked to evolutionary concepts. For example, an expressed meaning that the animals are different because they now live in different parts of the world was linked and coded as geographic separation. In another example, the meaning communicated by a child saying that the big cats used to be siblings that were alike when they were young, but then became different as they grew up, was coded as

variation and heredity. All meanings expressed were then contrasted and finally narrowed down to four conceptual themes: kinship and heredity, environmental effects, need for adaptation, and need for geographic separation.

Third, in line with the second research question, a description of materials used when the children talked about why animals look different from each other was added to the chart. For example, if a child held a figurine in her/his hand or looked at the map while talking, this was noted.

Lastly, a fine-grained analysis of the significant events was conducted. The significant events were transcribed verbatim in Swedish. All modes were given equal attention in the analysis (Norris, 2004). The analysis focused on the function of the materials in the children’s meaning making process through inductive coding, concentrating on what material was used and on how the material was used in the specific situation. The analysis revealed three functions of the materials. These functions were communicative tools, resources providing meaning, and argumentative tools. More elaborated descriptions of these functions are presented in the Results section.

The ambition of the Results section is to provide interesting examples and a detailed analysis of how children explain reasons for animal diversity and how different materials function in the discussions, based on transcripts of communication between the children. Verbal exchanges have been translated

into English in all the described examples. Bodily actions as well as actions performed with the materials are described in parentheses.

**Ethical considerations**

In all research, but perhaps especially in research in which children participate, ethical perspectives have to be considered. This study follows the ethical guidelines stated by the Swedish Research Council (Gustafsson, Hermerén, & Petersson, 2006).

The principal of the school was contacted by phone followed by an e-mail with further information. The children’s guardians were informed about the study aims and methods by the children’s preschool teachers and by mail. Consent from the principal and the guardians was provided in writing. All participating children were informed about the study and its application. The children were also informed about their right to choose to participate or not before each activity. In addition, the researcher disseminated this information to the children when she turned the video cameras on and off. All children chose to take part in the activities. With the purpose of gaining mutual trust among the researcher and the students, the researcher spent two whole days in

each class before the data collection commenced.

**Results**

In response to the first research question, four qualitatively different themes of meanings about reasons for animal diversity were revealed in the analysis. The themes were kinship and heredity, environmental effects, need for adaptation, and need for geographic separation. Table 1 provides a short description of each theme.

In response to the second research question, the analysis of the function of the materials showed that the children used the materials in three different ways, namely, as argumentative tools, communicative tools, and resources providing meaning (cf. tool for thinking Schoultz et al., 2001). Table 2 provides definitions of the three functions revealed in the discussions.

In the following text, examples from the data are presented to illustrate the results. The subsection headlines are named by the conceptual themes. In the analysis of each datum example, the function of the materials is stated in italics and is further described in relation to the context of the discussion.

Table 1. The four conceptual themes emerging from the discussions and descriptions of each theme.

Conceptual theme	Description
Kinship and heredity	<i>Animals are different as a result of breeding.</i>
Environmental effects	<i>Animals develop different traits because of living in habits with different conditions, such as climate, temperature, and food range.</i>
Need for adaptation	<i>Animals live in different conditions; because of this, they need different characteristics to survive.</i>
Need for geographic separation	<i>Animals live in different environments and in different parts of the world, because of their traits.</i>

Table 2. Name and descriptions of the three emergent functions of the materials.

Function	Description
Communicative tool	The material serves as a tool to communicate something to another person. For example, the children point at the tiger photo or figurine and say, “That one,” instead of, “The tiger.”
Resource providing meaning	The children observe aspects of the materials, for example, green grass, white snow, size of the cats. These observed aspects are included in the meaning making process. For example, the children look at the photo of the tiger and say that it lives in the jungle.
Argumentative tool	The children synthesize several observed aspects in the materials and use these to argue for ideas. For example, the children compare patterns of the big cats’ fur and argue for relationships.

### Kinship and heredity

During the discussions, the children used the materials to make meanings that included kinship and heredity as reasons for animal diversity. The interspecies relationships were described in various ways. In the following excerpt, Rose, Bella, and Audrey are talking about kinship as a direct mother-child relationship. However, in other groups, kinship was also discussed and described in terms of cousins and second cousins. Rose, Bella, and Audrey’s conversation begins with Bella saying that one cat gave birth to a lion. When the interviewer asks her which cat it was, Bella lifts up the jaguar and says it gave birth to the lion, and that the tiger gave birth to the snow leopard. While Bella is talking, she points to the figurines in turn. Rose points at the tiger figurine and asks Bella, “But who gave birth to that one?” Bella does not respond, and Audrey then points to the figurines saying:

Excerpt 1. Audrey, Rose, and Bella.

1 A: *Maybe that one (points at the tiger figurine) gave birth to that one (points at the snow leopard) and that*

- 2 *one (points at the snow leopard) gave birth to that one (points to the tiger).*
- 3 R: *But I’m thinking like that one (touches the lion figurine) is the biggest, and then it’s that one (touches*
- 4 *the tiger) and then comes that one (points at the jaguar) and then comes that one (points at the snow*
- 5 *leopard).*
- 6 B: *But I mean that those two are babies (points to the snow leopard and the jaguar).*
- 7 R: *And those two are the parents (points to the lion and the tiger).*

In the excerpt above, Rose is using the size of the figurines to argue for which one of the animals might have given birth to the other. In lines 3–5, Rose touches and points to the figurines as she arranges their sizes from biggest to smallest. Her actions with the materials are communicative, and the materials function as communicative tools. Bella then adds that the smallest of the figurines are babies, and Rose fills in that the other two, the biggest (lines 3–4), are the parents. It seems as if Bella and Rose agree that the size of the animals portrays

something about their relationship. In other words, the size of the figurines provides meaning that affect the girls' meaning making. The students continue talking about which one of the animals "gave birth" to which for approximately two minutes, when Audrey says:

Excerpt 2. Audrey.

- 1 A: *But those two (points at the snow leopard and the jaguar figurine) look the same, so maybe that*
- 2 *one (points to the snow leopard) can give birth to that one (points to the jaguar) and that one (points to*
- 3 *the jaguar) can give birth to that one (points to the snow leopard). They are alike in their pattern.*

Audrey uses the resemblance in patterns on the snow leopard and the jaguar (lines 1 and 3) as an argument for the snow leopard and jaguar having a relationship as parent and child. Thus, in this example, we see that the figurines are used as argumentative tools. Two different traits, pattern and size, are used to argue for different big cat species' interrelationship as mother and child. The children explicitly point to the traits that are depicted in the figurines, and use them as semiotic resources in their meaning making.

### Environmental effects

The meaning that the big cats have developed different traits or appearances because of living in habitats with different conditions, such as climate, temperature, and food range, were made in several

groups. The following example presents a conversation between Martin, Moe, Lisa, and June as they take turns to tell each other their ideas about why animals are different now, when a million years ago there was only one type of big cat. When it is Martin's turn to express his thoughts, he says that the animals have "turned out" differently due to what they have eaten:

Excerpt 3. Martin, Moe, Lisa, and June.

- 1 Ma: *Ehm ... I was thinking like this, that at first, they were the same tigers with sharp teeth*
- 2 *(holds his index fingers at each side of his mouth) really sharp, like this (pulls index*
- 3 *fingers down across his chin) that went down. So they could eat very well. And then,*
- 4 *the snow leopard ... it, it walked to the snow and started to get cold. Because it didn't*
- 5 *find any food and so. And then it became really snowy and became a snow leopard. And*
- 6 *the others ... they ... they ... they ... they walked to warmer and it ... like the tiger (points on the*
- 7 *photograph of the tiger) it, it went (points at the photograph again) to the forest and eats*
- 8 *a lot of leaves.*
- 9 Mo: *To the rainforest.*
- 10 Ma: *Yes. And the lion (points at the photograph of the lion) it went and ate this yellow stuff*
- 11 *(points at the photograph again) and ehm ...*
- 12 L: *What yellow stuff? (Leans towards the photographs and looks at the photograph of the lion.)*

- 13 Ma: *This (points to the yellow grass).*
- 14 J: *(leans forward towards to photograph)*
- 15 Mo: *(leans forward towards to photograph)*
- 16 Ma: *And this one ... (points to the photograph of the jaguar). What's it called again? This one ...*
- 17 *ate only grass, so he became this animal. (Moves his hand over all photographs.) So then all*
- 18 *became different (moves his hand back over the photographs).*

In the excerpt above, we see how the children use the photographs to discuss how different habitats might have affected the development of different species. Martin says that the animals were alike at first, with sharp teeth, and gesturing with his index fingers to mark the placement and size of the teeth. Martin then says that the snow leopard walked to the snow where it got cold (line 4). Martin's words in lines 3 and 4 are interpreted as if the original animal, the one with sharp teeth, walked into the snow and then "became a snow leopard" when it got "snowy" and it could not find any food (lines 4 and 5). Martin then says that "the others" (the other big cats with sharp teeth) walked to places where it was warm and ate different things, such as leaves (lines 7–8), yellow stuff (lines 10–11), and grass (lines 16–17). All these things are visible on the photographs of the big cat that he couples the food with. The photograph of the lion has a background showing yellow grass, the snow leopard is in snow, the tiger is in a

green forest or rainforest, and the jaguar is lying on green grass. When Martin explains the different conditions for the animals, he looks at the photographs and points at them repeatedly (lines 6–7, 11, and 16). In addition, when Martin says that the lion eats "yellow stuff" (line 10), Lisa does not understand what he means. This makes Martin explicitly point out the yellow grass on the photograph (line 12–13), using the photograph as a communicative tool. Martin's action indicates that his meaning making is affected by the photographs. Thus, in this situation, the photograph thus serves as a resource providing meaning.

Another theme discussed by the children was that the environment in itself was not a causal factor in the development of the big cats. Examples of this conceptual theme will be presented in the next section.

### **Need for adaptation**

In the children's discussions, the process of meaning making also led to the assumption that big cats have a greater possibility to survive and/or thrive when they are adapted to their habitat. The reason for evolution was discussed from the starting point that animals live in different conditions, and because of this, they need different characteristics.

In the following example, the need for camouflage is discussed. Just before the conversation commences, Jenna has presented the idea that all the big cats live in different places on the earth, and because of that, they have to look different. The example she gives is that the snow leopard has white fur to prevent

it being seen by other animals. The interviewer then asks the other three students seated at the table what they think about Jenna's idea:

Excerpt 4. Victoria, Interviewer, Mike, and Jenna.

- 1 V: *I think it is like Jenna said. It could be that the snow leopard is white so it cannot be seen.*
- 2 I: *What do you think, Mike, is it the same for the lion?*
- 3 M: *(Looks down, shakes his hands up and down.)*
- 4 *(quiet for 22 seconds)*
- 5 I: *What do you think about the lion, Jenna? If the snow leopard is white so it cannot be seen, is it the same for the*
- 6 *lion then?*
- 7 J: *(Nods and smiles) Mmm.*
- 8 I: *Tell me more!*
- 9 J: *It is so it cannot be seen where it lives.*
- 10 M: *(Picks up the photograph of the lion and taps it with his finger.)*
- 11 I: *You are pointing at the photograph.*
- 12 M: *They have the same color (points at the lion and then the grass behind it several times*
- 13 *while he speaks).*

The meaning made in the conversation in Excerpt 4 is that the animals have different colors of fur "so they cannot be seen." That is, the students state that there is a reason why the snow leopard and the lion have different colors of fur: to avoid being seen. Victoria says that she agrees with Jenna's idea (line 1). With the intention of further probing the line of

thought, the interviewer then asks if the same principle applies for the lion as well (line 2). The question is directed to Mike, who has been rather reserved during the discussion, and Mike does not respond. Instead, he looks down and shakes his hands in his lap (line 3). After a period of silence in the group, Jenna receives the same question from the interviewer. Jenna is positive that the same idea applies to the lion (line 7). When Mike joins the discussion, he uses the photograph as a semiotic resource (line 12). He lifts up the photograph and points to it repeatedly, which draws the interviewer's attention. After the interviewer assigns words to Mike's action (line 11), Mike then says that "they have the same color." In combining gestures and verbal language, Mike uses the photograph as a communicative tool. Mike refers to the photograph and claims that the lion looks the way it does because then it cannot be seen and that the lion's fur has a color that matches the colors of its habitat.

In the following example, Max talks about traits other than camouflage as important for the big cats' survival opportunities. The traits he focuses upon are fur thickness and the need for good vision. In the following excerpt, Max is elaborating on an explanation of why the snow leopard has thick fur:

Excerpt 5. Max.

- 1 M: *Because it is cold and so ... It is freezing, you can see that on the picture (picks up the photograph*

- 2 *of the snow leopard). It has really*  
*thick fur. Much thicker than (looks*  
*through the photographs)*
- 3 *this one (hold up the photograph*  
*of the jaguar). One can see that*  
*this one (taps with his finger*
- 4 *on the photograph of the snow*  
*leopard) has more fur. Otherwise*  
*it should ...*
- 5 *And it has better vision. (Picks up*  
*the snow leopard figurine, still*  
*holding the photograph of the*
- 6 *snow leopard with his other hand.)*  
*Because it has to be able to see in*  
*the dark.*
- 7 *This one must be good at catching*  
*prey (picks up the photograph of*  
*the lion). It (points to the*
- 8 *lion's eyes) has vision far off*  
*(points to his own eyes and then*  
*forward from his face) to catch*
- 9 *prey.*

In the excerpt above, it is clear that the photographs function as a resource providing meaning. In other words, Max's meaning making is influenced by the meaning potential in the photographs. He states that the snow leopard has thick fur because it is "freezing" where it lives and explicitly refers to the photograph of the snow leopard (line 1). Max picks up the photograph of the jaguar and says that the snow leopard's fur is much thicker (lines 2–4). He starts an utterance (line 4) but does not complete it. However, the first part of the transcribed sentence indicates that Max has an idea that something would happen "otherwise," which can be interpreted as indicating

that Max thinks that the snow leopard has a need for thick fur.

Max moves on to talk about another trait, vision, when he picks up the snow leopard figurine and begins to talk about the lion's need to have "far off" (distance) vision to catch prey (line 8). According to Max, fur and vision are traits that have evolved as a result of a need to meet the animals' living conditions. As did Mike in Excerpt 4, Max uses the photograph as a communicative tool when he talks about these traits. When he talks about vision, he first points to the eyes of the lion portrayed in the photograph, and then to his own eyes, combining gestures and verbal communication. The photograph represents an image of the lion where the eyes are observable (lines 7–8), making it possible to use as a semiotic resource. In addition, the photograph visualizes the environment where the lion lives. The meaning made by Max concerning the fact that big cats have different eyesight capabilities, could be an assumption based on the notion of the variation in topography in the photographs. There is a more open landscape visualized behind the lion compared to landscapes portrayed in the photographs of the tiger and the jaguar. This might have affected Max's meaning making, where he uses the meaning potential of the photograph to claim that the lion needs to have distance vision to target prey.

The meaning making processes described in the two examples of this section describe situations where photographs are used as semiotic resources to communicate and from

which to extract meaning. The children point at the environment and the conditions where the animals live as reasons for evolution. However, the materials functioned as semiotic resources when the children discussed that animals are in different environments and in different parts of the world, because of their traits. This will be described further in the next section.

### Need for geographic separation

This section presents examples of how the materials functioned when the children discussed why the animals cannot live in a different climate than their present habitat. Note that these meanings made did not really contain any developmental aspects. On the contrary, meanings made were that animals are “fitted” to a certain environment, and a change in the living conditions would have a negative impact on the species. Thus, these meanings made are the opposite of the meanings made in the previous category.

In the following excerpt, Sarah and Max consult the map when talking about where the snow leopard could live. Note that both Antarctic and Greenland are depicted in white on the map.

Excerpt 6. Sarah, Interviewer, Max, and Emma.

- 1 S: *(Puts the snow leopard on Greenland.)*
- 2 I: *Sarah, you're putting the snow leopard up there. Why do you do that?*
- 3 S: *Because, here it is snow ... and it looks like ... it is called ...*

- 4M: *(interrupts Sarah) It is Greenland. It is GREENland*
- 5 *(points with his whole hand toward Greenland on the map).*
- 6 I: *Mmm. It is. But there is a lot of snow there.*
- 7 S: *Mmm.*
- 8M: *(Pulls his finger across Antarctic.) Here, there is the most snow.*
- 9 E: *(Leans forward.)*
- 10M: *Is this ice, or is it land?*
- 11 S: *It looks like land.*
- 12M: *The penguins live here. It could live here, too (takes the snow leopard from Greenland and puts*
- 13 *in on the Antarctic). (Puts the lion on the Antarctic.) If it lived here (makes a guttural*
- 14 *sound) it would die (lies the lion down on one side).*
- 15 S: *(Smiles and points at Africa.) Because it should live there.*

In the excerpt above, the meaning made is that climate is crucial for the survival of the animals. Initially, Sarah places the snow leopard on Greenland. When the interviewer asks her why, she explains that she put the snow leopard there because the area contains a lot of snow. Greenland is depicted in white, and Sarah interprets the white color as representing a cold climate. She also relates the “snow” on the map to the name of the animal she is holding, the snow leopard (line 3). This is interpreted as Sarah making it explicit that the map and the snow leopard figurine are resources providing meaning, and that this affects her deduction on the whereabouts of the snow leopard. The

map functions as a meaning provider through its communicated colors (white is snow), whereas the figurine represents a snow leopard, where the very name of the animal implies that it lives in snow. Max interrupts Sarah, claiming that the island is called Greenland. He says this twice, while underlining the first part of its name (line 4). This observation is interpreted to mean that Max is opposing Sarah’s interpretation of the white color map. Perhaps the contradiction of the white color on the map and the color in the name Greenland bother him. After the interviewer confirms Sarah’s interpretation of the map, the two students start reading and interpreting the map together. Max assigns words to what he sees, but asks Sarah for her view on whether the part of the map where the Antarctic is located is land or ice.

In this example, the figurines and map are used simultaneously. In line 12, Max takes the snow leopard figurine and places it on the Antarctic, claiming that the animal could also live there. This can be interpreted as showing that Max thinks that the snow leopard could live in Greenland and the Antarctic since both places are covered with ice or snow. Despite disagreeing with Sarah’s

interpretation of the white color earlier, here it seems as if the social interaction with Sarah has influenced his use of the map as a semiotic resource. Hence, the social interaction seems to contribute to Max discovering other meaning potentials of the map. Max is using the lion figurine in his action of laying it down, while claiming that the lion would die (lines 13–14). When he does this he makes a guttural noise, and the sound and the way the lion is placed communicate to the other students that the lion is dead. Sarah smiles, points to Africa and says that the lion should live there. This is interpreted to indicate she thinks that Africa is a more appropriate environment for the lion.

The students move the figurines between different colored fields of the map. They also point at the map and refer to the different colored fields as “there.” Sarah’s and Max’s joint interpretation of white colors as snow and ice, as well as land or ice, shows that the map and the figurines serve as both socially shared resources providing meaning and communicative tools in their meaning making process.

Table 3. Synthesis of functions of materials in conceptual themes discussed by the children.

Emergent conceptual theme of discussion	Kinship and heredity Environmental effects Need for adaptation Need for geographic separation	Emergent function of materials		
		Communicative tool	Resource providing meaning	Argumentative tool
		Figurines Photographs Photographs Map, Figurines	Figurines Photographs Photographs Map, Figurines	Figurines

### Summary of results

The materials were associated with different functions during different themes of the discussions. Table 3 presents a synthesis of the conceptual themes discussed above and the respective function of the materials in each theme.

### Discussion

The aim of the study was twofold, aiming to examine how children explain reasons for animal diversity, as well as how materials function in the discussions. The discussion of the results is presented as three subsections. First, the conceptual themes are discussed in relation to the first research question. Then, the functions of the materials are discussed in relation to the second research question. In conclusion, pedagogical implications of the results are provided for how teachers can introduce evolution theory in preschool and early years education.

#### Conceptual themes in children's discussions about animal diversity

Four conceptual themes were identified in the children's discussions that all related to different reasons for animal diversity.

The three conceptual themes of environmental effects, need for adaptation, and need for geographic separation have environmental features as a common aspect in relation to animal diversity. In the environmental effects theme, aspects such as food and temperature were provided as reasons for the development of new animal features. In contrast, need for adaptation indicated

that animals have to adapt to the environment in order to survive, and that different environments call for specific features, such as camouflage, thick fur, or distance vision. Lastly, need for geographic separation differs from need for adaptation in that it builds on the notion that animals will perish in an environment that does not fit the animals' features.

