INFLUENCE OF LEARNING DOMAINS ON INSTRUCTIONAL PLANNING FOR SCIENCE TEACHING IN PRE-SCHOOLS IN CENTRAL ZONE KISUMU EAST SUB COUNTY

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DECLARATION

This research project is my original work and has not been submitted for an award of degree in other institution or presented to any other institution for academic consideration

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DEDICATION

I dedicate this work to my parents Fredrick Obonyo and Felister Muga Obonyo whose prayers and steadfast support kept me going, my husband William Ouma Opiyo for his continued support and encouragement, my dear children Kevin, Leonora, Bernadette, Risper, Maurice and Prisca for their love and for being patient and understanding.

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God bless you all

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ABSTRACT

Designing the full spectrum of cognitive, psychomotor and affective instructional objectives presupposes the availability of adequate resources and teachers who are competent. In resource scarce settings such as Kisumu Municipality, constrains abound in the formation of such comprehensive instructional objectives. Early Childhood Education has not been mainstreamed into the education sector fully leading to challenges in oversight and reference standard for teachers' involvement in elaborate instructional planning processes. This study aimed at investigating the influence of the cognitive, psychomotor and affective learning domains in instructional planning in pre-schools in Central Zone in Kisumu East Sub-County. Descriptive survey method using stratified and simple random sampling was used to sample respondents. The target population for this study included 17 teachers from public and 23 teachers from private pre-schools. Sample size of the study was 126 Pre-school teachers from whom 40 participants were sampled for actual involvement in the study. Questionnaire and observation checklist was developed by examining the research objectives, research questions and reviewed literature. A test re-test technique or coefficient of stability method was used to establish the degree to which the same result could be obtained with a repeated measure and accuracy. The study established that majority of teachers 37(92.5%) include cognitive learning outcomes when planning for science in pre-schools. Similarly majority also agreed they include psychomotor learning outcomes 39(97%) and also affective learning outcomes 33(82.5%) when planning for pre-schools science instructions. However respondents found it challenging to plan for belief and attitude change learning outcomes. The study also noted that teachers with advanced training tended to be more likely to including learning domains in their instructional plans. Therefore learning domains play a prominent role in instructional planning in pre-school in the study area. The study recommends that pre-school teachers should be trained and provided with pre-school science activities guides so that they can involve children in conducting their own investigations in science activities in the three domains of learning.

LIST OF ABBREVIATIONS AND ACRONYMS

ECCEA:	Early Childhood Care and Education Authority
ECD:	Early Childhood Education
GoU’s:	United Officers Groups
KEMI:	Kenya Education Management Institute
KICD:	Kenya Institute of Curriculum Development
KIE:	Kenya Institute of Education
MoEST:	Ministry of Education Science and Technology
MOE:	Ministry of Education
NACECE:	National Centre for Early Childhood Education
NACOSTI	National Commission of Science Technology and Innovation
NAEYC:	National Association for the Education of Young Children
NCDC:	National Curriculum Development Center
NIEER:	National Institute for Early Education Research
OECD:	Organization for Economic Co-operation and Development
SPSS:	Statistical packages for Social Sciences
UNESCO:	United Nations Educational, Scientific and Cultural Organization

CHAPTER ONE

INTRODUCTION

1.1. Background to the Study

Plato (428-347) proposed the question; how does the individual learn something new when the topic is brand new to the person? Teaching is an intentional matter. To teach is to intend that someone should learn something (Curtis 2004). Education involves the transmission of knowledge and skills and it is difficult to see how this could happen in practice unless someone makes oneself responsible.

At the beginning of every course the teacher are tasked with setting instructional objectives which imply the changes he/she expects to take place in the learners as a result of the course (Herbert, 1999). With these goals in mind the teacher is then expected to consciously select the materials, teaching procedures, and instructional strategies and anticipate the appropriate evaluation strategies for the course. In addition the onus is on the teacher to work bearing in mind the individual students strengths and weaknesses so as to tailor instruction to fit every of his learners (Bloom, *et al.*, 1971). These require extensive skills on the part of the teacher and furthermore require a lot of resources

From each emanates pedagogical processes which uniquely emphasize the aspects of the learning environment that are needed to bring about the desired effects on the learner. Desired learning effects or outcomes are often envisaged and predesigned by the instructor in form of instructional objectives. An instructional objective is a statement demonstrating what is to be achieved by a learner at the end of a learning period in measurable and observable terms (Baker 1999). .Instructional objectives expose the student to the desired educational goals of any instructional process, thereby providing impetus for them to exert the appropriate learning effort (Illeris and Knud, 2004). Bloom (1956) categorized instructional objectives into three main domains namely; cognitive, psychomotor, and affective.

A well written science instructional plan is organized into cognitive, affective and psychomotor objectives statements and helps to systemize instruction resulting in higher learning achievement. Stigler and Hiebert (1999), argue that successful teachers are invariably good planners and thinkers. However they don't get planning skills overnight. The road to success requires commitment and practice, especially of those skills involved in planning lessons, activities, and managing classroom behavior. Planning lessons is a fundamental skill all teachers must develop and hone, although implementation of this skill in actual teaching can, and usually does, take some time. Being able to develop an effective lesson plan format is a core skill for all who teach. According to Sintoovongse (2002), well-formulated lesson plans give teachers directions to make instruction proceed smoothly. Good lesson plans allow teachers to better control the details of instruction and to monitor student progress more closely in order to ensure student success. Most importantly, however, the process of planning lessons provides teachers with an opportunity to think about what they are doing. That is, planning allows teachers to become conscious curriculum decision makers (Young 2000). Teachers think carefully about what happens in their classrooms, have good reasons for doing certain activities, and employ a variety of ways of teaching children.

Good planning makes good teaching possible. Some experienced teachers are able to mentally organize the objectives, procedures, and materials. However, for most teachers and for all beginning teachers written statements regarding the major elements of a lesson plan are usually necessary (Njenga & Kabiru, 2001).

Cognitive domains emphasize the attainment, retention and development of knowledge and intellect (Bloom, 1956). Affective domains are concerned with outlining the desired feelings or emotions outcomes that the learner should attain after exposure to the stated educational activities (Phillips & Soltis, 2009). Psychomotor domain targets the development of relevant discreet physical functions, reflex actions and interpretive movements that the learner ought to acquire after exposure to a given set of learning experiences. Traditionally, these types of objectives are concerned with the physically encoding of information, with movement and/or with activities where the gross and fine muscles are used for expressing or interpreting information or concepts (deJong, 2010). The three learning domains have various levels of complexity from simple to most complex components within each domain.

