

Using the local language for teaching science in kindergarten in the Philippines

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Abstract

This study discusses some important observations on using the local language for teaching science in kindergarten. The study was conducted in a local kindergarten school in the Philippines where classes were observed to obtain data whether using the local language in teaching science is effective. The result shows that using the local language for teaching science to kindergarten learners: (1) allow the learners to ask questions that are related to their lesson; (2) allow for individualism so that those with different backgrounds and levels of development can contribute and progress; (3) evoke emotional and physical as well as intellectual responses; (4) offer opportunities for children to express ideas on a topic, issue, or problem; and (5) help make connections to what they are learning in other subject fields. In general, it allows the children to participate actively in different activities. This paper strongly advocates the use of local language as an effective medium of instruction in teaching science for young children.

Key words: *local language, teaching, kindergarten, science*

Introduction

Part of the public demands and expectations for preschool education is to develop scientific literacy. Teaching science in the kindergarten level develops a good foundation for learning science in the future. The impact of science in the society leaves

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an immense challenge to expose all individuals to science in order to develop a science culture, which is very important to the growth of the community. Hence learning science is essential. In fact, Marx (1994) opines that science is going to be one of the most important school subjects in the future. Consequently, finding ways on how to effectively teach science concepts and skills to kindergarten children is an immense challenge.

This study explores the idea of using the local language in teaching science. This study believes that using the local language as the medium of instruction enhances the processes of teaching and learning science especially for kindergarten learners. This approach contributes in making the teaching and learning of science meaningful, effective and culturally relevant. In the context of this study, the term *local language* refers to the *first language* that is spoken by the child.

Why Is It Important to Teach Science to Kindergarten Children?

Science is taught as early as kindergarten level in the Philippines. It is included under the subject “Sensory-Perceptual Skills” which aims to develop the child’s competency in perceiving characteristics of concrete objects and events in the environment through the use of the five senses. Under this subject are nine different themes or topics: (1) Personal identification; (2) Personal cleanliness and safety; (3) Plants; (4) Animals; (5) Matter; (6) Water; (7) Light; (8) Weather; (9) Time. The science curriculum emphasizes basic skills in observing, describing, comparing and classifying (Department of Education Culture and Sports, 1989). This learning area also includes simple science experiments that require children to observe, compare, and communicate ideas related to their observation.

Science in kindergarten has always involved investigation of objects, quest for phenomena and their functions, interest in knowing things about heavenly bodies, and the intimate observation of plants and animals (Holt, 1989). When children see something new or strange in the environment, they ask questions or have fun talking about it. Dewey (2001) stressed the importance of utilizing the natural environment to teach young children. The raw materials and events of science are all around the environment and young children are always curious in their quest for understanding

everything that their senses can encounter. As children are developing their interest about the environment, they develop certain characteristics that make teaching science possible (Conezio & French, 2002; Kellough, 1996; Martin, 2001; Meador, 2005). This makes the environment one of the foundations of teaching science in the early childhood curriculum.

Other researchers also recognize the importance of teaching science in the early childhood level. For example, Eshach and Fried (2005) discussed that exposing young children to science develops positive attitudes towards science and leads to better understanding of the scientific concepts studied later in a formal way. Furthermore, the use of scientifically informed language at an early age influences the eventual development of scientific concepts. These show that teaching science in early childhood is indeed a noble task of developing the learners' understanding about the real world. It also develops or enhances the reasoning skills of the young children. These are pre-requisites in the development of critical and creative thinking among young children.

Many adults think that kindergarten learners are not capable of thinking logically or evaluating explanations, but according to Einon (2002) young children have all the characteristics needed to become great scientists: being observant, being curious and above all, being eager to know why things happen. In relation to this idea, Lind (1997) also proposes that children need to have the chance to answer questions, do investigations and apply problem-solving skills. Hence, learning science is an appropriate action to consider in addressing all these needs and interest of young learners. Science stimulates and sustains the interest of young children to study about nature and other related phenomena through different activities. It also develops important process, creativity, and critical thinking skills among the children.

