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The Effects of Dale's Cone of Experience on the Child's Performance in a Developmentally Appropriate Practice (DAP) Environment

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The Country's National Center for Teacher Education

THE EFFECTS OF DALE'S CONE OF EXPERIENCE ON THE CHILD'S PERFORMANCE IN A DEVELOPMENTALLY APPROPRIATE PRACTICE (DAP) ENVIRONMENT

A Special Project
Presented to
School of Information and Knowledge Management
Institute of Knowledge Management
Philippine Normal University
Taft Avenue, Manila

In partial fulfilment of the requirement
for the degree Master of Education in
Educational Technology

by

IRENE DG. FERRER
March, 2014



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APPROVAL SHEET

In partial fulfilment for the requirements for the degree Master of Education in Educational Technology, this Special Project entitled "THE EFFECTS OF DALE'S CONE OF EXPERIENCE ON THE CHILD'S PERFORMANCE IN A DEVELOPMENTALLY APPROPRIATE PRACTICE (DAP) ENVIRONMENT", prepared and submitted by IRENE DG. FERRER is hereby recommended for presentation.

Date

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Approved as partial fulfilment of the requirement for the degree Master of Education in Educational Technology.

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Panel

Prof. Malvin R. Tabajen
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February 8, 2014
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ABSTRACT

This study aimed to determine child's performance in implementing Dale's Cone of Experience in a Developmentally Appropriate Practice environment. The pretest and posttest results displayed the difference on the performance of the respondents. After the analysis of data, it was found out the computed value of the three lessons is greater than the tabular value, with the degree of freedom at 29, significant level of 0.05. Therefore the null hypothesis is rejected while the alternative hypothesis is accepted that there is significant difference in implementing Dale's Cone of Experience on the child's learning. From the results of the formula used, it is evident that a variety of interventions in the children's studies have a big part in their learning performance.

Implementing Dale's Cone of Experience found to be very appropriate in the performance of the learner; following the suggested experiences of the cone appears to improve the performance of the learners as well as the retention of the knowledge; Dale's Cone of Experience implementation in a developmentally appropriate environment makes a significant difference in the learning performance of the learners were the conclusions drawn from this study. It is hereby recommended that



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educators should know and learn more about the development of the learners, not only their physical and mental state, but the whole aspect of an individual. From these, a wide variety of ideas on how to extend knowledge will be very easy and light. Administrators should provide teachers with the opportunities to attend seminars, workshop and / or symposium that will help them improve their teaching ability. As time goes by, different strategies have birthed and been part of the trend in the education sector. It is the teacher's prerogative which of these trends are applicable to the learners they are handling. It is a good step if the teacher will create strategies and methods on how the learners will enjoy learning while learning more. Encouraging the conduct of a more vivid research on the effects of Dale's Cone of experience in the setting of a developmentally appropriate environment. Educators need references to guide their teaching in different settings. This is also a guide to response in the need of necessary skills in the 21st century.



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Thanks to my energetic and very talented son, ZEY, Thanks for not disturbing mommy when I'm in front of the computer most of the time. These sacrifices are all for you and for your future sister.

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i.d.g.f.



Table of Contents

Title Page	i
Approval Sheet	ii
Abstract	iii
Acknowledgement	v
Table of Contents	vii
List of Figures	xi
List of Tables	ix
List of Appendices	x
 Chapter I The Problem and Its Background	
Introduction	1
Conceptual Framework	4
Statement of the Problem	8
Scope and Delimitation of the Study	9
Significance of the Study	10
Definition of Terms	12
 Chapter II Review of Related Literature	
Introduction	14
How Children Learn?	14
Dale's Cone of Experience	17
Jerome Bruner's Theory of Intellectual Development	20
Jean Piaget's Stages of Cognitive Development	22
Developmental Appropriate Practice (DAP)	26
Family Involvement and Its Importance to Child's Development	39
Parents' Educational Attainment	40
Synthesis	41
 Chapter III Methodology	
Research Design	43
Subjects of the Study	43
Research Instruments	44
Data Gathering Procedure	46
Statistical Treatment of the Data	49



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The Country's National Center for Teacher Education

Chapter IV Presentation, Analysis and Interpretation of Data	51
Chapter V Summary, Conclusion and Recommendation	
Summary of Findings	64
Conclusions	68
Recommendation	69
Bibliography	71
Appendices	76
Curriculum Vitae	92



LIST OF FIGURES

Figure	Title	Page
1	Dale's Cone of Experience and DAP on Child's Learning	7

LIST OF TABLES

Table No.	Title	Page
1	Performance Level before the Implementation of the Intervention	52
2	Selected Topics and Specific Lessons	53
3	Interpretation of Mean Scores	54
4	Summary of Test Item Evaluation by the Master Teachers	55
5	Summary of Scores from Lesson 1	58
6	Summary of Scores from Lesson 2	59
7	Summary of Scores from Lesson 3	60
8	Summary of Mean Scores of the Pretests and Posttests of the Three Lessons	61



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The Country's National Center for Teacher Education

LIST OF APPENDICES

		Page
A	Letter of Request to Conduct the Study	76
B	Copy of Songs	77
C	Table of Specification for Pretests 1, 2 and 3	80
D	Copy of Pretest for Lesson 1, 2 , and 3	83
E	Copy of Posttest for Lesson 1, 2 and 3	86
F	DEPED Memo No. 40 s. 2009	89
G	Certificate of Authenticity	90
H	Certificate of Edited Work	91



CHAPTER I

THE PROBLEM AND ITS BACKGROUND

Introduction

Various psychologists and educators have formulated different ideas how children learn. Children are born learners. There is an innate curiosity in them, which begins at birth not just when they were put to school. Their brain tries to make sense of their world.

There is a need to make learning environments significant that encourage students to be active learners, to work together with other students, and to use tasks as an authentic material (Vosniadou, 2002). Children learn through the use of manipulative, especially those who are called tactile or kinesthetic learners (Dill, 2012). Creative teachers can easily help tactile learners to achieve more.

Teachers are currently inclined to cooperative learning technique. The students are flooded with various group activities that establish rapport and socialization. Social participation is the main activity through which learning



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occurs. Social activity and participation begin early on (Vosniadou, 2002). Parents interact with their children and through these interactions children acquire the behaviours that enable them to become effective members of society (Kwezi, 2011). She adds that the way children learn is by internalizing the activities, habits, vocabulary and ideas of the members of the community in which they grow up. Learning is primarily a social activity and participation in the social life, the school is central for learning to occur. The establishment of a fruitful collaboration and co-operative atmosphere is an essential part of school learning. Social collaboration can boost student performance, provided that the kinds of learning that are inspired contribute to learning. Social activities are interesting in their own right and help to keep students involved in their work. Students diligently improve the quality of their products when they know that it will be shared with other students.

The widely used idea nowadays in the teaching - learning environment is the theory of multiple intelligences by Howard Gardner (Lane, 2012). He believes that a child possesses different innate intelligence which is very distinct rather than recognizing only the one that dominates. It is a classical model



that explain and teach many aspects of human intelligence, learning style, personality and behaviour both in education and industry. Howard Gardner initially develops his idea and theory on multiple intelligences as a contribution to psychology; however Gardner's theory is quickly embraced by education, teaching and training communities, for whom the appeal is immediate and irresistible.

According to Solomon (2002) on his review of John Holt's "How Children Learn?" book, he restated that children want to solve problems; they like to think. The problem is that parents and educators get in the way of this natural process by placing children in large, impersonal schools, and by teaching a meaningless curriculum in an industrial factory setting. Extreme child's learning can be gained when a learner is given enough time to figure things out and to create ideas that become more and more polished with experience. There are no stupid mistakes as children develop their rational skills. It is really a challenge for teachers to make interesting and challenging learning environment that encourage the active involvement of learners. Many teachers are now bombarded with different techniques, strategies and methods of teaching which sometimes brought into failure and disappointments.



With all the flooding of these techniques and strategies, the issue now is which of these really helps the child to learn?

This study wanted to know and add up another best design suited for the child's learning giving consideration to their development.

Conceptual Framework

This study was based on Edgar Dale's Cone of Experience and Developmentally Appropriate Practice of Sue Bredekamp in 1987. Thus, this study will be guided by the conceptual framework of the two theories and find out if there is an evaluative change in the child's learning.

The Cone of Experience was originally developed by Edgar Dale in 1946 and was intended as a way to describe various learning experiences. Essentially, the Cone shows the progression of experiences from the most concrete to the most abstract. It is important to note that Dale never envisioned the Cone to depict a value judgment of experiences; in other words, his argument was not that more concrete experiences were better than the more abstract ones. Dale believed that any and all of the



approaches could and should be used, depending on the needs of the learner. It was modified by Jerome Bruner in his Three-Tiered Learning Approach, which he divided the cone in three stages: the enactive, iconic and symbolic representation (McLeod, 2012).

According to National Association for the Education of Young Children (NAEYC) in 2012, the Developmentally Appropriate Practice (DAP) is in style to teach on how children establish and learn about effective early education. Its framework is designed to promote young children's optimal learning and development. Teachers help young children learn and meet their needs relative to their development. NAEYC added DAP consideration on 3 core initiatives. First, knowing about child development and learning. Knowing what is typical at each age and stage of early development is crucial. This knowledge, based on research, helps decide which experiences are best for children's learning and development. Second, knowing what is individually appropriate. Knowing more of each specific child will help identify what to teach them and how to properly care for them as an individual. By continually observing children's play and interaction with the physical environment and others, you will learn about each child's interests, abilities, and