In the need for geographic separation and need for adaptation conceptual themes, the children include an implicit "what if" in their discussion. In need for adaptation, the unstated assertion could be, "What if animals do not adapt to the environment? Then they will die, hence they evolve." Compared to meanings expressed about environmental effects, there is a reason that animals evolve (in order to survive). They do not just suddenly change as an effect from eating something of a certain color. In need for geographic separation, the implicit assertion could be, "What if the animals were not living in this specific environment? Then they would die." In this conceptual theme, adaptation to the new environment does not seem to be an alternative for the children. The finding of meanings that animals are adapted to the environment from the beginning correlates with previous findings from Samarapungavan and Wiers (1997), where essentialist conceptions were common among 9-year-old and 12-year-old children.

In none of the themes relating to environmental aspects did the children discuss how the actual change in features takes place. However, this is discussed in relation to the first conceptual theme,

kinship and heredity. When the children discuss kinship and heredity as a reason for animals being different, they mention that animals are “here and now.” It seems as if they are talking about individual animals. More specifically, the children convey the idea that one lion and one tiger are father and mother of the other smaller animals, respectively. From the data, it is not possible to conclude that the children actually talk about kinship on a group or species level. Talking about individuals, and not about a population, applies to the other three conceptual themes as well. In this regard, the children merely talk about the animals as individuals, and not as representatives of a population.

In relation to previous research on children’s discussions of reasons for evolution, this current study reveals two main differences. First, all children in this study actively took part in the discussions about animal diversity. This challenges the view that children mostly provide “don’t know” answers to questions about speciation and the origin of species before instruction, as reported in the recent study by Berti et al. (2017). One explanation for differences in the results might be that the posed discussion question in this study explicitly focused on the reasons for speciation (i.e., why are species within the same family different?). This question might have prompted the children to focus on conceptual aspects of speciation (Jaipal, 2010). Second, there were no discussions that involved creationist ideas, which was common among children without formal instruction about evolution theory in studies by Evans

(2000) and Berti et al. (2010). This might be a reflection of secularization in Sweden and the less frequent exposure to religious views about the origin of species.

### **Functions of materials in children’s meaning making about animal diversity**

This study has shown that the children used materials as semiotic resources in the discussions in at least three different ways: as resources providing meaning, as communicative tools, and as argumentative tools. The following discussion addresses four aspects of these functions, namely, (1) each of the materials had a different potential to serve as a resource providing meaning, (2) the children sometimes negotiated the use of the materials, (3) different materials had the same function, and (4) the same materials had different functions.

Given the four aspects above, and as previously shown by scholars such as Schoultz et al. (2001), access to materials as tools for thinking influences what children are able to discuss. This study contributes to these results and shows that materials have different “potentials” in serving as resources to provide meaning. The photographs represented features of the environment where the animals live, that included snow, warm habitats, grasslands, forests (Excerpt 3), cold habitats, and open fields (Excerpt 5). In addition, the photographs and the figurines provided meaning about animal characteristics, such as animal fur pattern and thickness (Excerpt 5), and animal size (Excerpt 1 and 2). The colors and topography on the world map provided meaning about climate, enabling

discussions about climate and its effect on the animals' survival (Excerpt 6).

Each material could be seen as implicitly directing children to construct a meaning. The photos provide specific meanings to the children, such as the idea that snow leopards live where there is snow. In this way, a photo is a more "closed" material than the map and the figurines. Because children's meaning making is affected by the material's meaning potential, it can be assumed that the meaning making about animal diversity would be different if children had access to other kinds of materials, or if all materials were removed. Overall, materials that support children's meaning making can also prevent or constrain other meaning making processes, which, in turn, limits the meaning making to what can be discussed in relation to the materials provided.

On some occasions, the interpretation and use of the semiotic resources' meaning potential were negotiated. One example of this is found in Excerpt 6, where Max questions Sarah's conclusion that the white color on the map represents snow. On other occasions, the materials afforded no negotiation, such as in cases when the children used the materials as communicative tools. In this study, the figurines and the photographs were often referred to as "that one" or "these," in combination with deictic gestures, instead of adopting the name of the species. The children moved the figurines around on the map, communicating potential actions made by the animals as well as the effects of these actions. The absence of

questioning such actions shows that none of the children had difficulty accepting that the figurines were representations of actual animals and that they served as socially shared semiotic resources. This also supports findings by Jaipal (2010) that verbal statements together with gestures reinforce meanings. Socially shared resources make it possible for the children to collaboratively construct conceptual meanings and discuss different scenarios (e.g., discussing what would happen to an animal if it lived in another habitat).

The same material sometimes served the same function within different themes. Interestingly, the photographs were used as resources providing meaning and communicative tools both when the children discussed environmental effects on the animals' traits (Excerpt 3), as well as adaptation to the environment due to the big cats' needs (Excerpt 4 and 5). In the same way, the figurines provided meaning and served as communicative tools when the children discussed kinship and heredity (Excerpt 1 and 2) and when they discussed essentialist meanings, such as that the animals must live in certain environments to be able to survive (Excerpt 6). These meanings differ in conceptual terms. The notion that the same materials served the same function in both themes show that the direction of the meaning making process depends on what aspects the children place in the foreground. Consequently, this indicates that the functions of different materials are not constrained to one conceptual theme alone.

The analysis also showed that the same material served several functions. In this regard, when Audrey, Rose, and Bella (Excerpt 1 and 2) discussed that animals are different because of kinship and heredity, they used the figurines exclusively. They observed similarities and differences in the color and size of the figurines and interpreted these differences as information about animals' features. Hence, the figurine served as a resource that provided meaning. They pointed to the figurines and used them as communicative tools. Additionally, they used their observations as arguments, a finding suggesting that the figurines not only served as communicative tools, but also as argumentative tools.

The results from this study contribute to the findings from previous studies of alternative teaching strategies for introducing evolution theory in preschool and early primary school (Browning & Hohenstein, 2013; Kelemen et al., 2014; Nadelson et al., 2009). Nadelson et al. (2009) claimed that products generated during lessons can be used as sources of evidence, reflecting learning and understanding of evolution. In this study, the actions made with the materials and by communicative modes such as gestures and gaze are shown to reflect children's meaning making. In relation to the conclusions reached by Browning and Hohenstein (2013), the children in this study used the materials to construct their own narratives. As they moved the figurines around the map, they created a chronology, linking events and arguing about the causes and consequences of these events. Despite not having had any

formal instruction about evolution theory, the 6-year-old children in this study used the provided materials to make meaning through collaborative and individual observations, and acknowledging the meaning potential provided by the semiotic resources. Overall, the meaning making processes occurring in the discussions led to the development and ownership of logical claims.

### **Conclusions and pedagogical implications**

The meaning potential of the different materials and the fact that the materials were used as communicative tools enabled children's discussions about similarities and differences in animal traits. The children spontaneously used the materials to point out similarities and differences between the different animals. Similarities in patterns and color were used to argue for kinship and heredity. Differences in thickness and color of the big cats' fur were used in discussions about why animals live in different parts of the world (need for adaptation). Moreover, the children argued that the animals' differences in appearance were the result of environmental effects, and the children claimed that the big cats were in need of geographic separation due to their differences.

It is acknowledged in the recent literature (Nadelson et al., 2009) that evolution theory cannot be taught to preschoolers in the same manner as to older students. The results of this study show that children are able to discuss abstract science phenomena. Tudge (1992) states that there is no guarantee that meanings made within peer groups

are on a higher level than if children reason individually. However, the children in this study questioned their peers' interpretations of the materials and interpreted them jointly. They followed their peers' reasoning and introduced new conceptual themes to the discussions while using the materials. Hence, in relation to the zone of proximal development (Vygotsky, 1978), this implies that materials enable children to alter the role of being the more capable child. Providing access to materials that facilitate discussions about similarities and differences in traits among species in the same biological family can be a fruitful way to start to make meaning about evolution theory.

Because meaning making processes might be enabled and limited to the meaning potential of different materials, teachers need to take care when they choose materials to introduce evolution theory. Teachers as well as researchers need to consider appropriate tools for thinking (Schoultz et al., 2001) and should create tasks that build upon the situated practice of preschool and early primary school, as well as children's previous experiences.

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## References

Ash, D. (2007). Using video data to capture discontinuous science meaning making in nonschool settings. In R. Goldman, R. Pea, B. Barron, & S. J. Derry (Eds.), *Video research in the*

*learning sciences* (pp. 207–226). Mahwah, NJ: Lawrence Erlbaum.

Berti, A. E., Barbetta, V., & Toneatti, L. (2017). Third-graders' conceptions about the origin of species before and after instruction: An exploratory study. *International Journal of Science and Mathematics Education*, 15(2), 215–232.

Berti, A. E., Toneatti, L., & Rosati, V. (2010). Children's conceptions about the origin of species: A study of Italian children's conceptions with and without instruction. *The Journal of the Learning Sciences*, 19(4), 506–538.

Browning, E., & Hohenstein, J. (2013). The use of narrative to promote primary school children's understanding of evolution. *Education 3-13: International Journal of Primary, Elementary and Early Years Education*, 43(5), 530–547.

Davis, B. W., Li, G., & Murphy, W. J. (2010). Supermatrix and species tree methods resolve phylogenetic relationships within the big cats, *Panthera* (Carnivora: Felidae). *Molecular Phylogenetics and Evolution*, 56(1), 64–76.

Emmons, N., Smith, H., & Kelemen, D. (2016). Changing minds with the story of adaptation: Strategies for teaching young children about natural selection. *Early Education and Development*, 27(8), 1205–1221.

Evans, E. M. (2000). The emergence of beliefs about the origins of species in school-age children. *Merrill-Palmer Quarterly*, 46(2), 221–254.

Franks, A., & Jewitt, C. (2001). The meaning of action in learning and

- teaching. *British Educational Research Journal*, 27(2), 201–218.
- Goodwin, C. (2000). Action and embodiment within situated human interaction. *Journal of Pragmatics*, 32, 1489–1522.
- Gustafsson, B., Hermerén, G., & Petersson, B. (2006). *Good research practice - what is it?: Views, guidelines and examples*. Stockholm, Sweden: Vetenskapsrådet.
- Jaipal, K. (2010). Meaning making through multiple modalities in a biology classroom: A multimodal semiotics discourse analysis. *Science Education*, 94(1), 48–72.
- Jaipal-Jamini, K. (2011). A semiotics discourse analysis framework: Understanding meaning making in science education contexts. In S. C. Hamel (Ed.), *Semiotics theory and applications* (pp. 191–208). New York, NY: Nova Science Publishers.
- Jewitt, C. (2011). *The Routledge handbook of multimodal analysis*. London, England, and New York, NY: Routledge.
- Jewitt, C., Kress, G., Ogborn, J., & Tsatsarelis, C. (2001). Exploring learning through visual, actional and linguistic communication: The multimodal environment of a science classroom. *Educational Review*, 53(1), 5–18.
- Kelemen, D., Emmons, N. A., Schillaci, R. S., & Ganea, P. A. (2014). Young children can be taught basic natural selection using a picture-storybook intervention. *Psychological Science*, 25(4), 893–902.
- Leijon, M., & Lindstrand, F. (2012). Socialsemiotik och design för lärande: Två multimodala teorier om lärande, representation och teckenskapande. *Pedagogisk Forskning I Sverige*, 17(3–4), 171–192.
- Murphy, C., Murphy, C., & Kilfeather, P. (2011). Children making sense of science. *Research in Science Education*, 41(2), 283–298. Doi: 10.1007/s11165-010-9165-6
- Nadelson, L., Culp, R., Bunn, S., Burkhart, R., Shetlar, R., Nixon, K., & Waldron, J. (2009). Teaching evolution concepts to early elementary school students. *Evolution: Education and Outreach*, 2(3), 458–473.
- Norris, S. (2004). *Analyzing multimodal interaction: A methodological framework*. New York, NY: Routledge.
- Prinou, L., Halkia, L., & Skordoulis, C. (2011). The inability of primary school to introduce children to the theory of biological evolution. *Evolution: Education and Outreach*, 4(2), 275–285.
- Robbins, J. (2007). Young children thinking and talking: Using sociocultural theory for multi-layered analysis. Paper presented at the Learning and Sociocultural Theory: Exploring Modern Vygotskian Perspectives International Workshop, University of Wollongong, Australia.
- Samarapungavan, A., & Wiers, R. W. (1997). Children's thoughts on the origin of species: A study of explanatory coherence. *Cognitive Science*, 21(2), 147–177.
- Schoultz, J., Säljö, R., & Wyndhamn, J.-O. (2001). Heavenly talk: Discourse, artifacts, and children's understanding of elementary astronomy. *Human Development*, 44(2–3), 103–118.

- Selander, S. A., & Kress, G. A. (2010). *Design för lärande - ett multimodalt perspektiv*. Stockholm, Sweden: Norstedts.
- Solis, S. L., & Grotzer, T. A. (2016). They work together to roar: Kindergartners' understanding of an interactive causal task. *Journal of Research in Childhood Education, 30*(3), 422–439.
- Streeck, J. (2009). Forward-gesturing. *Discourse Processes, 46*(2–3), 161–179.
- Tseng, Z. J., Wang, X., Slater, G. J., Takeuchi, G. T., Li, Q., Liu, J., & Xie, G. (2014). Himalayan fossils of the oldest known pantherine establish ancient origin of big cats. *Proceedings of the Royal Society B, 281*(1774). Doi: 10.1098/rspb.2013.2686
- Tudge, J. (1992). Vygotsky, the zone of proximal development, and peer collaboration: Implications for classroom practice. In L. C. Moll & L. C. Moll (Eds.), *Vygotsky and education: Instructional implications and applications of sociohistorical psychology* (pp. 155–172). New York, NY: Cambridge University Press.
- Van Leeuwen, T. (2005). *Introducing social semiotics*. London, England: Routledge.
- Vosniadou, S., & Brewer, W. F. (1992). Mental models of the earth: A study of conceptual change in childhood. *Cognitive Psychology, 24*(4), 535–585.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wagler, R. (2012). Assessing “the framework” for kindergarten through fifth grade biological evolution. *Evolution: Education & Outreach, 5*(2), 274.

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# Enhancing Early Writing with Self-Regulated Strategies in Preschool Classroom

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## Introduction

Literacy begins early, before formal schooling, and emerges before children begin to read and write conventionally in elementary schools. Children's emergent literacy, which encompasses the skills, knowledge and attitudes that they have about literacy in early childhood predicts their reading success throughout elementary school (Lonigan, Schatschneider & Westberg, 2008). In Malaysia, the national preschool school curriculum emphasizes not only mechanical or orthography skills; but it also emphasizes how children express their ideas or thoughts explicitly and effectively (MOE, 2017). Children learn how to express their message (composition), how to form and arrange their marks on the page (print knowledge), and how to represent sounds within this message (phonological awareness).

Unfortunately in preschool classrooms, early writing opportunities are often disconnected from instruction of other literacy skills. Most of the early writings instructions are focused on procedural knowledge rather than discursive processes (Hall, Simpson, Guo, & Wang, 2015). There is a tendency of teaching form rather than the function of literacy in preschool classroom (Bingham, Quinn, & Gerde, 2017; Ng & Yeo, 2014). In order to

see the short-term outcomes, writing is treated as fine motor activity and focused on mechanics and handwriting. Teachers use copying, drilling and memorizing methods in teaching writing. This disconnect represents a significant missed opportunity for early literacy development in many preschool classrooms including in Malaysia (Ng & Yeo, 2014; Siti Iwana, Rohaty Majzub, & Zamri Mahamod, 2015).

## Self-Regulated Learning Strategies and Early Writing

Writing is a complex, demanding process. Educational research identifies key processes of self-regulated learning, such as goal setting, self-efficacy, metacognitive monitoring, and effort and resource management which contributes to positive outcomes in academic achievement, including writing (White & DiBenedetto, 2015; Zimmerman and Risemberg, 1997). Children can use self-regulated learning strategies to help them in planning, revising, paragraph and sentence construction, and word processing. Employing self-regulated learning strategies in writing not only supports the writing skills, it also enhances motivational processes and supports long-term writing attitude. According to Bandura's social cognitive theory (Bandura, 2012), the beliefs that individuals hold about their abilities

influence the amount of effort to put into a task, willingness to complete activities and the ability to persist when facing difficulties. When children perceive their writing abilities positively, they might put more effort in their learning processes. Through self-regulated learning, children learn how to plan, seek information and social help and monitor their writing process; and these enhance their self-efficacy towards writing and increase their writing performance. Reciprocally, better performance resulting from greater effort will enhance children’s self-efficacy. This reciprocal process is important in learning as it influences peoples’ decision in determining how far they are willing to go, and how hard they are willing or able to push themselves to optimize the chances of positive outcomes (Bandura, 2012).

**Self-Regulated Learning (SRL) Intervention**

To examine the effectiveness of self-regulated learning strategies in enhancing

preschool children’s early writing, two preschool classes in different public preschools of Selangor, Malaysia were selected to participate in SRL intervention which lasted approximately four months. There were thirty-eight children, aged five years four months and older. All the SRL strategies in the intervention were arranged into ten units and closely tied to the early writing process. During the intervention, children were provided with sufficient opportunities and platform to exercise the strategies. For example, in the first lesson, the story “Everyone Can Learn to Ride a Bicycle” was used to introduce SRL and its importance in learning. During the 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> lessons, “WH” question words (“what, who, when, where, why, how”) were introduced to help children to generate ideas for writing. The overview of the intervention is shown in Table 1:

Table 1: Overview of the self-regulated learning intervention

Unit	SRL Content	Training Goals
Introduction	Knowledge and importance of SRL strategies	Develop awareness of and understand SRL strategies
Set my Goal	Goal Setting	Understand the importance of realistic goal-setting Learn how to set individual goals
Plan my writing	Planning (I)	Use drawing to generate ideas
Plan my writing	Planning (II)	Identify the ideas from drawings Put ideas into text
Elaborate my ideas	Planning (III)	Use bubble map to generate ideas
I can write	Self-monitoring and controlling	Become aware of the importance of self-monitoring Follow the created Early Writing Rules

Work place	Self-control: Environmental controlling	Choose and restructure the work place
I need help	Self-control: Seeking social help and information	Develop an awareness of social help available: peers, teachers /adults Know how to use resources
I can do it	Self-control: Managing Attention and effort	Control of distractions (e.g. negative thought, noise, temptation)
Checked!	Self-reflection	Encourage reflectivity Use self-checklist

### Outcomes of SRL Intervention

After four months of the intervention, there were a few SRL strategies frequently used by the children that contributed to their writing tasks. They were elaborated below:

**Goal setting.** Throughout the intervention, children were required to think and set clear goals. They were given a Goal Score Sheet in each lesson to set their goals for their writing task. Children, who were capable to set their goals for their writing task, did the goal setting themselves. Children who needed the teachers' help, were assisted by them through discussion. For example, Samples 1a and 1b show that LG had set clear goals for his writing. From the Goal Score Sheet, it was found that LG decided to write three ideas in full sentences for his story, with legible handwriting, correct punctuation and capitalization.

Sample 1a: LG's Goal Score Sheet and written text (set in July)

Sample 1b

After a month, LG set a higher goal where he decided to increase his writing ideas and to write longer text (Samples 2a and 2b).

Interview responses and other documents showed how LG set higher goals from time to time. His writing quality aligned with the goals he set. He addressed his learning in a better way by making connections with his own expectation. This enabled him to “write good story” as he expressed during interview. From the interviews, LG mentioned that he set his goal and used his effort to achieve it. He expressed his willingness to take charge of his learning task and extended his capacities step by step, as shown below:

*LG: I tell myself ... how many ideas and sentences to write ... I will also write correct spelling... write on the line. I do goal setting then I write the story; I will do all I want to do ... then I can write good story.*

Dina and friends are under training for a big race by creating a practice schedule.

NAME: LG 9 DATE: 22-8-17

Do you have any goal to strike?  
Set your goal and see how near you can get to your dream.  
Check  the box after achieving your goals.

Task: I am \_\_\_\_\_  
Goals: Choose and tick (✓) the goals that you want to achieve.....

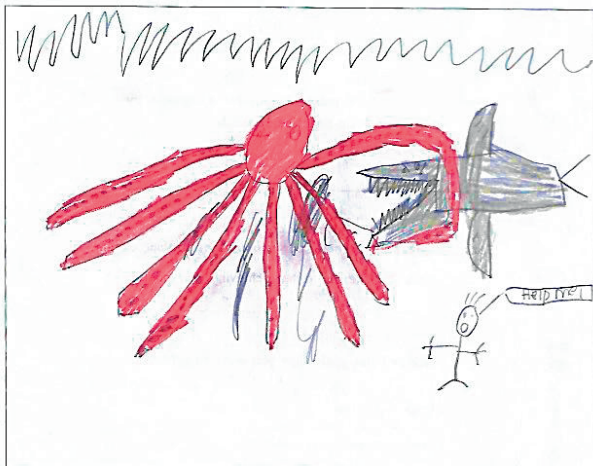
<input checked="" type="checkbox"/>	Write legible handwriting - HW	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Write correct punctuation and capital letter- P C	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Write on the line- L	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Write one/ two /three/ more ideas- Id	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Write words/ phrases/ sentences	<input type="checkbox"/>

Teacher's Comments:  
Interesting story!