Designing the full spectrum of cognitive, psychomotor and affective instructional objectives presupposes the availability of adequate resources over and above the skills the teacher should posses for such task. In resource scarce settings such as Kisumu municipality these requirements constrain the formation of such comprehensive instructional objectives. Early Childhood Education has not been mainstreamed into the education sector fully, challenges abound that restrict adequate teacher involvement in such an elaborate process as outlined above. Kisumu East Sub County has a micro system of the ECD Centers. These are organized in a hierarchical order as from the county director, to the zonal inspector then finally to the base level consisting of not more than three schools. A careful analysis shows a loose network of enforcement of standard methods of education to allow proper monitoring of attainment of educational objectives asset out by the ministry.(source Kisumu Director of EDC Office)

This study was conducted in Kisumu East Sub-county to analyze the gaps existing in utilization of established principles of the teaching/learning process with emphasis on teacher knowledge, attitude and use of the various learning domain objectives when they are involved with the science instructional planning process.

1.2. Statement of the Problem

Early childhood education has only recently been receiving attention intended to mainstream it into the national education outfit. However the ECE sector suffers from poorly structured oversight and moderation from central agents and as a consequence individual ECE institutions employ their instructional strategies without conformity to a set standard. Given this situation and the fact that training of ECE instructors is also not formally embedded into the national education fabric, teaching strategies vary between different ECE institutions and between individual ECE teachers. The utilization of the domains of knowledge as an appropriate planning strategy for holistic education requires well resourced and orderly systems which lacks in these local setting. Instructional planning is one essential constituent of effective teaching assessment. However skillful design of instructional plan requires organization along the learning outcomes desired. With lack of normative training, poor oversight and motivation ECD teachers' involvement in comprehensive instructional planning has not been documented in previous studies.

This study investigated the influence of learning domains on instructional planning for science teaching in Pre-schools in Central Zone Kisumu East Sub County to serve as a means of highlighting shortcomings existing in ECE education with regard to effective utilization of knowledge domains as planning tools for learning in this liberated environment.

1.3. Purpose of the Study

This study aimed at investigating the influence of learning domains on the instructional planning for science teaching in pre-schools in Central Zone Kisumu East Sub-County.

1.4. Research Objectives

The specific objectives of the study was to

1. To determine the influence of cognitive learning objectives on instructional planning for science teaching in Pre-schools in Central Zone Kisumu East Sub-County.
2. To examine the influence of psychomotor learning outcomes on instructional planning for science teaching in Pre-schools in Central Zone Kisumu East Sub-County.

3. To assess the influence of affective learning outcomes on instructional planning for science teaching in Pre- schools in Central Zone Kisumu East Sub- County

1.5. Research Questions

The study was guided by the following research questions:

1 What is the influence of cognitive knowledge domain on the planning for science teaching in Pre-school in Central Zone Kisumu East Sub- County?

2 What is the influence of psychomotor knowledge domain on the planning for science teaching in Pre-schools in Central Zone Kisumu East Sub- County?

3 What is the influence of affective knowledge domain on the planning for science teaching in Pre-schools in Central Zone Kisumu East Sub- County?

1.6. Significance of the Study

Gaps in designing appropriate education goals for effective involvement of learners culminate in administering education without knowing whether it is effective or ineffective. This study therefore highlighted the deficiencies or lack of proper utilization of knowledge domains in designing instructional objectives in ECE centers in Kisumu East Sub-County. This is meant to strengthen the delivery of Early Childhood Education and ensuring that the practice of ECE education is complete from design of curriculum though implementation to evaluation. The study also helps training institutions to emphasize the importance of adherence and linkage of these consistently to curriculum, learning objective and assessment in their training programs. It also helps policy makers to promote structured handling of learning activities at the level of ECD programmes.

1.7. Limitations and Delimitations of the Study

Limited funding and time also impacted on the spectrum of resources that could be employed to establish the data requisite for a broad and generalized search for information. Early Childhood Education is in its formative stage s especially with regards to mainstreaming it into the formal education process. Therefore plenty of challenges exist in this sector of education including; curriculum design, instructional materials and activities, and appropriate feedback and evaluations processes for this level of learning. With this daunting array of issues, this study therefore goes a long way in initiating the search for appropriate and effective design of ECE education as the country shifts focus on the sector.

1.8. Basic Assumptions of the Study

Generally it is expected that ECD teachers are adequately trained to handle, process and implement curriculum content to effectively bring about learning at this level of education. This subsumes that, they understand the design and nature of learning domains and the respective learning objectives, instructional material and activities and feedback techniques and tools to use in order to provide a holistic learning environment at this level of teaching and learning. This study also tests whether these assumptions are correct and generalized in ECD centers in Kisumu.

1.9. Definition of Terms

Assessment tools	these are various verbal or non verbal cues presented as tasks to the learner to aid in eliciting what the learner has acquired as a result of the instructional process.
Curriculum	refers to the overall educational aims planned to be achieved often by the entire national educational structure.
Implementation	Carrying out plans or activities
Instructional objectives	are statements of learning outcomes that a learner should have acquired at the end of an instructional period.
Instructional material	are mostly physical media used to stimulated various learning experiences.
Instructional activities	these are teacher or pupil related events that are carried during the instructional process.
Performance	Learning Outcome
Pre-school children	Refers to young ones of ages 3-7 years
Science	Organized knowledge obtained by observing and testing of facts about to physical world, natural laws and society
Teacher	refers to a pupil instructor

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter has detailed literature review in areas related to influence of learning domains on instructional planning in pre-school science activities.

It examines the findings in previous studies in relation to the present study topic. The aspects to be examined in this chapter includes; types of instructional resources in relation to science planning, teacher's qualification and use of the three learning domains in instructional objectives on science lessons, organization and finally the theoretical framework and Conceptual Framework.

2.2. Instructional Methods in General

The best starting point for understanding learning objectives is to begin by stating what an instructional goal is all about. Knowledge about instructional goals places the teacher at a better position to understand that objectives are necessary (Curtis A. 1998). There are at least three types of interrelated objectives. The first type is called a terminal performance objective or long term objective. This is an objective for a given instructional entity. The second type is called an enabling objective or short term objective. This is an objective for the subunits of instructions. Short term objectives bridge the gap between the learners behavior when he or she enters into the teaching and learning experience and the learner's behavior after she/he has attained the terminal performance objectives are relevant to each other, and not absolute in any sense of the word. The third type of objective is to do with the prerequisite entry skills that are the knowledge the learner brings to the course (Gagne R.M. 1992). These are objectives a student should have achieved before beginning a unit of learning and teaching. They are important in all aspects of the teaching and learning process. When planning for teaching objectives, a teacher should provide a guide for choosing subject matter content, for sequencing topics, and for allocating teaching time. Learning objectives also guide in the selection of materials and procedures to be employed in the actual teaching process (Ngome C.K 2000). Further, objectives provide standards for measuring students' achievement as well as criteria for evaluating the quality and efficiency of the teaching and learning activities.

