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Wonder: Hands-on-Activities and Children's Development of Communicative Abilities in Drawing among Some Selected Primary Schools In Buea Sub-Division, South West Region of Cameroon.

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ABSTRACT

This paper focused on the impact of hands-on-activities and children's development communicative abilities with focus on drawing. The basis of wonder and in childhood was x-rayed from philosophical perspective and narrowed down to a psychological trench how wonder influences hands-on-activities bringing out the communicative abilities of children via drawing. Literature review of study anchored on drawing and colouring showing how it enhances creative thinking, writing, logical thinking, memory retention, tactile and fine-motor skills, language, cognitive and socio-emotional development of children. The research design was the survey with a total population made up of all public, private and mission schools. Meanwhile target population constituted primary 4, 5 and 6 pupils in primary schools within the Buea Municipality. The total sample size of the study was 85 pupils and a random sampling technique used. In order to collect data, a questionnaire was designed and administered. Findings show that the majority of the pupils (57%) is positive that they have drawing as a school subject while 43% is negative that they have drawing as a school subject. Research evidenced that wonder; hands-on-activities are effective learning experiences and approach that improves children's communicative abilities, understanding of concepts resulting in better achievement score and success in subject area.

Keywords: Hands-On-Activities, Children's Development of Communicative Abilities and Drawing.

INTRODUCTION

Educating to wonder cannot be reduced to a simple question of methods and projects: it implies a complete re-interpretation of the very concept of education, if we don't want it to lose its significance. What's more, wonder is behind all those feelings, thoughts and ways by which we approach and know reality, it is related to the difficulties, problems and uncertainties that constantly upset our everyday life. Being able to

wonder is crucial, not only for the young who need to find their way in life, but for any person who is open to knowledge and has an educational role. Educators, in fact, are required to exercise the ability to wonder in order to be able to spot *educational possibilities* in every situation and every person. People who are capable of being surprised are attentive, open to the world and to others, in search of a meaning for their existence (Musaio 2012).

Basis of Wonder, Hands-On-Activities and Children's Development of Communicative Abilities in Drawing

As we are taught by philosophers of all times, wonder can be experienced indifferent ways: through nature, people, the universe. In all cases, it promotes man's ability to make questions and to care about reality (Musaio 2012). To ponder on the *"why"* of things and seek the *"how"* of those things.

Anthropologically, wonder may be associated with childhood. Growth and maturation start the dynamics of adult life, the understanding of reality through abstract concepts which, though useful for orientation in everyday life, make us forgetful of the child we were and incapable of perceiving *the mystery* and *beauty of existence* (Musaio, 2007). In addition, it becomes increasingly difficult to get in tune with the deepest and most valuable part of our inner self and with our emotional world. This is partly due to the influence of the time we are living in, a sort of "*aesthetic age*". The name doesn't necessarily imply a strict relationship with art and works of art, but it celebrates *aístesis*, the aesthetic feeling, as the only criteria for knowledge and practice. Because of this aesthetic inclination, a person is no longer able to experience his/her feelings in a personal and direct way and is forced to follow the pattern of the *déjà vu*: "objects, people, events are perceived as predictable, and we only take a superficial interest in them, since they are emotionally and spiritually pre-determined" (Perniola, 2002, p. 4). According to Hersch (1981, p. 2), "Each one of us, in fact, has a philosophical experience: every time we need to make a real decision we question ourselves, unbeknown to us, in a philosophical way. Children around five years of age ask questions in a philosophical way, and so do young adults fifteen or sixteen years old".

According to Hersch's point of view, the problems concerning human condition today suggest that we go back precisely to the wonder from which philosophy was born, to the basic questions that people ask when they try to avoid habits and to go beyond the *déjà vu*, in order to reach higher levels of meaning. Wonder, understood as the philosophical and naive gaze at reality, can be described as follows:

a) it is a fundamental component of human nature, that leads us to ask essential questions about existence; b) it is responsible for creativity and imagination, and therefore for man's ability to develop creative processes; c) it is typical of children, but can be developed also by adults who try to avoid attitudes of cognitive presumption and narrow-mindedness. At the origins of philosophy and of all great philosophical questions, the concept of wonder is already present in Plato and Aristotle (Musaio 2012).