Sample 2a: Goal Score Sheet and written text by LG (in August)

SRL is a personal process and a passionate learning approach. It allows learners to learn according to their own ability and unique learning needs. When children planned their targeted goal according to their abilities and learning resources they have in hand, they feel more confident and willing to write.

**Planning.** During SRL intervention, preschool children were guided how to write depending on their interest and capabilities. They were given choices and freedom to decide their writing contents and plan their ideas. They were taught how to use drawing and a bubble map to plan their ideas for writing. Children were requested to draw in detail before they started to write (Sample 3). All the important ideas they wanted to describe



I am a octopus  
The octopus fight <sup>with</sup> shark.  
When the shark meke <sup>meet</sup> the octopus  
mat the octopus will put the <sup>poison</sup>  
poison. Then the octopus can <sup>attack</sup>  
attake him. Then The shark are very very  
angry <sup>with</sup> him. so my story is the octopus  
fight <sup>with</sup> shark.

Sample 2b

were highlighted. After that, children picked, arranged and constructed their ideas into written text. This process enabled them to get more organized ideas during writing.



Sample 3: Using drawing and notes to generate ideas by children

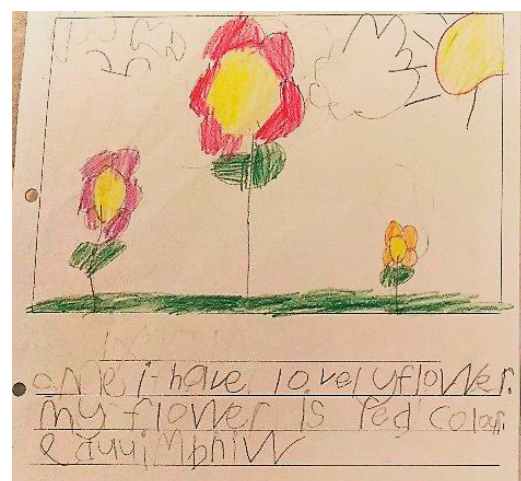
When children engaged in planning, they tended to be more conscious about what to write and how to express their ideas; this affects their writing quality (Graham et al., 2012). During the SRL intervention, it was found that children recognised that picture drawing and discussing ideas prior to early writing are important. For example, HY mentioned, "I draw things in my mind, then only write out. When I draw it, I will not forget what I want to tell (in the story)." Obviously, HY used drawing to plan her ideas for the writing tasks (Sample 4).



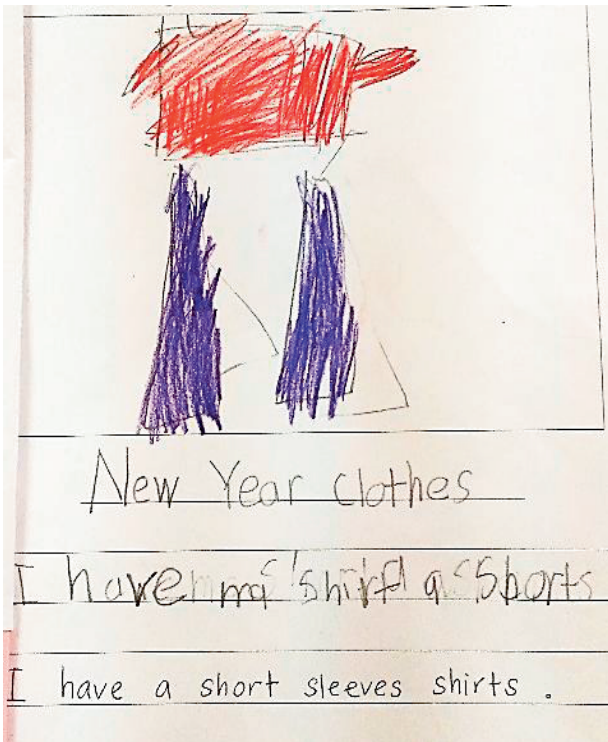
Sample 4: HY used drawing to plan her writing

Before SRL intervention, preschool children of the selected schools were less skilled in conveying meaning in writing. They were unlikely to express their ideas explicitly and effectively. Some of them were only able to express one or two ideas, but not in elaborating manners during writing. Samples 5a and 5b show that children only wrote one or two ideas about "Lovely flower" and "New Year clothes." They were able to narrate the ideas, but did not elaborate them. This can be observed from the writing samples:

Sample 5a: Samples of written text among preschool children before intervention

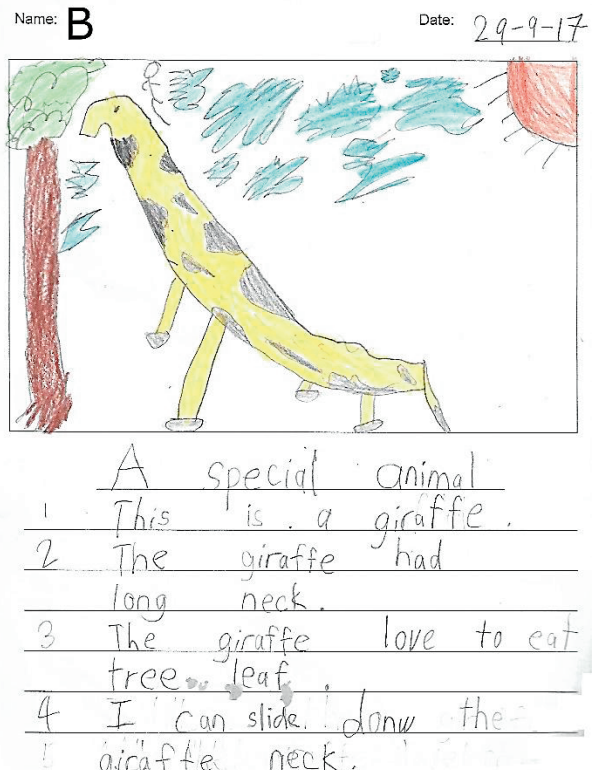
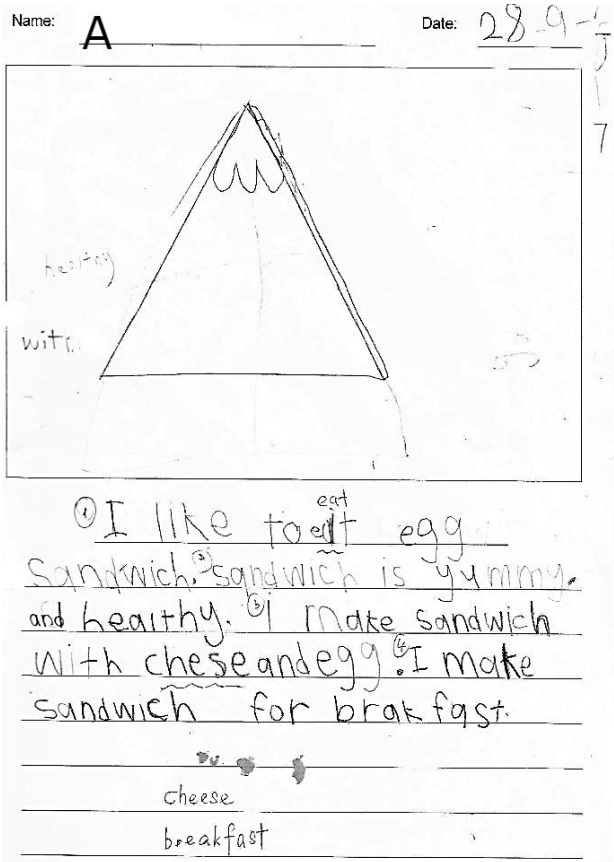


Sample 5b



After SRL intervention, it was found that most of the children improved their early writing performance. Sample 6 shows that children were able to express their ideas more effectively and creatively related to the topic chosen after SRL intervention. The text produced was longer and more complete. Despite spelling and grammatical errors, the written samples were found to be more interesting and comprehensive in terms of expression of ideas. For example, from Sample 6, we can see that Child A wrote about his favourite food. He was able to tell the reason he loves to eat a sandwich, and how and when he makes his own sandwich. Child B was able to describe the features of the animal (giraffe) that she loves. She relates the special feature (long neck) of the animal with the reason she loves it using her imagination.

Sample 6: Samples of written text after SRL intervention



**Self-monitoring writing process.** Self-monitoring the writing process was one of the important strategies introduced to the children during the SRL intervention. Children were taught how to observe and self-monitor their writing process. During the SRL intervention, it was found that children consciously monitored their writing to ensure better performance. During the SRL intervention, early writing rules were discussed among the children and teachers. The writing rules were then transferred onto a chart to which the whole class could refer. Before the children started to write, they were always reminded about the rules they set, for example: think and draw your ideas; pick, arrange and write; check; timing etc. Photo A shows the chart of early writing rules and how the children monitor their writing process (Photo B).

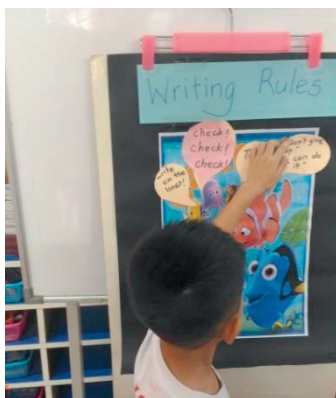


Photo A: Children refer to the writing rules they created



Photo B: Checking finger spacing during writing

**Seeking social help.** Seeking social help is one of the effective strategies in enhancing learning achievement (Zimmerman, 2012). During the SRL intervention, children were taught how to ask for help in completing their writing task. It was observed that children were more positive in getting help to complete their writing tasks instead of “waiting for help.” They learned that getting help from teachers and friends made completing their writing task more effective when they asked related questions. For example, the interview with CH, revealed that the child learned how to look for help and asked questions to complete her writing regarding “My Family”:

*CH: I ask daddy and mommy ... I ask them how to write their name ... what are their hobbies and other things ...*

According to Butler (1998) self-regulated learners do not need to accomplish every assignment by themselves; they need to use learning strategies such as seeking help to facilitate their understanding of material or to complete their task. This is because seeking help is a social information gathering activity, which can optimize and support the learning for children. Photos C and D show children working together and getting help from peers and adults during writing class.



Photos C and D: Seeking social help

**Seeking information.** Seeking information was also one of the frequently used strategies during the SRL intervention. Preschool children took the initiative and efforts to secure further task information from non-social sources regarding the tasks given. They looked for picture books, referred to the teacher's note on the board and wordlists, etc. to get information related to the writing tasks. For example, in Photo E below, the child was referring to the picture book to find the words that he needed.



Photo E: Referring to the picture

## Conclusion

From the experience in engaging SRL in early writing, it was found children's positive attitudes and behaviours helped them to perform better in their writing tasks and to learn according to their own ability and unique learning needs. When children planned their goals according to their abilities and learning resources, they feel more confident and willing to write. The knowledge and experience of self-regulated learning may enhance and produce better writing skills if the children are provided with more opportunities to practice the strategies. Continuous encouragement and guidance may help children to sustain and maintain their usage of self-regulated strategies in the learning.

## References

- Bandura, A. (2012). Social cognitive theory  
In P. A. M. V. Lange, W. Kruglanski & E. T. H. Thousand (Eds.), *Handbook of theories of social psychology* (Vol. 1, pp. 349-373). Thousand Oaks, CA.: Sage London.
- Bingham, G. E., Quinn, M. F. & Gerde, H. K. (2017). Examining early childhood teachers' writing practices: Associations between pedagogical supports and children's writing skills. *Early Childhood Research Quarterly* 39 (2017), 35–46.
- Butler, R. (1998). Determinants of help seeking: Relations between perceived reasons for classroom help-avoidance and help-seeking behaviors in an experimental context. *Journal of Educational Psychology*, 90(4), 630.

- Dignath, C., Buettner, G., & Langfeldt, H.-P. (2008). How can primary school students learn self-regulated learning strategies most effectively? A meta-analysis on self-regulation training programmes. *Educational Research Review* 3, 101- 129.
- Gerde, H. K., Bingham, G. E., & Wasik, B. A. (2012). Writing in early childhood classrooms: Guidance for best practices. *Early Childhood Education Journal*, 40(6), 351-359.
- Gerde, H. K., Bingham, G. E., & Pendergast, M.L. (2015). Environmental and teacher supports to writing in classrooms. *Early Childhood Research Quarterly*, 31, 31-46.
- Graham, S., McKeown, D., Kiuahara, S., & Harris, K. R. (2012). A meta-analysis of writing instruction for students in the elementary grades. *Journal of Educational Psychology*, 104(4), 879.
- Hall, A. H., Simpson, A., Guo, Y., & Wang, S. (2015). Examining the effects of preschool writing instruction on emergent literacy skills: A systematic review of the literature. *Literacy Research and Instruction*, 54(2), 115-134.
- MOE. (2017). *National Preschool Standard-Based Curriculum: Standard-Based Curriculum and Assessment Document* Putrajaya: Ministry of Education Malaysia.
- Ng, M. L. Y. A. (2010). *Self Regulated Learning: Theory and Application*: Penerbit Universiti Sains Malaysia.
- Ng, P.F. & Yeo, K.J. (2014). Preschool Teachers' Beliefs and Practices on Early Literacy Instruction. *Sains Humanika*, 2(4).
- Siti Iwana, Rohaty Majzub, & Zamri Mahamad. (2015). Teaching Writing in Preschool Classroom. *Journal of Applied Research in Education*, 19, 50-59.
- White, M. C., & DiBenedetto, M. K. (2015). *Self-regulation and the common core: Application to ELA standards*: Routledge.
- Zimmerman, B. J., & Risemberg, R. (1997). Becoming a self-regulated writer: A social cognitive perspective. *Contemporary educational psychology*, 22(1), 73-101.
- Zimmerman, B. J., & Schunk, D. H. (2012). *Self-regulated learning and academic achievement: Theory, research, and practice*: Springer Science & Business Media.

# Exploring Pedagogical Leadership in the Early Childhood Context of Singapore – A Case Study

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## Introduction

In Singapore, the Early Childhood Education (ECE) landscape operates in a market-based system that has different operators providing care and educational services in child care centres and kindergartens. While the sector is government regulated and there are national frameworks guiding curriculum and programmes, there are many different models such as the Montessori approach, Reggio Emilia model, Steiner approach, Multiple intelligences approach, play based learning, inquiry based learning, emergent curriculum that different centres adopt in a diverse landscape. As the national frameworks are not mandatory, this has resulted in a great variance in the types and quality of programmes offered to young children (Ang, 2012). High quality programmes are critical to children's learning, development and their later trajectory, as they lay the foundation for formal education and the cultivation of a 21st Century workforce (MOE, 2010).

While centres are government regulated, the responsibility of quality assurance rests upon the operators and centre leaders. The four key drivers of quality are the government, operators, Early Childhood (EC) leaders and teachers. Given the important role of EC leaders in driving quality standards, this study posits

that pedagogical leadership is one of the key drivers for programme quality. Pedagogical leadership is defined as leadership focused on curriculum and pedagogy with an emphasis on educational purposes and the holistic development of young children (Ord, Mane, Smorti, Carroll-Lind, Robinson, Armstrong-Read, Brown-Cooper, Meredith, Rickard & Jalal, 2013). EC leaders take on the role of a pedagogical leader to advance programme quality and ensure that sound pedagogies are in place.

## Literature Review

EC leaders play a multifaceted role in leading and managing their settings. They facilitate and support the provision and delivery of an integrated holistic programme for young children (ECDA, 2014). They work closely with educators, parents and families, and the community to ensure the quality provision of care and educational services (Kagan & Bowman, 1997). EC leaders build teacher capability through continual professional development (Heikka & Waniganayake, 2011) and keep abreast with current research and share these information with their staff to stay updated with the developments in ECE (Kagan & Bowman, 1997).

When EC leaders exercise pedagogical leadership, they set the vision and goals for their settings; exercise values-based leadership and motivate their followers (Wu, 2017). They build human capital, and are knowledgeable about child development, curriculum and instruction, and cross-disciplinary work (Wu, 2017). In order to lead effectively, they need to be equipped with the requisite skills and knowledge in the design and delivery of the EC curriculum (Wu, 2017). They are responsible for the quality of programmes in their settings and promote collaboration, teamwork, partnerships and relationship building towards achieving positive child outcomes and educational goals (Wu, 2017).

### Research Design

This case study used purposeful sampling to select an anchor operator child care centre with a Singapore Pre-school Accreditation framework (SPARK) Commendation award<sup>1</sup>. The centre receives government funding to keep fees affordable for the masses. The demographics of the population that the centre serves are of middle to middle-low socioeconomic status, which is indicative of the average Singaporean family. It was chosen because unlike profit-making centres that have more funding and resources, the centre relies on the curriculum and resources from its headquarters. The class chosen for this

study was a K1 class, as K2 classes are generally busy preparing for graduation and transition to Primary 1 in the year.

As K1 children are able to articulate their thoughts and feelings, interviews were conducted with them to find out about their perception of their preschool experience. Data collected included artefacts such as the SPARK reports, curriculum plans, teacher observation notes, child observations, children's portfolios. Two questionnaires and interviews were conducted with the principal and K1 class teacher to first map out their profiles and then used to design the interview questions. Teacher and classroom observations were conducted using a rubric developed based on literature. A survey with some of the parents of the K1 class was also carried out to solicit their views on the centre leadership. The data provided a 360 degree view of the centre leadership through the lens of the principal, the K1 teacher and children, and parents. Data was analysed using interpretive analysis and the four key themes that surfaced were:

1. Programme and curriculum for positive child outcomes
2. Values based leadership in vision and goal setting
3. Capability building and human capital development
4. Collaboration, partnerships and relationship building.

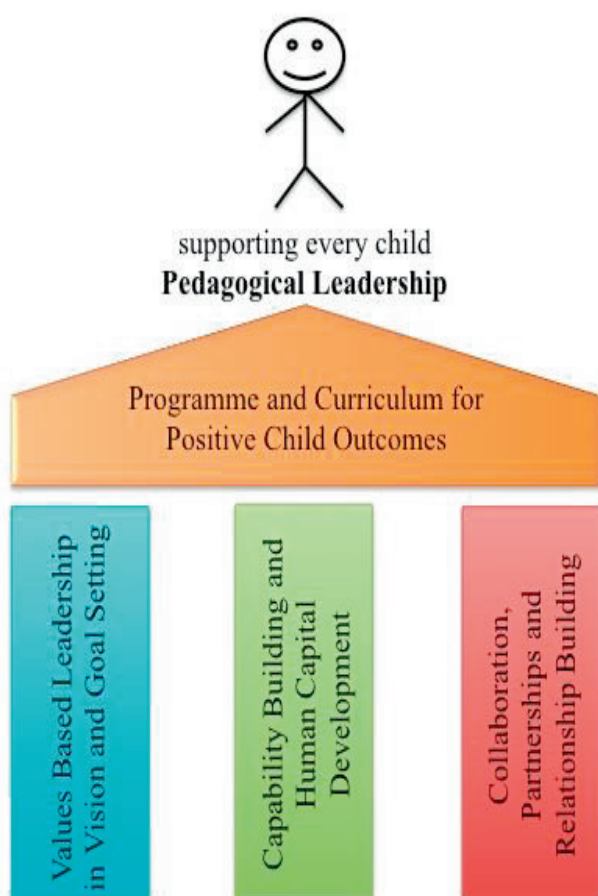
### Discussion and Conclusion

From the findings, the most dominant theme found was 'Programme and curriculum for positive child outcomes'.

<sup>1</sup> The SPARK Commendation award is awarded to centres with good teaching and learning practices which is in line with the essence of pedagogical leadership

The 3 supporting sub-themes were ‘Values based leadership in values and goals setting’; ‘Capability building and human capital development’, and ‘Collaboration, partnerships and relationship building’. From the findings, a framework was developed (see Diagram 1), which was found to be consistent with literature on effective pedagogical leadership.

Diagram 1: Pedagogical Leadership Framework



It was found that pedagogical leadership supports positive child outcomes through quality programmes, confirming the overarching theme, *Programme and Curriculum for Positive Child Outcomes*. Under this theme, there are three key roles that the centre leader

takes on to contribute to programme quality and they are the roles of a gatekeeper, a reviewer and an assessor.

As a gatekeeper, the principal shared that she had to oversee time management to ensure that the programme can operationalise effectively.