Hartman and Glasgow (2002) postulate that children's ideas in science are personal and social constructions that are affected by their personal experience and the culture they live in, including their language. Therefore, it is a noble task to make science as part of the children's culture and daily-life experience. Teaching science in kindergarten is based on the necessity to develop and equip young children with scientific knowledge and skills needed for daily life. It should therefore connect

scientific knowledge with the socio-cultural context of the learners. One way of doing this is to bring scientific knowledge to the learners' level of understanding and experience by using the local language of the learners as the medium of instruction for teaching and learning science in school.

Why Is It Important to Use the Local Language for Teaching Science in Kindergarten?

Recognizing the growing importance of teaching science starting in kindergarten and realizing that language plays a major role in the teaching and learning process inspired this researcher to explore the use of the local language in the teaching and learning of science in kindergarten. In real life, science and society are inseparable. Engaging in science is a kind of social activity that is important for all human beings. Scientific ideas and skills are transmitted and developed using the language of the people. Dewey (2001) elucidates that the language instinct is the simplest form of social expression of the child. Hence, it is the greatest of all the educational resources that is innate to the child and can be utilized in learning science concepts and skills. It is therefore important to use the child's first language as the medium of instruction in teaching science.

The Philippines is one of the few countries in the world that used English for teaching science from preschool to secondary school. Learning the English language seems to be one of the top priorities in Philippine basic education. However, this practice is an obstacle to developing scientific literacy since English is not the native language of the learners. In some cases, learners hesitate to share and discuss during science lessons not because they do not know the topic, but they are not comfortable with the medium of instruction. Hence, this is one thing that should be considered by kindergarten teachers. To understand science concepts and skills, it is imperative for children to discuss ideas. However, this is not possible especially if a foreign language is used as a medium of instruction.

Language has been recognized as an important tool in the production of knowledge and in the development of culture because of its power to epitomize reality. It is believed that learners create and construct meaning based on their own experience and use their first language in understanding and processing ideas. Baetiong (2004)

opines that special attention to language is crucial if the intention is to enable a person to learn successfully. Based on the innovative literacy efforts documented in the *IK Notes* (Leauter, 2004), the use of teaching materials based on local language tend to result to higher literacy rates. It is not only more effective; but it also underscores the value of cultural norms and practices in the development, planning and implementation of the science curriculum. Using the local language also gives meaning and context to the scientific ideas learned in school. It embodies the genius perspective and identity of the people to any idea.

Using the local language for teaching science in kindergarten is one way to promote the understanding of science concepts and application of science skills in a particular socio-cultural perspective and context. This kind of situated pedagogy increases the chance for learners to feel ownership of their education and reduces the conditions that hinder their acquisition and learning of scientific knowledge and processes. Understanding the context (*personal, cultural, and environmental*) is important and using the local language is vital in learning science. Vygotsky (1962) explains that language plays a crucial role in forming abstract concepts, and these abstract concepts, according to Banks and Thompson (1995), are critical to the development of some disciplines such as science. Therefore, language really plays an important role in developing scientific understanding.

Kindergarten pupils come to formal education with a range of prior knowledge, skills, beliefs and concepts that significantly influence what they perceive about the environment and how they organize and interpret it (Bransford & Brown, 2000). This prior knowledge and beliefs are what they learned from interacting with adults, and from their daily experiences. In all these tasks, the learners interact and learn using their first language or the language of their locality or culture. They process their ideas using the local language. Moreover, their vocabulary knowledge is based on the language that they used in daily conversations. According to Banks and Thompson (1995), the interaction of thought and language in an individual plays a vital role in maturation and socialization. Accordingly, the level of vocabulary knowledge is one of the best predictors of school achievement. Hence, it is essential that the local language should be used in teaching and learning science.

What Does Constructivism Say on Teaching Science in Kindergarten?

The theory of constructivism is very helpful in providing a theoretical support for teaching science using the local language to kindergarten learners. The cognitive view of constructivism exemplified by Piaget (1983) posits that people develop universal forms or structures of knowledge that enable them to experience reality. In constructivism, knowledge is individually constructed rather than transmitted (Bettencourt, 1993), and it is based on the learners' intellectual development as they experience reality while doing or engaging themselves in either physical or social activity (Hodson, 1998; Martin, 2001). Hence, the language of learning science plays an important role in the process of constructing science ideas and in learning science processes and skills.