Wonder in childhood

A pleasant sensation of surprise aroused by something new or unexpected, a synonym of marvel before something moving or beautiful, wonder is first perceived as a sense of surprise, not necessarily before something unusual or extraordinary, but certainly before something that affects us deeply, causing a strong impact on our lives. With practice, even common events from the daily life or things we are accustomed to, may cause surprise:

"Wonder is a unique experience, not of the exceptional, but of the common things, in the sense that the object of our wonder is not the external appearance, but the very essence, the true nature of things (...) in their own way of being" (Petrosino, pp. 74-75).

The very moment we start to explore the world we become capable of surprise. Infancy, the first step of man's formation, is populated with moments and situations full of wonder: think, for example, to a child's dreamy smile as he observes the world, or to his endless asking *why?,* full of marvel and expectations. Both attitudes suggest that wonder is a complex feeling. Starting as a primary and sudden emotion, it turns into a strong feeling that challenges the child's ability to face new experiences and to gradually gain self-awareness. In other words, it is related to the experience we have of ourselves as *existing-speaking-feeling-thinking units*, as unique sources of interiority (Musaio 2012).

On this regard, Romano Guardini (1997) refers to the individual as to a "junction point" of the complex of feelings and thoughts that distinguish each one of us. The curiosity of childhood is a source of questions which, if properly answered, help to build self-confidence and to trust other people as something good to know and interact with. Curiosity acts as an impulse to an explorative attitude, but it needs to be fed and directed. Wonder then intervenes by providing curiosity with a semantic mode for the different areas of daily life: learning, introspection, scientific, technological, and artistic activities (Musaio, 2007). Thanks to this semantic mode we can combine the data coming from experience with a deeper understanding of our thoughts and actions. Wonder supplies a broader perspective that enhances people's ability to think and to cope.

Taking into account "the reflective potential" of children, which emerges precisely from their ability to wonder, some scientists –such as Lipman and his colleagues at the Institute for the Advancement of Philosophy for Children (IAPC)– have developed educational programs to use wonder as a cognitive method and to start a philosophical reflection since childhood. These studies have shown that wonder precedes the cognitive demand and manifests itself as "the shell of a psychological problem" (Lipman and Sharp, 2000, p. 125). The way children question about things, undoubtedly show the features typical of their age. According to Lipman's studies, in fact, the "why?" of children over three years of age reveals, at the same time, the intuition that events must be interrelated and the attempt to express this intuition by the use of the language. Then, around six, seven years of age, the relations between facts and mental

contents drawn from experience get more organized through the introduction of the *how?*, which highlights the peculiar curiosity of the child (Musaio 2012).

Through an evolution made of continuous questions, answers and explanations, knowledge reaches a degree of further complexity around ten-eleven years of age, with the development of intuitive and symbolic thinking. At this stage, in fact, the boy becomes able to perform mental operations and to form pictures in his mind without relying on sensory perceptions. The progress of thought, with the development of imagination, opens to a wide range of cognitive operations focused, not only on the real, but also on the possible, and introduces critical and creative thinking, essential for the achievement of an increasingly personal knowledge.

Just as imagination adds value to the concept of creativity, as above, so the same can be said of "wonder". Bulkeley (2005), in *The Wondering Brain*, employs updated neuroscience to speak of the full range of emotions attached to those creative moments when something entirely new happens to one's intelligibility, powers of insight or what we refer to simply as critical reasoning. Bulkeley chooses to speak in this context of "wonder", which she defines as "… feeling excited by an encounter with something novel and unexpected, something that strikes a person as intensely real, true and/or beautiful" (p. 3). She points out that wonder has often been associated with the religious and moral traditions but that experiences of wonder have been "… crucial but unappreciated inspirations for … scientific progress and technological innovations" (p. 3). Why is this so? Bulkeley asks, and then answers her own question in the following way:

To feel wonder is to experience a sudden decentering of the self. Facing something surprisingly new and unexpectedly powerful, one's ordinary sense of personal identity is dramatically altered, leading to new knowledge and understanding that ultimately recenter the self. The profound impact … is evident in both the intense memorability of the experiences and the strong bodily sensations that often accompany them. People speak of being stunned, dazed, breath-taken, overwhelmed, consumed, astonished—all gesturing toward a mode of experience that exceeds ordinary language and thought and yet inspires a yearning to explore, understand and learn … where the powerful emotional experience (of wonder) stimulates lively curiosity, knowledge-seeking behavior and critical questioning" (p. 4).