*“I’m like the gatekeeper so I make sure the teachers start the class on time, make sure the children are not drinking water for 10 minutes, 20 minutes.”*

Managing routines is part of the daily work of the centre leader. She also oversees the classroom environment and ensures that the curriculum is implemented according to the schedule and lesson plans. As the centre’s curriculum comes from the headquarters, this principal works closely with her teachers to design and align their lessons according to the prescribed curriculum and cater to their children’s needs. After lessons are implemented, she would review them to ensure that

*“Quality must be (the same) throughout the centre; everybody is on the same page. Purposeful play should look the same from toddler class to K2, and the English to the Chinese. So it cannot be that only the English teachers are doing it but the Chinese teachers are not ... So this is why I call myself a reviewer. To me, I am looking at the bigger picture. For the teachers, of course they are just looking purely on curriculum but I’m looking as a whole ... how everything affects the centre’s curriculum.”*

Her role as a reviewer manifests when she looks at the big picture, after she has

taken care of the daily running of the centre programme. She shared that she had translated the SPARK document into Chinese and included her Chinese teachers in lesson planning with her English teachers to ensure that the teaching practices are aligned. This demonstrates how progressive the centre leader was in ensuring consistency and quality across all levels in her centre.

As an assessor, the principal shared that *“I am an assessor because (it is about) how well the teachers are delivering the curriculum, (and) is not about, whether you deliver or not, but how well.”* It is evident that she emphasized the importance of delivering a good programme. She would evaluate teaching and learning through child engagement and classroom interactions and instruction.

*“The first thing I see, as in I walk in a classroom ... (is) really the whole vibe in the classroom. Is it active? Is it fun? Are the children enjoying themselves in the classroom? You know, I think that is more important to me than anything else. If the child is always seated down, quiet, reserved, I’ll be very worried ... there must be something wrong. So this is the first thing I look out for. This is the emotional being of them, you know, the physical being of them. The next thing is the teacher’s teaching, or the way the teachers do interactions with the children. Do they engage the children in thinking? Asking them questions ... Do the children look interested? This gives me the other part, the cognitive part.*

*So everything put in together, different things measure different areas. So, based on my observations, it’s children’s well-being ... That’s my first priority. The rest comes in the teaching part. How well is the teacher delivering, the conversations that children have.”*

Children’s level of engagement is crucial because when children enjoy class, they too enjoy learning. This is supported by the way teachers conduct the lesson, which the principal has pointed out in the interactions, the instructional strategies and the pedagogy used in delivering the lesson – all of which are important factors that fall under the teaching part. She is committed to build teacher capability with a goal clearly set in mind for her teachers to eventually become *“independent, intentional teachers”*. She also believed in building teacher capability.

*“If I really want to work on developing a person, a teacher, I need to give them time, undisturbed time. From the moment I step into the centre, classroom observations to mentoring, to guiding, to facilitating ... all these need time.”*

From the observation of the principal’s classroom observation of the K1 teacher, she demonstrated guidance through the way she mentored her teacher using the learning points and areas of improvement she noted during the lesson observations. She also commended her teacher in the areas that she had done well in. This in turn builds the teacher’s confidence and motivates her to improve on her teaching practice. As a result of her efforts and effective leadership practice, the centre

obtained a SPARK Commendation award in a span of 3 years.

The centre leader also exercised values-based leadership, which is one of the supporting pillars to programme quality in the framework found in Diagram 1. The most prominent value that the principal demonstrates is her child centred approach, which is the bedrock of her philosophy as an educator and a leader. With over ten years of teaching experience and five years of leadership experience, she believed that

*“... children (are) the ones that pushes me on, whether (as) a teacher or a principal... if as a teacher, we can do our best, as a leader, we can do our best, in our various roles... I think (that) all the children will benefit somehow... that’s the thing that really pushes me on.”*

The other dominant values evident from the study included integrity, relationship building and teamwork. She demonstrated integrity when she shared that there were tensions that she had to negotiate with, such as meeting the enrolment quota set by the organisation and ensuring children’s and teacher’s well-being. There were times when she did not meet the enrolment numbers because her teachers were overwhelmed by the newly enrolled children who were unsettled, and taking in more children to meet the numbers would inevitably compromise on quality. Hence, she decided to cut back on the enrolment numbers to settle down the children before she could take in more.

In relationship building and teamwork, she shared that when she first joined the

centre, she encountered “heart” problems as the teachers were divided and worked in cliques. To resolve this issue, she sat down with each one of them individually to find out about the underlying issues that had caused the discord in her centre. After which, she broke up the cliques and got her teachers to work on small group projects with teachers they generally do not work with. Over time, she cultivated teamwork through the use of a consultative approach in involving and engaging her teachers,

*“I don’t believe in using my authority to get the teachers to listen... so if I can engage them to be on the same platform, same mind frame as me, we can work as a (team), you know, ten brains together, or twenty brains together.”*

Other than building teamwork within the centre, partnerships were also formed with parents and the community. The K1 teacher attested to the principal’s efforts in parent engagement, *“we have a lot of parental involvement programme ... So she plans for a lot of events involving parents, and families to actually come in and participate.”* For example, the centre holds orientation programme at the start of the year to familiarise parents with the centre curriculum and there would be events such as racial harmony day, weekend bazaars, and workshops such as a reading programme for parents to learn how to read to their children. A follow up activity was for parents to read to the children using the techniques they have learnt, giving them the hands-on experience as well as exposure to different reading styles for the children.

Towards the community, the centre also supports the lower income families through working with the Family Service Centre (FSC) in their neighbourhood. They held an art exhibition where children's art works were auctioned to the parents in kind – daily necessities such as rice, sugar, salt, canned food. After the parents have purchased the artworks, the staples were donated to the FSC to be distributed to needy families. The centre also involved children in keeping the environment clean by going for litter picking in their neighbourhood and created environmental awareness through gardening in their community garden.

Parents have also shared that they felt that they could approach the principal easily, demonstrating the positive relationships established. This suggests that there is a culture of open communication and trust. One of the children candidly shared that *"sometimes when I am naughty, I tell my mummy and daddy... then (they) come to school (and) then ask teacher or principal"*. The K1 teacher confirmed this by sharing that she would stay back after work to meet with parents whenever needed, and when an incident occur, the parents would speak to her first before going to the principal which indicates parents' trust in her. Clearly, the principal has cultivated a culture of care where relationships and partnerships are developed and valued over time.

In conclusion, this study has shown that effective pedagogical leadership as enacted by the centre principal is consistent with literature. At the heart of

pedagogical leadership is the holistic development of young children underpinned by a child-centred approach and supported by a quality programme in place. This study sets pedagogical leadership apart from the other leadership models in literature although there are many overlaps across leadership theories because of the focus on care in ECE and stakeholders all work towards the good and best interests of the children. Through the delivery of a high quality programme, positive child outcomes can be achieved and the centre leader has played a critical role in driving centre quality towards this important goal of ECE.

## References

- Ang, L. (2012). *Vital Voices for Vital Years: A study of leaders' perspectives on improving the early childhood sector in Singapore*. Singapore: Lien Foundation. Retrieved from <http://www.lienfoundation.org/pdf/publications/vitalvoices.pdf>
- Early Childhood Development Agency. (2014). *SPARK Singapore Pre-school Accreditation Framework Quality Rating Scale*. Singapore: ECDA.
- Heikka, J. & Waniganayake, M. (2011). Pedagogical leadership from a distributed perspective within the context of early childhood education. *International Journal of Leadership in Education: Theory and Practice*, 14(4), 499-512. Retrieved from <http://dx.doi.org/10.1080/13603124.2011.577909>
- Kagan, S., L., & Bowman, B., T. (1997). *Leadership in early care and education*.

- Washington, DC: National Association for the Education of Young Children.
- Ministry of Education (MOE). (2010). Nurturing our Young for the Future, Competencies for the 21st Century. Retrieved 20 Jun 2015, from: <http://www.moe.gov.sg/education/21cc/>
- Ord, K., Mane, J., Smorti, S., Carroll-Lind, J., Robinson, L., Armstrong-Read, A., Brown-Cooper, P., Meredith, E., Rickard, D. & Jalal, J. (2013). Te Whakapakari Kaiārahi Āhuetanga Ako Kōhungahunga: Developing Pedagogical Leadership in Early Childhood Education, Te Tari Puna Ora o. New Zealand: NZ Childcare Association, 1 – 136.
- Watson, J., Vadaketh, S., Suresh, T. & Vohra, M. (2012). Starting well: Benchmarking early education across the world, Economist Intelligence Unit. Singapore: Lien Foundation. Retrieved from: [http://www.lienfoundation.org/pdf/publications/sw\\_report.pdf](http://www.lienfoundation.org/pdf/publications/sw_report.pdf)
- Wu, P., S. (2017). Exploring pedagogical leadership in the early childhood context of Singapore (Doctoral dissertation). Retrieved from NIE Digital Repository. (Call no. LB2806 Wu)

# Young Children's Responses to Artworks: The Eye, the Mind, and the Body

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## Introduction

Research on art viewing typically focuses on the value of looking at and talking about artworks (Epstein & Trimis 2002). Through artworks, children see diverse interpretations of themes that are common and familiar to them. In this way, children learn about unique viewpoints and appreciate how every artwork is an individual expression of the artist (Eckhoff 2010). Children can also make connections between what the artwork depicts and what they have experienced in their own lives (Savva 2003).

## Visual Thinking Strategies and Preschool Children

The specific approach used in this study was the Visual Thinking Strategies (VTS) approach.

The VTS approach uses art to teach thinking, communication skills and visual literacy, nurtures extended observations, drawing evidence-based conclusions, speculations, considering multiple possibilities, and listening to diverse points of view respectfully (DeSantis & Housen 2009; Housen 2002).

The teacher's role in art viewing is to guide and support children's interests rather than to impose information about specific artworks. The teacher challenges children to a deeper level of understanding by focusing their attention on specific details in the artwork and by

posing questions, moving them beyond their current level of functioning (Trimis & Savva 2004).

As children view artworks in a group, good questioning strategies on the part of the teacher support their responses to artworks (Taunton 1983). Viewing art becomes a triadic interaction between young children, the artwork and the teacher (see Figure 1). This study investigates the intersections between these three components in the creation of rich and rewarding art viewing experiences.

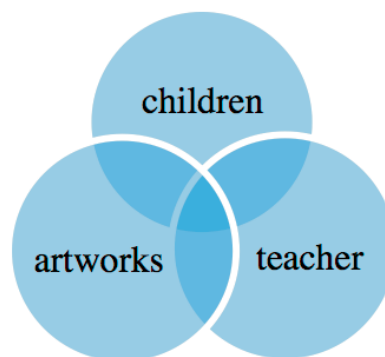


Figure 1. Triadic interaction model

The teacher's role is to select and regularly present suitable artworks for children to view and to facilitate children's thinking dispositions, observations, responses and discussions. The interaction between the children, the artworks and the teacher plays an important role in shaping children's attitudes, and motivations to respond to artworks. The

construction of meaning happens at the intersection of all three components, and social constructivism (Wright 2003) is at the heart of these processes.

### Methodology

To research the dialogic knowledge construction that occurred within the Triadic Interaction between children, the teacher and the artworks, the questions posed were:

- (1) How do young children respond to paintings by adults in terms of what they see, think and feel? and
- (2) What are some of the features of children's responses to artworks?

### Participants

Participants in the study were 15 children (seven boys and eight girls) between the ages of five to six years, were Singaporeans of Chinese ethnicity, spoke English as their first language, and came from households of middle to high socio-economic status.

To increase the prospect of the study being replicated in other preschool contexts, a typical setting and a class teacher without any specialised training in art was selected. The teacher had a Bachelor's degree in ECE with five years of teaching experience. She was provided with training and notes on VTS questioning techniques, prompts and facilitation guidelines to elicit children's thoughts, but the teacher had no prior familiarisation with the selected artworks.

### Selection of Artworks for the VTS Sessions

This study exposed the children to a range of artworks categorised into five preselected themes, based on Yenawine's (2003) recommendation that artworks be presented as a series or thematically. The five themes were (1) groups of people involved in activities, (2) animals and their environments, (3) abstract art, (4) individual portraits, and (5) still lifes.

### Data Gathering: Observations of VTS Sessions

Data were gathered through observation of the art viewing (VTS) sessions carried out over five sessions of approximately 45 minutes each. During each of these sessions, two to three artworks were discussed. Printed reproductions of artworks were projected onto a screen.

The teacher followed the structure of a VTS lesson and used questioning and facilitation techniques taken from Housen's (2001, 2002) Visual Thinking Strategies (VTS) (VUE 2001), based on these three questions:

- (1) "What's going on in this picture?"
- (2) "What do you see that makes you say that?" and
- (3) "What else can you find?"

Fieldnotes and videos were taken and later transcribed for coding.

### Data Analysis

The fieldnotes and transcriptions from the art viewing sessions were coded using content analysis in order to search for relationships and patterns in the data. The inductive approach of Grounded

Theory (Glaser & Strauss 1967) was used to conduct a thematic analysis of the data. Descriptive statistics in the form of frequency counts, tabular representation of responses and charts were also used to analyse the children’s responses.

**Results**

A frequency count of all the children’s comments is shown in Figure 2, which shows the percentage of children’s responses with regard to: content, formal art elements, personal connections, creativity and imagination, affect and vocalisms.

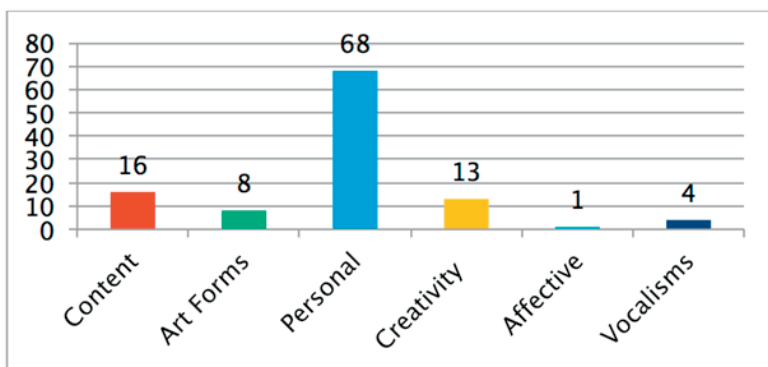


Figure 2. Percentage of comments on all 13 artwork

**Content.** The content of artworks is defined as something clearly observable in the artwork, whether real or perceived and 16% of the responses fell within this category. Part of children’s responses to the artworks was on identifying what they saw in the artworks in terms of the setting, items, and actions.

**Art forms.** Art forms refer to dimension, position, and the art elements of colour and tone, shape and line, spatial position,

and visual perspective. Only 8% of the children’s total responses were specific references to art forms.

**Personal connections.** Personal connections refer to statements that the children made that revealed their personal experiences and understanding as well as their personal and general knowledge. Approximately 68% of the children’s overall responses were related to personal connections in their lives.

**Creativity and imagination.** This refers to children’s descriptions of something not visible in the artwork as well as to stories they create surrounding the artwork. The children’s comments often referred to forms and shapes observed, as well as movements and gestures they perceived happening in the artworks (13% of the responses).

**Affective responses.** Affective responses refer to the emotional expressions of children when they responded to and described the artworks (e.g. surprise, delight, pain, excitement). Only 0.5% of the responses to all the artworks were of an affective nature.

**Vocalisms.** Vocalisms refer to the use of the voice for expressive, affect-related purposes. The children’s verbal responses were analysed in terms of the tone, volume, speed and pitch of the words articulated as well as laughter and the use of onomatopoeia. Vocalisms were used on average in 4% of the children’s responses to all the artworks viewed with

only two incidences of the use of onomatopoeia.

Comments on content and art forms were considered as *descriptive* responses; comments related to personal connections, creativity and imagination were considered as *interpretive* and *relational* responses; comments that involved affective responses and vocalisms were considered as *somatic* responses. These descriptive, interpretive/relational and somatic responses lead to a focus of analysis on 3 main categories: (1) visual (the eye), (2) cognitive (the mind), and (3) somatic (the body).

### **The Visual (The Eye)**

Most of the children's responses were related to the content that was most obviously featured in each of the artworks. The children named and described what they saw in the artwork using descriptive language. For instance, they described the setting, named items and described movement and actions that they perceived were happening in the artworks. They actively engaged in critical viewing which lead to deep thinking and reflection.

### **The Cognitive (The Mind)**

Having described what they saw in the artwork, the children proceeded to discuss their observations and perceptions. As the children thought aloud, communicating their ideas with one another, their logical thinking skills and processes became apparent and they drew on their prior experiences and

knowledge to make connections with what they saw in the artwork.

The rich descriptive language used by the children included positional and mathematical language as well as formal art elements. They described the location or spatial position of subjects or objects; quantity of items in terms of numbers; dimensions of size, height and length; and relative distance of objects in terms of their proximity. Where references to formal art elements are concerned, the children's descriptions included colour, shape, texture, space and visual perspective.

Several statements related to the children's ability to reason and provide justifications. The children made inferences based on what they observed, speculated on some of their perceptions, puzzled over certain aspects of the artwork that did not appear to make sense to them, and also raised questions.

The children's responses were sometimes related to each other's comments in terms of agreeing or disagreeing with what another child said. At times they made reference to earlier statements made by other children and they sometimes extended and built on previous ideas put forth by others.

Sometimes the children described imaginary forms and shapes as well as gestures and movement. They imagined the identities of people, mood, atmosphere, and even created stories by narrating sequences of events, which they made up.

Overall, the children's responses to the artworks included the use of similes and metaphors as evidence of analogical

thinking. Children also showed conceptual understanding as they described attributes of concepts, occasionally sharing their prior knowledge of facts or of their experiences. They were able to attribute emotions to subjects in the artworks and describe how actions lead to certain results or consequences. There were instances when the children's memory-association was triggered by familiar places or events.

### **The Somatic (The Body)**

The third concept that emerged from the data was the evidence of paralinguistic features, which constitute the somatic component. In particular, in addition to the eye and mind being involved in the art-viewing experience, the body responded instinctively through gestures, vocalisms, and expressions of the emotion. Children's somatic responses included hand gestures of pointing or of moving their fingers, hands or arms when responding to or describing the artworks.

Some vocalisms were observed in the form of laughter and onomatopoeia. There were a few instances of affective or emotional expression, which were coded as surprise, delight, pain or excitement.

There were occasions when children revised their initial thinking based on what others subsequently shared. Willingness to modify their ideas showed they were listening attentively to others and were open to considering different viewpoints.

In summary, the data clearly show that children respond to artworks visually, cognitively and somatically and that the

relationships between these three are closely intertwined. The artworks became 'alive' as the children described what they saw, thought and felt.

### **Discussion: Critical and Creative Thinking**

Among the broad themes that surfaced were how children elaborated on subject matter, used their imagination, and made connections with their feelings, experiences and knowledge. Viewing artworks in a group encouraged critical and creative thinking, and there was an incremental effect on the development of ideas as children built their ideas upon a previous response made by another child. The group setting provided a socio-constructivist learning environment that encouraged such idea building.

The children were open to the diverse ideas shared and they kept on adding to the bank of creative interpretations. They did not try to convince one another that their interpretation was correct, unlike when they viewed representational artworks. The children seemed aware that abstract art could be interpreted in many ways and that there was no singular correct answer.

### **Implications and Recommendations**

The findings corroborate the view that young children are capable of appreciating art, make meaning from what they see, and articulate their thoughts and ideas. Educators should therefore invest time and resources to develop children's aesthetic skills by exposing them to artworks, listening attentively to their responses and facilitating this dialogic process.

This study shows that viewing art in the early childhood classroom is a triadic interaction between young children, the artworks and the teacher, resulting in rich and rewarding art viewing experiences.

These early connections with artworks have positive influences on young children's attitudes and dispositions towards art.

## References

- DeSantis, K., & Housen, A. (2009). A brief guide to developmental theory and aesthetic development. Retrieved from <http://www.vtshome.org/system/resources/0000/0097/BriefGuidetoDevTheory09.pdf>
- Eckhoff, A. (2010). Using games to explore visual art with young children. *Young Children*, 65(1), 18-22.
- Epstein, A. S., & Trimis, E. (2002). *Supporting young artists: The development of visual arts in young children*. High Scope Educational Research Foundation.
- Glaser, B. G. & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- Housen, A. (2001). Eye of the beholder: Research, theory and practice. Retrieved from [http://www.vtshome.org/system/resources/0000/0006/Eye\\_of\\_the\\_Beholder.pdf](http://www.vtshome.org/system/resources/0000/0006/Eye_of_the_Beholder.pdf)
- Housen, A. (2002). Aesthetic thought, critical thinking and transfer. *Arts and Learning Research Journal*, 18(1), 99-131.
- Savva, A. (2003). Young pupils' responses to adult works of art. *Contemporary Issues in Early Childhood*, 4(3), 300-313.
- Taunton, M. (1983). Questioning strategies to encourage young children to talk about art. *Art Education*, 36(4), 40-43.
- Trimis, E., & Savva, A. (2004). The in-depth studio approach: Incorporating an art museum program. *Art Education*, 57(6), 20-34.
- Visual Understanding in Education (VUE), (2001). Retrieved from [http://www.vtshome.org/system/resources/0000/0039/VTS\\_Understanding\\_the\\_basic.pdf](http://www.vtshome.org/system/resources/0000/0039/VTS_Understanding_the_basic.pdf)
- Wright, S. K. (2003). *The arts, young children, and learning*. Boston: Allyn and Bacon.
- Yenawine, P. (2003). Jump starting visual literacy: Thoughts on image selection. *Art Education*, 56(1), 6-12.