2.3. Teaching and Learning Objectives

Teaching is an intentional matter. To teach is to intend that someone should learn something (Curtis 1998). If this intention is lacking, then whatever the agent is doing, acting, entertainment, amusing himself he is not engaged in teaching although he may be perhaps pretending to be. It is not necessary that the pupil should as a matter of fact learn anything. Teaching needs not to be successful but if the teacher sets about his task in a way appropriate to the occasion, appropriate that is to the age and abilities of his pupil with the intention that they should learn something, then to that extend he is teaching (Kabiru M. and Njenga 2009) This means that although one can teach but be successful, one can't teach by accident, or unintentionally. It may be that the pupil will learn something that the teacher does not intend him to learn. He may learn something from the teacher's accent among other unintended learning.

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One of the guides is the use of learning objectives**.** Learning objectives is a description of the behavior expected of a learner after instruction. Besides being a description learning objectives assist the teacher in the selection of materials and procedures to be employed in the actual teaching process. They are important in all aspects of the teaching and learning process. When planning for teaching objectives, a teacher should provide a guide for choosing subject matter content, for sequencing topics, and for allocating teaching time. Learning objectives also guide in the selection of materials and procedures to be employed in the actual teaching process (Ngome 2000). Further, objectives provide standards for measuring students' achievement as well as criteria for evaluating the quality and efficiency of the teaching and learning activities.

2.4. Learning Theories

Learning theories are conceptual_frameworks describing how information is absorbed, processed, and retained during learning. Cognitive, emotional, and environmental influences, as well as prior experience, all play a part in how understanding, or a world view, is acquired or changed and knowledge and skills retained. Behaviorists look at learning as an aspect of conditioning and will advocate a system of rewards and targets in education (Bishop, 1995). Educators who embrace cognitive theory believe that the definition of learning as a change in behavior is too narrow and prefer to study the learner rather than their environment and in particular the complexities of human memory (Papandreou, 2001). Those who advocate constructivism believe that a learner's ability to learn relies to a large extent on what he already knows and understands, and the acquisition of knowledge should be an individually tailored process of construction. Transformative learning theory focuses upon the often-necessary change that is required in a learner's preconceptions and world view.

In the realm of educational psychology, techniques to directly observe the functioning of the brain during the learning process, such as event-related potential and functional magnetic resonance imaging, are used in educational neuroscience(Garciah.M.2008) . Such studies are beginning to support a theory of multiple intelligences, where learning is seen as the interaction between dozens of different functional areas in the brain each with their own individual strengths and weaknesses in any particular human learner. Plato (428?-347 B.C.) proposed the question: How does an individual learn something new when the topic is brand new to that person? This question may seem trivial; however, think of a human like a computer. The question would then become: How does a computer take in any factual information without previous programming? Plato answered his own question by stating that knowledge is present at birth and all information learned by a person is merely a recollection of something the soul has already learned previously, which is called the Theory of Recollection or Platonic epistemology. This answer could be further justified by the paradox of if a person knows something, then they will not need to question it and if a person does not know something, then they will not know to question it at all Plato says that if one did not previously know something, then they cannot learn it. He describes learning as a passive process, where information and knowledge are ironed into the soul over time. However, Plato's theory elicits even more questions about knowledge: If we can only learn something when we already had the knowledge impressed onto our souls, then how did our souls gain that knowledge in the first place. Plato's theory can seem convoluted; however, his classical theory can help us

John_Locke (1632-1704) offered an answer to Plato's question as well. John Locke offered the "blank slate" theory where humans are born into the world with no innate knowledge. He recognized that something had to be present, however. This something, to John Locke, seemed to be "mental powers". Locke viewed these powers as a biological ability the baby is born with, similar to how a baby knows how to biologically function when born. So as soon as the baby enters the world, it immediately has experiences with its surroundings and all of those experiences are being transcribed to the baby's "slate". All of the experiences then eventually culminate into complex and abstract ideas. This theory can still help teachers understand their students' learning.

2.4.1 Behaviorism

The term" behaviorism" was coined by John Watson (1878-1959) Watson believed that behaviorists view is purely objective experimental branch of natural science with a goal to predict and control behavior. In an article in the Psychological Review, he stated that "its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. Behaviorism has since become one of three domains of behavior analysis, the other two being the Experimental Analysis of Behavior, and Applied Behavior Analysis (Njenga & Kabiru (2008).

Methodological behaviorism is based on the theory of treating public events, or observable behavior. B.F Skinner introduced another type of behaviorism called radical behaviorism, or the Conceptual Analysis of Behavior, which is based on the theory of treating private events; for example, thinking and feeling. Radical behaviorism forms the conceptual piece of behavior analysis.

In behavior analysis, learning is the acquisition of a new behavior through conditioning and social learning Mclaughlin (2003). There are three types of conditioning and learning; Classical conditioning, where the behavior becomes a reflex response to an antecedent stimulus. The second is operant conditioning, where an antecedent stimuli is followed by a consequence of the behavior through a reward (reinforcement) or a punishment. And the third is social learning theory, where an observation of behavior is followed by modeling.

Classical conditioning was discovered by Ivan Pavlov. He observed that if dogs come to associate the delivery of food with a white lab coat or with the ringing of a bell, they will produce saliva, even when there is no sight or smell of food. Classical conditioning regards this form of learning to be the same whether in dogs or in humans. Operant reinforces this behavior with a reward or a punishment. A reward increases the likelihood of the behavior recurring, a punishment decreases its likelihood. Social learning theory observes behavior and is followed with modeling (Phillips D.C & Soltis J.F 2009).

These three learning theories form the basis of applied behavior analysis, the application of behavior analysis, which uses analyzed antecedents, functional analysis, replacement behavior strategies, and often data collection and reinforce to change behavior Lind(2003). The old practice was called behavior modification, which only used assumed antecedents and consequences to change behavior without acknowledging the conceptual analysis; analyzing the function of behavior and teaching new behaviors that would serve the same function was never relevant in behavior modification.

Behaviorists view the learning process as a change in behavior, and will arrange the environment to elicit desired responses through such devices as behavioral objectives, Competency-based learning, and skill development and training Educational approaches such as Early Intensive Behavioral Intervention, curriculum-based measurement, and direct instruction have emerged from this model Njenga and Kabiru (2001).

2.4.2 Learning Transfer

Transfer of learning is the idea "that what one learns in school somehow carries over to situations different from that particular time and that particular setting. Transfer was amongst the first phenomenons tested in educational psychology Phillps & Soltis (2009) Edward Lee Thorndike was a pioneer in transfer research. He found that though transfer is extremely important for learning, it is a rarely occurring phenomenon. In fact he held an experiment where he had the subjects estimate the size of a specific shape and then he would switch the shape, and he found that the prior information did not help the subjects. It actually hurt their learning.