Bulkeley (2005) makes much use of updated neuroscientific research around pre-frontal cortical activity in making her case about wonder as both an integral dimension of intelligibility as well as possessing potential to disrupt, disturb, de-activate and re-activate regular brain functions in order to stimulate the brain to expand its capacity for reasoning:

The large expanses of association cortex that distinguish the human brain are hyperactivated as radically new input must be processed, upsetting established neural systems and forcing the creation of new ones. In terms of the range and complexity of neural connections, I would propose as a

testable hypothesis that wonder makes the brain grow… The capacity to experience wonder is itself a developmental achievement ... wonder as existential surprise becomes wonder as knowledge-seeking curiosity (pp. 198-199).

Wonder On Hands-On-Activities

In this connection, Flannery, 2013, states that hands-on-activities which is the expression of the intellect profoundly influenced by wonder, foster the mind in more basic creative thinking and the hand. Different memories have been identified for different functions. These are auditory, visual, tactile and body motor functions. It implies that any information which utilizes all four memories would be stronger and easily retrievable. Because hands-on-activities utilize all these memories, therefore the information gathered through these, would be more powerful and easily retrievable, thus impacting powerfully on the social behaviour of pupils' mind in and out of school.

Educators have attempted to classify hands-on-activities into different categories. One dimension addressed by various experts in education is inquiry. It has been argued by prominent educators and psychologists that science is an inquiry based education subject and should be taught in that fashion. Within the inquiry dimension, distinctions might be made keeping in view the level of inquiry involved. Lumpe and Oliver, (2013), states that inquiry activities and verification activities are those activities the learner has no understanding of the concept or phenomenon prior to conducting the activity. All these would, therefore, have positive effect on elementary school.

The abstraction of education content and teaching put unpleasant effects, on learners. Currently, almost all major curriculum development projects have emphasized on hands-on-practical activities as both an effective and enjoyable way of learning. These activities provide the pupils concrete experiences as far as possible to reduce the abstraction. Effectiveness of hands-on-activities in learning has long been hotly debated and accepted by the education community.

John Dewy, (2013), posits that the need of concrete experiences in instruction is advocated because they enhance pupils' learning and provide a more authentic view of hands-on-activities. He believed in doing first and reading and writing later according to him, the strong opinion that experiences specifically of hands-on-activities are vital in educational process. Physical operations provide feedback of learning that allows learners to see it happen. Meaning that, via wonder and creative reflection, children can better express their emotions, thoughts, experiences and skills through hands-on-activities.

Statement of The Problem

The foundation for thought thinking thought is quintessentially weaved in wonder that neurotic process-product through which children are able to express what they perceive of their environments. Thus to demonstrate this innateness, hands-on-activities ought to be the measure by which these unique ideas, feelings, creativity can

be explored. However, most of our learning environments and some more knowledgeable others do not adequately provide an enabling and suiting climate for children to communicate this wonderment. Hence, the study, wonder: impact on creative thinking and hands-on-activities (drawing) on children's communicative abilities.

Conceptualizing Drawing As A Developmental Milestone

Children develop ideas through the exploration of the environment and by interacting and communicating with adults and peers through play and other experiences (National Council for Curriculum Assessment; Aistear, 1999). These experiences include using drawing as a means of communication, which is the specific focus of this study. Children have different ways of expressing themselves and make meaning out of the world around them; therefore the medium of drawing affords children the opportunity to make their thoughts and emotions known to the adult world (Anning, 1999). Drawing helps children to organise their ideas thereby constructing meaning from their experiences. Since children in their early years have little vocabulary, drawing is a useful tool that teachers use to enhance their communication skills. Many class activities are drawing oriented, for instance shapes are drawn to explain a concept in mathematics. Children often express their sentiments such as denial of love, deprivation of attention, friendless or failure, anger, or anxiety through the pictures they create (Lewis & Greene, 1983). In addition, in most of the activities for early years, such as storytelling, exploring nature, describing people, animal and events, teachers can encourage and enrich young children's self – expression and creative thinking by asking them relevant open questions while they are drawing and thus help them develop their communicative abilities (Bartel,2008).

Hope (2008) defined drawing, as a form of meaningful mark making that tends to satisfy people for different purposes, which suggests that it provides people with different visual presentations depending on how they view it. Hope (2008) further emphasized that the term drawing can be used to describe a product and a process at the same time. By a product, she refers to the end result of mark making and process refers to the on- going drawing activity. This definition is in line with what this researcher wants to investigate because children draw purposefully to communicate a message to and about the world around them. It also confirms what many researchers including Hope, Anning and Ring (2004) have noted, that, children use drawing to develop, create, communicate and record their thoughts.

