The Project Approach: An Appreciation for the Constructivist Theory

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Abstract

The purpose of this study was to explore my appreciation for the 'constructivist theory' for which an epistemological stance is expressed as an educational ideology, or referred to as constructivism; essentially to construct one's own knowledge. Six energetic five-year-old boys from an urban public school, located within a mid-western state became the focus of this theory. The early learning programme implemented the 'project approach' inspired by the world-renowned 'Reggio Emilia' philosophy from Reggio Emilia, Italy. Also, several components from the public school corporation were implemented into the kindergarten curriculum framework including: guidelines for art, mathematics, music, physical education, reading, and science. Many projects began to surface from the curricula framework and philosophy. One particular classroom of six kindergarten boys was found to be interested in learning about race cars. It was at this point that a greater appreciation for the 'constructivist theory' became an exploratory venture, as I was compelled to guide these children into an intense 6-week study of…'The Race Car Project'!

Historical Significance

The 'constructivist theory's' epistemological stance is expressed as an educational ideology or referred to as constructivism which is essentially constructing one's own knowledge. This position also acknowledges the child as a knower, who in essence will 'act' upon the desire to 'know' (DeVries, Kohlberg, 1990). Learning for some children means to simply 'act out' in such a way that offers many opportunities to construct their own knowledge through discovery, exploration, and investigation. DeVries, and Kohlberg (1990) suggest, "Constructivism is not just a process for children's development. Teachers too, construct their conception of what constructivist teaching means and their convictions about it."(p.378). Constructivist teachers understand that learning occurs within the environment, including the ideas of people and teachers (Branscombe, Castle, Dorsey, Surbeck, & Taylor, 2003). Constructing knowledge through projects for most children usually begins a thinking process with an idea, interest, or thought that is encouraged by someone or something that intrigues a child. Carlina Rinaldi, pedagogista of the preschools in Reggio Emilia, Italy, comments to Lella Gandini, United States Liaison for the 'Reggio Emilia' philosophy (Edwards, Gandini & Forman, 1993), "A project, which we view as a sort of an adventure and research, can

start through a suggestion from an adult, a child's idea, or from an event, such as a snowfall or something else unexpected" (p. 108). Young children are easily motivated into discovery by teachers asking open-ended questions that pertain to the child's own interests. Listening to children is one of the key components that assistthe adult while guiding a young child through the process of constructing their own knowledge. As teachers listen to a child's interests will only help to build strongrelationships so that children feel capable and competent. Jerome Bruner (Quoted by Fraser, 2000) believes "Many teachers are too rigid in expecting what children will do. The teacher must wait; live with uncertainty, but in the end, children maydo things that may be a surprise" (p.41). Constructivist teachers document, interpret,observe, make decisions, record, study, and reflect upon the nature of the child as a learner rather than beginning with a curriculum or content within the curricula (Branscombe, et. al., 2003). They realize that children possess all the knowledge and it is the adult's place to become the facilitator, or guide within a young child's world of learning. The constructivist teacher begins to relinquish their right of being the 'all knowing adult' and acts as a facilitator or guide, helping children to engage into authentic learning that is based upon the interests of the child. The challenge for most constructivist teachers encompass academic criteria, public school core curricula, and state standards. This becomes problematic for early childhood educators when faced with federal, ministry and state requirements which continue to become an essential priority of teaching. Constructivist teachers acknowledge their responsibilities to governmental standards by keeping a balance of what '*needs*' to be taught, versus what '*should'* be taught.