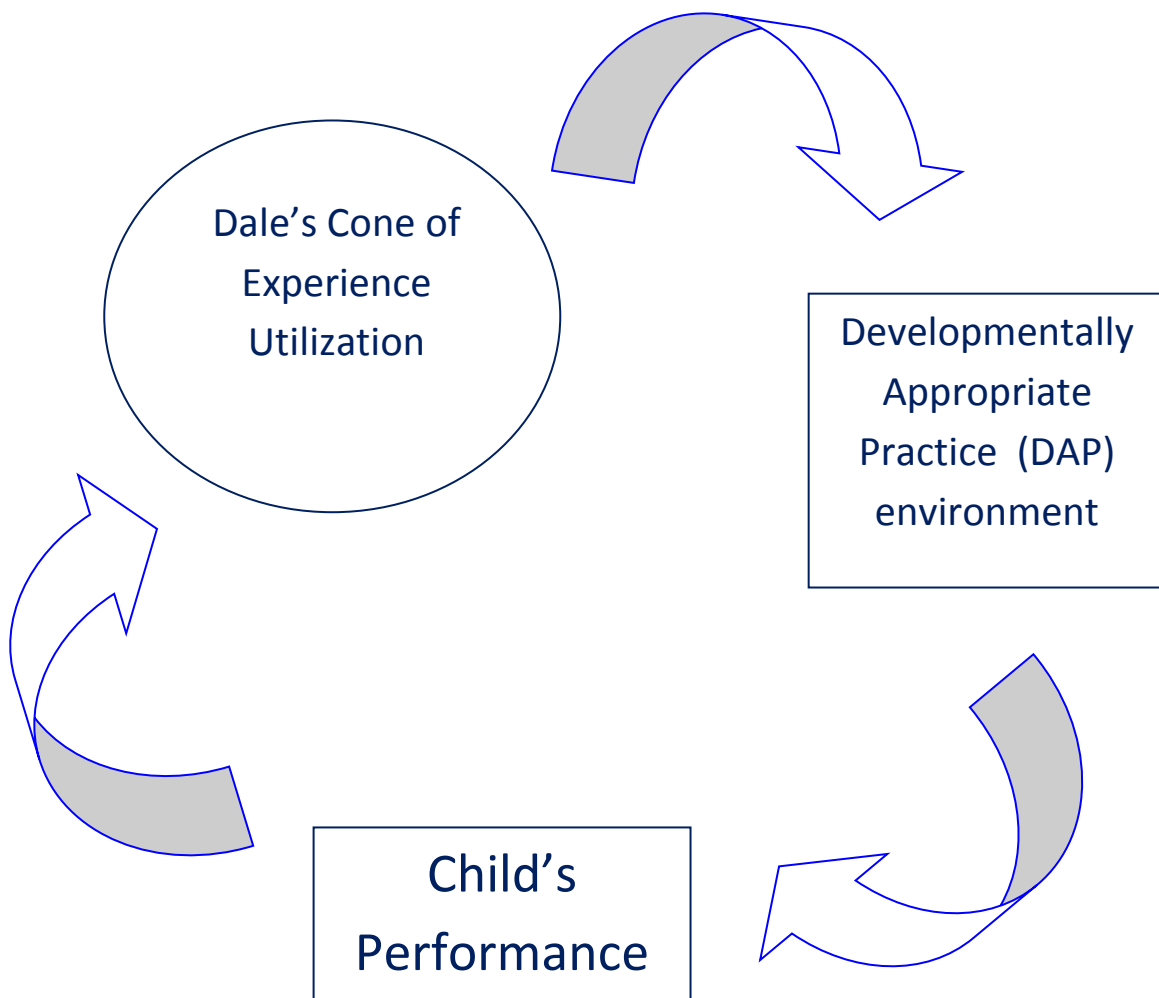
developmental progress. Third: knowing what is culturally important. There should be an effort to get to know the children's families and learn about the values, expectations, and factors that shape their lives at home and in their communities. This background information helps provide meaningful, relevant, and respectful learning experiences for each child and family. Based on Stafford's research study in 2001, DAP is a philosophy that guides the education of young children. It is based on current observed knowledge of child development derived from research and recognized theory. The important element of DAP is child-centered education. This includes the belief that children learn best by joining in social activities based on personal need and interest as well as the idea that learners literally build their own rational structures, and thus their own intellect, in order to mingle with their environment. The teacher's part is that as a facilitator who provides the care, chance, and framework that children need to achieve their maximum developmental potential, much like Vygotsky's zone of proximal development. Stafford restated what Fowell and Lawton's belief about children's learning from a certain amount of structured learning and that a



balance between teacher and child-directed learning is an optimal combination for DAP.

Figure No. 1

Dale's Cone of Experience and DAP on Child's Learning



In this diagram, you will notice a cycle of procedures in utilizing the Dale's Cone of Experience in a DAP environment



which will give results in the child's performance. As long as the child is in a classroom of this strategy, rest assured that there will be positive results on the child's learning. The DAP Environment also will make consideration on the child's different developmental milestone. The teacher should give consideration to this. Some children are fast learners over their age and some are not. The teacher should be aware of these differences to gain maximum learning experience. If a child gained learning in one area of his studies, then the teacher will not stop in utilizing the strategy considering the development of a child.

Statement of the Problem

The main purpose of this study is to determine the outcome of learning in implementing Dale's Cone of Experience in a DAP environment.

Specifically, this study sought to answer the following problems:

1. What is the level of the child's performance before and after implementing the Dale's Cone of Experience?



2. Is there a significant difference in a child's performance before and after implementing the Dale's Cone of Experience in a Developmentally Appropriate Practice (DAP) environment?

The following hypothesis will be tested in this study.

Null Hypothesis: There is no significant difference in the utilization of Dale's Cone of Experience in DAP towards the development and learning of the child.

Alternative Hypothesis: There is a significant difference in the utilization of Dale's Cone of Experience in DAP towards the development and learning of the child.

Scope and Delimitation of the Study

This study focused more on the instructional materials and experiences following the hierarchy of the cone in order to enhance the ability of a learner to achieve the subject matter specifically in Mathematics. This was limited to a developmentally appropriate practice classroom of fourth graders of Andres Bonifacio Elementary School, in Tayuman, Sta. Cruz, Manila. The teacher was aware of each child's development and



knew what specific materials to use in the implementation of the program. It was in line with the hierarchy of the Cone of Experience. The respondents consisted of 30 pupils; 15 boys and 15 girls who were randomly chosen from a group of 45 pupils of the advisory class by the researcher using the lottery sampling. This study catered on one unit of the 4th grading of school year 2013-2014.

This study used performance test also to check the learning. A pretest and a posttest were done every lesson to check the difference or to check if the strategy being utilized is effective.

Significance of the Study

Every individual inclined to education has the urge to find out the most effective way of teaching and learning process. Many individuals have promoted various strategies and techniques and was utilized by many. But if another method is introduced, they will shift to the trend. This study hopes to be beneficial to the following:

Learners The learners will have a great opportunity to appreciate the value of learning. They will be exposed to



different experiences that will help them understand mathematics well. Learning will not be a struggle for them because of giving much attention on what is in line with their development.

Mathematics Teachers Teachers are expected to become more artistic and resourceful in producing appropriate educational materials which will cater the developmental milestones of each learner. The results of this study will help them add another strategy in their compilation of methods and techniques in teaching, thus preventing teachers to be frustrated.

Administrators After this study, administrators are expected to grasp the positive effect of implementing this strategy not only on a specific grade level but for all stakeholders. Administrators are expected to have an open-mind on this strategy.

Curriculum Schemers This study will be beneficial to those who are always in a mode of finding the right and appropriate curriculum especially in the set-up of the Philippines. This may help reconstruct, revise and refine the newly implemented K to 12 Curriculum.



Future Researchers Future researchers are expected to take advantage from this study. They can look forward to a more vivid and in-depth research in line with this one.

Definition of Terms

Cone of Experience The Cone of Experience is a graphical representation of Edgar Dale's model of visual classification on ways of learning experiences, utilizing audio-visual methods of teaching that will be used within the instructional technology field.

Developmentally Appropriate Practice (DAP) DAP is a philosophy that guides the education of young children with current empirical knowledge of child development derived from research and recognized theory. The essential element of DAP is child-centered learning where children literally construct their own logical structures, and thus their own intelligence, in order to interact with their environment.

Child's Learning Something accomplished successfully, especially by means of exertion, skill, practice, or perseverance of children. It is viewed basically as the competence a person has in an area of content. This competence



is the result of many intellectual and non- intellectual variables.

Pretest refers to the test administered at the start of the period to assess or diagnose pupils' knowledge of the concepts and skills to be developed.

Posttest as used in the study, it is concerned with the test administered at the end of the period to assess the improvement of each pupil with regard to the concepts developed in the grade level.

Performance Tests-is used to check developed skills and learning. It is used to determine the level of understanding and mastery of a learner.

Effects-the result and product of an action done, may it be positive or a consequence.



CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

This chapter contains related studies, facts and theories behind the existence and outcome of the Dale's Cone of Experience. This practice will be related to a Developmentally Appropriate Practice (DAP) environment as well to find out the best strategy on children's learning. Some theories will also be mentioned in this chapter to have a better view of the topic.

How Children Learn?

In a study made by Stella Vosniadou in 2002, she discussed some principles; a teacher should follow in order to design a learning environment in today's school. These principles should take teachers' consideration in order to design more effective teaching and learning instructions and curricula. Learning requires the active, constructive involvement of the learner. Learning at school requires students to pay attention, to observe, to memorize, to understand, to set goals and to assume responsibility for their own learning (Pradhan, 2013). These cognitive activities are not possible without the active



participation of the learner. Educators must help learners to participate actively in classroom activities to maintain and retain learning.

Social involvement is the main activity through which learning occurs and begins early on. The formation of a meaningful combined and helpful atmosphere is an important fragment of school learning. Social involvement can increase learner's performance, as long as that the kinds of interactions that are stimulated to learn. Teachers can create an atmosphere of learning to encourage social involvement in ways that enable learning. It is important to bridge the school to the community.

Children also learn fast by understanding what is needed in real life situation and accepted culturally. Most schools tend to deter learner's attention to the trend rather than bridging it to what is appropriate and accepted in the culture. There are orderly cultural variations in practices, in habits, in social roles, etc., that influence learning. Sometimes meaningful activities for students coming from one cultural group are not meaningful to students who are coming from another cultural group. Teachers can make classroom activities more meaningful by situating them in an authentic context. It is also important for teachers to be aware of the cultural differences of the children



in their classroom and to respect these differences. They must see them as assets to build on, rather than as flaws. Children will feel differently in the classroom if their culture is reflected in the common activities. School routines that are unfamiliar to some children can be introduced gradually so that the transition can be less traumatic for ethnically diverse groups.

Vosniadou (2002) further added that individual differences of the learners should be taken into consideration. Research shows that there are major developmental differences in learning. As children mature, they made new methods of representing the world and also change the processes and strategies they use to handle these symbols. In addition, there are important individual differences in learning. Developmental psychologist Howard Gardner (2000) has argued that there are many dimensions of human intelligence other than the logical and linguistic skills that are usually valued in most school environments. Some children are gifted in music, others have exceptional spatial skills required, or body/kinesthetic abilities, or abilities relate to other people, etc. Schools must create the best atmosphere for the development of children taking into consideration such individual differences.



So an educator needs to take these principles in order to apply learning for the learner. But, still, these principles are not enough basis of how children learn. All of these are very abstract for learners. That's why; Edgar Dale proposed a diagram that can be used inside a classroom to which a learner could easily grasp classroom lessons.

Dale's Cone of Experience

Dale's Cone of Experience is a model that incorporates several theories related to instructional design and learning processes. During the 1940s, Edgar Dale theorized that learners retain more information by what they "do" as opposed to what is "heard", "read" or "observed". His research led to the development of the Cone of Experience. Today, this "learning by doing" has become known as "experiential learning" or "action-learning". It reveals that "action-learning" techniques result in up to 90% retention. People learn best when they use perceptual learning styles. Perceptual learning styles are sensory based: the more sensory channels possible in interacting with a resource, the better chance that many students can learn from it (Anderson, 2004). According to Dale,



instructors should design instructional activities that build upon more real-life experiences. Dales' cone of experience is a method to help teachers make decisions about resources and activities.

Jane (2010) once wrote on her blog the importance of the Cone of Experience. She discussed that it is a visual device and a progression of most concrete experiences (at the bottom of the cone) to most abstract (at the top). The original labels for Dale's ten categories are: Direct, Purposeful Experiences; Contrived Experiences; Dramatic Participation; Demonstrations; Field Trips; Exhibits; Motion Pictures; Radio - Recordings - Still Pictures; Visual Symbols; and Verbal Symbols.

He made minor modifications of the visual in the second edition (1954), changing Dramatic Participation to Dramatized Experiences and adding Television.

Direct, Purposeful Experiences - These are the concrete and first hand experiences that make up the learning. Sensory experiences are rich experiences that a sense bring to which construction of ideas take place, concepts and generalization that give order and meaning to life.

Example: preparing meals, performing an experiment

Contrived Experiences - Contrived experiences are the edited copies or reality and are used as substitutes for real things



When it is not practical or not possible to bring or do the real thing in the classroom.

Example: model, mock - up, simulation,

Dramatized Experiences- It is a reconstructed experiences wherein an event or idea is simplified through dramatization of the most important parts.