In constructivism, learners are viewed as goal-directed agents who actively seek knowledge and information, and are seen taking an active role in the development of their own ideas (Bliss, 1994). Constructivist paradigm posits that learners construct meaningful learning as results of sensory experiences with the world (Carale & Campo, 2003; Houtz & Thomas, 1996). Constructivist paradigm also strongly proposes that the science should provide experiences that are relevant to the learners' daily life and prior knowledge. In all these tasks, language plays a vital role. It is therefore necessary to use the local language as the medium of instruction for teaching science in the kindergarten level.

People have the tendency to interpret sense data that enter their consciousness based on their prior knowledge, beliefs, expectations, and experiences (Hodson, 1998). Therefore, using the local language provides opportunities for learners to interact with a broader world and makes connections between the new knowledge they acquired and prior knowledge to create meaningful learning. This type of pedagogy provides a chance for young children in different local communities to learn science and to participate in any science related activities in a meaningful way.

Methodology

The purpose of this study is to explore the use of local language for teaching

science in Kindergarten in the Philippines. Specifically, it aims to analyze and observe learners' activities, reactions, attitudes, and performance during the actual teaching of science lessons using the local language. As preliminary activity, the researcher prepared science lesson plans to be implemented for one week to observe and assess the effects of using the local language in teaching and learning science especially for the learners. An open discussion was also done with the teachers and the school administrator to introduce the purpose of the study and to solicit comments with the lesson plans. After the discussion, the lesson plans were modified to incorporate suggestions from the teachers.

The actual teaching or implementation of the lessons was done for one week. During the try-out of the lessons, classes were observed using a checklist and an observation guide. The observation guide was designed to observe how the class or the lessons were conducted in relation to the goals of the study and to the desired learning outcomes of the science lesson plans that the researcher developed. A voice recorder was used to record some of the important responses of the children during the session time. After the try-out, a post-teaching round-table discussion was done with the teachers. Science educators and other preschool administrators were also invited to give their comments on the result of the study.

The study was conducted in a church-related community kindergarten school in northern Philippines. This school is already 20 years in existence. It was founded by the United Methodist Church to provide quality preschool education to six cultural communities. Though it is a church-related school, enrollment is not limited to church members only. Most of the students came from different religious beliefs and socio-economic status.

Participants of the Study

- *Young Kindergarten Learners*—twenty-seven pupils who participated during the try-out. Out of this number, 15 are females and 12 are males. All of the children are within the age range of 4 to 5 years old. All the children communicate using their local language, *Ilocano*, which is a local language in the northern regions of the Philippines.

- *Preschool Teachers*—Two well trained preschool teachers were involved during the try-out to implement the lesson. Both teachers are female and within the age range of 21 ~26 and can speak *Ilocano* which is the local language of the pupils.
- *Science Educators and School Administrators*—to further enrich the data gathered, three science educators and two administrators were invited to give their insights and comments on the possible use of the local language for teaching science in kindergarten.

Data Analysis Procedure

This is a qualitative study therefore reporting of data is descriptive. The data were compiled, sorted, and classified by key ideas and themes in relation to the purpose of the study.

During the actual observation of young children, the work of Felipe (2002) inspired the researcher in recording and interpreting the data obtained from observing young children and recording their responses. Originally, the responses of the young children were stated in the local dialect or language. Free translation into English was used because of the structural and cultural differences between the local language and English to give the English-speaking readers an adequate sense of the young children's mind and sentiments while giving their responses. As it is natural for Filipinos and young children to speak a lot and share many stories, the researcher looked only for statements and responses that are relevant to the study. The quest is to look for common ideas that are related and helpful for the research.