In traditional teaching, the emphasis is on subject matter and how to present information to children. Current curricula are typically based on behaviourist theories. Teachers of a behaviourist philosophy will see their role as transmitting information to children to be remembered (Branscombe, et. al., 2003). The teacher's preoccupation is with instructing through sequencing content, drilling, correcting, and testing. In contrast, Piaget's social-constructivist theory implies, "the preoccupation is not the teacher's *'instruction'*, but the child's *'construction'* " (DeVries, et. al., 1990, p. 374). Constructivist teachers see their role as providing creative opportunities for children to experience ideas related to content, which guide a child to consider the content and clarify thinking (Branscombe, et. al., 2003). Jerome Bruner (Quoted by Fraser, 2000) supports Piaget's theory well by conferring, "One obvious answer would be thatit is a place where among other things learners help each other learn, each according to her abilities" (p. 39). Children readily communicate to their teachers what they want to learn, as adults use open-ended questions and strategies to help guide children find solutions will elevate their language capabilities to a level of primary problem solving. The use of language by adults will in turn lead children to use speech to begin the problem solving process (Morrison, 2004). Research suggests that an important way in which 'scaffolding' affects a child's cognitive performance is by stimulating their spontaneous use of private speech as a self-regulatory and problem solving tool. Many studies report that young children use more private speech when they are working with an adult who sensitively supports their activity (Berk, Winsler, 1995). The desire of the constructivist teacher is to 'scaffold' the child's learning process in such a way that the teacher becomes a 'co-constructor' of knowledge, creating a partnership between the child and

the teacher. The adult within this partnership cannot be a teacher of the traditional sense; "he has to be a provocateur that can support and help children in building their own knowledge" (Fraser, 2000, p. 39). The teachers at the Michelangelo School, in Reggio Emilia, Italy, shared to the 1993 Canadian Delegation, "For children to co-construct knowledge they must be able to find the right environment and a partner who can facilitate learning" (Quoted by Fraser, 2000, p. 39). Support will come through as the environment provides activities prepared to assist through a child's learning process (Wortham, 1998).

Lev S. Vygotsky, Russian social-psychologist and social-constructivist refers to his theory of the Zone of Proximal Development (ZPD); the child functions on any given task or tasks with the teacher's aim to work within the continuum of the zone to help the child move forward (Roopnarine, Johnson, 2000). Wortham (1998) supports Vygotsky's theory and realises that for some will move ahead rapidly with minimal support while others may need extensive support to make small gains. An interaction with another person essentially provides clues and offers probing questions. The teacher models a desired skill for a child and will provide practice opportunities. Constructivist teachers that move with children along the educational continuum gain a better understanding that learning experiences are actually conceptualizations of the relationships created between learning and development. Early childhood educators continue to realize the validity of the constructivist approach to learning and the importance of maintaining the progress of play-based, child initiated curricula. DeVries (et. al., 1990) argue for more ambitious, longer-range objectives than usually found in programmes limited to the goal of school readiness. Constructivist goals include academic objectives generally considered to not

have been emphasised enough in non-traditional, child-initiated centre programmes. Academics implemented from the constructivist perspective include subject-matter goals that emerge not from subject-matter analysis, but from an analysis of how children 'think' about the subject matter. Fearless, young children should have every chance to develop freely and naturally from any restraints or inhibitions. The acceptance to teach from a constructivist approach is the beginning towards empowerment. Learning by way of a social-constructivist theoretical philosophy has the ability to offer young children a respectful opportunity to explore their world and gain a better understanding of reality. There is much to be said for theorists who have built a framework of understanding reality from a theory that supports child growth and development.

Constructivism

The roots of the Italian culture grow deep in Reggio Emilia, Italy, where the people are strong from the perils of atrocities that occurred during World War II. The ancient city brings together an ontological awareness filled with epistemological truths that illuminate and surround with its natural aura. It is a community that is encouraged to represent historical visibility throughout the city, municipal preschools, and surrounding areas.