Demonstrations - Visualized explanation of an important fact, idea, or process and shows how certain things are done. May require nothing more than observation or students may be asked to do what has just been shown how to do a certain task.

Example: showing how to play an instrument

Field Trips- Undertaken primarily for the purpose of experiencing something that cannot be encountered within the classroom. It is a rich experience in learning about substances, organizations, and conditions.

Exhibits - Exposure to new ideas, discoveries, inventions and processes otherwise impossible in the classroom.

Television / Motion Pictures - It is an effective tool for presenting movement, continuity of ideas or events and a substitute for dangerous direct learning experience. Thus, these present the best solution for time and space constraints.



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Radio - Recordings - Still Pictures - These concrete experiences are helpful to students who cannot deal with the motion or the pace of a real event or television. It is attention - getting, particularly to projected views.

Examples: Time Life Magazine, listening to old radio broadcasts, listening to period music

Visual Symbols- No longer involves reproducing real situations. It helps students see an idea, event, or process and fits the tempo of presentation of an idea, topic or situation. Very accommodating to teachers for it is very easy to procure and prepare.

Examples: Chalkboard, Flat maps, Diagrams, charts

Verbal Symbols-It is a concretion of ideas, concepts, scientific principle, formula and the like. These may bear no physical resemblance to the objects or ideas for which they stand.

Jerome Bruner's Theory of Intellectual Development

Dale's Cone of Experience can be related to Jerome Bruner's Theory of Intellectual Development. And Jerome Bruner's theory was influenced by Jean Piaget's Stages of Cognitive Development. According to McLeod (2012) Bruner's theory involves one's intellectual ability evolves as a result of maturation, training



and experiences through a series of these 3 stages, namely enactive, iconic and symbolic.

Inactive Stage- At this stage, cognitive experiences are received and represented through motor activities. It is the stage of learning through physical action. At this stage, the child knows the world only through the medium of actions - not through words or images. If we are going to connect this to Dale's work, this is the direct, purposeful, contrived, dramatic participation, demonstrations and field trips.

Iconic- This stage is characterized by the child's representation of things and events in terms of sensory images or mental pictures or icons of perceptual experiences. At this stage, information is gained by the imagery and the cognitive process is controlled by perception. In correlating this to Dale's Cone it is the level of the exhibits, motion pictures and still pictures.

Symbolic- During this stage, cognitive experiences are received and represented through symbols. The learner engages in symbolic activities, such as language and mathematics. The actions and images are translated into words. Visual and Verbal Symbols of the Cone of Experience are characterized in this stage.



Jean Piaget's Stages of Cognitive Development (McLeod, 2009)

Most college students have heard and encountered Jean Piaget and his theory on the stages of cognitive development. Jean Piaget (1896-1980) was a biologist who originally studied molluscs but moved into the study of the development of children's understanding, through observing them and talking and listening to them while they worked on the exercises he set. His view of how children's minds work and develop has been enormously influential, particularly in educational theory. His particular insight was the role of maturation in children's increasing capacity to understand their world: they cannot undertake certain tasks until they are psychologically mature enough to do so. His research has spawned a great deal more, much of which has undermined the detail of his own, but like many other original investigators, his importance comes from his overall vision.

He proposed that children's thinking does not develop entirely smoothly: instead, there are certain points at which it "takes off" and moves into completely new areas and capabilities. He saw these transitions as taking place at about 18 months, 7 years and 11 or 12 years. This has been taken to



mean that before these ages, children are not capable (no matter how bright) of understanding things in certain ways, and has been used as the basis for scheduling the school curriculum. Whether or not *should* be the case is a different matter. Piaget developed an interest in the intellectual development of children. Based upon his observations, he concluded that children were not less intelligent than adults, they simply think differently. Albert Einstein called Piaget's discovery "so simple only a genius could have thought of it."

Sensorimotor Stage- The first stage of Piaget's theory lasts from birth to approximately age two and is centered on the infant trying to make sense of the world. During the sensorimotor stage, an infant's knowledge of the world is limited to his or her sensory perceptions and motor activities. Behaviours are limited to simple motor responses caused by sensory stimuli. Children utilize skills and abilities they were born with (such as looking, sucking, grasping, and listening) to learn more about the environment.

Pre-operational Stage- The preoperational stage occurs roughly between the ages two and seven. Language development is one of the hallmarks of this period. Piaget noted that children in this



stage do not yet understand concrete logic, cannot mentally manipulate information, and are unable to take the point of view of other people, which he termed egocentrism. During the preoperational stage, children also become increasingly adept at using symbols, as evidenced by the increase in playing and pretending. For example, a child is able to use an object to represent something else, such as pretending a broom is a horse. Role playing also becomes important during the preoperational stage.

Concrete - Operational Stage- During this time, children gain a better understanding of mental operations. Children begin thinking logically about concrete events, but have difficulty understanding abstract or hypothetical concepts. Piaget determined that children in the concrete operational stage were fairly good at the use of inductive logic. Inductive logic involves going from a specific experience to a general principle. On the other hand, children at this age have difficulty using deductive logic, which involves using a general principle to determine the outcome of a specific event.

Formal - Operational Stage- The formal operational stage begins at approximately age twelve to and lasts into adulthood. During



this time, people develop the ability to think about abstract concepts. Skills such as logical thought, deductive reasoning, and systematic planning also emerge during this stage. Piaget believed that deductive logic becomes important during the formal operational stage. Deductive logic requires the ability to use a general principle to determine a specific outcome. This type of thinking involves hypothetical situations and is often required in science and mathematics. While children tend to think very concretely and specifically in earlier stages, the ability to think about abstract concepts emerges during the formal operational stage. Instead of relying solely on previous experiences, children begin to consider possible outcomes and consequences of actions. This type of thinking is important in long-term planning. In earlier stages, children used trial-and-error to solve problems. During the formal operational stage, the ability to systematically solve a problem in a logical and methodical way emerges. Children at the formal operational stage of cognitive development are often able to quickly plan an organized approach to solving a problem.



DEVELOPMENTALLY APPROPRIATE PRACTICE (DAP)

For many years, teachers, parents and child care providers saw how young children learn through play. Children who are exposed to play as part of education, learn fast and differently from adults. In order to learn, learners should be actively engaged in activities and plays. They must experience direct and functional activities, may it be written, oral or textual.

The National Association for the Education of Young Children (May, 2012) developed 12 principles of child development that impart practical applications. It is in line with the philosophy of Developmentally Appropriate Practice set - up. Here are the 12 principles.

1. Developmentally appropriate environments help children develop in all areas – physical, social, creative, emotional, and cognitive. No one area of development is more important than another in the early years of a child's life. It is often not possible to separate children's development in one area from another. Children use problem solving to learn and perfect each new mental, social or physical skill. This integrated approach to learning is one of the hallmarks of a developmentally appropriate program. Teachers will plan for several areas of development for



each activity in their schedule. Developmentally appropriate practice as defined is not based on what we think might be true or what we want to believe about young children.

2. *Developmentally appropriate practice is informed by what we know from theory and literature about how children develop and learn.* - In particular, a review of that literature yields a number of well supported generalizations, or principles. Each principle describes an individually contributing factor; but just as all domains of development and learning are interrelated, so too do the principles interconnect. For example, the influence of cultural differences and individual differences, each highlighted in a separate principle, cuts across all the other principles. That is, the implication of any principle often differs as a function of cultural or individual givens.

3. *All the domains of development and learning—physical, social and emotional, and cognitive—are important, and they are closely interrelated.* Childdevelopment and learning in one domain influence and are influenced by what takes place in other domains. Children are thinking,



moving, feeling, and interacting human beings. To teach them well involves considering and fostering their development and learning in all domains. Because this full spectrum of development and learning is fundamental to children's lives and to their future participation as members of society, early care and education must address all the domains. Further changes in one domain often facilitate or limit development in other areas. For example, when children begin to crawl or walk, they gain new possibilities for exploring the world, and their mobility affects both their cognitive development and sense of autonomy. Likewise, children's language development influences their ability to participate in social interaction with adults and other children; such interactions, in turn, support their further language development. A growing body of work demonstrates the relationship between emotional and social factors and children's academic competence and thus the importance of all these areas in educating young children. In brief, the knowledge base documents, the importance of a comprehensive curriculum and the interrelatedness of the developmental domains in children's well-being and success.



4. *Many aspects of children's learning and development follow well documented sequences, with later abilities, skills, and knowledge building on those already acquired.* Human development research suggests that relatively stable, predictable sequences of growth and change occur in children during the first nine years of life. Predictable changes occur in all domains of development, although the ways that these changes are manifested and the meaning attached to them may vary widely in different cultural and linguistic contexts. Knowledge of how children within a given age span typically develop and learn provides a general framework to guide teachers in preparing the learning environment, considering curriculum, designing learning experiences, teaching and interacting with children. Also important for educators to know are the sequences in which children gain specific concepts, skills, and abilities, building on prior development and learning. In mathematics, for example, children's learning to count serves as an important foundation for their acquiring an understanding of numerals. Familiarity with known learning sequences should inform curriculum development and teaching practice.



5. *Development and learning proceed at varying rates from child to child, as well as at uneven rates across different areas of a child's individual functioning.* Individual variation has at least two dimensions: the inevitable variability around the typical or the normative course of development and the uniqueness of each child as an individual. Child development follows individual patterns and timing; children also vary in temperament, personality, and aptitudes, as well as in what they learn in their family and within the social and cultural context or contexts that shape their experience. All children have their own strengths, needs, and interests. Given the enormous variation among children of the same chronological age, a child's age is only a crude index of developmental abilities and interests. For children who have special learning needs or abilities, additional efforts and resources may be necessary to optimize their development and learning. The same is true when children's prior experiences do not give them the knowledge and skills they need to thrive in a specific learning environment. Given this normal range of variation, decisions about curriculum, teaching, and interactions with children should be as individualized as possible. Rigid expectations of group



norms do not reflect what is known about real differences in development and learning. At the same time, having high expectations for all children is essential, as is using the strategies and providing the resources necessary to help them meet these expectations.

6. *Development and learning result from a dynamic and continuous interaction of biological maturation and experience. Development is the result of the interplay between the growing, changing child and the child's experiences in the social and physical worlds. For example, a child's genetic makeup may predict healthy growth, but inadequate nutrition in the early years of life will keep this potential from being fulfilled. Conversely, the impact of an organic condition of a young child's learning and development can be minimized through systematic, individualized intervention. Likewise, a child's innate temperament—such as a predisposition to be either wary or outgoing—shapes and is shaped by how other children and adults interact with that child. In light of the power of biology and the effects of children's prior experiences, it is important for early childhood educators maintain high*



expectations and employ all their knowledge, ingenuity, and persistence to find ways to help every child succeed.

7. *Early experiences have profound effects, both cumulative and delayed, on a child's development and learning; and optimal periods exist for certain types of development and learning to occur.* Children's early experiences, whether positive or negative, are cumulative. For example, a child's social experience with other children in the preschool years may help him develop social skills and confidence that enable him or her to make friends in subsequent years, and these experiences further enhance the child's social competence and academic performance. Conversely, children who fail to develop minimal social skills and thus suffer neglect or rejection from peers are at risk for later outcomes such as school dropout, delinquency, and mental health problems. Similarly, early stimulation promotes brain development and the forming of neural connections, which in turn enable further development and learning. But if the very young child does not get this stimulation, he is less able to benefit from subsequent learning opportunities, and a cumulative disadvantage is set in motion.