In presenting the transcripts of the learners' comments, each child is given two identifications: a letter and a number. The letter indicates the gender of the child: *F* for female and *M* for male. The number is a sequential identifying number for each child in the class. The result of class observation was analyzed qualitatively. The result of the consultative colloquia was also analyzed, compared, and synthesized. The comments, suggestions and recommendations of preschool teachers, science educators, and administrators were considered and included in the final report of the findings of the study. In the final report, the interpretations of the researcher are

added to create meaning and substance.

Results and Discussion

The first day of the lesson focused on identification of the different types of plants that grow in their community. As observed, the children were able to identify different types of local plants using the local name of each plant. They started naming plants that are familiar to them especially those garden plants and fruit trees. The teachers organized a contest between girls and boys as to who can first name a plant in the garden or in the yard. The children enjoyed this activity very much. It was observed that majority of the children can classify plants into different categories. Plants were classified as fruit—bearing, flowering or ornamental, vegetables, trees, grass or vines.

During the entire duration of the try-out, the researcher observed that using the local language in teaching science increases the learners' participation in the class activities. The following are some of the important observations how using the local language as a medium of instruction in science enhances the learning process of young children:

It Allows the Young Children to Ask Questions that Are Related to Their Lessons

Since the main topic or theme of the lesson for the try—out focuses on the study of plants in the community, the visit to the market place was very helpful. Through this experience, young children were able to ask questions about the local plants sold in the market. As they toured around the vegetable market, the young children were encouraged to ask questions, interact, and clarify things that they wanted to know from some customers or buyers and from the market vendors. Some of the frequently-asked questions of the children include:

- a. What is the name/s of this/these fruit/s and vegetable/s teacher?
- b. From what plants do these fruits and leaves come?
- c. Where are these plants grown?

d. What are the uses of these plants?

Using the local language enables the learners to freely ask questions to people in order to satisfy their curiosity. It gives them wider opportunity to develop more understanding about the lesson being taught to them.

During the post-teaching interview and discussion, the preschool teachers explained that in a normal day-to-day classroom experience where English is the medium of instruction in science, most young children ask their teachers to teach them to translate their statements in English. Most of the time the learners feel shy to talk because they are afraid to commit mistakes and that they do not know how to express their thoughts in English. However, when they used the local language in teaching, the learners became more active in class discussions and became more interested in asking relevant questions. Hence, using the local language as a medium of instruction in science classes is effective.

It Provides Wider Opportunities for Young Children with Different Backgrounds and Levels of Development to Contribute to the Learning Process

By allowing the children to share their experiences and observations, they were able to realize that plants can be used by people in the community in many ways. A number of community folks were invited in the classroom to discuss how people make use of plants. The children were very attentive during the discussion. The teacher allowed the children to ask questions and share their observations and experiences, as they always wanted to speak and to be heard. As young as they are, the children were able to discuss that plants can be used for food, for building houses, for feeding animals, for medicine, and for landscaping the surroundings. Some of the comments of the children are:

F 14 (5 years old) : My mother gives me lemon juice whenever I have colds or cough.

M 2 (4 years old) : My father planted a lot of vegetables in our farm. We harvest them for food in our house.

F 17 (4 years old) : We have a variety of ornamental plants in our house.

M 9 (5 years old) : My father feeds our cow with grass.

M 10 (5 years old) : Trees provide shade to rest.

F5 (4 years old) : Plants are my friends.

F1 (4 years old) : We grow plants in your yard for food.

The children always based their ideas and statements on their daily life experiences. Their answers and questions are always based on what they saw, felt, and heard. They discussed their experiences first and asked questions before they formulated ideas or conclusions. It is important to them that what they are learning is related to their experiences and prior knowledge. This supports the theory of constructivism that children learn new ideas about the natural world as a result of what they observed, experienced, and what they have been told, by integrating them into existing knowledge structures (Carale & Campo, 2003; Martin, 2001; Tolman, 1995). This was well supported by Hodson (1998) in advocating that the learners are not passive recipients of knowledge; rather they are active constructors of knowledge and reconstructors of their own understanding.