During the spring of 2001 and 2002, I was able to participate in two separate Study tours to Reggio Emilia, Italy, and a city amerced within rich culture, vibrant family life, and spiritual renewal. Being such a historical landmark, created an even greater appreciation towards a clearer understanding of the research methodologies formed by a whole city providing a philosophy that mirrors the 'constructivist theory'. It was a

significant opportunity for me to experience the 'constructivist theory' as an ontological reality, observing young children ranging from six months to six years of age constructing projects within their own process of development. The interaction of children and adults and adults and children was like that of a 'dance', asking each other inquiring and probing questions. While simultaneously other children continued to explore their environment manipulating diverse pieces of equipment, objects, and materials supplied with clay and wire. As I observed children at their work, I realised that these very same children had been given an opportunity to construct their own knowledge within an environment designed and prepared for them to learn to problem-solve. Loris Malaguzzi, (Quoted by Fraser, 2000) founder of the 'Reggio Emilia' philosophy claims "the 'Reggio Emilia' approach produces for the adults, but above all for the children, a feeling of belonging in a world that is alive, welcoming and authentic" (p. 1). Branscombe and collogues (2003) understand that people within a culture or society teach children by their actions and through direct teaching of facts including: games, songs, rules, vocabulary, and moral expectations of the cultural heritage. It is important for a child living in a community that will help the child understand how to communicate within that culture, what is valued by that society, and how to process factual information. A constructivist teacher, "recognises the importance and what imitations the child needs rather than embracing social knowledge as the total curriculum" (Branscombe, et. al., 2003, p. 47). Children living in 'Reggio Emilia' are capable and competent because of the relationships that been created through parent and teacher involvements, as well as the community. The children have been empowered with opportunities to explore learning through their own personal documentation of research

portfolios, journal entries of newfound projects, and sketchpads filled with numerous drawings of people and objects. Carlina Rinaldi (Edwards, et. al., 1993) speaks again, on behalf of the 'Reggio Emilia' philosophy, "We see the child as strong, capable, and full of resources: how serious the child is in wanting to grow, how strong a researcher, a semanticist, asking, 'Why am I here?' " (p. 173).

This opportunity provided a way for me to amerce myself within the Italian culture and created a contextual design of understanding within a passionate culture of art, beauty, family, food, music, and learning. The 'Reggio Emilia' philosophy helped me gain a better understanding and appreciate the 'constructivist theory' for many diverse ways that it connects together culture, community and curricula. This approach today continues to embrace children and other countries throughout the world through the message that it brings. My appreciation for the 'constructivist theory' and the 'Reggio Emilia' philosophy will continue to grow as the approach became a methodology and a reality of positive co-constructive learning experiences for six young boys.

'The Race Car Project'

Six, five-year-old, kindergarten, boys pretended to move around particular objectsfrom within their classroom to recreate cars moving fast, cars in a race, or race cars on a racetrack. From simple observations, it was determined that these same six boys were very eager to learn about racing cars. From that point on, 'The Race Car Project' was about to begin a race of its own!

Week 1: Each of the private sessions were scheduled for one hour in length for six-weeks. The one-hour sessions were divided into 15-minute segments that included: discussions, drawing, race car activities, journaling, manipulating, writing, reflecting and revisiting. The first initial session was a discussion of a plan of study, and builds a framework for the project. Branscomber (et. al., 2003) suggest curriculum strategies that use constructivist assumptions such as:

- Plan with what you know about the nature of the learner

- Create learning environments that are authentic

- Begins with what is known about the child and the child's ways of knowing rather than from the curricula or national standards.

- Relate to how the teacher thinks about teaching and learning than how they use a specific set of methods, materials, or approaches.

- Apply constructivist tenets to any curricula

As the first session continued, the boys were asked a series of open-ended probing questions which pertained to their topic of interest. This tactic allowed me to understand exactly what they already 'knew' about race cars, what they 'wondered', and what they wanted to 'learn' (KWL). I discovered quickly that the boys knew that, "race cars ran very fast", "they sometimes crash their motors", "the four wheels might fall off", "they need gas to run" and "that race cars have many different colours with numerals painted them" (personal communication, 'The Race Car Project', October, 2002). Also, they wanted to know why race cars ran fast, and what kind of track they used. In other discussions, they felt that it would be necessary to actually construct their own race cars