Communicative Abilities In Children

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creative thinking by asking them relevant open questions while they are drawing and thus help them develop their communicative abilities (Bartel,2008).

Furthermore, drawing is an activity that allows children to symbolize what they know and feel and it is a very essential outlet for children whose vocabulary, written or verbal, may be limited (de la Roche, 1996). In addition, children can use drawing to express emotional moments such as excitement and sadness. Pictorial arts serve as a vehicle for creative development and provide opportunity for self-expression (Cox, 1992). Bartel (2010) claimed that there is a sense of emotional satisfaction when children model with clay, draw with crayons or make collage with recycled scraps. When children are able to make an artistic statement, it boosts their moral and gives them joy for having made that particular activity.

Bartel (2010) explained that, drawing is essential for human survival and success, therefore toddlers learn to draw before the first grade (age four).He outlined some reasons why drawing is essential to the lives of individuals and to children's development; he said that drawing helps to develop the mental abilities of children, because the mind is always thinking during the process of drawing. Through drawing, children's confidence is improved, new discoveries are made, and stories can be articulated. Drawing helps us to give and explain instructions much better than words and it is useful for recording and keeping track of historical events. In furtherance of the above statement, Hope (2008) described drawing as a powerful and accessible tool that allows children to learn and understand the ideas of others in order to effectively develop, generate, expand, and communicate their own ideas.

Therefore, drawing for children has a great impact on their facility to communicate and on their development as a whole. However, Brooks (2003) declared that through discussions about children's drawing, children can be helped to remember and retrieve their memories from their drawings. "Drawing acts as bridge between the inner world of imagination and reason and the outer world of communication and sharing of ideas (Hope, 2008; p11). Additionally, Hope, (2008) identified some key uses of drawing as follows; drawing helps to generate and develop ideas, it clarifies ideas, observations and relationships; it represents and analyses concepts and it develops understanding and communicates with others. These perspectives explain why drawing is useful in developing children's communication in the early stages of life. Hawkins, (2002) described the role of children's drawing in three levels; cognitive, affective and linguistic.

Cognitively, drawing is an action that provides children with a rich way of thinking, knowing and exploring their worlds, affectively; it is a means of allowing children know how to express their emotions or feelings towards environment, humans and objects. Drawing forms an integral part of enhancing the development of children in their early years. There are various roles that

drawing plays in facilitating the teaching, and learning process, as well as the language development of the child. Children begin to form symbolic thoughts with any object they can lay hands on (Kress, 1997).Drawing helps children to understand symbols, signs and representations which later become crucial in their encounter with signs and symbols in home and school (Matthews, 2003), which implies that children use signs and symbols as the basis of their language development.

The family has an impact on the constraints on child's meaning making, as parents for example see it as a mess when children practice their drawings everywhere including walls, upholstery and bed linens (Anning and Ring, 2004). Siblings can also contribute to the communicative abilities of children's drawing, through their interaction during the drawing process. Siblings can provide support when they discuss their emotions through their art works, even though sometimes this results in an argument (Newman, nd). This gesture will eventually enhance communication and social skills as they interact and share ideas with others about their drawings.

Children's ability to draw and portray their intentions has a relationship to their intellectual development. The kind of drawing activities that children are engaged in, help in developing their cognitive abilities through the discussions and reflections they make on the various drawings. Brooks (2003) confirmed this when she emphasized that, having a dialogue with children whilst they are drawing, plays an essential role in promoting the mental function of children and therefore it becomes a powerful meaning-making tool. This obviously suggests that, when children are able to think deeply and wonder about what they have drawn and share their understanding, it enhances their intellectual abilities and various drawing activities of children are a reflection of their cognitive competence (Piaget, 1956).

Drawing can be used to explain a concept thereby increasing children's understanding since it serves as tools for remembering, and discussion about a drawing helps children to retrieve their memories from the drawing (Brooks, 2003) and children's engagement with art-making may give an essential balance of the child's intellect and emotions (Lowenfeld, 1965).

Drawing offers children the opportunity to express and control their inner feelings. The various indicators exhibited in children's drawing, when well observed, will help determine the status of the child's emotions at a particular time. For example, a child in a happy mood can make bold drawings to indicate his happiness. In accordance with this, Malchiodi (1998) pointed out that; a child's drawing is thought to reflect his inner world, which shows various feelings and information in connection with his psychological status and interpersonal style. In addition, Lowenfeld (1965) declared that, a child's art expression is a documentation of his personality, since children exhibit their personal characteristics in their art performance. This implies that children can exhibit some elements of their emotional state and character in the kind of drawings they make.