During the lesson, the teacher introduced the lesson by saying that plants are like human beings with individual differences: plants have different colors, odors, body structures, families, and plants have varied needs. The teacher provided some information on how indigenous community folks gave local names to some flowers and plants. Usually, people named plants according to their uses, observable features, and where they grow. In respect to the local peoples' culture and belief, the teacher told the learners that people believe that God created all the beautiful plants and things they can see in the surroundings. The teacher also told them that there are different kinds of plants in the community as there are different individual persons in the community.

It Provokes Emotional, Physical and Intellectual Responses

The use of the local language as a tool for communicating ideas and the interaction with community folks were found to be very useful in learning and in developing science knowledge. The researcher found out that young children are truly curious

of their environment. They asked a lot of questions and eagerly shared ideas with adults, which allowed them to understand the nature and processes of doing things. They are like scientists who are eager to know and learn new things. The local language provides an opportunity for children to communicate their exact observations, and explain simple analysis about certain objects, events, and relationships to adults without fear of making grammatical errors. Using the local language was observed to be very powerful in expressing young children's ideas, in asking questions, and in clarifying some explanations given by local folks and vendors. Some of the children also share some information to the vendors like:

F27 (*5 years old*) : This is such a delicious food. My mother cooked it in our house.

M8 (*4 years old*) : My parents make this as a medicine whenever I am sick.

M1 (*6 years old*) : We have this plant in our garden.

It was observed that the points of reference to all their questions, observations, and ideas are always their experiences in their homes and what they observed in their surroundings. This shows that children are keen observers.

Using a local story as the story-board for the lesson, the children were able to identify the needs of the plants in order to grow and develop. Some community folks were also invited to discuss their experiences on how they respond to the needs of the plants. A mother was invited to demonstrate the proper way of planting. During the demonstrations, some children eagerly asked questions such as:

F9 (*5 years old*) : What type of soil is the best for planting?

F10 (*5 years old*) : How does water enter the body of the plants?

M1 (*6 years old*) : Why is air important to plants? Do plants have noses too?

M20 (*4 years old*) : Who takes care of the plants in the forest?

M18 (*4 years old*) : Can a plant grow without sunlight? The sun is sometimes hot. It may dry the plant.

During the post-teaching discussion, the teachers and administrators expressed

joy and satisfaction to see young children participate with full energy and excitement. The classroom discussion became more alive through the questions and sharing of ideas from young children.

As a part of their activity the children were given time to visit and observe the seeds they planted everyday. This activity allowed them to observe the plants' growth and do actual scientific investigation. Furthermore, this activity allowed self-regulation and the building of conceptual structures through reflection and abstraction. It gave a new paradigm on how young learners address or solve problems and build-up models of the learners' conceptual structures. This experience can be related to the features of constructivism according to Von Grasersfeld (1995). In constructivism theory, as also observed in this study, the learners are seen as scientists doing active investigation on a certain problem or any subject of inquiry (Hodson, 1998; Martin, 2001).

During the culminating activity, the young children experienced actual planting using some seeds. With the guidance of the teacher, the children discussed in their own language how much amount of soil and water should be given to the seeds in order to grow faster. The children also decided to place the seeds they planted in the garden where there is enough sunlight and where they are safe from other animals like birds and chickens.

During the post-teaching discussion, the teachers also expressed their observation that using the local language in teaching science enables the learners to participate actively and enjoy learning. It became easier to assign young children to do some task or activities in groups because they can plan and discuss their tasks openly using their local language. This makes the teaching and learning of science more learner-centered.

It Offers More Opportunities for Children to Express Ideas and Observations

Using a magnifying lens, the learners were able to identify the external parts of the plants such as: roots, leaves, branch, fruits, trunk, and flowers using their local language. The children were able to communicate their observation by describing the different parts of the plants (i.e., the color of the flowers and leaves, the shape of the

fruits and leaves, the color and structure of the roots, and the differences of different stems). Examples of their observations and comments are:

F12 (4 years old) : The roots are like hairs; some roots are big and some are small

M2 (5 years old) : Some flowers have many petals; others have only 3 or 5.

M8 (4 years old) : Leaves are different in many ways depending on each plant

F3 (5 years old) : Some stems are thin, while others are big.