One explanation of why transfer does not occur often can be explained in terms of surface structure and deep structure. The surface structure is the way a problem is framed. The deep structure is the steps for the solution. For example, when a math story problem changes context from asking how much it costs to reseed a lawn to how much it costs to varnish a table, they have different surface structures, but the steps for getting the answers are the same DeJong (2010). However, many people are more influenced by the surface structure. In reality, the surface structure is unimportant. Nonetheless, people are concerned with it because they believe that it will give them background knowledge on how to do the problem. Consequently, this interferes with people's understanding of the deep structure of the problem. Even if somebody is trying to concentrate on the deep structure, transfer still may be unsuccessful because the deep structure is not usually very obvious. Therefore, surface structure gets in the way of people's ability to see the deep structure of the problem and transfer the knowledge they have learned to come up with a solution to a new problem.

Current learning pedagogies focus on conveying rote knowledge, independent of the context within which gives it meaning. Because of this, students often struggle to transfer this stand-alone information into other aspects of their education Ngome (2000). Students need much more than abstract concepts and self-contained knowledge; they need to be exposed to learning that is practiced in the context of authentic activity and culture. Critics of situated cognition, however, would argue that by discrediting stand-alone information, the transfer of knowledge across contextual boundaries becomes impossible. There must be a balance between situating knowledge while also grasping the deep structure of material, or the understanding of how one arrives to know such information.

Some theorists argue that transfer does not even occur at all. They believe that students transform what they have learned into the new context. They say that transfer is too much of a passive notion. They believe students, instead, transform their knowledge in an active way. Students don't simply carry over knowledge from the classroom, but they construct the knowledge in a way that they can understand it themselves Patrick (2000). The learner changes the information they have learned to make it best adapt to the changing contexts that they use the knowledge in. This transformation process can occur when a learner feels motivated to use the knowledge; however, if the student does not find the transformation necessary it is less likely that the knowledge will ever transform

There are many different conditions that influence transfer of learning in the classroom. These conditions include features of the task, features of the learner, features of the organization and social context of the activity Cowen (2000). The features of the task include practicing through simulations, problem-based learning, and knowledge and skills for implementing new plans. The features of learners include their ability to reflect on past experiences, their ability to participate in group discussions, practice skills, and participate in written discussions Greenwald (1999). All of the unique features will contribute to a student's ability to use transfer of learning. There are structural techniques that can aid learning transfer in the classroom. These structural strategies include hugging and bridging.

Hugging uses the technique of simulating an activity in order to encourage reflexive learning. An example of the hugging strategy is when a student practices teaching a lesson or when a student role plays with another student. These examples encourage critical thinking which will engage the student and help them understand what they are learning which is one of the goals of transfer of learning Muller (1999).

Bridging is when instruction encourages thinking abstractly by helping to identify connections between ideas and to analyze those connections. An example is when a teacher lets the student analyze their past test results and the way in which they got those results. This includes amount of study time and study strategies Phillips & Soltis (2009). By looking at their past study strategies it can help them come up with strategies in the future in order to improve their performance. These are some of the ideas that are important to successful practices of hugging and bridging.

There are many benefits of transfer of learning in the classroom. One of the main benefits is the ability to quickly learn a new task. This has many real-life applications such as language and speech processing Farrant (1997). Transfer of learning is also very useful in teaching students to use higher cognitive thinking by applying their background knowledge to new situations.

2.4.3 Cognitive Theories

Cognitive theories grew out of Gestalt psychology. Gestalt psychology was developed in Germany in the early 1900s by Wolfgang Kohler[1] and was brought to America in the 1920s. The German word gestalt is roughly equivalent to the English configuration or organization and emphasizes the whole of human experience Tromp (2006). Over the years, the Gestalt psychologists provided demonstrations and described principles to explain the way we organize our sensations into perceptions. Matt Wertheimer, one of the founding fathers of Gestalt Theory, observed that sometimes we interpret motion when there is no motion at all. For example: a powered sign used at a convenience store to indicate that the store is open or closed might be seen as a sign with "flashing lights". However, the lights are not actually flashing. The lights have been programmed to blink rapidly at their own individual pace. Perceived as a whole, the sign flashes. Perceived individually, the lights turn off and on at designated times. Another example of this would be a brick house: As a whole, it is viewed as a standing structure. However, it is actually composed of many smaller parts, which are individual bricks. People tend to see things from a holistic point of view rather than breaking it down into sub units Dejong (2010).

In Gestalt theory, psychologists say that instead of obtaining knowledge from what's in front of us, we often learn by making sense of the relationship between what's new and old. Because we have a unique perspective of the world, humans have the ability to generate their own learning experiences and interpret information that may or may not be the same for someone else Sintoovongse (2002).

Gestalt psychologists criticize behaviorists for being too dependent on overt behavior to explain learning. They propose looking at the patterns rather than isolated events. Gestalt views of learning have been incorporated into what have come to be labeled cognitive theories. Two key assumptions underlie this cognitive approach: that the memory system is an active organized processor of information and that prior knowledge plays an important role in learning. Gestalt theorists believe that in order for learning to occur prior knowledge must exist on the topic. When the learner applies their prior knowledge to the advanced topic, the learner can understand the meaning in the advanced topic, and learning can occur Cognitive theories look beyond behavior to consider how human memory works to promote learning, and an understanding of short term memory and long term memory is important to educators influenced by cognitive theory Garciah (2008). They view learning as an internal mental process (including insight, information processing, memory and perception) where the educator focuses on building intelligence and cognitive development. The individual learner is more important than the environment.

Once memory theories like the Atkinson-Shiffrin memory model and Baddeley's working memory model were established as a theoretical framework in cognitive psychology, new cognitive frameworks of learning began to emerge during the 1970s, 80s, and 90s. Today, researchers are concentrating on topics like cognitive load and information processing theory. These theories of learning play a role in influencing instructional design Cognitive theory is used to explain such topics as social role acquisition, intelligence and memory as related to age Curtis (1998).

In the late twentieth century, situated cognition emerged as a theory that recognized current learning as primarily the transfer of decontextualized and formal knowledge. Bredo , (1994) depicts situated cognition as “shifting the focus from individual in environment to individual and environment”. In other words, individual cognition should be considered as intimately related with the context of social interactions and culturally constructed meaning. Learning through this perspective, in which known and doing become inseparable, becomes both applicable and whole.

Much of the education students receive is limited to the culture of schools, without consideration for authentic cultures outside of education. Curricula framed by situated cognition can bring knowledge to life by embedding the learned material within the culture students are familiar with. For example, formal and abstract syntax of math problems can be transformed by placing a traditional math problem within a practical story problem. This presents an opportunity to meet that appropriate balance between situated and transferable knowledge. Lampert, (2000) successfully did this by having students explore mathematical concepts that are continuous with their background knowledge. She does so by using money, which all students are familiar with, and then develops the lesson to include more complex stories that allow for students to see various solutions as well as create their own. In this way, knowledge becomes active, evolving as students participate and negotiate their way through new situations.