Impact of Communicative Abilities on the development of Motor Skills

Apart from the communicative role of drawing, it acts as an avenue for developing the motor skills of children in the early years. Drawing and the drawing media help children to develop their dexterity for future writing skills. In this sense, drawing is regarded as an important activity in preschool context because in terms of fine motor development, it serves as precursor to writing (Einarsdottir, 2009). The use of scribbles, lines, and shapes are all drawing activities that help children to prepare adequately for reading and writing in formal school (Kellogg, 1970). Additionally, children develop skills for building foundations for literacy by making sense of both visual and verbal signs, which are later developed for reading, and writing (DfES 2008a, cited in Hall, 2009). Nonetheless, Kress, (1997) emphasized that drawing is the early form of writing by children and it is seen as powerful means of representation. However, Good now (1997) believed that, seeing drawing as pre-writing skills will undermine the creative aspect of children's drawing, which implies that the creative aspect of drawing should be considered as well.

In a related development, Kellogg (1970) in her analytical research on children's drawing, observed that children use anatomy such as hair, breast, phallus, pregnancy to show differences in gender, as well as clothing such as shorts, skirts, hats, for easy identification of males and females. Children often want to represent reality in their drawings; however, this could be difficult in some situations, as teachers may misinterpret children's inclusion for such graphic details. For instance, a teacher may see a child displaying sexual organs in his drawing as being naughty; however, the child may also see his drawing to be incomplete without those features (Brittain, 1999).

How Drawing and Colouring Can Enhance Writing Skills

Drawing and colouring are important avenues to enhance children's writing. Once school starts nobody really takes drawing seriously anymore. In the classroom, drawing begins to take second place to writing. Young children quickly learn that success at school is measured by how well you can read and write. However, for you to be able to read and write, drawing and colouring were necessary at the early stage (Moill, 1994). Drawing, colouring and writing support each other. According to Adoniou (2014), children who draw before key tactile writing tasks produce better writing. It's no longer more syntactically sophisticated and has a greater variety of vocabulary. It is likely because the act of drawing concentrates the mind on the topic or hand and provides an avenue for rehearsal before writing – rather like a first draft where they can sort things out before having to commit words to a page. As children drawand paint they develop good writing skills. When they use paints, glue and markers, they plan, experience and problem solving skills develop (Iroia, 1996). According to Lavine (1994), when children draw and colour, they develop firmness in holding pen and pencil which could further

be applied in curving alphabetical letters needed for writing.

RESEARCH METHODOLOGY

Research Design

The research design chosen for this study is the survey research design. This design is one which studies large and small population by selecting and studying samples drawn from the population. The reason for this selection is based on the fact that data will be collected from a small sample which is representative and the results of this sample will be generalized to the entire population. In addition, the study sought information through the use of a questionnaire and analyse data from sample of pupils in relation to the hands-on-activity aforementioned.

Sample and sampling Technique

The sample of this study is made up of pupils from 4 primary schools (St. Theresa International Nursery and Primary School Molyko Buea, Government Practicing School Molyko, Government Practicing School Muea Group I and II, St. Sylvester Bilingual Nursery and Primary School Muea), and a total number of 85 pupils. The sampling technique used for this study is the random sampling technique (probability sampling). It is used in order to make sure that each element of the population has an equal probability of being selected.

Furthermore, ballots of folded papers which had “yes” or “no” were given to classes 5 and 6 pupils of the four selected schools to pick randomly. Those who picked “yes” were considered as the sample. This technique was used in order to avoid bias. The pupils who picked “yes” were given questionnaire to fill.

DESCRIPTION OF RESEARCH INSTRUMENT

The main research instrument which is used in the study is the questionnaire. Here, the researcher constructed a set of questions based on the research objective guided by literature review. The questionnaire was closed ended and designed in the form which required the answers; “Strongly Agree”, “Agree”, “Disagree”, and Strongly Disagree” by ticking across the preferred response. The questionnaire contained 10 questions.

Administration of Research Instrument

After the construction and validation of the questionnaire, the researcher took the questionnaires to the schools concerned. Permission was obtained from the head teachers of both schools and the questionnaires were distributed to the pupils who filled and handed them back to the researcher. The meanings of the questions were explained to the pupils and how they were supposed to fill the questionnaires. All the distributed copies of the questionnaire were returned.