8. *Intervention and support are more successful the earlier a problem is addressed.* Prevention of reading difficulties, for example, is far less difficult and expensive than remediation. In addition, the literature shows that some aspects of development occur most efficiently at certain points in the life span. The first three years of life, for example, appear to be an optimal period for oral language development. Ensuring that children get the needed environmental inputs and supports for a particular kind of learning and development at its "prime time" is always the most reliable route to desired results.

9. *Development proceeds toward greater complexity, self-regulation, and symbolic or representational capacities.* A pervasive characteristic of development is that children's functioning becomes increasingly complex—in language, social interaction, physical movement, problem solving, and virtually every other domain. Increased organization and memory capacity of the developing brain make it possible with age for children to combine simple routines into more complex strategies. The younger the child, the more she or he tends to think concretely and in the here and now. Yet in some ways, young children's thinking can be quite



abstract. For example, preschoolers know that adding always makes *more* and subtracting makes *less*, and they are able to grasp abstract ideas about counting objects such as the one-to-one principle. All young humans must negotiate the transition from total dependence on others at birth to competence and internal control, including learning to regulate their emotions, behaviors, and attention. For young infants, there are tasks such as learning to soothe themselves from arousal to a settled state. A few years later, self-regulation means developing the capacity to manage strong emotions and keep one's attention focused. Throughout the early years, adults play significant roles in helping children learn to self-regulate.

10. Children develop best when they have secure, consistent relationships with responsive adults and opportunities for positive relationships with peers. From the earliest years of life, warm, nurturing relationships with responsive adults are necessary for many key areas of children's development, including empathy and cooperation, self-regulation and cultural socialization, language and communication, peer relationships, and identity formation. When children and caring adults have the opportunity to get



to know each other well, they learn to predict each other's signals and behavior and establish atonements and trust. The first and most important relationships are those child forms with parents or other primary caregivers. Forming one or more such attachment sets the stage for other relationships, as children move into the wider world beyond their immediate family. Young children benefit from opportunities to develop ongoing, trusting relationships with adults outside the family and with other children. Notably, positive teacher-child relationships, promote children's learning and performance, as well as social competence and emotional development. Nurturing relationships are vital in fostering high self-esteem and a strong sense of self-efficacy, capacity in resolving interpersonal conflicts cooperatively, and the sociability to connect with others and form friendships. Further, by providing positive models and the security and confidence to try new experiences and attempt new skills, such relationships support children's learning and the acquisition of numerous capabilities.

11. *Play is an important vehicle for developing self-regulation as well as for promoting language, cognition,*



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and social competence. Children of all ages love to play, and it gives them opportunities to develop physical competence and enjoyment of the outdoors, understand and make sense of their world, interact with others, express and control emotions, develop their symbolic and problem-solving abilities, and practice emerging skills. Research shows the links between play and foundational capacities such as memory, self-regulation, oral language abilities, social skills, and success in school. Children engage in various kinds of play, such as physical play, object play, pretend or dramatic play, constructive play, and games with rules. Observed in all young animals, play apparently serves important physical, mental, emotional, and social functions for humans and other species, and each kind of play has its own benefits and characteristics. From infancy, children act on the world around them for the pleasure of seeing what happens; for example, repeatedly dropping a spoon on the floor or pulling the cat's tail. At around age 2, children begin to demonstrate the symbolic use of objects—for instance, picking up a shell and pretending to drink as from a cup—at least when they have had opportunities to observe others engaging in such make-believe behavior. From such beginnings, children begin to



engage in more mature forms of dramatic play, in which by the age of 3-5 they may act out specific roles, interact with one another in their roles, and plan how the play will go. Such play is influential in developing self-regulation, as children are highly motivated to stick to the roles and rules of the play, and thus grow in the ability to inhibit their impulses, act in coordination with others, and make plans. High-level dramatic play produces documented cognitive, social, and emotional benefits. However, with children spending more time in adult-directed activities and media use, forms of child play characterized by imagination and rich social interactions seem to be declining. Active scaffolding of imaginative play is needed in early childhood settings if children are to develop the sustained, mature dramatic play that contributes significantly to their self-regulation and other cognitive, linguistic, social, and emotional benefits. Adults can use proven methods to promote children's extended engagement in make-believe play as well as in games with rules and other kinds of high-level play. Rather than detracting from academic learning, play appears to support the abilities that underlie such learning and thus to promote school success.



12. *Children's experiences shape their motivation and approaches to learning, such as persistence, initiative, and flexibility; in turn, these dispositions and behaviors affect their learning and development. Some agencies identified "approaches to learning" as one of five aspects of school readiness. Focused on the how rather than the what of learning, approaches to learning involves both children's feelings about learning (including their interest, pleasure, and motivation to learn) and children's behavior when learning (including attention, persistence, flexibility, and self-regulation). Even in the early years, children differ in their approaches to learning. These differences may influence children's school readiness and school success. For example, children who start school more eager to learn tend to do better in reading and mathematics than do less motivated children. Children with more positive learning behaviors, such as initiative, attention, and persistence, later develop stronger language skills. Moreover, children with greater self-regulation and other "learning-related skills" in kindergarten are more skilled in reading and mathematics in later grades. Although temperament and other inherent differences may affect children's approaches to learning, their experiences in*



families and early education programs have a major influence. Programs can implement evidence-based strategies that will promote positive approaches to learning. These strategies include strengthening relationships with children; working with families; and selecting effective curriculum, assessments, and teaching methods.

Family Involvement and Its Importance to Child's Development

According to De Guzman in his course information packet (2010), the family makes a critical contribution to students' performance. Involvement of parents can make a difference and is beneficial to students' performance in school. It provides all the tools for children's success; builds and fosters the qualities of the child, which are then growth and development of the emotional, physical intellectual and social aspects, and the shared responsibilities for the child. Family involvement in the child's education is perceived beneficial to both parents and the child since they develop a positive point of view and perception of schooling. Pupils whose parents deeply involved in the learning process are characterized by increased student participation, high and better grades and improved self-esteem, behavior and motivation level.



Parents' Educational Attainment

Parents involve themselves in their children's education, depending on what they have experienced during their school years. Parents who have a positive educational background tend to have a positive attitude towards school and education (De Guzman, 2010). Positive experiences are related to greater academic success and higher levels of education, which explains in part why parents with higher degrees of education were found to be more involved in their children's education. Parents' educational attainment mediates the way they value school and education. Demanding work schedules make it difficult for parents to be involved in school activities. The rise of dual - worker families affects family involvement in children's education. This factor combined with the teachers' many time consuming responsibilities that often limits their time and availability to meet with family members outside of class, can interfere with the development of the strong home to school relationship.

Parents' demographic profile can indirectly or directly affect their perception of their involvement in school affairs in behalf of their children. The extent of time available for parents to support their children's learning is shrinking, particularly if it requires being present in school and to



interact with the children on personal matters due to increased single parenthood and dual income families.

SYNTHESIS

Learners attain performance differently. It varies on how the learners interact with his environment, his beliefs and how he was developed within the family. Learners have their own learning styles which educators and parents should take into consideration.

Various educators believed on the learners' individual differences. Vosniadou (2002) believed that the learning environment is substantial to make students active in his social environment. Dill (2012) focused on manipulatives that help him teach tactile learners. He believed that manipulatives not only help these kind of learners but also others having different styles of learning.

Parent involvement can make learners to become effective members of the society (Kwezi, 2011). It is in the family that make or break learner's ability. It is important to note that the family is the first-hand experience of the education system.

Howard Gardner's Multiple Intelligences is now one of the foundations of different learning institutions. Their minds were opened to ideas of individual variances. It is proven that each



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learner has this innate intelligence which is distinct only to him but different from the others. Learning is not only focused on the mental ability, but also to the wholeness of a being, its characters and behaviors.

Educators must understand that children's education should be in line with the acknowledgement of its culture. Learning will be meaningful if it is integrated and encouraged to give pride of their culture.

Educators' principles are only abstractions to learners unless it was given enough intervention and manipulation to make learning more concrete and easy to comprehend.



CHAPTER III

METHODOLOGY

This chapter presents the research design, the subjects of the study, research instruments, data gathering procedure and the statistical treatment of data to be used in this study.

RESEARCH DESIGN

This study utilizes the One-Group Pretest-Posttest Design which involved one group with pre and post test. One-group design is considered as a quasi - experimental design. This study used a questionnaire to obtain important information, to check the learning of the respondents. It attempts to seek answers and find if there is a significant effect on the learning of the child.

SUBJECTS OF THE STUDY

For this study, data will be collected from 30 grade four pupils in Andres Bonifacio Elementary School located at Sta.



Cruz, Manila. Random Sampling, a method of selecting a sample size of a universe such that each member of the population has an equal chance of being included in the sample and all possible combinations of size have an equal chance of being selected as the sample (Sevilla, et.al, 1992) was used in this study. Specifically, it's used the lottery sampling also known as the fishbowl method. The researcher assigned numbers to the participants of the population, which is her advisory class consisting of 45 pupils. The girls were separated from the boys. Numbers were written on a piece of paper, placed in a container and numbers were picked according to the required number of samples. There were 15 boys and 15 girls who have undergone the study.

RESEARCH INSTRUMENTS

The following research instruments were used in this study:

Performance Tests - These were used to measure the level of performance of the learners in Mathematics. The tests were a 15-multiple item test consisting of 4 choices with one possible answer each. Pretests were presented before each lesson was taught. After the pretest, lessons with the intervention was



used and afterwards the posttest. Both tests were developed by primarily developing the table of specifications. It includes the areas and concepts for each lesson, the number of items, the percentage of items in each area (Sevilla, et.al. 1992) and the item number where it was located in the test. It followed Bloom's Taxonomy of objectives. The topics in Grade IV Mathematics in the study of Geometry were based on the Basic Education Curriculum (BEC) / Philippine Elementary Learning Competencies (PELC). It was selected and evaluated properly.

After the table of specification were done, test items were made for each test. There were three pretest and posttests and the researcher made table of specifications for each test. Each test was checked by three master teachers to check its appropriateness. The checkers inspected of obviously right or wrong construction of the items, especially the stem of the choices, grammar, and choice of words. After the evaluators made their value judgement, the researcher tried to revise and follow the suggestions of the experts then was administered to the subjects.



DATA GATHERING PROCEDURE

The researcher underwent the following stages to gather facts and data needed in the study.

The researcher prepared a letter of request to administer the study, (See Appendix A) and was presented to the administrator of the school the researcher wished to do the study. After the necessary permission in conducting the research was granted, then it was the indication to start the collection of data.

Only the researcher, the administrator and co-teachers of the researcher knew about the conduct of the study. It was discreet to the participants to gain natural reactions and response of the treatment for the duration of the study. During the research, the researcher administered the pretest for the first lesson. Intervention was done following the Dale's Cone of Experience after the pretest and afterwards administered the posttest. This procedure was done in the three lessons included in the study.