## The Role of Teacher in Children's Peer Relationship

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### Introduction

Marcus is 4 years and 2 months old. He joined my preschool in July 2017 and was placed in a Nursery 2 class. He has 2 siblings and is a middle child. His parents were separated in early 2016, they each have custody of his siblings while Marcus is entrusted to the care of his maternal grandmother. His grandmother's home is a 3-room flat and it is in the vicinity of our preschool; she works as a full-time store helper while Marcus attends full-day care.

One of Marcus' teachers raised concerns about his behaviours. He has been labelled as a disruptive and difficult child. In his classroom with small group teaching of 7 children, he would distract his classmates for play, using physical actions such as pulling his classmates' arm to get his attention. He defies his teachers' instructions to sing along or to read aloud. Marcus does not like to participate in group activities.

Our principal suggested a collaborative effort to address this concern. I teach Kindergarten 1 classes but I decided to be involved in this collaboration.

### Observations

Marcus' Chinese teacher segregated him from the rest so that they could proceed with their lesson; he was put in a corner and, left alone, I observed him doing pretend play as a Transformer. During snack times, Marcus chose to be

alone, he ignored my attempts at engagement. I also noticed that his classmates seldom approached or engaged Marcus too.

In another observation session, the teacher had Marcus sit near her. She posed him a question, however another child spoke up saying that Marcus would not be able to give an answer. But when the teacher gave him one-on-one attention, Marcus could respond to her, this showed he could be engaged in a lesson.

From the teachers' feedback, I gathered that Marcus's disrupted relationship with his parents may have had adverse effects on his social and emotional development. Marcus displayed "only-child" syndrome such as difficulty in making friends and inability to share (Sorensen, 2008). The main issue is that Marcus lacks the social skills to interact and build friendship. As a displaced child and a relatively new student, his peers might not have accepted Marcus and excluded him from their community. Segregated from activities by his teacher, Marcus had limited opportunities for interactions. Marcus will need support to build his social skills and peers relationship and to be connected with his classmates and teachers. Marcus is observed to seek attention from his teacher as he responded better with one-to-one teacher engagement.

I observed that when Marcus disrupted his friends, he could be seeking play. Marcus has an innate ability of a child to play (Crain, 2012). He liked to pretend play as a Transformer's rescue team when he is left in his corner. From my discussion with his grandmother, I gathered that she could have overindulged in him with play things and he could be addicted to video games. In his classroom environment, he looked restless. He could not internalise nor find things to occupy himself with. Instead he used what he had, his imagination, to create things to do or to play (Bartell, 2017). I reflected that perhaps I would need to work towards bringing Marcus to participate with his friends by first offering play activities, such as dramatic play, that interest children and motivate them to interact. I also thought about opportunities for his social and emotional development, and facilitating his interactions with his peers so that they can accept him and help him to integrate into the learning community.

### **Research Question**

My main research question was: How would having a teacher in dramatic play help Marcus and his peers develop positive peer relationship?

My sub question was: How can I support his social and emotional developmental needs by creating dramatic play that are fun, interactive and engaging?

### **Literature Review**

#### **Role of Teacher in Children's Peer Relationship**

According to research cited in Audley-Piotrowski, Singer and Patterson (2015), teachers can intentionally influence and shape children's peer relationship through their attunement to peer dynamics and using strategies to foster intended learning. Besides academic learning, teachers also influence children's social development through group activities and creation of physical spaces. Their roles include reinforcing positive behaviours by responding to children's needs and by providing the necessary instructional and emotional support (Bovey & Strain, 2003). Social skills do not come naturally and some children need to be taught the skills or be given the opportunities to learn positive interactions and social behaviours.

As cited in Furrer, Skinner and Pitzer (2014), teachers have a special responsibility to support children's learning through direct involvement, provision of opportunities for children to collaborate and engage. As such, teachers will need to use their expertise to apply strategies to specific children and activities.

#### **Importance of Positive Peer Relationship**

Children thrive in inclusive settings where they learn to value self and each another and appreciate their peers (NAEYC, 2012). They accept differences, discover similarities and develop meaningful peer relationships. According to Bovey and Strain (2003), peer interactions are important because they can lead to positive social and emotional

development in young children. Such skills do not come naturally and some children need to be taught the skills or be given the opportunities to learn positive interactions and social behaviours. Children who have difficulty interacting with peers are at risk for later social problems.

With positive social skills with peers, it can lead to a development of positive peer relationship, acceptance and friendship (Bovey & Strain, 2003). With positive peer relationship, children foster a sense of connection and security and build self-esteem and confidence. Four year olds tend to select friends with common interests and spend time together engaged in an activity. They will naturally sort people in order to make sense of their world. In doing so, they may discriminate, form inaccurate ideas about their peers and be less interested or unwilling to engage with certain peers.

As educators, we need to address children's exclusion of others because of differences. Potentially their behaviour can be hurtful and leave other children feeling rejected (Bovey & Strain, 2003), as in the case of Marcus. It is clear that children can benefit from interacting successfully with their peers. It leads to stronger friendships and inclusions in classroom activities.

### **Learning more about Marcus**

I collected data on Marcus through observations and interviews with his teachers and grandmother. From the hourly observations over 2 days, I observed that Marcus followed 3 of 18 instructions given by his teacher. He

appeared to be seeking her attention by not following her instructions

His teachers did not seem to be entirely supportive of his learning. They reported on his inattentiveness and his lack of ability to interact with his classmates except for Anne who tended to be friendlier towards Marcus and both thus got along quite well. The other 5 children perceived Marcus as naughty and excluded him from their play. They showed potentially unhealthy social behaviour too.

His grandmother confirmed that Marcus had not much social interactions at home. Besides eating out at fast-food chains, Marcus preferred solitary play. I used the Penn Interactive Peer Play Scale (PIPPS) (Castro, Mendez & Fantuzzo, 2002) and adapted 9 indicators appropriate for observing Marcus. He did not display any positive interaction behaviours except for showing smiles during play.

### **Action Plan**

I chose to use dramatic play to create opportunities that could bring Marcus and his 6 classmates together over a 3-week period (from 19 Oct to 7 Nov) to communicate, cooperate, play, learn with one another and build positive peer relationship (NAEYC, 2012).

A pizza cafe corner was set up, with the kitchen (for 3-child play) and dining area (for 4-child play). Knowing Marcus's lack of social skills and his inclination to seek attention from his teacher, I planned to spend time with Marcus during his play. Class Teacher Megan took charge of the other children in dramatic play centre. We scheduled a daily 30-minute play

session after snack time. Marcus, Anne and Nick were assigned to the kitchen in Week 1 while the other 4 children were assigned to the dining area. For Week 2, Marcus and Anne were assigned to the dining area to play with Hui Ling and Sean. For Week 3, Anne was assigned back to the kitchen, leaving Marcus to play with the Yu Teck, Carol and Sean. Over the 3 weeks, Marcus would have the opportunity to play with all his 6 classmates.

The kitchen of the Kids' Pizza Cafe was equipped with cooking pans, box oven, rolling pins, playdough for pizza ingredients, bottles of colour mixtures, "coffee" and "tea" bags, kettle, cups, plates and cutlery, sink, sponges, dishcloths, broom and dustpan. The children would pretend play as cook, bartender and helper. The dining room was dressed up with table setting, cashier and reception counter with telephone, cash register, menus and stationery. In this area, the children would pretend play as server, diners and receptionist cum cashier.

The teacher briefed the children on the roles. For the first week, the teacher assigned the role to each child. Over the following 2 weeks, the children were able to take turns with the prepared lanyards.

### **Progress during the 3-week Period**

#### *Week 1: Play at Kitchen Area*

Marcus appeared withdrawn initially. As I held his hand to tour the kitchen, I observed his interest with the setup. For the first session, he was happy to play alone as a cook, playing with dough.

He did not interact with any classmates. Anne, with whom he could get along well, joined him for the second session. Both co-operated; he allowed her to add toppings on his dough and to help clean the table. I encouraged Marcus to converse. He pretended play and interacted well with Anne. Marcus would follow my instructions to keep away things.

Before moving on to the drink area (the third session), I did an orientation in advance with Marcus. He was curious about the bottles with coloured water and he did not resist the change from the kitchen to the drink corner. After my coaching, he learned to take orders from Sean, how to prepare tea and to wave to Sean for drink collection. Marcus was uneasy when Nick came to clean the table. They fought over cleaning chores. Both learned to share after listening to my reasoning; Marcus took the spare cloth to clean the table with Nick and held the dustpan while Nick swept the floor. Marcus was happy with my praises and agreed to move on to his role as a cleaner in the next session.

In the subsequent session, Marcus was sensitive when he heard Nick commenting that he did a better cleaning job than Marcus. He was jealous that Nick played his previous role as a cook which he enjoyed very much. Through my counselling, he learned about turn-taking. He carried out his cleaning role well for that session. I gained his trust when I fulfilled my promise to allow him to be the cook for the following session.

### *Weeks 2 and 3: Play at Dining Area*

As a server, Marcus did not interact with diners and staff except with Anne. He was willing to communicate as a diner when he ordered his pizza and coloured drink. He learned the social skill of saying thank you to the servers.

Marcus was absent for 4 days due to his illness. When he returned at the end of the week, Anne was assigned to the kitchen area. He appeared listless and uninterested to play with the other children. I gathered from his grandmother that Marcus had witnessed her row with his mother on the weekend before. His class teacher and I decided to assign Marcus to the kitchen area to peer play with Anne instead for Week 3. As I engaged in more conversations with Marcus, he began to open up. He interacted more with his peers and followed instructions.

After this 3-week period, I was encouraged with Marcus's improvement and decided to extend the children's dramatic play for another week. This allowed Marcus the opportunity to play with his other classmates in the dining area. I actively participated in Marcus's play; I played as his peer and scaffolded his learning of social graces such as greeting and smiling. Even better results were obtained with Marcus scoring 8 out of the 9 positive interaction indicators of the PIPPS.

### **Analysis and Discussion**

From the data and observations, his class teacher and I agreed that the dramatic play activities were pitched appropriately to the children's interest

and it helped them in their peer-relationship. As cited in Bredekamp and Rosegrant (1992), children will better attend to activities of their interest.

As Marcus had not participated actively in past activities, the cues to talk him into the next activity and the orientations at the dramatic play centre prepared him for varied plays. According to Nikkel (2010), it is important to build a trusting and respectful relationship and goodness of fit between teacher and child. Recognising Marcus' need to feel safe and secure, we paired him with Amita whom he could play well with. I gained his trust as I role-modelled, coached and scaffolded his learning.

With the presence of an active teacher, the children's interactions were positive and rich. We consciously planned for varied interactions between Marcus and his classmates so that he honed his social skills and his classmates learned to accept Marcus in their community. When Marcus was emotionally affected by his family row, we were flexible to adjust his assignment. I gave him more attention and helped reconnect him with the activities.

During the extended week, the children showed more improvements when I actively participated in their play. It was a tipping point for Marcus to learn more language and social skills. According to Hatfield (2016), its research showed that one-to-one interactions between teacher and child could have a valuable impact on children. Besides improving children's peer relationship, the teacher and children relationships were strengthened during this implementation period.

### Summary and Reflections

According to Colewell and Hart (2006), lack of social and communication skills and emotional stability are the main difficulties that children faced. As cited in Shaffer (2009), children pass through 5 stages of plays, from solidarity, showing interest in peer group play, voluntarily joining friends, actively playing with 1 to 2 friends and actively playing in peer group. My role as a teacher is to create opportunities for Marcus to experience varied plays and to know his peers; to role-model how to play and interact (Rabago-Mingoa, Estacio and Perlas, 2014).

My guiding techniques are always to monitor children's reactions to the play environment so as to ensure each child remains interested, challenged but not frustrated. For children who display unoccupied, onlooker and solitary behaviours, we should work towards their participation and encourage the other participative children to include them in their play. I strive to provide on-the-spot support (Katz & McCellan, 1997) for teachable moments such as when Marcus and Leo learned about sharing when they resolved their differences.

To facilitate children's play and learning, I reflect that I should follow the children's lead in play and participate when invited. I showed unbiasedness, enthusiasm, playfulness and enjoyment during my participation. I also put myself in the learning situation with the children (Hewett, 2001). I experienced how much my one-to-one interactions mattered to Marcus and helped fill gaps in his development and peer-relationship. I wondered perhaps I could pause from the

hasty curriculum and dedicate a 15 minute one-to-one interaction with each child regularly. I wondered about the impact on my children's learning.

In conclusion, teachers play many roles in supporting children's play activities (Isenberg & Jalongo 2000). Marcus was at stage one, solidarity play of Shaffer's 5 stages of play (Shaffer, 2009) at the inception of this research. By the end of this research, when he felt more secure, he progressed to stage 2, showing interest in peer group play. I have faith that Marcus would continue on and attain stage 5 as an active member playing in his peer group with his committed teachers. Indeed, having a teacher in dramatic play can indeed help Marcus and his peers develop positive peer relationship.

This action research has been a very enriching learning journey. I discovered a new practice and experienced its positive impacts on teachers and children. I look forward to continuing my learning journey in using action research to improve on my practices, teaching and learning.

### References

- Audley-Piotrowski, S., Singer, A., & Patterson, M. (January 01, 2015). The role of the teacher in children's peer relations: Making the invisible hand intentional. *Translational Issues in Psychological Science*, 1, 2, 192-200
- Bartell, S. (2017). *The truth behind your child's constant boredom*. Retrieved on July 25<sup>th</sup>, 2017 from <http://www.nymetroparents.com/article/explanation-behind-child-constant-boredom>.

- Bovey, T., & Strain, P. (2003). *Promoting Positive Peer Social Interactions. What Works Briefs*. USA: Center on the Social and Emotional Foundations for Early Learning.
- Bredenkamp, S. & Rosegrant, T. (Eds.). (1992). *Reaching potential: Appropriate curriculum and assessment for young children*. Washington, DC: National Association for the Education of Young Children.
- Castro, M., Mendez, J. L., & Fantuzzo, J. (January 01, 2002). A Validation Study of the Penn Interactive Peer Play Scale with Urban Hispanic and African American Preschool Children. *School Psychology Quarterly*, 17, 109-127
- Colwell, M., & Hart, S. (2006). Emotion framing: Does it relate to children's emotional knowledge and social behaviour? *Early Child Development and Care*, 176, 591-603.
- Crain, W. (2012). *Is children's play innate?* Retrieved on July 26<sup>th</sup>, 2017, from <http://ww.pelinks4u.org/2007/resources/wals07/parallel/024-2.pdf>
- Furrer, C. J., Skinner, E. A., & Pitzer, J. R. (January 01, 2014). The influence of teacher and peer relationships on students' classroom engagement and everyday motivational resilience. *Teachers College Record*, 116, 13, 101-123.
- Hatfield, B. (2016). *Improving child-teacher interactions can reduce preschoolers' stress levels*. Retrieved on January 8<sup>th</sup>, 2017, from <https://phys.org/news/2016-12-child-teacher-interactions-preschoolers-stress.html>
- Hewett, V. M. (January 01, 2001). Examining the Reggio Emilia Approach to Early Childhood Education. *Early Childhood Education Journal*, 29, 95-100.
- Isenberg, J.P. & Jalongo, M.R. (2000). *Creative expression and play in early childhood* (3<sup>rd</sup> ed.). Upper Saddle River, NJ: Merrill/Prentice Hall.
- Katz, L.G., & McCellan, D.E. (1997). *Fostering children's social competence: the teacher's role*. Washington, DC: NAEYC
- NAEYC. (2012). *Supporting preschoolers' positive peer relationship*. Retrieved on October 10<sup>th</sup>, 2017, from <https://www.naeyc.org/yc/files/yc/file/201211/Manaster.pdf>
- Nikkel, L. (2010). *Goodness of fit between teacher and child characteristics: Implications for teachers' perceptions of children's school adjustment*. Burnaby, B.C: Simon Fraser University.
- Rabago-Mingoa, T., Estacio, T. A. M., & Perlas, J. E. M. (January 01, 2014). Introducing Filipino Games to Promote Peer Play Interaction. *Asia-pacific Journal of Research in Early Childhood Education*, 8, 2, 153-173
- Shaffer, D. (2009). *Social and personality development*. Belmont, CA: Wadsworth Cengage Learning
- Sorensen, B. (2008). *Only-child experience and adulthood*. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan.

# Singapore Preschool Quality – Missing the Mark?

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## Introduction

Singapore gained independence from Malaysia in 1965. With land area of approximately 582km<sup>2</sup> then and no natural resources, our location and human capital has fuelled the growth of Singapore from third world to first (Sim, 2012). Among the important policies that the late Prime Minister Lee Kuan Yew put through to make Singapore successful, policies on investments, establishing high-quality education (Yiannouka, 2015) and developing key infrastructure resonate in our Early Childhood Care & Education (ECCE) sector.

## Importance of Quality Human Quality

The world has become smaller through global interconnections (Tan, 2010), and with larger and rising economies offering ever-growing quantity and ever-improving quality of human resource, the pressure on the quality of our human capital to remain among the world's best is high (Lim et al., 2017). Hence, Singapore has an on-going, long-term effort to invest and encourage training and re-training, and offering a wider and higher scope of education. Singapore sends out our own to learn from the best around the world (Sim, 2012). Conversely, it tries to attract the world's best to establish offices here so that transference of expertise and experience can occur and germinate new superhighways of growth for both the

economy and the quality of our human capital (Lee, 2014). The sustainability of the Singapore economy hangs in the balance.

## Intensity of Competition Affecting the ECCE Sector

It used to be that the quality of our human capital was sought through the realm of higher education. However, in this age where competition is keen and where there is greater understanding of how humans learn, the quality ladder is starting lower and creeping into the ECCE sector (Lim et al, 2017). With appropriate direction and encouragement, preschool children will be groomed to learn better. With better learning skills, they can thus perform well, or rather, manage their learning better from an earlier age and stand out eventually (AL-Othman, 2014).

## Singapore Preschool Sector

Singapore preschool education and care is largely offered by the private sector and made up of both for-profit and non-profit organisations (Lim, 2017, Ang, 2012). Being private enterprises catering to paying parents, these preschools seek to fulfil the parental desire for their children to do well and to be prepared for primary school (Lim et al., 2017). As parents succumb to the pressures for their children to perform in school, preschools also define their services in the

same way and make the parental desired outcomes the beacon for quality (Lim, 2017). Hence, whether for profit or to meet cost pressures, preschools differentiate themselves through brand, concept, teaching method, look and feel (Lim, 2017). True quality, a quality focused on the child, is easily blurred or lost in the competition for supremacy. Another problem that arises out of this competition is social inequity and inaccessibility for the less privileged as fees are tagged to perceived quality (Lim, 2017).

#### **Aligning Preschool Outcomes to Economic Need**

With Singapore’s dependence on human capital and the nature of the ECCE sector (Lim et al., 2017) where private objectives drive it, a gulf exists. Bridging the gap between these two require directional intervention and only the government would be in the position to intervene meaningfully (Lim et al., 2017). This is what we have witnessed over the past decade and a half or so. The government, through various forms of agencies, have focused on improving the quality of preschool education. They have raised the standards for becoming principals and teachers (Lim et al., 2017, Khoo, 2010). There has also been financial support for further training of principals and teachers (ECDA, 2014e). There was also the introduction of a curriculum framework and a voluntary accreditation known as Singapore Preschool Accreditation and Regulatory Framework – SPARK (Bull et al., 2017). The introduction of Anchor Operator and

Partner Operator programs sought to afford more control to the governing agency to ensure stricter adherence to overall quality standards for the children, teachers, principal, processes, environment, resources, etc. toward meeting objective desired outcomes instead of those driven by parents or profit (Jing, 2017).

#### **Function of SPARK**

SPARK is a comprehensive regulatory and accreditation vehicle to help the ECCE sector understand the importance and impact of quality preschool education and care, and how it will raise the whole sector (Lim-Ratnam, 2013, Jing, 2017). The implementation of SPARK is currently voluntary, however those who adopt it are guided in seven key areas where their preschool is expected to benefit from a broader understanding of interwoven aspects of operating a quality preschool (Lim, 2017). In periodic audits, these aspects will be measured for maintenance, improvement and progress. The seven key areas are leadership; planning and administration; staff management; resources; curriculum; pedagogy; and, health, hygiene and safety (Jing, 2017).