2.4.4 Constructivism

Founded by Jean Piaget, constructivism emphasizes the importance of the active involvement of learners in constructing knowledge for themselves. Students are thought to use background knowledge and concepts to assist them in their acquisition of novel information. When such new information is approached, the learner faces a loss of equilibrium with their previous understanding which demands a change in cognitive structure Tromp (2006). This change effectively combines previous and novel information to form an improved cognitive schema. Constructivism can be both subjectively and contextually based. Under the theory of radical constructivism, coined by Ernst von Glasersfeld, understanding relies on one's subjective interpretation of experience as opposed to objective "reality". Similarly, William Cobern's idea of contextual constructivism encompasses the effects of culture and society on experience Lind (2003).

Constructivism asks why students do not learn deeply by listening to a teacher, or reading from a textbook. To design effective teaching environments, it believes one needs a good understanding of what children already know when they come into the classroom. The curriculum should be designed in a way that builds on the pupil's background knowledge and is allowed to develop with them Pigatt (2000). Begin with complex problems and teach basic skills while solving these problems. The learning theories of John Dewey, Maria Montessori, and David A. Kolb serve as the foundation of the application of constructivist learning theory in the classroom Constructivism has many varieties such as Active learning, discovery learning, and knowledge building, but all versions promote a student's free exploration within a given framework or structure. The teacher acts as a facilitator who encourages students to discover principles for themselves and to construct knowledge by working answering open-ended questions and solving real-world problems. To do this, a teacher should encourage curiosity and discussion among his/her students as well as promoting their autonomy Young (2002). In scientific areas in the classroom, constructivist teachers provide raw data and physical materials for the students to work with and analyze.

2.4.5 Transformative Learning Theories

Transformative learning theory seeks to explain how humans revise and reinterpret meaning Transformative learning is the cognitive process of effecting change in a frame of reference. A frame of reference defines our view of the world. The emotions are often involved. Adults have a tendency to reject any ideas that do not correspond to their particular values, associations and concepts Karaka & Guthii (2004). Our frames of reference are composed of two dimensions: habits of mind and points of view. Habits of mind, such as ethnocentrism, are harder to change than points of view. Habits of mind influence our point of view and the resulting thoughts or feelings associated with them, but points of view may change over time as a result of influences such as reflection, appropriation and feedback. Transformative learning takes place by discussing with others the “reasons presented in support of competing interpretations, by critically examining evidence, arguments, and alternative points of view. When circumstances permit, transformative learners move toward a frame of reference that is more inclusive, discriminating, self-reflective, and integrative of experience Berlinki (2006).

2.4.6. Neuro Education

American Universities such as Harvard, Johns Hopkins, and University of Southern California began offering majors and degrees dedicated to educational neuroscience or neuroeducation in the first decade of the twenty-first century. Such studies seek to link an understanding of brain processes with classroom instruction and experience. Neuroeducation seeks to analyze the biological changes that take place in the brain as new information is processed. It looks at what environmental, emotional and social situations are best in order for new information to be retained and stored in the brain via the linking of neurons, rather than allowing the dendrites to be reabsorbed and the information lost Mclaughlin (2003). The 1990s were designated "The Decade of the Brain," and advances took place in neuroscience at an especially rapid pace. The three dominant methods for measuring brain activities are: event-related potential, functional magnetic resonance imaging and magneto encephalography (MEG).

The integration and application to education of what we know about the brain was strengthened in 2000 when the American Federation of Teachers stated: "It is vital that we identify what science tells us about how people learn in order to improve the education curriculum. What is exciting about this new field in education is that modern brain imaging techniques now make it possible, in some sense, to watch the brain as it learns, and the question then arises: can the results of neuro-scientific studies of brains as they are learning usefully inform practice in this area? Although the field of neuroscience is young, it is expected that with new technologies and ways of observing learning, the paradigms of what students need and how students learn best will be further refined with actual scientific evidence. In particular, students who may have learning disabilities will be taught with strategies that are more informed Cowen (2000).

2.4.7. Mindfulness

All individuals have the ability to develop mental discipline and the skill of mindfulness, the two go hand in hand. Mental discipline is huge in shaping what people do, say, think and feel Dejong (2010). It's critical in terms of the processing of information and involves the ability to recognize and respond appropriately to new things and information people come across, or have recently been taught. Mindfulness is important to the process of learning in many aspects. Being mindful means to be present with and engaged in whatever you are doing at a specific moment in time. Being mindful can aid in helping us to more critically think, feel and understand the new information we are in the process of absorbing Tromp (2006). The formal discipline approach seeks to develop causation between the advancement of the mind by exercising it through exposure to abstract school subjects such as science, language and mathematics. With student's repetitive exposure to these particular subjects, some scholars feel that the acquisition of knowledge pertaining to science, language and math is of "secondary importance", and believe that the strengthening and further development of the mind that this curriculum provides holds far greater significance to the progressing learner in the long haul Muller (1999). D.C. Phillips and Jonas F. Soltis provide some skepticism to this notion. Their skepticism stems largely in part from feeling that the relationship between formal discipline and the overall advancement of the mind is not as strong as some would say. They illustrate their hesitance to accept this idea by offering up the perspective that it is basically foolish to blindly assume that people will be better off in life or at performing certain tasks because of taking part.

2.5 General Theory of Education

The curriculum sets out what is to be taught and once again raises implicitly the question of justification. The transmission involves pedagogy and this in turn raises questions of clarification and justification. Teachers are now to be concerned not so much with what is taught but with how it is taught with the concepts of teaching and training and with the associated issue of indoctrination. Teaching need not be of the obvious ,didactic kind, with one person telling another what is the case, or what ought to be done (Mukui J.T and Mwaniki J.A. 1995) It might very well take the negative form recommended by Rousseau in Emile, where the pupil is encouraged to find out for himself. But in so far as this was an educational situation there would have to be some intervention by the teacher, giving a rationale for what was being done, in the special case of self dedication the roles of teacher and pupil are shared by the same person but the teachers role is therefore nonetheless. We may sum up this by saying that education usually involves teaching but not all teaching need to be educative (Mwaura, 1995).