and racetrack. A materials list was created including items needed such as: small boxes, wheels, paint, and 'lots of stuff' (personal communication, 'The Race Car Project', October, 2002)! It was decided that the main goals of this project would be to construct their own race cars, racetrack and conduct their own race. It was the boys desire to see that this project would become a reality, and it was my job as the early childhood specialist or *pedagogista* (Italian, for School Educator) of the public school to see that this project would become a reality! The boys were simply ecstatic with their new venture, and it was thrilling to observe children enjoy making sense of their learning as they constructed their own knowledge. Branscombe (et. al., 2003) supports this observation, "Children represent what they know through their behaviours, mental imagery, and language" (p. 45). As the boys discussed their race car topic by sharing with me their thoughts and ideas, the conversation led them to refine and coordinate their thinking (Branscombe, et. al., 2003). The constructivist approach encourages children to reflect on the 'action' of constructing which figures out the patterns for their action play. In addition, the representations of their actions are demonstrated in a way that will show change (Roopnarine, et. al., 2000).

During the next several days, the boys continued to research their topic of car racing by sharing their thoughts, drawing pictures of their interpretations, and documenting their ideas through journaling. The school librarian assisted with the project by sharing books, photos, pictures, and posters pertaining to race cars and racetracks. The boys looked extensively through many of these materials, as well as viewing a children's video of NASCAR (Indiana Academic Art Standard 9 [K.9.2], 2002). The video stirred passion for their topic because they were able to visualize the reality of their project

through media. The constructivist teacher will continue to guide children as they reflect and revisit an experience, making their ideas visible through various forms of representation, such as speaking out loud, drawing, or otherwise rendering the relations that children are trying to understand (Roopnarine, et. al., 2000). The interesting aspect of a child's work is through their interpretation of a particular topic of interest by drawing after each activity. As their research continued, I invited them to draw pictures of their own interpretations of what they wanted their race cars and racetracks to look like using black pens on white paper. This technique allowed the drawings to standout so that words and other types of materials can be added later. Roopnarine (et. al., 2000) suggests, "It can help make children's ideas more visible" (p. 168). The educators in 'Reggio Emilia', have helped us understand how important drawing is in communicating the thinking process of young children…"the images children draw either from reality or from their imagination makes meaning visible" (Fraser, 2000, p. 161). These activities reflect the State of Indiana Academic Writing Standard 5 for Kindergarten, "In Kindergarten, students begin to write and draw pictures for specific purposes and for a specific audience. Draw pictures and write words for a specific reason."(Indiana Academic Standard [K.5.1], 2002). "Draw pictures and write for specific people" (Indiana Academic Standard [K.5.2], 2002). These activities may also become formal documents used for future re-creations, reference purposes and assessments. Children in 'Reggio Emilia' draw most of their work using black ink pens or black lead pencils on white paper that can later become a piece of documentation for their own personal journals, portfolios or future projects. This activity reflects the State of Indiana Academic Art Standard 7 for Kindergarten, "Use of objects or animals from the real world as subject

matter for artwork" (Indiana Academic Standard [K.7.1], 2002) "Create art that expresses personal ideas, interests, and feelings" (Indiana Academic Standard [K.7.2], 2002).

Week 2: The next five days became a continuation of learning and creating from the boy's own interpretation of what their race cars should look like. While working with several three-dimensional mediums including: clay, playdoh and wire, helped them become aware of spatial relationships. Fraser (2000) implies for teachers to help children explore with clay will help to discover for themselves the many possibilities to inherent with the materials. Loris Malalguzzi, suggests, "The wider the range of possibilities we offer children, the more intense will be their motivations and the richer their experiences" (Quoted by Fraser, 2000, p. 53).

Preparing the environment for each session became a challenge as materials were collected, meeting areas regularly rearranged, and corresponding activities were prepared to create a conducive and stimulating work space for the children and their project. The learning environment from the 'Reggio Emilia' philosophy is referred to as the 'third teacher' which is due to the power that the environment possesses. Fraser (2000) agrees, "creating an environment that acts as a third teacher supports the perspective that knowledge is constructed not in isolation but within the social group" (p. 55). Constructivist teachers that choose to implement the 'Reggio Emilia' approach must think differently about the 'way' the environment is planned. It needs to be designed to provide opportunities for people involved to interact with each other and the environment which in essence is simply co-constructing knowledge (Fraser, 2000).