The children concluded that each plant has different parts. Using a chart, the learners recorded their observations on the different observable characteristics of each part of the plants with the assistance of the teachers. The children drew the different parts of the plants and this served as their art activity. As observed, the lesson allowed the learners to explore and creatively express their ideas and observations. It is apparent that young children were curious to explore natural things in their surroundings. The children enjoyed looking and smelling at the flowers, and observing the butterflies and other insects that are flying in the garden.

It was proven that the local language provides a strong tool for internalizing and understanding of science concepts and skills. It was observed that young kindergarten children express their observations and questions using the local language. Using the local language gave more meaning and context to the ideas of the learners because there are words and terms in the local language that has no synonyms in the English or Filipino vocabulary. It is easier to translate science concepts and ideas from English to the local language. In general, language is a powerful tool in engaging in any intellectual discourse.

It Helps Young Children to Make Connections of What They Are Learning to Other Subject Areas

The children learned that they should be careful not to destroy the home of the plants for plants have feelings too. Plants will feel lonely if they lost their home and be left alone without family or friends. The children also identified several ways on

how they can take good care of plants. Examples that were given are:

F8 (*4 years old*) : Water them everyday.

F16 (*5 years old*) : Use fertile soil.

M19 (*5 years old*) : Expose the plants to enough sunlight.

M5 (*4 years old*) : Don't destroy them.

F2 (*4 years old*) : Don't make their flowers and leaves as toys.

M1 (*5 years old*) : Maintain their habitat. Do not destroy their homes.

As an important and enjoyable activity, the children drew pictures of how they can take good care of plants. Art is always an important cultural activity that allows individual persons to express ideas and feelings about a certain object or phenomenon. This also allows the integration of arts and science in the learning process. Furthermore, the use of a local story was useful to further strengthen certain values and develop scientific attitude that should be instilled in the minds of young children. This shows that story telling is an effective cultural activity and teaching strategy in teaching young children.

It can be noted that during the entire duration of the try-out, a complete attendance of the learners was observed—one indicator that they are interested in the lesson. Observing the eagerness of the young children to come to the class and looking at their enthusiasm in participating in all the activities further support the claim of this study that learning an indigenous science curriculum, a science curriculum that is community-based, culturally relevant and responsive, makes teaching and learning meaningful, exciting, and motivating to young children.

Problems Encountered in Using the Local Language for Teaching Science in Kindergarten

Teaching science to young children using the local language is an interesting adventure however, the study found out that there are some obstacles or problems that could impede greater success of using the local language for teaching science. During

the try-out and as a result of the post-teaching discussion with teachers and school administrators, the following problems were observed and discussed:

- There are few teaching materials written in local language. This is because science has been taught in English in the Philippines for long years. Hence, most of the available instructional materials like books, charts and manuals are written in English. Few materials are written in Filipino.
- Teachers have been teaching science in English for a long time. Hence shifting from English to the local language poses some adjustments to them. As a result, some teachers mixed English with the local language. This was especially observed in the first two days of the lesson.
- Some science terms do not have an equivalent term in the local language.

Although some problems arise, the science teachers and preschool teachers are optimistic that using the local language as a medium of instruction for teaching science is effective. It provides an immense promise for developing science culture and literacy among young children. They also expressed optimism that this innovation can help improve the teaching of science in the country.

Helpful Insights Gained From the Study

The results of the study also provided some rich insights and ideas that add meaning to the continuous search for effective means for teaching science to young children. The observations during actual teaching of the lessons reveal that young kindergarten learners possess some characteristics and attitudes that are useful in learning science:

- During the lesson proper, young children always try to connect or relate what they learned or understand to their daily—life experiences and to other things that they learned. Therefore, presenting information in a holistic perspective or integrated manner is essential for the teaching and learning of science to young children.