Even though SPARK is comprehensive, is it enough to get us where we need to be pertaining to quality and desired outcomes for the children? This question then raises another – what is quality in preschool education and care? It is reasonable to say that quality preschool education and care is focused on the child and needs of the child. Quality should be defined by how well a child grows and

blossoms in the following areas at the very least – physical, intellectual, emotional and social (Rentzou, 2010).

### **What is Quality?**

In the ECCE sector, the governing agency is investing in higher entrance requirements and educational standards for principals and teachers (MOE, 2008), and in developing key infrastructure such as operator partnerships and SPARK to grow and achieve the desired outcomes for the sector and country as a whole (Jing, 2017, Lim, 2017). Although to define quality in preschools is complex, different stakeholders - parents, children, or researchers, have different considerations and definitions of quality (Denny et al, 2012). For greater focus, SPARK will be the subject of discussion as it provides a comprehensive framework heavily relied upon by the governing agency to derive quality in the ECCE sector (Lim, 2017).

SPARK is the key infrastructure as it sets out the structural considerations for preschool operators which help ensure that, at the minimum, preschools have the infrastructure and pathways towards a better environment, better teachers and better administration to keep everything in place and working like clockwork. However, quality does not simply come about because of preschools attaining the required structural conditions such as teacher education, training and qualifications and teacher-child-ratio or group size (Romano et al., 2010). Quality is more than just structural (Jeon et al., 2014). High-quality staff are required with a structured system to bring about quality. Quality also involves process

quality (Jeon et al., 2014) which includes the ability of the teacher to be sensitive and to be able to elicit children's responses, and to interact meaningfully with the children (Wilcox-Herzog et al., 2013). It encompasses the extent to which the teacher provides an appropriate and conducive environment where intellectual and social skills are encouraged (Romano et al., 2010). Process quality refers to the experiences of the children in their preschool environment, encompassing their reactions to others, the materials and the activities involved in (Phillipsen et al., 1997). Process quality between teacher and child will translate into improved skills in literacy and numeracy, including better socio-emotional functioning among other children (Jeon et al., 2014). Children will also display proactive behaviour, be more collaborative and cooperative, and be better behaved and self-regulated in social groups (Mashburn et al., 2008, Rentzou, 2010).

Preschool quality is defined by the interworking and interdependence of both structural and process variables (Romano et al., 2010). In light of process quality where the variables are hard to qualify and quantify, but which is highly required to achieve the true quality of preschool education and care - structural quality now looks much easier to achieve as it is quantifiable (Jeon et al., 2014). Compared to process quality, structural quality is more easily regulated and evaluated (Vermeer et al., 2016) and hence, has been the aspect most focused on regarding policy and regulatory development to promote preschool

quality. For example, SPARK assessment takes place over two days. When all criteria are met at least at the emergent level, the preschool is awarded the SPARK accreditation which is valid for three years. Prior to the expiration of the SPARK accreditation, there is one developmental visit lasting four hours. This may not be a true representation of true and continuous quality but every preschool with SPARK accreditation, at the minimum, has a benchmark to maintain.

On the other hand, observation is the key assessment method for process quality and it cannot be refuted that process quality is more predictive of a child's outcome than structural quality pertaining to standardisation across the board for every child (Whitebook et al., 1990). Observation is time-consuming and given the restricted resources of time and manpower, it is quickly completed with a sample of the teachers over two days. The next observation will be in three years. Though important, there may be insufficient impetus to ensure that process quality is consistently monitored, training is on-going and that teachers internalize and practise it.

**Motivation for Attaining Quality Standards**

Structural quality through SPARK is the low-hanging fruit and more easily implemented and monitored by the governing agency and where preschools find it easier to attain the necessary criteria for grading (Jeon et al., 2014). With scarce resources especially in the aspect of time, developmental and audit visits are short and precise. There is little

time and energy for auditors to provide equal focus for process quality and this makes overall quality questionable since quality is both a function of structure and process.

With the benefits of recognition in attaining SPARK accreditation, many preschools may decide to apply for and implement the standards structurally as this will impact the sustainability and perhaps profitability of their preschool business. However, where process quality is concerned, it can be easily glossed over and thus miss the mark in achieving the desired quality outcome (Bull et al, 2017). With the relatively little experience young principals and teachers have in the ECCE sector due to the quick expansion of the sector and acute shortage of staff, the aspect and purpose of process quality is easily side-lined. Process quality is rather fluid and immediate results are not visible, unlike measurable hard-points of structural quality.

Without a complete understanding of quality – both structural and process (Jeon et al., 2014), a lopsided idea focused heavily on structural quality components produce a different understanding of quality among preschool professionals, and this will in turn, produce a misalignment of thoughts and ideas for work development and process. Given time, not giving enough emphasis will trivialise process quality to the detriment of the whole quality drive.

The lack of understanding of process quality among pockets of preschool professionals creates different convictions and disagreements which will lend itself to significant delay or cause failure in

achieving quality, even when well administered. Additionally, a lack of conviction will impact the attitude of preschool professionals negatively towards adopting the knowledge and skills for process quality and to carry out the expected processes. Ultimately, the children will be ones who are robbed of the opportunity to grow and excel.

There needs to be a renewed and purposeful emphasis on the aspect of process quality where it is highlighted with equal or greater degree of importance than structural quality (Vermeer et al., 2016). More time should be dedicated to the continual training and practice of process quality for preschool professionals to align thoughts with what constitutes complete quality (Bleach, 2014).

### Conclusion

There is a global consensus among experts that high-quality preschools ensure good outcomes for children. High quality distinguishes a preschool from just being understood as a simple childcare function (Ang, 2012). Although many factors define and affect quality, quality can be defined as structural quality and process quality. Together, they complement each other to form the correct and complete definition of quality.

It is critical to have a quality system to align preschools to attain national desired outcomes. According to James Harrington, “If you can’t measure something, you can’t understand it. If you can’t understand it, you can’t control it; you can’t improve it”. It is important that every quality rating scale has both the structural

and process quality components which should be considered and implemented in totality and alongside each other in order to truly attain the desired quality.

The structural quality aspect of SPARK has certainly exposed preschool management teams to the key aspects of operating a preschool and developmental and audit visits ensure maintenance and improvement. Unfortunately, the other important aspect of process quality seems elusive and there is little being done to bring it up to par with structural quality. Admittedly, the community will define quality differently and probably in accordance to their own desired outcomes and to their environment and other influences such as ethnicity, religion, social class and educational background (Rosenthal, 2003). These aspects have been omitted to focus entirely on the quality rating system but could be further looked into to obtain a broader dimension of consideration into quality in Singapore. A good starting point could be a survey of parental considerations and definition of quality to eventually help to bring about mutual understanding, expectations and desired outcomes.

Without awareness, training, reminding and expectation of our teachers to be conscientious about process quality, this weak link may defeat the purpose of the road to quality and possibly jeopardise the future of the country. A greater focus on process quality and practical means of attaining it should be considered, tested and implemented as vigorously as structural quality (Vermeer et al, 2016). An

understanding of the teachers' perspectives through a survey will provide a good springboard toward achieving set objectives for true quality.

Further studies should also be made to uncover the reasons for the discrepancy between structural and process quality so that more can be understood and done to ensure that quality in the sector is reached for the children, their families and ultimately, the country.

### References

- Ang, L. (2012). *Vital voices for vital years: A study of leaders' perspectives on improving the early childhood sector in Singapore*. Singapore: Lien Foundation
- AL-Othman, F. H. (2014). The Impact of Good Quality Instructions of Early Education on the Performance of University Newcomers. *Journal of Education and Learning*, 3(1), 111-121.
- Bleach, J. (2014). Developing professionalism through reflective practice and ongoing professional development. *European Early Childhood Education Research Journal*, 22(2) 185-197. DOI:10.1080/1350293X.2014.883719
- Bull, R., Yao, S., & Ng, E. L. (2017). Assessing Quality of Kindergarten Classrooms in Singapore: Psychometric Properties of the Early Childhood Environment Rating Scale-Revised. *International Journal Of Early Childhood*, 49(1), 1-20.
- Denny, J. H., Hallam, R., & Homer, K. (2012). A Multi-Instrument Examination of Preschool Classroom Quality and the Relationship between Program, Classroom, and Teacher Characteristics. *Early Education And Development*, 23(5), 678-696.
- Developmental Learning Outcomes in Toddlers. *Early Childhood Education Journal*, 42(2), 115-123.
- ECDA (2014e, October 9). *New ITE Training award for aspiring Early Childhood Educators and Advanced Diploma for centre leaders*. Retrieved from <https://www.ecda.gov.sg/PressReleases/Pages/New-ITE-Training-Award-for-Aspiring-Early-Childhood-Educators-and-Advanced-Diploma-for-Centre-Leaders.aspx>
- Jeon, L., Buettner, C. K., & Hur, E. (2014). Examining Pre-School Classroom Quality in a Statewide Quality Rating and Improvement System. *Child & Youth Care Forum*, 43(4), 469-487
- Jing, M. (2017). The ECE Landscape Being Shaped by Cosmopolitanism: An Examination and Evaluation of Policies in Singapore. In: Li H., Park E., Chen J. (eds.) *Early Childhood Education Policies in Asia Pacific. Education in the Asia-Pacific Region: Issues, Concerns and Prospects*, Vol. 35. Springer, Singapore.
- Khoo, K. C. (2010). The Shaping of Childcare and Preschool Education in Singapore: From Separatism to Collaboration. *International Journal of Child Care and Education Policy*, 4(1), 23-34.
- Lee, J. T. (2014). Education Hubs and Talent Development: Policymaking and Implementation Challenges. *Higher Education: The International Journal of Higher Education and Educational Planning*, 68(6), 807-823.

- Lim, M.Y.S., Lim A. (2017). Governmentality of Early Childhood Education in Singapore: Contemporary Issues. In: Rao N., Zhou J., Sun J. (eds.) *Early Childhood Education in Chinese Societies. International Perspectives on Early Childhood Education and Development*, Vol 19. Springer, Dordrecht.
- Lim, S. (2017). Marketization and Corporation of Early Childhood Care and Education in Singapore. In M. Li et al (eds.) *Contemporary Issues and Challenges in Early Childhood Education In the Asia-Pacific Region, New Frontiers of Educational Research*. DOI 10.1007/978-981-10-2207-4\_2
- Lim-Ratnam, C. (2013). Tensions in defining quality pre-school education: the Singapore context. *Educational Review*, 65(4), 416-431.
- Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development*, 79, 732–749.
- Ministry of Education. (2008, March 4). Press release: *Improving the quality of preschool Education*
- Phillipsen, L. C., Burchinal, M. R., Howes, C., & Cryer, D. (1997). The prediction of process quality from structural features of child care. *Early Childhood Research Quarterly*, 12, 281–303.
- Rentzou, K. (2010). Using the ACEI Global Guidelines Assessment to Evaluate the Quality of Early Child Care in Greek Settings. *Early Childhood Education Journal*, 38(1), 75-80.
- Romano, E., Kohen, D., & Findlay, L. C. (2010). Associations among child care, family, and behaviour outcomes in a nation-wide sample of preschool-aged children. *International Journal of Behavioral Development*, 34(5), 427–440.
- Rosenthal, M.K. (2003). Quality in Early Childhood Education and Care: A cultural context, *European Early Childhood Education Research Journal*, 11(2), 101-116. DOI: 10.1080/13502930385209191
- Sim, J. B. (2012). The Burden of Responsibility: Elite Students' Understandings of Civic Participation in Singapore. *Educational Review*, 64(2), 195-210.
- Tan, C. (2010). Educational Policy Trajectories in an Era of Globalization: Singapore and Cambodia. *Prospects: Quarterly Review of Comparative Education*, 40(4), 465-480.
- Vermeer, H. J., van IJzendoorn, M. H., Cárcamo, R. A., & Harrison, L. J. (2016). Quality of Child Care Using the Environment Rating Scales: A Meta-Analysis of International Studies. *International Journal of Early Childhood*, 48(1), 33-60.
- Wilcox-Herzog, A., McLaren, M., Ward, S., & Wong, E. (2013). Results from the Quality Early Childhood Training Program. *Journal of Early Childhood Teacher Education*, 34(4), 335-349.
- Whitebook, M., Howes, C., & Phillips, D. A. (1990). *The National Child Care Staffing Study. Final report: Who cares? Child care teachers and the quality of care in America*. Washington, DC: Center for the Child Care Workforce

Yiannouka, S. N. (2015, April 11). *The secret of Singapore's success in education*. The Straits Times. Retrieved from <https://www.straitstimes.com/opinion/the-secret-of-singapores-success-in-education>

# Multicultural Education in Singapore

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## Introduction

Multiculturalism is a philosophy that advocates for an authentic immersion into the global experience. Within the educational context, it aims to develop cross-cultural competencies and cultivate an understanding of and appreciation for the global culture in children. Multiculturalism envisions individuals within pluralistic societies who are culturally sensitive and are able to efficiently adapt themselves beyond national borders. In the light of increasing globalisation, there is a pressing need to instill 21st-century competencies, like an awareness of diversity and responsiveness to issues that surround them, in our young ones (Berthelsen & Karuppiah, 2011; Karuppiah, 2004).

Further, it is not sufficient to possess content knowledge of cross-cultural practices and skills. One should also cultivate attitudes that are relevant to multiculturalism, which include being able to identify differences among people, maintaining open-mindedness towards differences between people and being able to communicate with different groups of people who may be vastly different from each other. One has to possess ethical standards as their moral principles will allow them to truly comprehend the inequalities present within hegemonic societies and take

action towards social justice (Vavrus, 2008).

These qualities are dispositions that have to be inculcated from a young age because early childhood is the critical age for children to form their beliefs about themselves and the world around them; children construct their attitudes as they internalize the dynamics of the society they are in (Berthelsen & Karuppiah, 2011). For example, children are already able to make assumptions about people based on different skin tones during their early years (Marchant, 2018). Hence, it is imperative to immerse them in multiculturalism during those formative years so that they develop positive values to become global citizens. Since the preschool environment has a large impact on how children are being nurtured, it is also pertinent to look into practices of multiculturalism in preschools.

## Multicultural Education in Singapore

Singapore is a country that boasts racial harmony amongst a highly diverse community — 74.3% of residents are Chinese, 13.4% Malays, 9.0% Indians and 3.2% Others (mostly Eurasians). Apart from these four broad racial categories, Singapore also hosts many workers and students from countries all over the world and, with them, their cultures (Department for Statistics, 2017; Wise & Velayutham, 2014). This socio-cultural

hybridity has caused multiculturalism to be one of the issues that the Singapore ministry has aimed to address.

Within the preschool sector, an effort to advocate for multiculturalism is through the publication of the Nurturing Early Learners (NEL) Curriculum. Its framework was developed by the MOE to offer educators pedagogical guidance. Within it lies acknowledgement that children's growth is impacted by their cultural and social contexts. Educators are encouraged to gather information about the individual child from various sources and consider the culture, value systems and home environment that they come with. They are also to provide opportunities for children to interact with people from different backgrounds and materials from various cultures. The ultimate aim is hence to provide children with meaningful contexts their holistic learning (Ministry of Education, 2012).

Apart from addressing multiculturalism within the guided framework, preschools in Singapore are expected to create a learning environment where children have an authentic understanding of multiculturalism as well. The Singapore Pre-school Accreditation Framework (SPARK) assessment, an accreditation process for quality assurance that preschools are highly encouraged to go through, places multiculturalism as one of its components of evaluation. Under Criterion 5.7, schools are to meet the minimum requirement of creating an awareness of various cultures within the community, in children. The ultimate goal, however, is to achieve the mastery level where the school has created a culture to

encourage children to display dispositions of compassion and respect towards people who are different from themselves (Marchant, 2018).

It is apparent through these implementations that the Singapore government is invested in instilling values of multiculturalism within society through education. However, there may be challenges against these ideals. Some of the more prominent challenges include the neoliberalist nature of the early childhood sector within the market and the pedagogical execution of multiculturalism.

The free-market nature of the early childhood sector in Singapore may inadvertently detract from the effectiveness of governmental implementations as it impacts the consistency of multicultural practices within the sector across Singapore. Due to most preschools in Singapore being private, they have autonomous control over their curriculum and are able to design them in accordance to the philosophies they feel suit their needs best (Lim-Ratnam, 2013). Accordingly, although there may be steps taken by the government to offer guidelines on cultivating appreciation of diversity in children, these efforts may be wasted if a preschool decides not to adopt the NEL framework or chooses not to attain SPARK accreditation. While some preschools may actively inculcate values of multiculturalism in their children, there may be others that place these as low priority. For example, due to parents in Singapore having high academic expectations, there may be preschools

that place more effort in planning the development of children’s literacy or numeracy skills over social-emotional ones, hence investing less time on multicultural education (Lee, Hung & Teh, 2016).

Inconsistencies may also lie in schools that attempt to incorporate multiculturalism within their curriculum. Due to multiculturalism being a philosophy instead of a core domain, it may be side-lined by teachers especially since the quality of pedagogy in a classroom is largely dependent on teachers’ commitment and expertise to inculcate values throughout their time spent with those children daily (Gay, 2002). The individual teacher may not necessarily be thoroughly and enthusiastically incorporating those values if he or she is pressed for time to meet the learning goals of lessons. This runs the risk of a tourist approach — the educator exposes children to other cultures only at a superficial level. The teacher may not go beyond sharing visible aspects of another culture, such as its festivities, food and clothing. An authentic understanding of another culture requires learning about its intangible components, such as the values, behaviour, attitudes and beliefs of the people (Lee, 2014).

Moreover, the abstract nature of the philosophy may prove to be a challenge for inexperienced teachers to meet its goals because it is not something that can be easily assessed. Therefore, teachers need to explicitly understand issues of multiculturalism and how to go about inculcating its values in their classrooms. In order to facilitate this authentic

understanding, teachers have to first approach the topic with an open-mind. The subject of race is inherent within multiculturalism. However, teachers have been found to shy away from topics of race and bias and believe that they are colour-blind, or are without prejudices (Berthelsen & Karuppiah, 2011). Although well-intended, this poses a risk of unintentional discrimination as the teachers are not open to recognizing their biases and may not be aware of their prejudiced actions (Castro, 2010).

For this paper, a poll was conducted with 54 preschool teachers in Singapore, across Anchor Operators, Partner Operators, Voluntary Welfare Organisations, MOE Kindergartens and Private Organisations, about the challenges they face in incorporating multiculturalism in their classrooms (Fig 1). Indeed, 59.3% of respondents felt that they lacked knowledge and training in multiculturalism. The same percentage of teachers also believed that they faced a lack of resources for them to practise the philosophy in their classrooms. Additionally, almost half of the teachers

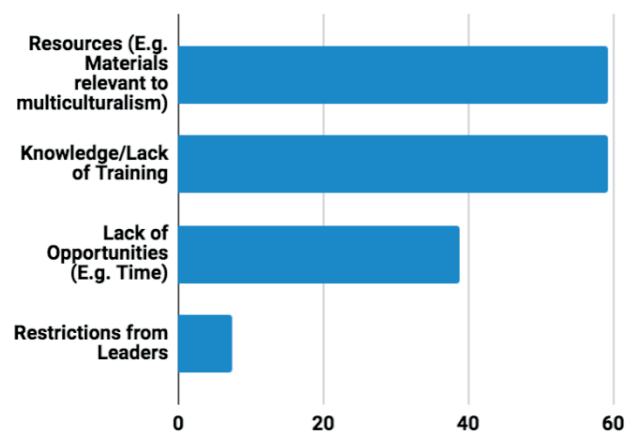


Fig 1: Challenges Faced by Preschool Teachers in Incorporating Multiculturalism in Classrooms.

believed that they were not biased, as illustrated in Fig 2, and the majority still quoted celebrating cultural festivals as the main way of practising multiculturalism in their schools.

**Do you believe you have a bias?**

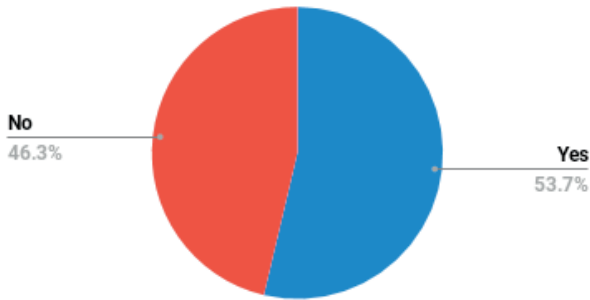


Fig 2: Bias Awareness in Preschool Teachers

More training in multiculturalism may be needed for teachers and leaders to go through to improve multiculturalism practices in preschools in Singapore. This will be addressed in the following section.