Also, Lella Gandini (Edwards, et. al., 1993) comments, "The schools in Reggio Emilia, could not be just anywhere, each school's configuration of the gardens, walls, tall windows, and handsome furniture declares: This is a place where adults have thoughtabout the quality of the environment" (p. 149).

During the next few designated sessions, the environment was prepared in several different locations throughout the school building and was designed to accommodate the needs of the children's construction. The environment became an instrumental part within the constructing process as many diverse materials were being used. Sessions in the gym area worked well for movement, as well as sculpturing with clay, playdoh and wire. Several narrow long hallways provided additional space for car racing and mural designing. The school library served best as the literacy centre for storytelling, listening tapes of race car stories, and for writing an adventurous race car story. The art room stocked with many diverse materials was sufficient for painting and the final construction of the race cars and racetrack. Lella Gandini, quotes Loris Malaguzzi (Edwards, Gandini & Forman, 1993) as he supports environmental change, "We value space because of its power to organize, promote pleasant relationships between people of different ages, create a handsome environment, provide changes, promote choices and activity, and its potential for sparking all kinds of social, affective and cognitive learning" (p. 149). All of these activities reflect the State of Indiana Academic Art Standard 9 for Kindergarten, "Identify and use processes to express ideas, experiences, and stories include: drawing, painting, printmaking, ceramics, sculpture, fiber, mixed media and new media such as computer, photography, film, etc." (Indiana Academic Standard [K.9.2.], 2002).

"Demonstrate safe and proper use, care, storage of media, materials and equipment" (Indiana Academic Standard [K.9.3], 2002).

By the end of the second week, many other individuals throughout the school building and community became interested in the 'Race Car Project'. Like that of 'Reggio Emilia', the philosophy lends itself to not only to the projects of the children presenting excitement to the municipals schools, but rather captivating the interest of volunteers within the community, as well. The "Race Car Project" caught the curiosity from two of the custodians who came to visit the sessions regularly and assisted during mathematics and racing. The school nutritionist, helped guide the boys in writing their names. Two security officers stopped by during several sessions and literally cheered for the boys as they diligently worked with clay, playdoh, wire, and other sculptures. The administrative assistant, school nurse, school secretary, and principal all enjoyed visiting on several different occasions as they observed the boys during the construction process. In Reggio Emilia, businesses proprietors, parents, teachers, school volunteers, and the whole community are encouraged to get involved with many projects that involve the children. Constructivism truly brings a collaborative effort, a sense of real camaraderie and enthusiasm to a whole community of learners. Lella Gandini (Edwards, et. al., 1993) interviews Sergio Spaggiari, Director of Early Childhood Education in Reggio Emilia, Italy, "each school, parents are highly involved by widening the field of participation, including all types of adults working in the schools - teachers, cooks, aides - all of whom must share the responsibility which stems from being part of a community of educators, not as a threat but as an intrinsic element of collegiality and as the integration of different wisdoms" (p. 97).These activities reflect the State of Indiana Academic Art Standard 10

for Kindergarten, "Demonstrate thoughtfulness and care in completion of artworks" (Indiana Academic Standard [K.10.1], 2002). "Manipulate a variety of media" (Indiana Academic Standard [K.10.3], 2002).