To determine the effects of the Dale's Cone of Experience in the children's learning in their Developmentally Appropriate



classroom environment, the researcher applied the following strategies of the cone:

- a. Direct, Purposeful Experiences - the researcher assigned the respondents to bring sticks to represent lines. They have the first-hand experience of analyzing the kinds of lines through the guidance of the teacher
- b. Dramatized Experiences - the researcher used the respondents to act out the lessons, specifically in the lesson on the parts of the circle. The researcher asked the pupils to stand and represent themselves as the points of the circle. A rope was used to make a line segment to identify the parts.
- c. Demonstrations This was used in the lesson of kinds of angles. The teacher demonstrated how angles were formed using a cut-out of an arrow in a cardboard and single fastener. From this, the kinds of angles were also discussed.
- d. Television / Motion Pictures The researcher downloaded a short clip about quadrilaterals. It was shown before the lesson. From this, the respondents do have an idea about the lesson. The researcher grabbed the opportunity of utilizing the social networking site "Facebook" to link



different videos on the group which will add attraction to the respondents' performance of the lesson.

e. Radio - Recordings - Still Pictures The researcher searched for songs about the lessons. It was downloaded and let the pupils learn the song through listening. (See Appendix B for the copy of the song)

f. Visual Symbols - In this part, the respondents were asked to bring pictures of things they know have a relationship of the lesson. Example: picture of a window - represents parallel lines.

g. Verbal Symbols - For the respondents to generalize concepts, the researcher wrote important concepts on the board. The pupils were the one who made generalizations based on the concepts written.

The researcher does not have the chance to use the Exhibits and Field Trips of the cone due to the unavailability of funds and the memorandum from the Department of Education of Zero Collection Policy (See Appendix F - DepEd Order No. 40 s. 2009). Since these two stages of the cone need a monetary involvement. The researcher recorded the results of the pretests and posttests which are the main data used to complete the study. On



the other hand, the secondary data was gathered from books and other reference materials including the Internet.

After the study gathered adequate results that gave response to the hypothesis, the researcher analyzed the data gathered using the mean and t-test of paired sample means as the statistical treatment. With the results, the researcher rejected the null hypothesis and accepted the alternative hypotheses and gave reason for the findings. The researcher explained why such result was gained. From the results, the researcher compared this study to the previous study made by other researchers. Tables and figures were used for better understanding of the results through the summary of figures. After the findings were discussed, the researcher now makes various recommendations on the findings gathered. These recommendations will be beneficial to the next researcher.

Statistical Treatment of the Data

The following statistical tests were used in this study.

Mean- this was used to identify and describe the participants' scores before and after utilization of the Dale's Cone of Experience. It used this formula:



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$$\bar{X} = \frac{\sum x}{N}$$

Where:

$\bar{X}$ - mean of ungrouped data

$\sum x$ - sum of scores

N - number of cases

T-test of Paired Sample Means - this formula was used to see the improvement of the students after exposing them to Dale's Cone of Experience in a Developmentally Appropriate Practice Environment.

$$t = \frac{\sum D}{\sqrt{\frac{N \sum D^2 - (\sum D)^2}{N-1}}}$$

Where:

t - t-test of difference

$\sum$ - Summation

D - difference of pretest and posttest scores

D^2 - squared product of pretest and posttest scores

N - number of cases



CHAPTER IV

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This chapter presents the data gathered from the instrument. These data were analyzed and interpreted by looking into their implications on the research problem.

Research problem number 1 is looking for the level of the child's performance before and after implementing the intervention. The administrator of the school where the researcher does the research implemented with the goal of having a success level of 80% in all performance tests which may be in the form of a quiz, formative test or a periodic exam and/or any performance tests. This is required for the division standing of the school and the need to exert effort to retain that level of success. Failure in reaching this success rate will require teachers to provide an intervention or even reteach. To compute for the success level, the test results multiplied to 50, to be divided by the number of items and add 50. The resulting number will be an indicator of the level of success of the learner. Table 1 shows the mean score of the performance level of the respondents before implementing the intervention for the 3 lessons. This was based on the results of the pretests.



Table 1

Performance Level before the Implementation of the Intervention

Lesson	Pretest Mean Scores	Percentage	Expected Percentage	Interpretation
1	5.17	67.23 %	80 % - above	Failed
2	5.43	68.10 %	80 % - above	Failed
3	6.07	70.23 %	80 % - above	Failed

From the result in table 1, the performance level of the respondents failed which the results were less than the expected percentage. It only shows that there is really a need to do a certain intervention to gain the success level.

From the study made by De Guzman in 2010, he found out that the parents' educational attainment has a big part in the child's learning. Parents who have a positive educational background tend to have a positive attitude towards school and education. Positive experiences are related to greater academic success and higher levels of education, which explains in part why parents with higher degrees of education were found to be more involved in their children's education. Parents' educational attainment mediates the way they value school and education. Demanding work schedules make it difficult for parents to be involved in school activities. The rise of dual - worker families affects family involvement in children's education. This factor combined with the teachers' many time



consuming responsibilities that often limits their time and availability to meet with family members outside of class, can interfere with the development of the strong home and school relationship. From this research, parent's performance and socioeconomic status have justified what De Guzman once studied.

Table 2

Selected Topics and Specific Lessons

Specific Topics	Lessons
I. Basic Geometric Ideas	- Points, Lines, Line Segments, Rays - Kinds of Lines - Kinds of Angles
Plane Figures	
II. Triangles and Circles	- Parts of a triangle - Kinds of Triangle according to sides and angles - Parts of a Circle
III. Quadrilaterals	- Square - Rectangle - Parallelogram - Rhombus - Trapezoid

Table 2 presents the specific topics and lessons selected as bases for the intervention. The topics in Grade IV Mathematics in the study of Geometry were based in the Basic Education Curriculum (BEC) / Philippine Elementary Learning Competencies (PELC).



Geometry is one unit of the fourth grading topics and lessons of Mathematics IV. Basic Geometric Ideas are a pre-requisite for the remaining lessons. It includes identifying concepts of points, line, line segments and rays. Kinds of lines and angles were the next lesson after the basic geometric ideas. Plane figures such as the triangles, circles and quadrilaterals are the next lessons. Parts and kinds of these plane figures are included in these topics.

The evaluation of the test items of the pretests and posttests was evaluated by three master teachers in Mathematics utilizing a three - point rating scale to find its appropriateness, where 3 is for Very Appropriate, 2 is for Appropriate and 1 for Not Appropriate. The summary of the evaluation was tabulated as shown in Table 4. The mean score of each item was computed by adding all the ratings divided by the number of evaluators. The mean scores were interpreted as follows:

Table 3

Interpretation of Mean Scores

2.50 - 3.00 Retain	1.50 - 2.49 Revise	0.01 - 1.49 Reject
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Table 4

Summary of Test Item Evaluation by the Master Teachers

Pre-test No. 1						
Test Item No.	Evaluator			Total Scores	Mean	Inter-pretation
	1	2	3			
1	3	2	2	7	2.33	Revise
2	3	2	3	8	2.67	Retain
3	2	3	3	7	2.33	Revise
4	2	2	3	7	2.33	Revise
5	2	3	2	7	2.33	Revise
6	2	3	3	8	2.67	Retain
7	2	2	3	7	2.33	Revise
8	3	3	3	9	3.00	Retain
9	2	2	3	7	2.33	Revise
10	3	3	3	9	3.00	Retain
11	2	3	3	8	2.67	Retain
12	2	3	3	8	2.67	Retain
13	3	3	3	9	3.00	Retain
14	3	3	3	9	3.00	Retain
15	3	3	3	9	3.00	Retain
Pre-test No. 2						
Test Item No.	Evaluator			Total Scores	Mean	Inter-pretation
	1	2	3			
1	3	3	3	9	3.00	Retain
2	2	3	3	8	2.67	Retain
3	2	2	3	7	2.33	Revise
4	3	3	3	9	3.00	Retain
5	3	2	2	7	2.33	Revise
6	2	2	3	7	2.33	Revise
7	3	2	3	8	2.67	Retain
8	3	3	3	9	3.00	Retain
9	2	2	3	7	2.33	Revise
10	3	2	3	8	2.67	Retain
11	2	3	3	8	2.67	Retain
12	3	3	3	9	3.00	Retain
13	3	3	2	8	2.67	Retain
14	2	3	3	8	2.67	Retain
15	3	3	3	9	3.00	Retain



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Pre-test No. 3						
Test Item No.	Evaluator			Total Scores	Mean	Inter-pretation
	1	2	3			
1	2	3	3	8	2.67	Retain
2	2	3	3	8	2.67	Retain
3	3	3	3	9	3.00	Retain
4	3	3	2	8	2.67	Retain
5	3	2	2	7	2.33	Revise
6	3	3	3	9	3.00	Retain
7	3	3	2	8	2.67	Retain
8	3	3	3	9	3.00	Retain
9	3	3	3	9	3.00	Retain
10	3	2	3	8	2.67	Retain
11	2	2	3	7	2.33	Revise
12	3	2	3	8	2.67	Retain
13	2	3	3	8	2.67	Retain
14	3	3	3	9	3.00	Retain
15	2	2	3	7	2.33	Revise
Post-test No. 1						
Test Item No.	Evaluator			Total Scores	Mean	Inter-pretation
	1	2	3			
1	3	3	3	9	3.00	Retain
2	3	2	3	8	2.67	Retain
3	3	2	3	8	2.67	Retain
4	3	3	3	9	3.00	Retain
5	2	2	3	7	2.33	Revise
6	2	2	3	7	2.33	Revise
7	3	2	3	8	2.67	Retain
8	3	3	3	9	3.00	Retain
9	2	3	2	7	2.33	Revise
10	3	3	3	9	3.00	Retain
11	3	2	3	8	2.67	Retain
12	3	2	3	8	2.67	Retain
13	2	2	3	7	2.33	Revise
14	3	2	3	8	2.67	Retain
15	3	2	3	8	2.67	Retain
Post-test No. 2						
Test Item No.	Evaluator			Total Scores	Mean	Inter-pretation
	1	2	3			
1	3	3	3	9	3.00	Retain
2	2	3	3	8	2.67	Retain



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3	2	2	3	7	2.33	Revise
4	3	3	3	9	3.00	Retain
5	2	3	3	8	2.67	Retain
6	2	3	3	8	2.67	Retain
7	3	3	3	9	3.00	Retain
8	2	2	3	7	2.33	Revise
9	3	3	3	9	3.00	Retain
10	2	3	3	8	2.67	Retain
11	2	3	3	8	2.67	Retain
12	2	3	3	8	2.67	Retain
13	2	2	3	7	2.33	Revise
14	3	3	3	9	3.00	Retain
15	2	2	3	7	2.33	Revise

Post-test No. 3

Test Item No.	Evaluator			Total Scores	Mean	Interpretation
	1	2	3			
1	2	3	3	8	2.67	Retain
2	3	3	3	9	3.00	Retain
3	3	3	3	9	3.00	Retain
4	2	3	3	8	2.67	Retain
5	3	3	2	8	2.67	Retain
6	2	3	3	8	2.67	Retain
7	3	3	3	9	3.00	Retain
8	2	3	3	8	2.67	Retain
9	3	3	2	8	2.67	Retain
10	2	2	3	7	2.33	Revise
11	2	3	3	8	2.67	Retain
12	3	3	2	8	2.67	Retain
13	2	2	3	7	2.33	Revise
14	3	3	3	9	3.00	Retain
15	2	3	3	8	2.67	Retain

As seen in table 4, all the items range from retain and revise the items. All the items that gained the mean from 1.50 to 2.49 were revised by the researcher. The researcher also considered suggestions from the evaluator. The copy of the questionnaires is on Appendix D.



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Table 5, 6, and 7 shows the summary of scores gained by the respondents from the pretests and posttests of lessons 1, 2 and 3 respectively. The names of the randomly chosen respondents were represented by numbers to retain its confidentiality and to better see individual improvement from the given performance tests. The difference and the squared product of the difference were also included for better understanding of the formula used in this study.