2.6 General Instructional Methods

A general theory of education is concerned with particular educational issues such as how this subject should be taught or how children of this age and this ability should be dealt with Farrant (1997). It involves presuppositions of a general kind one of them will be a commitment to value to some supposedly worthwhile end to be achieved; in this case some general notions of an educated man. There will also be assumptions about the raw material to be worked on the nature of pupils, or more generally the nature of man; and assumptions about the nature of knowledge and skill and about the effectiveness of various pedagogical methods. These various assumptions will constitute the premises of an argument whose conclusion will be a set of practical recommendations about what should be done in education. Here then we have subject matter for the philosopher to work on. Concepts like those of education and the educated man, assumptions about ends to be achieved, about what is to count as an educated man, assumptions about the nature of knowledge and of methods and an argument which is offered to support practical recommendations Margaret Kabiru (2009). These are the main centers of philosophical interests in this field.

The most important assumption made in a general theory of education is the assumption about the end to be achieved, the aim. This is a commitment to value and a logical prerequisite of there being a theory at all. All practical theories, limited or general must begin with come notion of a desirable end to be attained Lind (2003). Formally a general theory of education can be said to have one aim only: to produce a certain type of person, an educated man. The interesting question is how to give substantial content to this formal aim. There are two ways in which this might be done. The first is to develop an analysis of the concept of education, to work out in detail the criteria which govern the actual use of this term. The criteria will be those which enable us to mark off the educated man from one who is not. The task of working out these criteria falls to the analytical philosopher of education. at the outset of this enterprise we meet with a complication. The term ‘education’ can be used in more than one way. In one of its uses it functions in a more or less descriptive way. A person’s education may be understood as the sum total of his experiences. This is a perfectly acceptable use of the word, so that it would not be inappropriate to say of a man that his education came to him as a street urchin, or in a mining camp, or in the army. A more restricted use would be to use it to describe what happens to an individual in specifically educational institution like a school Sintoovongse (2002). In these case to talk of a man’s education is to talk of his passing through a system. ‘He was educated restricted sense still is one which imports into the notion of education some reference to value. Education on this interpretation is a normative or value term and implies that what happens to the individual improves him in some ways Patrick (200). The purely descriptive sense of the term carried no such implication; to comply in this case it is enough to have attended the school for a certain period.

According to the normative use, as educated man is an improved man, and as such a desirable end product, someone who ought to be produced Tromp (2006). It is this normative sense of education which provides the logical starting point of a general theory, the commitment to produce something of value, a desirable type of individual. Such a person would have specific characteristics such as the possession of certain sorts of knowledge and skill and the having of certain attitudes themselves regarded as worth having.

The educated man would be one whose intellectual abilities had been developed , who was sensitive to matters of moral and aesthetic concern, who could appreciate the nature and force of scientific thinking could view the world along historical and geographical perspective and who, moreover had a regard for the importance of truth accuracy and elegance.

2.7. Concept of Early Childhood Education

Sessional paper, Number 6 of 1988 defines the goals and objectives of ECDE as offering anon-formal education that aims to provide an all round development of children. According to Master Plan on Education and Training (1997 – 2010), the overall goal is to improve the quality of life of children aged 0-6 years. The objectives are improvement of health and nutrition, affective, cognitive, physical attributes, understanding environment, developing self-confidence, free expression, spiritual and social values.

To co-ordinate ECE the government has set up an organizational infrastructure aimed at facilitating curriculum development, teacher training, research and general guidance and administration of the programme. This consists of pre-school at MOE, Pre-school section of inspectorate, NACECE at KIE, DICECE at district level (Comprehensive Education Sector Analysis Report, 1994). NACECE was established in 1985 and DICECE in 1985. NACECE coordinates development of early childhood education curriculum and support materials in Kenya. Materials include guidelines for trainers, teachers and sponsors of pre-schools.

Teaching is an attempt to help someone acquire or change some skills, attitude, knowledge, idea or appreciation (Malcolm 1997). The essence of being an effective teacher therefore lies in knowing what to do to foster pupils learning and be able to do it (Nasibi 2005). Effective teaching is primarily concerned with setting up a learning activity for each pupil who is successful in bringing about the type of learning the teacher intends (Pollard 1997). Therefore the only valid criterion of success in teaching is the degree to which the teacher has been able to achieve this learning to the pupil.

Content method and techniques to be used is a very important part of the curriculum. Method is the manner in which the content is presented to the pupils (Lindon 2005). Content and methods are factors closely related to teaching and are an integral part of the teaching process (Oruta 2009). In choosing a particular method a teacher might make use of special techniques to ensure more effective learning hence technique is part of learning. Research evidence concerning the best method of teaching has been ambiguous.

There are studies which compare one general teaching method to another but the results are so different to interpret that the evidence to date gives little or no encouragement to hope that there is a single reliable multipurpose approach which can be regarded as the best (Brophy 1997). Instead of looking for one single way it is important that one should focus on the possibility of combining a variety of teaching methods to improve learning. There is at present no known single approach that can succeed with all kinds of students or achieve all instructional goals. Teaching has to be approached in variety of ways that facilitate learning or development (Gay 1992).

Similarly attempts have also been made to describe pupils in terms of learning style (Stoll 1996). This term refers to the types of learning activities and tasks which pupil prefer to experience and which they feel are more effective in promoting their own learning. It also includes the type of strategies for learning they prefer to adopt when given a choice and the physical and social characteristic of their preferred learning situation (Murray 1996).

Matching the learning experience to the ability level of each learner in the class is one of the most important aspects of teaching. Since teachers are provided with syllabus for the subject they are supposed to teach, the problem is not so much what to teach but when to teach it and how (Kyriacou 1997). The sequences of topics and teaching strategy have to be decided on by the individual teacher.

The sequence of topics should be logical and generally the easier topics are best treated earlier. The students' knowledge should be built up systematically so that when they have to tackle more complex ideas they already have a sufficient foundation (Swakei 2008). When preparing a lesson the first thing to do is to decide what things you what the students to learn from it. These are called lesson objectives. In selecting objectives the teacher should keep certain criteria in mind. Objectives may be percepts, concepts, generalization, skills, attitude or generalizations (Topping 1994). They should be very specific so that the teacher can directly aim at their attainment in the student. Lesson objectives should as often as possible be stated in terms of desirable changes in student behavior (Torrance 1997). Objectives should be feasible. They should be attainable by all the students within the lesson. It should also be relevant, worthwhile and useful.

While the notion of setting educational objectives is wisely agreed to be essential aspect of planning, some research on teachers planning appears to indicate that many teachers do not start their planning of lessons by identifying educational objectives and then designing a lesson to achieve these objectives (Clark and Yinger 1987). Rather, they approach the task of planning in a more problem-solving manner by addressing the questions of how best to structure the time and experience of learners during the lesson. This would suggest that many teachers may plan lessons without having clear learning outcomes in mind.

The most important aspect of an educational objective is that it is a description of an aspect of pupil learning. They cannot be stated in terms of what pupils will be doing but must describe what is to constitute the learning(Gipps1989) . One of the major pitfalls in teaching is to neglect thinking precisely about educational objectives and to see planning as simply organizing activities. While the two go hand in hand it is all too easy to think that a lesson that went well logistically was effective until the teacher asks himself or herself what the pupils have actually learned (Knowles 1996).