Week 3: During the third week, much of constructing learning pertained to guiding the children through academics of reading, and writing with art woven through-out their work within each of the subject matters. One particular writing activity simply fascinated the boys as they wrote words and drew race cars and a racetrack using colored permanent markers on a four foot long by three feet wide clear piece of acetate. This activity aroused many intriguing questions that were asked regarding this unique piece of rtwork. Hanging the clear acetate mural in front of a classroom window invited sunlight to shine through which gave a three-dimensional illusion and new meaning to reading, writing and science. In addition to this approach of writing, the boys were given soft oil pastel chalk to review their written word skills by drawing a paper mural of race cars on a racetrack. The mural measured eight feet long by four feet wide and for this piece of artwork it gave the boys a much broader perspective because of the enormous size of the project was so much larger than even their own bodies. This activity reflects the State of Indiana Academic Math, Standard 5 for Kindergarten, "Make direct comparisons of length, capacity, weight, and temperature of objects and recognize which object is shorter, longer, taller, lighter, heavier, warmer, cooler or holds more" (Indiana Academic Standard [K.5.1], 2002).

Reading and writing became such a focal point of the 'Race Car Project', that it as amazing to see the school librarian continue to locate many diverse books that fit so well with the interest of the boys' topic. One particular book, *'Vroom, Chugga VroomVroom'*

(Miranda, 2002) became one of the boys favourite books, reading it over and over as they listened with cassette tape and head phones. This book intrigued the boys so that they cheered with delight and excitement as they continued flipping through the brightly colored pages of the book. Language and phonemic awareness were quite apparent as they continued sharing with each other regarding the cars in the story, "red and white", "the cars… going very fast", and "the cars…as big as a house"! (personal communication, 'The Race Car Project', November, 2002). This activity reflects the State of Indiana Academic Reading Standard 1 for Kindergarten, "Students know about letters, words, and sounds. They apply this knowledge to read simple sentences. Identify the front cover, back cover, and title page of a book" (Indiana Academic Standard [K.1.1], 2002). "Follow words from left to right and from top to bottom on the printed page" (Indiana Academic Standard [K.1.2], 2002). "Understand that printed materials provide information" (Indiana Academic Standard [K.1.3], 2002). "Recognize that sentences in print are made up of separate words" (Indiana Academic Standard [K.1.4], 2002). "Distinguish letters from words" (Indiana Academic Standard [K.1.5], 2002).

I assisted the boys in practice writing using a unique method of designing their own story of a car race. The exhilaration to write from the children was incredible! The boys each used colourful sentence strip writing cards and black pens. Each boy helped to write the story by writing one sentence with my assistance [ZPD] to their writing capabilities. We continued to revisit the story while emphasising language development. These activities reflect the State of Indiana Academic Writing Standard 5 for Kindergarten, "Draw pictures and write words for a specific reason" (Indiana Academic

Standard [K.5.1], 2002). "Draw pictures and write for specific people or persons" (Indiana Academic Standard [K.5.2], 2002).

Week 4: The fourth week focused on the academics of mathematics and science areas. The boys used mathematic skills to measure their drawings of race cars, and plastic racing cars that were purchased to help them gain a better understanding of the framework in the construction of their own knowledge. They were given measuring tapes as each child measured how long several racetracks were compared to how far the plastic cars raced each other. The plastic cars were also measured to the length of each racetrack. The boys also thought it was interesting to observe the velocity of the cars racing each other with scientific inquiry. Each additional race car constructed from clay, playdoh, wire, cardboard and paper allowed for necessary academics to be part of the natural developmental process. These activities reflect the State of Indiana Academic Math Standard 5 for Kindergarten on Measurement, "Make direct comparisons of the length, capacity, weight, and temperature of objects and recognize which objects is shorter, longer, taller, lighter, heavier, warmer, cooler or holds more" (Indiana Academic Standard [K.5.1], 2002). The State of Indiana Academic Science Standard 3 for Kindergarten, "Students investigate, describe, and discuss their natural surroundings. They begin to question why things move. Describe objects in terms of the materials they are made of such as clay, cloth, paper, etc." (Indiana Academic Standard [K.3.1], 2002). "Investigate that things move in different ways, such as fast, slow" (Indiana Academic Standard [K.3.2], 2002).