Table No. 5

Summary of Scores from Lesson 1

Name	Pretest Scores	Posttest Scores	Difference (D)	D ²
GIRLS				
Respondent # 1	12	3	1	1
Respondent # 2	5	8	3	9
Respondent # 3	4	8	4	16
Respondent # 4	6	14	8	64
Respondent # 5	2	8	6	36
Respondent # 6	4	11	7	49
Respondent # 7	6	12	6	36
Respondent # 8	6	12	6	36
Respondent # 9	4	11	7	49
Respondent # 10	4	11	7	49
Respondent # 11	2	10	8	64
Respondent # 12	7	12	5	25
Respondent # 13	4	10	6	36
Respondent # 14	4	11	7	49
Respondent # 15	5	12	7	49
Total	77	164	87	557
Mean	5.13	10.93	5.8	
BOYS				
Respondent # 1	5	13	8	64
Respondent # 2	6	12	6	36



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Respondent # 3	4	8	4	16
Respondent # 4	7	13	6	36
Respondent # 5	9	13	4	16
Respondent # 6	12	15	3	9
Respondent # 7	3	12	9	81
Respondent # 8	4	8	4	16
Respondent # 9	3	5	2	4
Respondent # 10	7	13	6	36
Respondent # 11	4	9	5	25
Respondent # 12	5	8	3	9
Respondent # 13	5	10	5	25
Respondent # 14	4	11	7	49
Respondent # 15	0	10	10	100
Total	78	160	82	522
Mean	5.20	10.67	5.47	
Overall Total	155	324	169	1079
Overall Mean	5.17	10.8	5.63	

Table No. 6

Summary of Scores from Lesson 2

Name	Pretest Scores	Posttest Scores	Difference (D)	D ²
GIRLS				
Respondent # 1	10	14	4	16
Respondent # 2	3	8	5	25
Respondent # 3	5	11	6	36
Respondent # 4	7	14	7	49
Respondent # 5	6	11	5	25
Respondent # 6	6	13	7	49
Respondent # 7	6	13	7	49
Respondent # 8	7	13	6	36
Respondent # 9	3	12	9	81
Respondent # 10	8	11	3	9
Respondent # 11	5	7	2	4
Respondent # 12	3	11	8	64
Respondent # 13	5	13	8	64
Respondent # 14	9	14	5	25
Respondent # 15	5	12	7	49
Total	88	177	89	581
Mean	5.87	11.8	5.93	
BOYS				
Respondent # 1	6	8	2	4
Respondent # 2	4	13	9	81



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Respondent # 3	6	13	7	49
Respondent # 4	2	9	7	49
Respondent # 5	6	14	8	64
Respondent # 6	13	15	2	4
Respondent # 7	4	8	4	16
Respondent # 8	5	5	0	0
Respondent # 9	4	4	0	0
Respondent # 10	5	9	4	16
Respondent # 11	4	7	3	9
Respondent # 12	3	10	7	49
Respondent # 13	2	9	7	49
Respondent # 14	7	13	6	36
Respondent # 15	4	11	7	49
Total	75	148	73	475
Mean	5	9.87	4.87	
Overall Total	163	325	162	1056
Overall Mean	5.43	10.83	5.4	

Table No. 7

Summary of Scores from Lesson 3

Name	Pretest Scores	Posttest Scores	Difference (D)	D ²
GIRLS				
Respondent # 1	8	12	4	16
Respondent # 2	4	7	3	9
Respondent # 3	4	9	5	25
Respondent # 4	12	14	2	4
Respondent # 5	6	11	5	25
Respondent # 6	4	11	7	49
Respondent # 7	12	13	1	1
Respondent # 8	7	9	2	4
Respondent # 9	5	9	4	16
Respondent # 10	8	11	3	9
Respondent # 11	2	7	5	25
Respondent # 12	6	10	4	16
Respondent # 13	4	9	5	25
Respondent # 14	8	13	5	25
Respondent # 15	7	9	2	4
Total	97	154	57	253
Mean	6.47	10.27	3.8	
BOYS				
Respondent # 1	8	8	0	0
Respondent # 2	3	11	8	64



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Respondent # 3	4	9	5	25
Respondent # 4	5	5	0	0
Respondent # 5	6	13	7	49
Respondent # 6	12	12	0	0
Respondent # 7	5	8	3	9
Respondent # 8	5	5	0	0
Respondent # 9	4	4	0	0
Respondent # 10	6	11	5	25
Respondent # 11	8	8	0	0
Respondent # 12	3	12	9	81
Respondent # 13	6	6	0	0
Respondent # 14	6	13	7	49
Respondent # 15	4	8	4	16
Total	85	133	48	318
Mean	5.67	8.87	3.2	
Overall Total	182	287	105	571
Overall Mean	6.07	9.57	3.5	

From the table of pretests and posttests, there was a difference on the performance between the male respondents and the female respondents. In most of the lessons, the females' result is higher than that of the males.

Table No. 8

Summary of Mean Scores of the Pretests and Posttestson the Three Lessons

Lesson	Pretest (X)	Posttest (X)	Computed t-value	Critical Value	Degree of Freedom	Interpretation
1	5.17	10.8	14.75	1.6991	29	S at 0.05
2	5.43	10.83	11.91	1.6991	29	S at 0.05
3	6.07	9.57	7.24	1.6991	29	S at 0.05



These figures were used to find answers to the research questions. Table 9 presents the summary of scores of the pretests and posttests of the three lessons and its computed t-value. The mean score for pretest of lesson 1, 2, and 3 was 5.17, 5.43, and 6.07 respectively. The posttest scores increased to 10.8, 10.83 and 9.57, showing a difference of 5.63 for lesson 1, 5.40 for lesson 2 and 3.50 for lesson 3.

The t-test of paired sample means was used to come up with the computed t-value as shown on the table. The computed t-value for lesson 1 was 14.75 and exceeds the tabular value of 1.6991 with the degrees of freedom of 29 at 0.05 significant level. For lessons 2 and 3, the computed t-value gained was 11.91 and 7.24 which also exceeds the tabular value of 1.6991 with the degrees of freedom of 29 at 0.05 level. Since the computed t-value is greater than the table value, the null hypothesis is rejected while the alternative hypothesis is hereby accepted that there is a significant difference in implementing Dale's Cone of Experience on the child's learning. From the result of the formula used, it is evident that a variety of interventions in the children's studies have a big part in their learning performance. The results of this study have been founded on previous study of Vosniadou in 2002. It



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proves that children will learn best by participating in social activities based on personal need and interest (as well as the notion that children literally construct their own logical structures, and thus their own intelligence, in order to interact with their environment. The teacher's role now is to conceptualize as a facilitator who provides the support, opportunity, and framework that children need to achieve their full developmental potential.



CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of findings, conclusions and recommendation.

Summary of Findings

This study aimed to determine child's learning in implementing Dale's Cone of Experience in a Developmentally Appropriate Practice environment.

Specifically, this study sought to answer the following problems:

1. What is the level of the child's performance before and after implementing the Dale's Cone of Experience?
2. Is there a significant difference in a child's performance before and after implementing the Dale's Cone of Experience in a Developmentally Appropriate Practice (DAP) environment?

The following hypothesis will be tested in this study.

Null Hypothesis: There is no significant difference in the utilization of Dale's Cone of Experience in DAP towards the development and learning of the child.



Alternative Hypothesis: There is a significant difference in the utilization of Dale's Cone of Experience in DAP towards the development and learning of the child.

To answer the foregoing questions, the Pretest - Posttest One group design was used in this study. The main data gathering instrument was the performance test specifically the Pretest and Posttest to measure the effectiveness of the intervention to the respondents. The data after the tests were used to come up with the solution to the research questions. The subjects of the study were 30 grade four pupils in Andres Bonifacio Elementary School located at Sta. Cruz, Manila. Random Sampling, specifically the lottery sampling, generally known as the fishbowl method was used to find who the respondents are from the 45 pupils handled as the advisory class. The researcher used the following parts of the cone on the Dale's Cone of experience; direct, purposeful experiences, dramatized experiences, demonstrations, television and motion pictures, including the computer, radio - recordings and still pictures, visual symbols and verbal symbols. These parts of the cone were used without following any order. The researcher does not have the chance to use the Exhibits and Field Trips of the cone due



to the unavailability of funds and the memorandum from the Department of Education of Zero Collection Policy. Since these two stages of the cone need a monetary involvement.

The mean and the t-test of paired sample means were used as the statistical treatment of the study. The mean was used to identify and describe the participants' scores before and after utilization of the Dale's Cone of Experience and t-test of paired sample means is the formula to find the difference of the pretests and posttests.

The mean score of the performance level of the respondents before implementing the intervention for the 3 lessons were based on the results of the pretests. From the result, the performance level of the respondents does not reach the expected percentage. It only shows that there is really a need to do certain interventions to gain the success level.

Specific topics and lessons were selected as bases for the intervention. Geometry is one unit of the fourth grading period in Grade IV Mathematics were based in the Basic Education Curriculum (BEC) / Philippine Elementary Learning Competencies (PELC).



Pretests and posttests were evaluated by three master teachers in Mathematics utilizing a three - point rating scale to find its appropriateness, where 3 is for Very Appropriate, 2 is for Appropriate and 1 for Not Appropriate. All the items range to retain and revise the items. All the items that gained the mean from 1.50 to 2.49 were revised by the researcher. Suggestions of the evaluator were also given consideration of the researcher.

The pretests and posttests result displayed the difference in the performance between the male respondents and the female respondents. In most of the lessons, the females' result is higher than that of the males.

The mean score for pretest of lesson 1,2,3 was 5.17, 5.43, 6.07 respectively. It increased its score on the posttest to 10.8, 10.83 and 9.57, a difference of 5.63 for lesson 1, 5.40 for lesson 2 and 3.50 for lesson 3.

The computed t-value for lesson 1 was 14.75 and exceeds the tabular value of 1.6991 with the degrees of freedom of 29 at the 0.05 level of significance. For lessons 2 and 3, the computed t-value gained was 11.91 and 7.24 which also exceeds the tabular value of 1.6991 with the degrees of freedom of 29 at the 0.05



level of significance. Since the computed t-value is greater than the table value, the null hypothesis is rejected while the alternative hypothesis is hereby accepted that there is a significant difference in implementing Dale's Cone of Experience on the child's learning. From the result of the formula used, it is evident that a variety of interventions in the children's studies have a big part in their learning performance.

Conclusions

From the summarized findings, the following conclusions were drawn.

1. Implementing Dale's Cone of Experience found to be very appropriate in the performance of the learner.
2. Following the suggested experiences of the cone appears to improve the performance of the learners as well as the retention of the knowledge.
3. Dale's Cone of Experience implementation in a developmentally appropriate environment makes a significant difference in the learning performance of the learners.



Recommendations

In the lights of the conclusion drawn from the findings of the study in which effects of Dale's Cone of Experience on the child's performance in a developmentally appropriate environment, the following recommendation is hereby endorsed:

1. Educators should know and learn more about the development of the learners, not only their physical and mental state, but the whole aspect of an individual. From these, a wide variety of ideas on how to extend knowledge will be very easy and light.
2. Administrators should provide teachers with the opportunities to attend seminars, workshop and / or symposium that will help them improve their teaching ability.
3. As time goes by, different strategies have birthed and been part of the trend in the education sector. It is the teacher's prerogative which of these trends are applicable to the learners they are handling. It is a good step if the teacher will create strategies and methods on how the learners will enjoy learning while learning more.
4. Encourage the conduct of a more vivid research on the effects of Dale's Cone of experience in the setting of a



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developmentally appropriate environment. Educators need references to guide their teaching in different settings. This is also a guide to response in the need of necessary skills in the 21st century.