According to Marger (1975) there are four essential parts to any behavioral objectives. Each should state: Who will perform the behavior (in most cases this is the student). The measurable student terminal behavior; some observable and therefore measurable behavior that the student will be able to perform at the end of the period of instruction. The standard of performance expected of the students, the conditions under which learning will take place. Behavioral objectives are best sated in a form which covers all these four criteria.

Although it has been said that behavioral objectives are the most useful and possibly desirable form of objectives nevertheless they are difficult and time consuming to construct and there are educationists who do not consider them always suitable (Boud 1988).In spite of the disadvantages of behavioral objectives using them would seem to be an improvement on past practice and until some better form of planning presents itself teachers are recommended to use them when possible.

2.8. Cognitive Domain in Instructional Planning

According to Blooms (1956) taxonomy of objectives consists of six hierarchically ordered levels of instructional outcomes. Knowledge, comprehension, application, analysis, synthesis and evaluation. The taxonomy is described as a hierarchy because it was reasoned that comprehension relies on prior mastery of knowledge or facts, application depends on comprehension of relevant ideas and so on through the remaining levels (Ofsted 1997). As a person increases in understanding he becomes able to apply and analyze the knowledge acquired using the prior cognitive skills. At the e highest level of the domain are the skills of synthesis and evaluation as each succeeding mental skill level is attained, with reference to specific concept or generalization. Bloom therefore outlined the taxonomy of cognitive domain as follows:

Knowledge which requires a student to answer questions solely by rote memory and to recall simple definitions, facts, rules, sequences procedures, principles and generalizations. An examination that places a premium on role knowledge and excludes thinking and reasoning can give students the impression that the sole purpose of education is memorizing facts (Baker 1994). The theoretical base of this approach is found in the work of Jean Piaget where the development of intellectual structure is explained. It is also implicit in the writing of Benjamin Bloom which highlighted the importance of early environment encounters for learning and stresses the significance of stimulation in the early years for later learning. Jerome Brunner and other psychologists have identified learning by doing as an important principle in learning. They argue that we have only really learned something when we have used what we learned, tried it out or combine to new piece of information with a fact already known to us, or when we suddenly discover that it fits in with another area which is of deep interest to us.

Comprehension involves translating from one level of abstract to another. It requires students to restate a problem in their own words, to give an example of a principle or concept, to qualify statements to extrapolate trends into the past or future, or to point out implications or consequences. Application level students apply principles or concepts in new situations such as working word problem in arithmetic or physics (Stoll. 1996).

Analysis level requires students to break down information into it s constituent parts. Finding assumptions, distinguish facts from opinion, discovering causal relationships, finding fallacies in stories or arguments, specifying the style on a written or musical piece, or inferring the author's purposes on items that requires analysis. In synthesis students are required to produce a story, composition, hypothesis, or theory on their own, they are synthesizing knowledge. At this level students produce something unique; instead of breaking knowledge into simpler elements (analysis) they construct a unique communication of their own (Desforges, 1989).

Lastly in evaluation level which involves placing sound judgment of data in order to make a decision. At this level the student evaluates such information as historical evidence, editorials and theories by their internal consistency or by external standards. Unfortunately few teachers develop test items at this level because they are often uncertain how to measure these more complex objectives (Stobart, 1993).

2.9. Psychomotor Domain in Instructional Planning

Psychomotor objectives are those specific to discreet physical functions, reflex actions and interpretive movements (Torrance 1997). Traditionally, these types of objectives are concerned with the physically encoding of information, with movement and/or with activities where the gross and fine muscles are used for expressing or interpreting information or concepts. This area also refers to natural, autonomic responses or reflexes.

As stated earlier, to avoid confusion, if the activity is simply something that is physical which supports another area — affective or cognitive — term the objective physical rather than psychomotor. Again, this goes to instructional intent. A primary example of something physical which supports specific cognitive development and skills might be looking through a microscope and identifying and drawing cells. Here the instructional intent of this common scientific activity is not to develop specific skilled proficiency in microscope viewing or in reproducing cells through drawing. Usually the key intent in this activity is that a physical action supports or is a vehicle for cognitive growth and furthering recognition skills. The learner is using the physical action to achieve the cognitive objectives — identify, recognize, and differentiate varied types of cells.

If you are using a physical activity to support a cognitive or affective function, simply label it as something physical (labeling the objective as kinesthetic, haptic, or tactile is psychomotor means there is a very clear educational intention for growth to occur in the psychomotor domain.

2.10. Affective Domain in Instructional Planning

Like cognitive objectives, affective objectives can also be divided into a hierarchy according to (Gibbs, 1992). This area is concerned with feelings or emotions. Again, the taxonomy is arranged from simpler feelings to those that are more complex**.** As with all of the taxonomies, in labeling objectives using this domain there has to be a very clear for growth in this area specified in the learning objective(s). Folks in the sciences and in math often avoid including affective objectives stating that their areas are not emotional. However, any group work or cooperative exercise where deportment or collaborative or cooperative skills are discussed, used, and emphasized qualifies as having the potential for affective growth. Additionally, if students are asked to challenge themselves with independently taking risks to develop and present a hypothesis and/or persuade others on drawn conclusions, or actively take an intellectual risk whereby they increase in self-confidence, these types of exercises also have the potential to be affective as well as a cognitive (Corrie 1997). Also, in areas of potential debate, where data allows students to draw conclusions about controversial topics or express opinions and feelings on those topics, this too can be tweaked so there is intentional affective growth. Since emotion draws both attention and channels strong residual memory, it behooves all dedicated and artful educators to include affective objectives, no matter what their discipline or area of study. Additionally, when possible, teachers should attempt to construct more holistic lessons by using all 3 domains in learning tasks.

This diversity helps to create more well-rounded learning experiences and meets a number of learning styles and learning modalities, plus it creates more neural networks and pathways aiding recall Farrant (1997). Attitudinal components are present in many, if not most, instructional plans, whether or not they are stated explicitly. Although much research is still needed, it is clear that there are effective instructional strategies to promote attitude formation and change. Effective attitude instruction presents a persuasive message containing new information which relates to something the learner already knows. It involves the learner emotionally, for example, by presenting a credible role model demonstrating a behavior that is consistent with the desired attitude and that is positively reinforced Muller (1999). Finally, it provides learners with an opportunity to express or act out the target attitude, and responds to that expression with positive reinforcement. Any instruction that includes these qualities is likely to result in the desired attitude formation or change.