Many pieces of art education were woven throughout the 'Race Car Project', including a broader understanding of aesthetics, art forms, environment, and materials.The educators in Reggio Emilia have gone even further in their attempt to show children adults, and the community the value of aesthetics within the education of young children. Fraser (2000) agrees, "Aesthetics is an aspect of relationship that needs to be considered

in presenting materials in the classroom. To foster aesthetic awareness to help children appreciate beauty in the world around them, also means to heighten awareness of the link between things in the environment and the emotional response that objects evoke" (p. 118).

The Arts Education Partnership (1998), administered by the Council of Chief State School Officers and the National Assembly of State Arts Agencies through a Cooperative agreement with the National Endowment for the Arts and the United States Department of Education suggests,

- Reinforce child-directed opportunities of expression and exploration

- Engage children in creating, reflecting and presenting their own art

- Build upon curricular goals and sequential skills of each discipline

- Presentation of artwork when child is emotionally ready.

- Emphasize 'process' of learning the arts and not on finished 'products'

  (p. 4).

Week 5 & 6: The last two weeks were designated for working primarily on the construction of each boy's own race car. All of the previous methodologies applied to the final goal of the project were experiences designed to assist the

boys as they formulated a clear understanding of the reality involving their final piece to the projected goal. The boys continued discussing how to use all the materials available for their own race cars. It was remarkable to observe each boy as he created his race car to his own satisfaction! Numerals were added to some of the race cars while others found shiny materials and particular such objects to use with their project. Part way through the construction process, it became apparent that some of the boys were frustrated on how the wheels were to be attached to the race car. It was discussed and a visiting art teacher from the community offered to assist the boys with their attachment of the wheels to their project. The art teacher brought in several different power tools to help with the construction. This segment of the construction process became a success as the boys were able to work through solving a problem as an adult assisted. It was essentially the decision of the children to accept or reject the offer. This situation obviously confirms Vygotsky's 'scaffolding' theory to be put into practice effectively. Mooney (2000) agrees,

"Vygotsky believed that in order to scaffold well for children, teachers need to be keen observers. This determines where children are in a learning process and where they are capable of going given individual needs and the social context surrounding them" (p. 84). These activities reflected the Problem Solving section of the State of Indiana Academic Math Standard 6 for Kindergarten, "Students make decisions about how to set up a problem, choose the approach, materials and strategies to use in solving problems, use tools such as objects of drawings to model problems, students solve problems in

reasonable ways and justify their reasoning, explain the reasoning used with concrete objects and pictures, and make precise calculations and check the validity of the results in the context of the problem" (Indiana Academic Standards [K. 6.1, 6.2, 6.3, 6.4], 2002).

Conclusion

The 'constructivist theory' within early childhood education demonstrates that learning for young children is simply 'acting out' in such a ways that offers opportunities to construct their own knowledge through discovery, exploration and investigation. In Reggio Emilia, there are no time constraints, only one to five children working on a project together. Projects may take a day; week, two weeks, a month, a year to three years, depending on when the child or children determine their projects are finished (Edwards, et. al., 1993). The 'Race Car Project', was designated as a six-week project by the public school corporation primarily to allow many groups of children from each classroom the opportunity to explore diversity within the construction of projects. During the final concluding days, it was decided by the children and me to host an all-school celebration inviting others to share with the boys in their experiences of the 'Race Car Project'. The boys' families, friends, colleagues, students from the local university (where I had been instructing) along with school faculty, staff, and public school administration were all invited to attend this special event. It was a marvelous celebration as the boys and I shared their experiences. We concluded with demonstration of a gallery of documentation which included the boys' construction process, and of course the 'final race' which encompassed the boy's own race cars! The school celebration brought a whole sense of community together within a unique understanding of, *progettazion*e' or the project approach. Driscoll and Nagel (2005) comment,

"The Reggio Emilia' approach works with the child in relation to other children, to the family, to the teachers, to the school environment, to the community, and to the wider society" (p. 155).

From these experiences of the, 'constructivist Theory' and the 'Reggio Emilia' philosophy, 'The Race Car Project' naturally fits in well with the theoretical framework of both. For anywhere there are children, and anywhere there are projects; my appreciation for the 'constructivist theory' continues to grow!

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