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APPENDIX A LETTER OF REQUEST TO CONDUCT THE STUDY



PHILIPPINE NORMAL UNIVERSITY

Taft Avenue, Manila

Graduate School

10 January 2014

**MRS. TERESITA G. ANDAYA
Principal IV
Andres Bonifacio Elementary School**

Madam:

I am a graduate student of Philippine Normal University taking up Master of Education in Educational Technology. I am currently working on a study entitled "THE EFFECTS OF DALE'S CONE OF EXPERIENCE ON THE CHILD'S PERFORMANCE IN A DEVELOPMENTALLY APPROPRIATE PRACTICE (DAP) ENVIRONMENT"

May I have the honor to ask for permission from your good office to conduct series of tests on the fourth grader of your school during their Mathematics class. Rest assured that the facts and information about my respondents will be used solely for the purpose of the research and will be dealt with strict confidentiality.

Thank you very much for your approval and support. More power and God bless!

Very truly yours.

**IRENE DG. FERRER
Graduate Student**



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APPENDIX B COPY OF SONGS TAUGHT

EVEN BETTER THAN THE SHAPE SONG!

<http://www.youtube.com/watch?v=k7oLm94kQEE>

Square Kite Rhombus Oh

They're all Quadrilaterals

Trapezoid, Rectangle

0 – 0 – 0 – 0 – 0

Parallelo – Parallelo – Parallelogram

They have four sides, 4 sides Oh

They're all quadrilaterals

Rhombus, it's got 2 pairs of equal parallel opposite sides

Bisecting diagonals at 90 degrees

Square has all that stuff of a rhombus,

But adjacent sides are at right angles

Trapezoid, one pair of parallel sides, parallel sides

Kite, diagonals at right diagonals at right angles

Adjacent sides equal (in 2 pairs)

Parallelogram

Opposite sides equal, parallel, diagonals bisect each other

Rectangle, all the qualities of the parallelogram

But each corner is a right angle

TRIANGLE SONG

http://www.youtube.com/watch?v=fCOey_UW3oI

TRIANGLES 2X WHAT DO YOU know

triangles 2x let's have a go

There are 3 types of triangle you see

Listen and sing and you'll learn them with me

equilateral has 3 equal sides

3 equal angles are hidden inside

Isosceles have 2 equal sides

2 equal angles are hidden inside

scalene have no equal sides

no equal angles are hidden inside



I AM A PARALLELOGRAM

<http://www.youtube.com/watch?v=Rpkjb4Tx844>

I can be a square or a rectangle
Or I can lean on another angle
I am a parallelogram
I am a parallelogram

Opposite sides are parallel
And that is how you can count
I am a parallelogram
I am a parallelogram

My four sides are straight
But the angles at the corners they make
I'm always at 90 degrees
Measure them and you'll see

Adjacent angles, add up to be
One hundred and eighty degrees
I am a parallelogram
I am a parallelogram

ANGLES MUSIC

<http://www.youtube.com/watch?v=yptZt9hwrzU>

I have the measure in degrees
Of every angle that I see
Come on angles
Don't you tangle with me?

Are you acute?
Angles I see are less than 90 degrees
Come on angles
Don't you tangle with me?

And if you measure 90 degrees
Then I know you are a right angle
Coz' you stand perpendicular

I got your number if you are straight
Its a hundred and eighty degrees that you make
Come on angles
Don't you tangle with me?

A full rotation, if you please
Spends a round 360 degrees



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**Come on angles
Don't you tangle with me?**

**But if you're only greater than
A hundred and eighty degrees
I know you're a reflex angle
Like my bended knees**

**Come on angles
Don't you tangle with me?**



APPENDIX C TABLE OF SPECIFICATIONS FOR THE PRETEST AND POSTTESTS

PRETEST # 1

Content	Remember		Analyze		Apply		Total
	No. of items / %	Item Number	No. of items / %	Item Number	No. of items / %	Item Number	
Basic Geometric Ideas - Points, lines, line segment, rays	3 (20%)	3, 7, 15			1 (6.67%)	1	4
Kinds of Lines - Parallel, perpendicular, intersecting, congruent lines			2 (13.33%)	5, 10	1 (6.67%)	2,	3
Parts of an angle	2 (13.33%)	6, 12	1 (6.67%)	13			3
Kinds of Angles - Right, Acute, Obtuse, Reflex, Straight Angles	2 (13.33%)	4, 9	2 (13.33%)	11, 14	1 (6.67%)	8	5
Total	7 (46.67%)		5 (33.33%)		3 (20%)		15

PRETEST # 2

Content	Remember		Analyze		Apply		Total
	No. of items / %	Item Number	No. of items / %	Item Number	No. of items / %	Item Number	
Triangles			1 (6.67%)	3			1
- Kinds							
a. According to sides	3 (20%)	2, 4, 12	2 (13.33%)	7, 14			5
b. According to angles	3 (20%)	1, 5, 9	1 (6.67%)	15			4
Circles			1 (6.67%)	6			1
- Parts			2 (13.33%)	10, 11	2 (13.33%)	8, 13	4
Total	6 (40%)		7 (46.67%)		2 (13.33%)		15



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PRETEST # 3

Content	Remember		Analyze		Apply		Total
	No. of items/ %	Item Number	No. of items / %	Item Number	No. of items / %	Item Number	
Quadrilaterals							
- Square			2 (13.33%)	1, 8			2
- Rectangle	2 (13.33%)	6, 7	3 (20%)	3, 9, 14			5
- Rhombus	2 (13.33%)	10, 11	1 (6.67%)	5			3
- Parallelogram			2 (13.33%)	2, 13			2
- Trapezoid	2 (13.33%)	4, 12	1 (6.67%)	15			3
Total	6 (40%)		9 (60%)				15

POSTTEST # 1

Content	Remember		Analyze		Apply		Total
	No. of items/ %	Item Number	No. of items / %	Item Number	No. of items / %	Item Number	
Basic Geometric Ideas							
- Points, lines, line segment, rays	1 (6.67%)	14	1 (6.67%)	8	2 (13.33%)	6, 13	4
Kinds of Lines							
- Parallel, perpendicular, intersecting, congruent lines	2 (13.33%)	1, 10			3 (20%)	2, 5, 9	5
Parts of an angle							
	1 (6.67%)	15	1 (6.67%)	4			2
Kinds of Angles							
- Right, Acute, Obtuse, Reflex, Straight Angles	1 (6.67%)	3	2 (13.33%)	7, 12	1 (6.67%)	11	4
Total:	5 (33.33%)		4 (26.67%)		6 (40%)		15



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POSTTEST # 2

Content	Remember		Analyze		Apply		Total
	No. of items/ %	Item Number	No. of items / %	Item Number	No. of items / %	Item Number	
Triangles	1 (6.67%)	9					1
- Kinds							
c. According to sides	2 (13.33%)	5, 14	2 (13.33%)	11, 15			4
d. According to angles	1 (6.67%)	10	2 (13.33%)	2, 4			3
Circles	1 (6.67%)	1	1 (6.67%)	7			2
- Parts	1 (6.67%)	3	2 (13.33%)	6, 8	2 (13.33%)	12, 13	5
Total:	6 (40%)		7 (46.67%)		2 (13.33%)		15

POSTTEST # 3

Content	Remember		Analyze		Apply		Total
	No. of items/ %	Item Number	No. of items / %	Item Number	No. of items / %	Item Number	
Quadrilaterals			1 (6.67%)	10			1
- Square	2 (13.33%)	6, 13	1 (6.67%)	3	1 (6.67%)	9	4
- Rectangle	1 (6.67%)	4	2 (13.33%)	2, 8			3
- Rhombus	1 (6.67%)	5	1 (6.67%)	11			2
- Parallelogram	1 (6.67%)	14	2 (13.33%)	12, 15			3
- Trapezoid	1	1	1	7			2



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	(6.67%)		(6.67%)			
Total:	6 (40%)		8 (53.33%)		1 (6.67%)	15

APPENDIX D COPY OF PRETEST FOR LESSON 1, 2, AND 3

PRETEST # 1

Read each item correctly. Write the letter of the correct answer.

- What kind of figure does a tip of a pencil represent?

A. Line	B. Line Segment
C. Point	D. Ray
- Ipil and Tayuman Street are _____ to each other.

A. Congruent	B. Intersect
C. Parallel	D. Perpendicular
- What part of a line defined as two end points along the line?

A. Line	B. Line Segment
C. Point	D. Ray
- An angle whose measure is more than 90 degrees but less than 180 degrees.

A. Acute	B. Obtuse
C. Reflex	D. Right
- What kind of lines does the glass of a jalousie represent?

A. Congruent Lines	B. Intersecting Lines
C. Parallel Lines	D. Perpendicular Lines
- What instrument is used to measure angle?

A. T-square	B. Sand clock
C. Ruler	D. Protractor
- The common point of two lines is called _____.

A. Lines	B. Points
C. Sides	D. Vertex
- The hands of a clock represent a _____.

A. Line	B. Line Segment
C. Point	D. Ray
- A 180 degree angle is also called _____.

A. Acute Angle	B. Obtuse Angle
C. Reflex Angle	D. Straight Angle
- Which of the following is the symbol for perpendicular?

A. //	B. ≠
C. ⊥	D. ≥
- The hands of the clock at 3 o'clock show an angle. What kind does it show?

A. Acute Angle	B. Obtuse Angle
C. Right Angle	D. Straight Angle
- This is the unit of measure for angles.

A. Celsius	B. Kilograms
C. Centimeter	D. Degree
- Which of the following best describes an angle?

A. Is made up of two rays with a common vertex.	B. Is made up of two rays.
C. Is made up of a ray and a point	D. Is made up of 2 congruent lines
- What kind of angle does this figure represent?


A. Acute Angle	B. Obtuse Angle
C. Reflex Angle	D. Right Angle
- _____ extend without ending in opposite directions.

A. Line	B. Line Segment
C. Point	D. Ray



PRETEST # 2

Read each items carefully. Then write the letter of the correct answer on your answer sheet.

- A triangle whose angle measures more than 90 degrees.
A. ~~right~~ B. scalene
C. Obtuse D. Acute
- A triangle with a square corner.
A. right B. scalene
C. Obtuse D. Acute
- How can you identify a triangle?
A. It has no sides B. It has 4 sides equal
C. It has 3 sides and 3 angles D. It has 5 sides and 5 angles
- Two sides of a triangle are equal. This is called _____ triangle.
A. Scalene B. Right
C. Equilateral D. Isosceles
- A triangle has angle measurements of 90° , 36° , and 54° . What kind of triangle is it?
A. Obtuse B. Right
C. Acute D. Isosceles
- A figure made up of points equidistant to the centerpoint.
A. Circle B. Hexagon
C. Quadrilateral D. Triangle
- A scalene triangle is a triangle with _____.
A. no congruent sides B. all sides equal
C. two congruent sides D. one right angle
- Annie has a circular lot. She wanted to find the distance around it. She is looking for the _____ of the lot.
A. Chord B. Circumference
C. Diameter D. Radius
- A triangle whose angle measures less than 90 degrees?
A. Acute B. Obtuse
C. Right D. Triangle
- In the figure A, line CB is the diameter, what is the radius?
A. Line segment BC B. Line segment AB
C. Line segment AX D. Line segment CX
- In the same figure, what do you call line segment CX?
A. Radius / Radii B. Centerpoint
C. Diameter D. Chord
- All of the sides of this triangle are equal. What kind of triangle is this?
A. Scalene B. Right
C. Equilateral D. Isosceles
- The class of Mrs. Diaz formed a circle. Lino is the center while Jon is on one point of the circle. If Lino extends a  rope to Jon, what line segment and part of the circle did they make?
A. Radius B. Centerpoint
C. Diameter D. Chord



Fig. A

14. Which of the following is a scalene triangle?

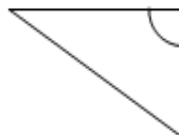
A.