**Recommendations**

In order to successfully develop multicultural competencies in children, we need to evaluate our current multiculturalism practices within the field and consider components of culturally sensitive curricula available that we can extract to assimilate into our daily classroom practices. A curriculum approach that will be discussed is the Culturally Responsive Pedagogy.

Culturally Responsive Teaching (CRT) is a type of anti-bias curriculum that views children and teachers as cultural beings; each individual comes with his or her own unique set of values, beliefs and way of life. With this understanding as a basis of

pedagogy, teachers are able to construct learning goals and lessons that are child-centered — teachers will minimise their assumptions about the children and view each child in his or her own right (Wlodkowski & Ginsberg, 1995). Furthermore, racial sub-groups and religious differences are cross-cutting cleavages that subdivide children beyond broad racial classifications. Hence, one should not assume that children belonging to the same racial groups are identical or similar in their practices.

**Investigation of The Child.** This is possible through thorough investigations of each child’s background. Similar to the NEL, CRT also encourages learning about a child from various sources. One of its methods includes regularly bringing family members of children into the classroom, and by extension, their culture. This way, teachers will not only be able to forge strong school-home partnerships, but also allow children authenticity in learning. Teachers can also encourage each child to share with others about their ways of lives to allow them to understand how similar or different they are to one another and to develop appreciation and respect for diversity (Delano-Oriaran, 2012).

Although the NEL encourages family collaborations as well, CRT places higher emphasis on bringing the home of the child to school, with a broader aim for social justice (Lee, 2014). With comprehensive knowledge about each child, teachers can offer equity to children by recognizing the needs of each child to allow them equal opportunities for success (Vavrus, 2008).

**The Educator.** Furthermore, CRT sees the educator as an impetus towards multiculturalism ideals. It posits the importance of early childhood practitioners recognizing his or her own culture, as well as identifying any biases that he or she possesses. Hence, CRT encourages educators to do critical reflections of who they are, their roles and impacts in not just the classrooms but the community as well – educators have to be aware of their place within diversity and be responsive towards the inequities present in his or her classrooms. For CRT to be effective, it is also crucial for educators to continuously expand their multicultural knowledge by learning in-depth about the cultures present in their classrooms and apply what they have learned by displaying positive dispositions towards cultures that children can model after (Delano-Oriaran, 2012; Vavrus, 2008). CRT hence sets the curriculum of the school into the context of a pluralistic society, staying true to authentic learning and being a culturally sensitive pedagogy (Ladson-Billings, 1995).

**The Learning Environment.** A classroom that reflects CRT is one with a learning environment that represents its heterogeneous students. This can be accomplished by making considerations of the physical environment. For instance, teachers may select dramatic play toys that represent the diverse populace (Durden, Escalante & Blich, 2015). Educators may complement this by setting a positive classroom dynamic, such as assuring the children that their native languages are welcomed; teachers may

pick up a few frequently used words or phrases in the child’s mother-tongue language and use them in class. They can also actively engage the children in discussions of culture, race, age or ability (Klingner et al., 2005).

### Conclusion

It can be observed that within the Singapore context, preschools typically place culture into education (tourist approach) and not education into culture (Phillips, 1995). Hence, in order to create a more authentic environment for children to learn values of multiculturalism, preschools need to aim towards bringing a child’s home culture into the school setting as much as possible. Early childhood leaders can initiate this move by encouraging the teachers to acknowledge their personal biases and identifying ways that they can counter them. Then, leaders need to work with their educators to learn about the children within their preschools and figure ways to bridge the gap between home and school. This is with the aim for each child to feel that their sense of cultural identity is reaffirmed and develop positive attitudes towards other cultures as well. Undoubtedly, there will be obstacles against the implementation of an anti-bias curriculum. There is hence a call for a thorough investigation of these challenges, especially within the Singapore context, so that they can be overcome to adopt the critical components of CRT. Nonetheless, it is our duty as educators to ensure that we take some effort towards multiculturalism so

that our children will be moulded into fine global citizens of the future.

### References

- Berthelsen, D., & Karuppiah, N. (2011). Multicultural education: The understandings of preschool teachers in Singapore.
- Castro, A. J. (2010). Themes in the research on preservice teachers' views of cultural diversity: Implications for researching millennial preservice teachers. *Educational Researcher*, 39(3), 198-210.
- Delano-Oriaran, O. (2012). Infusing Umoja, an authentic and culturally engaging service-learning model, into multicultural education. *International Journal of Teaching and Learning in Higher Education*, 24(3), 403-414.
- Department for Statistics. (2017). Population Trends. Retrieved from <https://www.singstat.gov.sg/media/files/publications/population/population2017.pdf>
- Durden, T. R., Escalante, E., & Blitch, K. (2015). Start with us! Culturally relevant pedagogy in the preschool classroom. *Early Childhood Education Journal*, 43(3), 223-232.
- Gay, G. (2002). Preparing for culturally responsive teaching. *Journal of teacher education*, 53(2), 106-116.
- Karuppiah, N. (2004). *Identifying training needs for multicultural education of pre-school teachers: a Singapore case study* (Doctoral dissertation, Durham University).
- Klingner, J. K., Artiles, A. J., Kozleski, E., Harry, B., Zion, S., Tate, W., ... & Riley, D. (2005). Addressing the disproportionate representation of culturally and linguistically diverse students in special education through culturally responsive educational systems. *education policy analysis archives*, 13(38), n38.
- Ladson Billings, G. (1995). But that's just good teaching! The case for culturally relevant pedagogy. *Theory into practice*, 34(3), 159-165.
- Lee, S. (2014). *Essential practices for early childhood educators who value multicultural perspectives* (Doctoral dissertation).
- Lee, S. S., Hung, D., & Teh, L. W. (2016). An ecological view of conceptualising change in the Singapore Education System. *Educational Research for Policy and Practice*, 15(1), 55-70.
- Lim-Ratnam, C. (2013). Tensions in defining quality pre-school education: The Singapore context. *Educational Review*, 65(4), 416-431
- Marchant, S. (2018). Building an Awareness of Culture in the Early Years. *Mendaki Policy Digest, M35 Anniversary Edition*, 25-39.
- Ministry of Education, Singapore. (2012). Nurturing Early Learners Framework. Retrieved from <https://www.nel.sg/nel/slot/u566/Resources/Downloadable/pdf/kindergarten-curriculum-framework.pdf>
- Phillips, C. B. (1995). Culture As Process. In *A Guide to Culturally Sensitive Care*. California Department of Education.
- Vavrus, M. (2008). Culturally responsive teaching. *21st century education: A reference handbook*, 2, 49-57.
- Wise, A., & Velayutham, S. (2014). Conviviality in everyday

multiculturalism: Some brief comparisons between Singapore and Sydney. *European journal of cultural studies*, 17(4), 406-430.

Wlodkowski, R. J., & Ginsberg, M. B. (1995). A Framework for Culturally Responsive Teaching. *Educational Leadership*, 53(1), 17-21.

# Differing Perceptions on the Value of Social-Emotional Development among Pre-school Children in Singapore and Its Implications on Professional Practices

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## Introduction

### Social-emotional development and its importance to children and families

According to the Singapore’s Nurturing Early Learner (NEL) framework, building social-emotional (SE) competencies among children is one of the key areas of development during the early years (MOE, 2013). These competencies consist of the abilities of understanding one’s emotions and those of others, resilience, self-regulation, display of appropriate behaviours and emotions during social interactions, and effective ways of handling conflicts or difficult social situations (MOE, 2013; Ahn, 2005). While many philosophies of child development and international bodies such as United Nations on the Rights of the Child (UNCRC) and World Economic Forum (WEF) advocate the importance of SE development in shaping a child’s overall development and transition to adulthood (Lightfoot, Cole & Cole, 2013), it is essential to study and understand how Singapore’s society and its stakeholders view and value SE development during early childhood (EC) and how these differences in perceptions can affect the development of our children and the practices of EC educators in Singapore.

Supported by Bronfenbrenner’s ecological theory (Berk, 2009) which

studies the relationships between differing perceptions of the stakeholders in a child’s environment and how they can affect the child collectively, this issue is also vital for families as SE competencies displayed by children echo different types of “parenting paradigms” (Carter, Frewen & Chunn, 2014, p.58) that are built on the sets of cultural beliefs, principles and values unique to the respective families. For instance, Chinese parents who subscribe to values of conformity and respect are likely to teach their children to handle conflicts in a more tolerant manner compared to other cultures (Lightfoot, Cole & Cole, 2013). Thus, this study may call for an introspection of the values, beliefs and principles held by families and a subsequent reflection on child-rearing practices.

### Differing perceptions on the value of SE development among preschool children in Singapore

***SE development: A static construct or a continuously changing process?*** From a macro perspective, the way SE development is valued and espoused in society underpins its entrenched cultural values and national sovereignty (Lim & Lim, 2017). With a population that is predominantly Chinese, Lim & Lim (2017)

also contends that Confucius ideals are strongly embedded in Singapore's society by highlighting how Ministry of Education's (MOE) list of desired outcomes for preschool education could be moderately directed by this set of cultural values to groom the younger generations into competent, respectful and law-abiding members of society in future. By accentuating on the need to learn to love one's family, community and nation and show respect towards others especially parents and teachers, the list of desired outcomes concurs with Confucius' beliefs in hierarchical systems and collectivism (Chan, 1963). Similarly, the same set of values is evidently observed from parental expectations of formal, teacher-directed education that are deemed beneficial for children (Ebbeck & Gokhale, 2004) in the longer run. Thus, SE development among young children in Singapore is perceived as an essential medium in developing a fixed set of desirable traits among its future citizens influenced by its dominant social mix and political ideals.

On the other hand, recent research in neurodevelopment science highlights new evidence in the plasticity of brain functions that control cognition, emotions and behaviours all the way from infancy to adulthood (Guyer, Pérez-Edgar & Crone, 2018). This suggests the notion that individuals' constantly changing brain mechanisms can simultaneously influence their environments just as readily as how environments shape brain mechanisms (Selemon, 2013; Guyer, Pérez-Edgar & Crone, 2018). Thus, there is also a need to look at SE development among young

children as an ongoing and changing process as compared to a construct defined by preconceived beliefs that are passed on from adults.

***SE development: As an important component of quality pre-school education or as a supportive element to achieve academic competence?*** Notably, SE competencies, otherwise categorised as non-cognitive skills or dispositions, are deemed crucial to a child's long-term development and lifelong learning (García, Weiss, & Economic Policy, 2016). Correspondingly, MOE's key learning dispositions, PRAISE (perseverance, reflectiveness, appreciation, inventiveness, sense of wonder and curiosity, and engagement) mirrors the government's stance on SE development as the focus of Singapore's EC development (MOE, 2013). To the extent that MOE consistently defends its stand against making pre-school education part of the public education system by reiterating the dangers of formalising education prematurely and focusing excessively on academic competencies (Lim-Ratnam, 2013), the belief in the holistic development of a child is strongly advocated and promulgated within the local communities.

However, there exist strong tensions between the government's emphasis on SE development as a core component of quality EC education programmes and societal perceptions on EC education. According to a 2015 survey conducted by The Straits Times, four in ten families in Singapore sent their pre-school children for tuition on specific subjects

such as English, Mathematics and Science, citing reasons such as improving their school readiness and keeping up with peers (Davie, 2015). These parental expectations resonate with society's focus on academic achievements and act as an opposing force towards a child-centered and holistic curriculum (Ang, 2006). More intuitively, SE development is valued as a means to prepare children for formal schooling and achieve future success as perceived by many parents and educators. Given that the immense pressure on academic competence emerges partly from the demands of an examination-based system, this sentiment is generally shared by the entire education system including the primary and secondary schools (Lim-Ratnam, 2013). While research has shown that games act as effective tools to teach SE learning (Hromek & Roffey, 2009), a local survey conducted by National University of Singapore (NUS) revealed that only 16% of the primary and secondary teachers have a positive gaming mindset. Moreover, many teachers prioritise academic benefits and curriculum objectives when incorporating games into lessons (Koh, Kin, Wadhwa, & Lim, 2012). More importantly, while policymakers exalt the advantages of developing SE competencies during the early years, they often cite the academic benefits of a holistic curriculum as compelling reasons for parents and practitioners to embrace it (Lim-Ratnam, 2013). Consequently, this risks the possibility of misconstruing the government's intent and its focus on SE development among young children.

***SE development: Educators' perspective vs. parents' perspective.*** While ECE educators are catered with abundant opportunities and equipped with the relevant knowledge and qualifications to observe and assess the strengths and weaknesses of children's SE development through the social interactions between their peers, daily routines, and other activities, many parents are unable to observe their children in the same manner and may form both perceptions and expectations of them that differ from their teachers. This explains some of the teachers' feedback on educating young children such as *"parents will never understand what we are doing"* and *"parents are not teachers, so it is very hard to explain to them"*.

Social factors such as growing affluence and shrinking family size in Singapore also influence parents' construction of childhood (Sorin, 2005). According to a commentary published by Channel NewsAsia, children of smaller families can gradually be accustomed to abundant love, affection and resources provided by their financially-able parents and may develop an "entitlement mentality" that causes them to lose significant opportunities for SE development (Foo, 2017). Corroboratively, a study on local child-rearing practices highlights the huge disparity between the actual practices in childcare centres and at home, with only 10% of the parents expecting their children to perform self-help skills at home (Ebbeck & Gokhale, 2004). Given that most families are dual-income, it is also unsurprising that after long days of work and separation from their children,

reasons such as fatigue and feeling the need to be useful and wanted (Foo, 2017) may result in parents exhibiting greater inconsistencies in their method of discipline as compared to the educators (Ebbeck, Gokhale, 2004). On the other hand, compared to the SE development of young children, similar surveys and studies showed that many parents were worried about their children's readiness for the academic rigours of primary school education even before they attained Kindergarten 1 (Ebbeck, Gokhale, 2004; Ebbeck & Warriar, 2008). Thus, these findings attest to the differences in perceptions of SE development among young children between educators and parents arising from their knowledge, experiences, feelings and beliefs.

#### **Significance of the issue in the Singapore context**

**Transition to primary schools.** While academic competence is generally considered as a prominent indicator of school readiness, Dr. Galinsky, author of the book, *"Mind In The Making: The Seven Essential Life Skills Every Child Needs"* cited several scientific studies to illustrate that SE competencies are life skills that a child needs to excel both in school and in life (Davie, 2016). This is reflected by the voices of the Singaporean children who generally develop preconceived fears and anxiety towards their new teachers' expectations, school rules and learning environments as they transit from pre-schools to primary schools (Yeo & Clarke, 2005). It is also noteworthy to acknowledge the gaps between MOE's set of desired outcomes and key learning

dispositions for pre-school education and the actual demands of a standardised and structured primary school education in Singapore. One salient example will include the absence of the notion of independence denoted by the ability to take ownership of one's belongings such as money, water bottle, books, and stationery, and cope with self-help skills such as buying food and managing pocket money (Teng, 2017) as a learning goal in the Nurturing Early Learners (NEL) guide (MOE, 2013), which may seem trivial yet are quotidian aspects of a primary school life. Furthermore, given that the ECCE sector in Singapore is private-led, diverse and highly fragmented (Lim, 2017) and many parents are excessively focused on academic competence as compared to SE development, it is highly questionable whether our children's SE competencies are adequately developed to meet the demands of the primary school education.

**Lack of purposeful education.** In the long run, undermining the five to six years of SE development from birth will omit many opportunities to lay a good foundation for our children's lifelong learning and development. By inordinately focusing on academic achievements, children lack a purposeful education that teaches them to become people with deep sense of purpose and connectivity towards their communities and nation (How, 2015). Additionally, research has proven that children with high SE competencies will outperform those with low SE competencies in multiple aspects including health and wealth in the longer run irrespective of their intelligence

quotient (IQ) or social status (Davie, 2016). Imperatively, neglecting SE development also has its effects of aggravating social problems. For instance, more than two teens committed suicide every month in 2014 due to issues such as mental health, relationship problems and academic pressures, resulting in the highest number of reported cases of suicides in 15 years (Wang, 2016). According to Ministry of Health (2014), suicidal behaviours are driven by a compendium of factors, of which building resilience is a key element to approach the issue. Conclusively, this confirms a greater need to build SE competencies among the population, and even better to start from young by laying a firm foundation to brave through challenges in the long run.

### Recommendations

In a nutshell, it is of utmost importance to acknowledge that SE development is a vital component of EC education. Analysing the inherent tensions between the perspectives of various stakeholders, it requires concerted effort and determination from educators and policymakers to propagate its value as core skills to be developed among the younger generations.

One recommendation will include the need to create more awareness on SE development among parents. While many people may recognise SE development as a rudimentary aspect of cultivating culturally-desired behaviours and dispositions among young children (Carter, Frewen & Chunn, 2014), there is a need to understand both ongoing changes in neuro-developmental science and the

underlying gaps between the existing child-rearing practices and the actual demands embedded both in our education system and in life. On a positive note, the government has ramped up its focus on ECE and a child-centered curriculum through its address during the National Rally Speech last year (Goy, 2017) which created more opportunities to leverage on these platforms and policies to reach out to parents, educate them and stress the key for SE development among young children. With respect to the increased spending on ECCE sector, the government can also channel more financial support and recognition towards the centres that focus on SE development.

Another recommendation will include fostering the cohesion and cooperation between educators and parents to build SE development among their children. While differences in perceptions do exist, consensus on various practices can be reached through effective communication and mutual understanding. Parent's participation in their children's learning should be a vital element in helping parents to observe the impact on their SE development and understand the teachers' perspectives (Ebbeck, Gokhale, 2004). Parents need to understand that teachers are partners in their children's development and learning instead of perceiving them as exercising judgements on their child-rearing practices. On the other hand, teachers need to be aware that the increase in partnership between both parties does not necessarily entail a greater workload for them especially since classroom management and the children's

SE competencies often exert a far, greater pressure on teachers than the children's academic learning (Jennings & Greenberg, 2009). Having a fruitful partnership with parents will alleviate the teachers' stress and contribute to a more efficient way of educating the children in class. Thus, shifting the focus towards SE development reaps benefits for all stakeholders, especially our children in the long run.