ANALYSES AND DISCUSSION OF FINDINGS

Table 1: Data showing findings of the effects of drawing on children's communicative abilities

No.	Item(statement)	Positive (Agree and Strongly Agree)		Negative (Disagree and Strongly Disagree)	
		Frequency	(%)	Frequency	(%)
1.	You have drawing as a subject in school	50	58.8	35	41.2
2.	You have a good drawing teacher	62	72.9	23	27.1
3.	You have all drawing apparatus	57	67.1	28	32.9
4.	You have made a drawing on your own	25	29.4	60	70.6
5.	Your hands are flexible in drawing	50	58.8	35	41.2
6.	You are allow to express your thought in drawing	35	41.2	50	58.8
7.	Drawing makesyou happy	62	72.9	23	27.1
8.	Your friends interpret what you draw	57	67.1	28	32.9
9.	Drawing improves your writing	60	70.6	25	29.4
10.	Drawing improves your understanding	65	76.5	20	23.5
	Total Mean		**57.4%**		**42.6%**

From the table above, findings show that the majority of the pupils (57%) is positive that they have drawing as a school subject while 43% is negative that they have drawing as a school subject.

More so, 72.9% of the pupils are positive that they have a good teacher for drawing and that it makes them happy, whereas only 27.1% are negative. Again 76.5% agree/strongly agree that drawing improves their understanding of concepts in class, while 23.5% disagree/strongly disagree to that. In the same regard, 70.6% of pupils attest that their writing is greatly enhanced by drawing, while 29.4% are not.

Again, 67.1% of the pupils accept that they have all drawing apparatus and that their mates are able to interpret what they draw. Meanwhile just 32.9% do not have and their mates find it hard to interpret their drawings.

Furthermore, only 29.4% are positive that they have made a drawing of theirs while the rest, 70.6% are negative. Lastly, 58.8% is positive that their hands are flexible in drawing and the remaining 41.2% are negative. Conversely, 41,2% strongly/agree that they are allow to express their thoughts and 58.8% strongly/disagree. Generally, 57.4% of pupils are positive that drawing an implicit component of wonder and an explicit indicator of hands-on-activities has an effect on their communicative abilities in school in relation to 42.6% who are negative.

From the table above, findings clearly reveal that drawing and colouring do influence positively, the development of writing skills in children. This finding is in line with that of McNair (2004) who carried out findings on the influence of drawing on children's writing. His research revealed that drawing does not only improve children's writing skills, but also acts as a means for pupils to develop their ideas and indulge in reflective understanding. How a pupil perceives an object or an idea can be revealed through writing, drawings and colouring. Another study conducted by Carlson & Cunningham (1990), revealed that the quality of drawing and colouring of pupils depend on pupil's writing, their finger position and movement and pencil control. The findings of the study did not identify one pencil as being better suited for writing than the other. During this study some of the student's writing performance increased with the use of the regular pencil. Their study shows that drawing and colouring does not only influence writing, but writing equally influences drawing and colouring.

This agrees totally with Matthews, (1999) who states that drawing is a dialectical process through which children use visual media as a means of expressing their emotions and by using different forms of images that emerge on a drawing surface. It is therefore worthy to note that children can use different forms of drawing media to articulate their inner feelings as well as making their thoughts conspicuous. Matthew further emphasized that when children begin to draw and paint, they begin an intellectual journey, which comprises musical, linguistic, logical, mathematical, and aesthetic aspects, word, which makes it accessible for therapists to identify and develop interventional strategies to solving problems.

Research has evidenced that hands-on-activities are effective learning experiences and approach that improves understanding of concepts resulting in better achievement score and success in subject area. In a study conducted by 14 on 50, eighth graders in teaching technical concepts on geodesic domes, it was found that there existed a significant difference between learning with and without hands-on-activities. They concluded that hands-on-activities are effective in learning any applicable concept. It was found in a study conducted on 18 pupils who were engaged in hands-on-activities everyday or once a week, scored significantly higher on a standardized test than those engaged in hands-on-activities once a month or never Young and Lee (2005).

CONCLUSION

Teaching-Learning transaction of children especially in early childhood should take interest on their inner-self and what they have to communicate via hands-on-activities. Hence, the closer education comes to achieving its ideal, the more effectively it replaces "inductive knowledge" with "deductive knowledge", as a personal acquisition by the children.

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