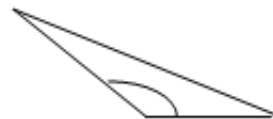
B.



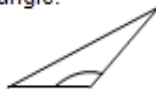
C.



D.



15. Name this triangle according to angle.



- A. Scalene
C. Acute

- B. Right
D. Obtuse



PRETEST # 3

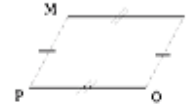
Read each item carefully. Then write the letter of the correct answer on your answer sheet.

1. What is a quadrilateral with all of its sides congruent?

- A. Parallelogram
B. Rhombus
C. Trapezoid
D. Square

2. A quadrilateral with 2 pairs of parallel sides is called _____.

- A. Parallelogram
B. Rhombus
C. Trapezoid
D. Square



3. What is a quadrilateral with 4 right angles and 2 pairs of equal sides?

- A. Parallelogram
B. Rhombus
C. Rectangle
D. Square

4. How many pairs of parallel sides are there in a trapezoid?

- A. 1
B. 2
C. 3
D. 4

5. A quadrilateral with four equal sides but has no right angles.

- A. Square
B. Rhombus
C. Rectangles
D. Parallelogram

6. Which of the following best describes a square?

- A. Has 1 pair of parallel sides
B. Has opposite sides parallel
C. Has 2 pairs of congruent and parallel sides
D. Has all sides and angles are congruent

7. Which is NOT true about a square?

- A. It has four equal sides
B. It has 4 acute angles
C. It has 2 pairs of parallel sides
D. It has 4 right angles

8. A quadrilateral with opposite sides parallel and congruent.

- A. Triangle
B. Square
C. Rectangle
D. Parallelogram

9. How many pairs of parallel and congruent sides are there in a rectangle?

- A. 3
B. 4
C. 1
D. 2

10. It is also known as an equilateral parallelogram.

- A. Parallelogram
B. Rectangle
C. Rhombus
D. Triangle

11. Which of the following is a rhombus?



12. What do you call this quadrilateral?



- A. Square
B. Parallelogram
C. Trapezoid
D. Rhombus

13. Which is NOT TRUE about parallelogram?

- A. Opposite sides are parallel
B. Opposite sides are intersecting
C. Opposite sides are congruent in length
D. Four sided closed figure

14. Which is TRUE about rectangles?

- A. Four right angles, 1 pair of parallel sides
B. 2 pairs of congruent sides, no right angle
C. Four right angles, 2 pairs of parallel sides
D. 2 pairs of parallel sides, 1 right angle

15. In this trapezoid, which lines are parallel?



- A. WX and YZ
B. XW and ZW
C. XZ and WY
D. XY and WZ



APPENDIX E COPY OF POSTTEST FOR LESSON 1, 2, AND 3

POSTTEST # 1

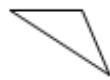
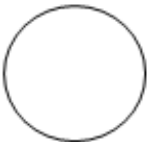
Read each item correctly. Write the letter of the correct answer on your answer sheet.

- Lines that never meet are called _____.
A. Intersecting Lines B. Parallel Lines C. Perpendicular Lines D. Congruent Lines
- What kind of line does a tv antenna represents?
A. Intersecting Lines B. Parallel Lines C. Perpendicular Lines D. Congruent Lines
- The measurement used for measuring angles?
A. Centimeter B. Degree Celsius C. Degree D. Degree Fahrenheit
-  4. An angle measures 77° . This is an example of _____ angle.
A. Acute Angle B. Obtuse Angle C. Right Angle D. Straight Angle
- Ipil and Tayuman Streets are perpendicular to each other. How about Yuseco and Batangas Streets? □
A. Intersecting Lines B. Parallel Lines C. Perpendicular Lines D. Congruent Lines
- The tip of a stick represents a _____.
A. Point B. Line C. Line Segment D. Ray
- This figure represents an angle. What is it?
A. Acute Angle B. Obtuse Angle
C. Right Angle D. Reflex Angle 
- The common endpoint of an angle is called _____.
A. Point B. Line C. Centerpoint D. Vertex
- The edges of a notebook show a _____ line.
A. Intersecting B. Parallel C. Perpendicular D. Congruent
- Which of the following is a symbol for parallel lines?
A. $\perp$ B. $//$ C. $\approx$ D. $\times$
- The hands of the clock at 6 o'clock represent an angle. What is it?
A. Acute Angle B. Obtuse Angle C. Right Angle D. Straight Angle
- Ronnie uses a protractor to make an angle. It measures 192° . What kind was it?
A. Acute Angle B. Obtuse Angle C. Reflex Angle D. Straight Angle
- Vehicles in EDSA were caught in traffic and it was lined up for hours now. The cars lined up represent what kind of angle?
A. Point B. Line C. Line Segment D. Ray
- A _____ is used to tell position of lines and objects. It is represented by a capital letter.
A. Point B. Dot C. Period D. Comma
- The common endpoint of an angle is called vertex, how about the rays?
A. Centerpoint B. Vertex C. Angle D. Side



POSTTEST # 2

Read each item correctly. Write the letter of the correct answer on your answer sheet.

- Set of points equidistant to the center.
A. Vertex B. Radius C. Diameter D. Circle
- An angle of a certain triangle measures 72° . What do you call this triangle?
A. Right Triangle B. Obtuse Triangle C. Equilateral Triangle D. Acute Triangle
- Two points on the circle that does not pass through the center is called _____.
A. Radii B. Diameter C. Chord D. Base
- Which of the following is a right scalene triangle?
A.  B.  C.  D. 
- A triangle with all sides congruent is called _____.
A. Acute Triangle B. Equilateral triangle C. Isosceles Triangle D. Scalene Triangle
- Which of the following sets show the radii of the figure?
A. CB, XE, XC B. DB, CB, XB
C. XE, DX, BD D. XE, BX, XC

- Roland wanted to find out the measure of his circular lot. What is he looking for?
A. Area B. Circumference C. Diameter D. _____
- Line segment that passes through the center is called _____.
A. Center B. Chord C. Diameter D. Radius
- Which of the following best describes a triangle?
A. It is a closed figure with two sides B. It is a plane figure with 3 sides, angles and vertices
C. It is a polygon with 3 sides and 2 angles D. It is a polygon with more than 3 sides.
- A triangle has an angle measurement of 105° , 50° , 25° . What is it?
A. Right Triangle B. Obtuse Triangle C. Equilateral Triangle D. Acute Triangle
- Scalene triangle is known for having _____.
A. no congruent sides B. one right angle C. 2 congruent sides D. all sides equal
- If the radius of a certain circle is 10 cm. How long is the diameter?
A. 20 cm B. 15 cm C. 10 cm D. 5 cm
- The children of Mr. and Mrs. Smith are having fun in the yard. They formed a circle and Andy was at the middle. Sofia and Zoe extended a rope that crosses Andy. What do these children form?
A. Center B. Chord C. Diameter D. Radius
- Two sides of a triangle are equal. This is known as _____.
A. Acute Triangle B. Equilateral triangle C. Isosceles Triangle D. Scalene Triangle
- What do you call a triangle with a square corner?
A. Right Triangle B. Obtuse Triangle C. Equilateral Triangle D. Acute Triangle



POSTTEST # 3

Read each item correctly. Write the letter of the correct answer on your answer sheet.

1. A quadrilateral with 1 pair of parallel sides is called _____.
A. Parallelogram B. Rhombus
C. Trapezoid D. Square
2. The sides of Zoe's chalkboard consecutively measure 9 feet, 5 feet, 9 feet and 5 feet. Without any other information, you can determine that Mary's chalkboard is a _____.
A. Parallelogram B. Rectangle
C. Rhombus D. Square
3. Which of the following statement is NOT true about a square?
A. It has four equal sides B. It has 4 acute angles
C. It has 2 pairs of parallel sides D. It has 4 right angles
4. What is a quadrilateral with 4 right angles and 2 pairs of equal sides?
A. Parallelogram B. Rhombus
C. Rectangle D. Square
5. How many pairs of parallel sides are there in a rhombus?
A. 1 B. 2
C. 3 D. 4
6. A quadrilateral with four equal sides and four right angles.
A. Square B. Rhombus
C. Rectangles D. Parallelogram

7. Which of the following figure is a polygon?

A.



B.



C.



D.



8. Which of the following best describes a rectangle?
A. Has 1 pair of parallel sides B. Has four right angles and opposite sides parallel
C. Has 2 pairs of congruent and parallel sides D. Has all sides and angles congruent
9. A figure with four sides and perpendicular diagonals could be a _____.
A. rhombus or square B. trapezoid or rhombus
C. rectangle or square D. rectangle or trapezoid
10. How many angles are there in a quadrilateral?
A. 4 B. 3
C. 2 D. 1
11. It is also known as an equilateral parallelogram.
A. Parallelogram B. Rectangle
C. Rhombus D. Triangle

12. Which of the following is a parallelogram?

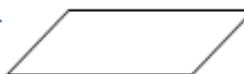
A.



B.



C.



D.



13. Is a quadrilateral with its entire sides equal?

- A. Parallelogram B. Rhombus
- C. Trapezoid D. Square

14. What do you call this quadrilateral?



15. Which is NOT TRUE about parallelogram?
A. Opposite sides are parallel B. Opposite sides are intersecting
C. Opposite sides are congruent in length D. Four sided closed figure



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APPENDIX F

DEPED MEMO NO.40 S.2009



Republic of the Philippines
Department of Education

DepEd

Tanggapan ng Kalihim
Office of the Secretary

April 27, 2009

DepED ORDER
No. **40**, s. 2009

**CONTINUED IMPLEMENTATION OF NO COLLECTION POLICY IN ALL PUBLIC
ELEMENTARY AND SECONDARY SCHOOLS AND GENERAL
GUIDELINES FOR THE OPENING OF CLASSES**

To : Undersecretaries
Assistant Secretaries
Bureau/Service/Center Directors
Regional Directors
Schools Division Superintendents
Heads of Public Elementary and Secondary Schools
All Others Concerned

For SY 2009-2010 and succeeding schoolyears, the guidelines for the implementation of the "No Collection Policy" in public elementary and secondary schools as embodied in DepEd Order No. 19, s. 2008 and for the Opening of Classes as embodied in DepEd Order Nos. 19 and 40, series of 2008, respectively (copies attached) shall remain in force unless modified, superseded or repealed.

All DepEd field officials, particularly those at the school level, are advised to strictly comply with these guidelines.

For immediate dissemination and strict compliance.


JESLI A. LAPUS
Secretary

Encls.: As stated
References: DepED Order: (nos. 19 and 40, s. 2008)
Allotment: 1- (D.O. 50-97)
To be indicated in the Perpetual Index
under the following subjects:

ADMISSION or ENROLMENT
CLASSES
CONTRIBUTIONS
FEES



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Certificate of Authenticity



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CURRICULUM VITAE



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