### References

- Ahn, J.H. (2005). Child care teachers' beliefs and practices regarding socialization of emotion in young children. *Journal of Early Childhood Teacher Education*, 26(3), 283-295.
- Ang, L.L.Y. (2006). Steering debate and initiating dialogue: A review of the Singapore preschool curriculum. *Contemporary Issues in Early Childhood* 7, no. 3: 203–12.
- Berk, L. E. (2009). *Child development (8th ed.)*. Boston, MA: Pearson Education, Inc
- Carter, M. A., Frewen, A., & Chunn, J. (2014). Through the eyes of parents: a Singaporean perspective of the importance of cognitive and non-cognitive skills for six-year-old children. *Australasian Journal of Early Childhood*, (3), 57.
- Chan, W. T. (1963). *A source book in chinese philosophy*. Princeton, New Jersey: Princeton University Press.
- Davie, S. (2015, Jul 4). 7 in 10 parents send their children for tuition: ST poll. *The Straits Times*. Retrieved from <https://www.straitstimes.com/singapore/education/7-in-10-parents-send-their-children-for-tuition-st-poll>
- Davie, S. (2016, Dec 19). Teach kids self-control, focus and how to manage emotions. *The Straits Times*. Retrieved from <https://www.straitstimes.com/singapore/education/teach-kids-self-control-focus-and-how-to-manage-emotions>
- Ebbeck, M., & Gokhale, N. (2004). Childrearing practices in a selected sample of parents with children in childcare in Singapore. *Contemporary Issues in Early Childhood*, 5(2), 194–206.
- Ebbeck, M., & Warriar, S. (2008). Image of the Singapore Child. *Early Childhood Education Journal*, 36(3), 247-251. doi: 10.1007/s10643-008-0278-8
- Foo, K.S. (2017, Aug 27). Commentary: Smaller families in Singapore, leading to unhealthy parenting styles. *The Straits Times*. Retrieved from <https://www.channelnewsasia.com/news/singapore/commentary-smaller-families-in-singapore-leading-to-unhealthy-9112070>
- García, E., & Weiss, E. (2016, Aug 24). Making Whole-Child Education the Norm: How Research and Policy Initiatives Can Make Social and Emotional Skills a Focal Point of Children's Education. *Economic Policy Institute*.
- Goy, P. (2017, Aug 20). National Day Rally 2017: More childcare places and MOE kindergartens; new institute for pre-school teachers. *The Straits Times*. Retrieved from <https://www.straitstimes.com/politics/national-day-rally-2017-more-childcare-places-and->

- moe-kindergartens-new-institute-for-pre-school-teachers
- Guyer, A. E., Pérez-Edgar, K., & Crone, E. A. (2018). Opportunities for Neurodevelopmental Plasticity From Infancy Through Early Adulthood. *Child Development*, 89(3).
- How, T. T. (2015, Nov). Is it time for a new approach to education in Singapore? Retrieved from The Head Foundation: [http://www.headfoundation.org/papers/2015\\_4\)\\_Is\\_It\\_Time\\_For\\_A\\_New\\_Approach\\_To\\_Education\\_In\\_Singapore.pdf](http://www.headfoundation.org/papers/2015_4)_Is_It_Time_For_A_New_Approach_To_Education_In_Singapore.pdf)
- Hromek, R., & Roffey, S. (2009). Promoting social and emotional learning with games: "It's fun and we learn things." *Simulation & Gaming*, 40, 626-644.
- Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of educational research*, 79(1), 491-525.
- Lim, S. (2017). Marketization and Corporation of Early Childhood Care and Education in Singapore. In M.Li et al (eds.) Contemporary Issues and Challenges in Early Childhood Education In the Asia-Pacific Region, *New Frontiers of Educational Research*. DOI 10.1007/978-981-102207-4\_2
- Koh, E., Kin, Y. G., Wadhwa, B., & Lim, J. (2012). Teacher perceptions of games in Singapore schools. *Simulation & Gaming*, 43(1), 51-66.
- Lightfoot, C., Cole, M. & Cole, S. (2013). *The development of children* (Seventh edition). New York, N.Y.: Worth Publishers
- Lim, M.Y.S., Lim A. (2017). Governmentality of Early Childhood Education in Singapore: Contemporary Issues. In: Rao N., Zhou J., Sun J. (eds.) Early Childhood Education in Chinese Societies. *International Perspectives on Early Childhood Education and Development*, Vol 19. Springer, Dordrecht.
- Lim-Ratnam, C. (2013). Tensions in defining quality preschool education: the Singapore context. *Educational Review*, 65(4) ,416-431.
- Lim, S. (2017). Marketization and Corporation of Early Childhood Care and Education in Singapore. In M.Li et al (eds.) Contemporary Issues and Challenges in Early Childhood Education In the Asia-Pacific Region, *New Frontiers of Educational Research*. DOI 10.1007/978-981-102207-4\_2
- Ministry of Education. (2013). *Nurturing Early Learners*. Singapore: Ministry of Education.
- Ministry of Health. (2014). Suicides in Singapore. Retrieved from [https://www.moh.gov.sg/content/moh\\_web/home/pressRoom/Parliamentary\\_QA/2013/suicides-in-singapore-.html](https://www.moh.gov.sg/content/moh_web/home/pressRoom/Parliamentary_QA/2013/suicides-in-singapore-.html)
- Selemon, L. D. (2013). A role for synaptic plasticity in the adolescent development of executive function. *Translational Psychiatry*, 3, e238. <https://doi.org/10.1038/tp.2013.7>
- Sorin, R. (2005). Changing images of childhood: reconceptualising early childhood practice. *International Journal of Transitions in Childhood*, 1, 12-21
- Teng, A. (2017, Oct 7). School not primarily about studies. *The Straits Times*. Retrieved from

<https://www.straitstimes.com/singapore/education/school-not-primarily-about-studies>

Wang, T. (2016, Jul 26). Teen suicides highest in 15 years but overall rate falls. *The Straits Times*. Retrieved from <https://www.straitstimes.com/singapore/teen-suicides-highest-in-15-years-but-overall-rate-falls>

Yeo, L. S., & Clarke, C. (2005). Starting school: A Singapore story told by children. *Australasian Journal of Early Childhood*, 30(3), 1-8

## KidSTART Groups (Supported Playgroups)

Joy Tim

*KidSTART is a pilot programme led by the Early Childhood Development Agency (ECDA) to enable children to have a good start in life. It has three key programme components – KidSTART Home Visitation, KidSTART Groups and KidSTART Enhanced Support to Pre-schools. Based on the concept of Supported Playgroups, where trained facilitators deliver evidence-based parenting strategies, KidSTART Groups are held weekly within the community for parents and their toddlers over 15 sessions at a stretch, for up to 2 series. I am delighted to share my experience.*

It has been a year since I joined KidSTART Group (KSG) as a facilitator, and embarked on a most meaningful and fulfilling journey. KidSTART's aims and objectives – to bring about positive impact on the child's lifelong outcomes, narrow the developmental gaps and provide upstream support – resonated strongly with me. I was also drawn to the programme by the social development aspect of KidSTART as it also links up families who require additional support to relevant resources and services.

As KSG facilitators, my colleagues and I partner families to share information and strategies to support parents in optimising the learning and development of their children from ages 1-3 years old.

There are already many success stories over the one year it has been in place. All our achievements, big and small, speak volumes of the dedication of the entire KidSTART team and all stakeholders.

### Story 1

"I don't know is it right... when I say *mom mom...* she understands it's eating..." a young Mummy in her early twenties shared. She has two children, aged one and two, and expecting another. The uncertainty reflected her insecurity and lack of confidence in understanding what would work. However, is there a right or wrong way of parenting? Instead of delving into the issue of "right" or "wrong", which could exacerbate the parent's insecurity, it may be more useful to share an alternative means of communication to adopt, and which could help boost the child's language acquisition. Through KidSTART's strength-based approach to empower parents on parenting strategies, I built her confidence through affirmation and encouragement by processing with her the challenges and approaches used to engage her child. This young mum was



Photo 1: Play Mat Set-up (Pretend Play: Supermarket)

soldiering the parenting journey alone as her husband was incarcerated. Although she joined KSG midway through the programme, she attended every session with enthusiasm, to learn and practise new strategies, for example, 'Reading and Reading with Your Child' began her journey of reading daily to her child. She even bought a book about cats, as she knew her child liked cats. It was most encouraging to listen to her sharing during the book-reading session. Her child was excited to see the pictures of the cats and attempted to mimic their purring. Seeing the parent giving the best of herself to and for her child was gratifying, more so when the facilitator knows she has played a part in enhancing someone's parenting experience.



Photo 2: Parent and child engaged in activity (Manipulatives & Construction: Slotting Ice-Cream Sticks into Bottles)

## Story 2

A single father talked about how he used rubber bands to shoot at his two children, aged 3 and 5, when they misbehaved and subsequently used rubber bands to threaten them. Ironically, although this strategy appeared to be quite effective for him, he lamented that he did not wish to use the rubber band as a threat; he was

unsure of alternative methods he could have adopted. Despite acknowledging his difficulties in using soft voice and staying calm, the parent shared his hopes to be a good role model for his children and he made tremendous effort to practise the 'Warm and Gentle' strategy. The breakthrough came midway through the programme when he shared, "my friends say why I never pinch my kids? I tell them I on this KidSTART, must practise!" It was a very touching moment; he was very willing and ready to change. His friends' positive feedback was the best testimony to his transformation. In addition, the parent shared weekly video updates showing him practising the strategies with his children. Through his determined efforts of practising the 'Words are Everywhere' strategy, his child was able to recognise the letter 'O' and 'M'. During the final meet-up, the father did 'Reading with Your Child', his two children were engrossed and engaged in the book-reading session. Other than teaching colours and letters of the alphabet, he also captured a great teachable moment when he taught his children that a tadpole is the baby of a frog. While proud of his achievements, he shared very honestly, "I don't want to read a book but because you asked me then I have to read!" He had admitted that he would have given up when his children did not want to read, but because it had been a request from the facilitator, he persisted in reading with his children. While reflecting, the father acknowledged that he had not really tried hard enough in the past, he realised that two minutes spent reading with his children was definitely achievable. He said boldly, "I tell people

don't pity me, motivate me!" This became a vivid reminder to the facilitator on the important role in supporting his valiant efforts in his journey in providing the best for his children. For the facilitator, it was a great privilege to celebrate his success alongside him.

### **The Commitment to KidSTART**

There are many more stories, some more heart-warming, some challenging, no one parent is an instant success. Parents and facilitators work closely together to forge bonds of trust. Dedicating two hours weekly for fifteen weeks is no easy feat, yet many parents try their very best to do so as they see the benefits for their children and themselves. Fifteen weeks was long enough to forge deep friendships not only among parent-and-parent but also among child-and-child. It was also long enough for participants to feel a sense of belonging to the big KidSTART family and to form an emotional attachment to it. For the mother who made many friends here, she was of foreign-nationality and had not been socially integrated into society during her ten years of living in Singapore; the KidSTART programme had successfully helped end a decade of social isolation, it helped her find friends and regain human connectedness which greatly improved her emotional and social well-being. In the final and closing session, parents opened up to share about how they have benefitted from KSG. The first response was, "We are one big family!" What an incredible achievement!

### **Conclusion**

While there are many other partners - led by ECDA, supported by Life Community Services Society, Tasek Jurong Limited, Association for Early Childhood Educators (Singapore), volunteers and mentors, it is very heartening to note that the families took ownership of KSG sessions.

There were many instances where our participating families supported each other in the programme. They showed understanding and patience when helping to do translation for the mother of foreign-nationality. In another, a childhood memory of playing badminton led to badminton games being organised for families. The friendly badminton doubles match was successfully held, showing great teamwork, fun and laughter.

Every family who attended the KSG sessions had benefitted greatly and each had their own success stories. We witnessed progress in both parents and children.

Moving forward, we welcome many more volunteers to step out to lend support to the families in the KidSTART programme - to join the team of passionate volunteers who selflessly give their time and effort in setting up of the play mats, doubling up as our translators, taking care of the 1-3 year-olds and child-minding for their siblings during KSG sessions. KSG needs your help, to be able to reach out to make a difference!

To sign up as a volunteer/facilitator,  
please email: [kidstart@aeces.org](mailto:kidstart@aeces.org)

## Shape Our Tomorrow: ECDA Launches First National Campaign at Early Childhood Conference to Uplift the Early Childhood Profession

Heng Jin Hui

Early Childhood Development Agency (ECDA)

A child's early years are windows of opportunity for brain and holistic development. Early childhood educators lay strong foundations for children and play an invaluable role in shaping their childhood, adolescence and adult life.

The Early Childhood Development Agency (ECDA) held its 6<sup>th</sup> edition of the annual Early Childhood Conference on 5 and 6 October 2018 at Suntec Singapore Convention and Exhibition Centre. With the theme "Nurturing Young Minds: Building Strong Foundations", the conference focused on the importance of early years' development. The theme is centered on the importance of the first 1,000 days of a child's life for establishing the foundations of optimum health, growth and neuro development. Research shows that at least 90% of a child's brain is developed by the age of five.

More than 1,500 early childhood educators attended the two-day conference, discussing the latest research and strategies on brain and holistic development in the early years. Some 10,000 people, including children, parents and early childhood educators also visited the fun-filled and interactive Early Childhood Exhibition, where they took away useful tips on early childhood development.



Keynote presenters, Dr Gigi Luk (left), from the Harvard Graduate school of Education in the US, and Ms Goh Ai Yat (bottom), local trainer and consultant, spoke about the latest research in brain development and language acquisition, as well as the benefits of visual thinking strategies respectively.

Reflections



At the conference, Minister for Social and Family Development, Mr Desmond Lee, presented the annual ECDA Awards for Excellence in Early Childhood Development to exemplary individuals and preschools in recognition of their achievements and

contributions for excellence in early childhood development. Preschools also received their SPARK (Singapore Preschool Accreditation Framework) certification from Senior Parliamentary Secretary for Education, Ms Low Yen Ling.



Recipients of the 2018 ECDA Awards, with their family and friends who made a surprise appearance to appreciate the important work that they have done to nurture our children.

Minister Desmond Lee also launched the first national campaign in Singapore for the early childhood sector. The objectives are to raise the profile of the early childhood profession and to attract more to join the sector. The campaign tagline “**Shape Our Tomorrow**” reflects the significance of the work by early childhood educators. Mr Lee said, “The life skills and values imparted by



Campaign tagline and logo

early childhood educators have life-long impact. They shape the future of our families, communities and nation.”

This national campaign is part of ECDA’s sustained efforts to foster greater respect and recognition for early childhood educators in Singapore. Over the past few years, initiatives were introduced to recognise and appreciate their contributions. These include the ECDA Awards for leaders, teachers and educators. Since 2016, ECDA has increased the number of centre closures to strongly encourage childcare centres to provide

their educators with a day off on Teachers' Day.

In celebration of Teachers' Day this year, ECDA conducted a social experiment to show what it takes to teach young children. Four professionals – a sports presenter, a technology company CEO, a radio broadcaster and a chef – tried their hands at being an early childhood educator for 30 minutes. The social experiment video garnered more than half a million views on Facebook, with many parents tagging their child's preschool teacher in appreciation.

As one of the first teachers in our children's life, early childhood educators play a significant role in setting them on a path of learning and growth. Through the campaign's television commercial (TVC) and advertising visuals, viewers will see how a seemingly insignificant moment in preschool can impact a child for a lifetime. As the teacher in the TVC puts it, "Preschool teachers don't just change diapers. We change lives! Like this morning, a boy wanted to give up, so I told him: "Just breathe and try again." I know it doesn't seem much now. But maybe, I just taught him to never quit. These little lessons stay with kids for life. And I'm really proud of what I do!" The TVC encapsulates the key reason why many educators first joined this profession.

ECDA hopes that the campaign will spark conversations around the work that early childhood educators do. By debunking common myths and showcasing their professionalism, ECDA hopes to build greater understanding and recognition of the profession to encourage more people with a passion for children to consider joining the profession. The campaign has

been launched on social and traditional media platforms to reach out to the general public, including YouTube, Facebook, cinemas, buses, bus stops and MRT stations.

Early childhood educators are well placed to drive changes within the sector to uplift the profession. We invite all preschools, educators, industry associations and partners like ASSETS (Association of Early Childhood and Training Services) and ESU (Education Services Union) to join us in this endeavour, including sharing the TVC with your friends, families, and parents of your preschool children.



Shape Our Tomorrow television commercial



Scan QR code to watch

**Pacific Early Childhood Educator Research Association (PECERA)  
International Conference in Kuching, Sarawak  
6 – 8 July 2018**

Sherilyn M Sia  
Learning Vision @ Work Pte. Ltd. (NCS)

Academics, scholars, practitioners and advocates in the field of early childhood from all over the world came together for the 19<sup>th</sup> Pacific Early Childhood Education Research Association International Conference (PECERA 2018), held at the Hilton in Kuching, Sarawak, Malaysia. The theme for this year's conference was "Start Right: Begin the Journey Right for Every Child".

#### School Visits

There were five schools to choose from: (1) Prasekolah Sk Tabuan; (2) Tadika Sri Keria; (3) Taska Permata Kemas Kampung Sri Tajo; (4) Taska Pondok Ilmu 1 & 2; and, (5) Taska Cahaya Horizons.

I visited Tadika Sri Keria, it received the Best Kindergarten in Sarawak award last year (Photo 1).

This school was established in 1987, its education syllabus and materials were adapted from New Zealand. What I liked about this school was its open, close-to-nature classroom concept. Their school philosophy was "Provide children with enriching, engaging and stimulating experiences to encourage learning in multiple disciplines within a safe, secure and pleasant environment". For each classroom, they stationed two teachers to ensure the safety of every child.



Photo 1

### At the Conference

I presented my research regarding the efficacy of online training for the professional development of early childhood educators. In Singapore, all early childhood educators are required to meet 20 hours of continuous professional development (CPD). However, there are teachers who are not able to meet the prescribed number of hours for CPD. One major reason for this is manpower shortage. With online training, this issue would be addressed because the teachers would be able to sharpen their skills without compromising their work.



Photo 2: Receiving my certificate as a research presenter

I attended the presentation by Dr. G. Kaveri (Photo 3), also a delegate from Singapore. Her research was entitled “Children as Catalyst for Change: Pathways to “Transforming Our World – The 2030 Agenda for Sustainable Development”; it was very interesting. In her research, she shared the important role played by children in sustainable development, what the children learned in the classroom,

they would go home and share it with their families. For example, when the child learned about recycling, she would share what she learnt in school and would encourage her family to recycle once she goes home. This research unveiled the vital role of education in transforming the world. Topics about sustainability that are age and developmentally appropriate for children should be taught in preschool for a long term benefit.



Photo 3

### Reflections

Attending the PECERA conference was invigorating for me because I was able to update my knowledge with the latest trends in early childhood education. I am extremely thankful to AECES because it played a huge part in developing and giving me countless opportunities me to become a better early childhood educator. Since 2012, I have been participating in their various professional development programmes. I urge my fellow early childhood educators to join this organisation not only to maximize your potential, but also, to give what is best for the children under your care.

## Insights into the Italian and Finnish Approach to Early Childhood Education

Charlene Chia, Christina Tan, Cindy Goh, Stella Pereira  
The Little Skool-House International Pte Ltd

In October 2018, a team of early childhood professionals joined a nine-day learning journey to Italy and Finland, organized by the Association for Early Childhood Educators (Singapore). The trip comprised visits to various services as well as professional dialogues with the practitioners.

### Services in San Miniato, Italy

We began our learning journey at one of San Miniato's first public institutions – Research and Documentation Centre on Childhood La Bottega di Geppetto, with an official introduction and sharing by our facilitator, Ms. Barbara Pagni who talked about the background and pedagogical approach of San Miniato's Early Childhood Education. The approach towards education and children is strongly influenced by Loris Malaguzzi, where there is a strong emphasis on children as protagonist of their own learning and

development. Educators work on offering children opportunities during discovery and exploration, and in the midst of these experiences, enable the children to build relationships, develop knowledge and construct their learning with their core belief that every child has potential and is competent.

The centres provided services to children from birth to 3 years and what intrigued us most was that children were not divided by their year of birth, instead they were grouped in a mixed-aged group setting. The environment was intentionally designed based on the belief that the learning environment is a key element in fostering children's independence and autonomy. Educators were observed to be respectful towards the children's interests and decisions in their choice of play, facilitating only when necessary which empowers the children to do self-exploration with real and



The Mayor of the Municipality for San Miniato welcomed us during our visit.



The Little Skool-House Team with Ms. Barbara Pagni

concrete materials. We were heartened to see that children's choices, interests and decisions being respected; and the programme is run without being overly scheduled.

In each of their services, there is a reading laboratory, dressing laboratory and colour laboratory (or atelier). Educators engaged and interacted with the children in the laboratories through materials that relate to the focus. The interactions with the materials are intentional, whereas the learning and construction of knowledge of the children are based on their prior knowledge and interpretation.

One of the learning points from our observation was drawn from the children's mealtime. We were informed that mealtime is a social affair and a time to practice good table manners and etiquette. Thus, lunchtime typically lasts for one-hour in Italy with meals served in courses and all the staff including the cooks and cleaners dine with the children amidst conversations and laughter. Children were given adult crockery, utensils and glassware as they were viewed to be competent to dine like a

respected individual. We were also impressed to see the infants and young children sit happily for up to an hour and partake of the meal without any request for alternate options or much waste of food.

### Daycare Services in Helsinki, Finland

In Finland, Helsinki, we visited three day care centres and a public primary school. The focus of Finland's education policy for young children is that they must participate in a year-long activity of preschool education; or home care the year preceding their compulsory education.

During our visits to the centres, one of the key learnings of the services in Helsinki is that they focus on small group and outdoor learning. For centres in the suburbs, they integrate forest learning in their curriculum. Children spend a large amount of their time in the outdoors, learning and exploring with nature.



Children going to the forest for their learning.

The similarities between the two services were the respect for the autonomy of children and how they provide opportunities for the children to do it the Finnish way, to learn by doing.

For instance, the children enrolled in Day Care Centre Auringonkukka has the autonomy to decide which forest they like to explore on a daily basis, rain or shine. Depending on the educator's purpose, they may have educator facilitated activities, but often, the exploration will be directed by the children's interest. Opportunities are also provided through different experiences to inculcate positive learning dispositions as well as social skills in children.

### Conclusion

As Singapore is a concrete jungle, we are inspired to create opportunities for our children to be in contact and interact with the natural environment. Our beliefs are further affirmed that through these opportunities, we can help children develop an affinity towards nature, perseverance in the face of challenges and the resilience to carry on despite setbacks.

By observing the educators in action, we were reminded of the role the educator plays in the class especially as a role model. The educators were calm throughout their interactions with the children and did not overreact or interfere in children's explorations unnecessarily, empowering them to be independent in making decisions, in resolving conflicts, problem solve and in showing empathy towards another person in distress or need. The teachers provided lots of learning opportunities and encouragement and were flexible and inclusive in their approach.

Parent engagement is strongly evident in the services for both Italy and Finland. The parents are deeply involved in their

children's learning and development and it is only made possible through the strong rapport and partnership with the educators. Most importantly, both educators and parents are on the same page as they see and respect the image of the child and celebrate his/her competencies.

It was indeed an insightful learning journey for us and we hope that the learning and best practices we observed will provide us with provocations for our own practice in Singapore.