- Like any other Filipino cultural groups, the Ilocanos have a very strong family ties. The home is the center of the world's activities for them. That is why the point of reference of young children in sharing their experiences always starts in the home—their experiences with their brothers and sister, their parents and other extended family members living with them. It is therefore important for young children to develop awareness of how science is useful to the family or in their homes. During the observation, young children always relate their ideas and answers based on their experiences in their homes and to what their parents told them.
- Like any other indigenous groups, the Ilocanos believed in the existence of a God. This kind of faith is non-negotiable to young children. It is taught to them to believe, obey and fear God. The Ilocano term for nature is "*parsua*" which in English it means "creation". The young children are taught that God created everything in the universe the source of existence. Therefore, nature is viewed as a friend to all human beings. Human beings are viewed as stewards of God's creation. It was observed that during the actual teaching session, young children viewed plants as gifts from God. Children believe that plants have feelings too and therefore they should be careful not to hurt them. In reflection to this, it is apparent that in science, nature should be presented not just as a subject for scientific study that requires experimentation rather it is important to develop a sense of responsibility and a soulful view of understanding the ways of nature and all its activities.
- The learners wanted to work in groups. They wanted to have other individuals to share and discuss their ideas and to work with. As observed they like the idea of having a group to share their difficulties and successes. Young children need a community of friends that provides an exchange or collaboration of ideas; and who provide confidence in working through mistakes or success in creative problem—solving process. In relation to science, cooperative learning is something that can be used in designing science instruction.
- Young children have a strong desire to pursue science—related activities in the classroom. They wanted to finish their task successfully with great passion. It

appears that there's no room for failure to them. No matter how difficult the assigned task is young children would always try their best. Young children are persistent and determined to work cooperatively or independently to finish a certain task or to discover an answer to their questions. Most of the time, if it seems that they are confused or they have some questions and so they ask the teacher's assistance.

- The use of local language for teaching and exposing young children to science activities provided an exciting opportunity for young children to express and display their interest in finding and exploring patterns in nature. They display a strong desire and sense of wonder in going within and beyond the surface of what they already know and what they are taught about certain things. The children have a curious and an open mind to explore and know about their environment.
- Young children prefer to see concrete examples of objects rather than listening to verbal examples. In science activities, although they have a strong desire to find out things by themselves, they wanted to see how things are done first before they do activities by themselves. Even in dealing with the results of their activities they wanted to create a visual representation of their ideas like drawings, writing activities, making things, or doing simple graphs with the help of the teachers.
- Young children are very creative. They always find a way to solve their problems by themselves or among themselves. For them, there is always an answer to every question and there are always solutions to all problems. Also, they always wanted to do art activities, learn poems and songs in relation to their lessons. Creativity is very important in science. Utilizing this genuine creativity of young children in science lesson is very important in kindergarten. As the National Science Teachers Association (2000) points out that creativity is vital, yet personal, ingredient in the production of scientific knowledge.

Conclusion

Developing a strong science culture and science literacy among young children is one of the challenges to preschool educators. Supported by a strong belief that science can help solve the immediate problems of community life; science has become one of the most important subjects that are taught in school. Hence, it is imperative for preschool educators to find innovative ways of making the teaching of science in kindergarten more meaningful and effective.

This study advocates the use of local language for teaching science in kindergarten. Young children always find joy and excitement in performing simple experiments, observing living things, looking at the different celestial bodies and understanding the nature of all things in their environment, even with the changes in their bodies. In all these endeavors, young children process and communicate their ideas using their local language. They also interact with other people using their local language. Hence it is important for educators to realize the importance of the local language as a medium of instruction in teaching science.

This study strongly proposes to use the local language as an effective tool in teaching and learning science in school especially among kindergarten learners. As found out in this study, science concepts, processes, and skills can be easily acquired if the science curriculum is taught using the local language. During the try-out, it was proven that the local language provides a strong tool for understanding science concepts and skills. It was observed that young kindergarten children express their observations and questions using the local language. Using the local language allows the ideas and knowledge to flow from the learner's minds freely without the fear of translating them into a second language like English. Using the local language gave more meaning and context to the ideas of the learners.

Finally, language is a powerful tool in engaging in any intellectual discourse. Constructivism claims that knowledge is constructed and that the prior knowledge of the learners is important in learning. Hence, in the development of science literacy among young children, the use of the local language as a medium of instruction for science is important and effective.

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