2.11. Theoretical Framework

According to Piaget our thinking processes change radically, though slowly, from birth to maturity because we constantly strive to make sense of the world (Kiriro and Juma 1991). Piaget identified four factors namely biological maturation, activity, social experience and equilibration that interact to influence changes in thinking. One of the most important influences on the way we make sense of the world is maturation, the unfolding of the biological changes that are genetically programmed (Miller 2002). Parents and teachers have little impact on this aspect of cognitive development except to be sure that child gets the nourishment and care they need to be healthy.

Activity is another influence. With physical maturation comes the increasing ability to act on the environment and learn from it. When a small child’s coordination is reasonably developed for example the child may discover principles about balance by experimenting with a seesaw (Meece 2002). Thus as we act on the environment as we explore, test, observe and eventually organize information we are likely to alter our thinking process at the same time.

As we develop we are also interacting with the people around us. According to Piaget, our cognitive development is influenced by social transmission, or learning from others. Without social transmission we would need to reinvent all the knowledge already offered by our culture (Stoll 1996). The amount people can learn from social transmission varies according to their stage of cognitive development. Maturation, activity and social transmission all work together to influence cognitive development.

2.12. Conceptual Framework

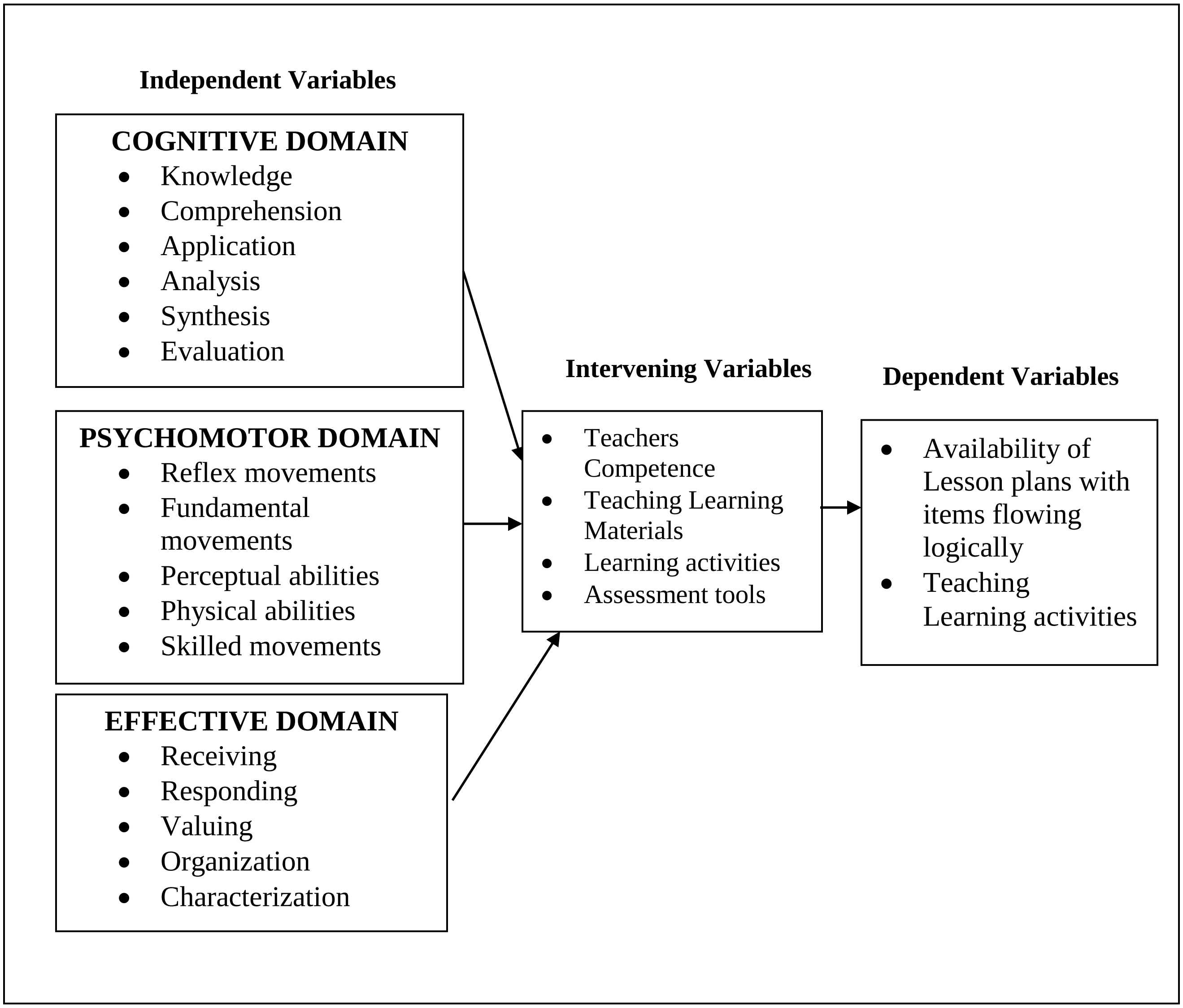

Figure 1: Conceptual Framework

The conceptual framework for the study was based on independent, intervening and dependent variables. In the figure the independent variables are designs of learning domains. The intervening is the teacher's competence, learning materials, learning activities and assessment tools while the dependent is the design of instructional planning. Once the independent variables are manipulated through they are likely to have an effect on the dependent which is the designing of instructional planning. The teacher's competence, teaching learning materials, learning activities and assessment tools act as a catalyst to the designing of instruction planning of science activities in pre-school.

Design of effective instructional planning is a process rather than an event. It presupposes an objective and appropriate curriculum, a competent teacher, and an effective instructional process. Generally if the curriculum is designed that captures the three domains of learning and is appropriate for the levels of learning development, this heralds an opportunity for effective teaching and learning and therefore eventually an effective assessment process.

The curriculum content has to be congruent to the pupils developmental stage, has to be practical, effective and complete. Thus it should prescribe policies that will effectively spur cognitive, psychomotor and affective learning for it to be a complete curriculum. If the curriculum is vague, incomplete, or unpractical then it will hamper the teaching-learning process and any subsequent events including assessment will be baseless and meaningless. This study will investigate the relationship between learning domains on instructional planning for science in Central Zone of Kisumu East Sub-county to outline the predominant nature of instructional objectives in the web of education. It would highlight the strengths and weaknesses existing in the system.

CHAPTER THREE

METHODOLOGY

3.0. Introduction

This chapter focuses on the methodology that was used in data collection and data analysis. The methodology focuses on the research design, target population, sampling techniques & sample size, research instruments that were used in data collection, validity and reliability, data collection procedure and data analysis.

3.1. Study Location

The research was conducted in pre-schools in Kisumu East Sub-County which lies between latitude 4.13 degrees North and 1.51 degrees South and Longitude 36.55 degrees East. Kisumu has a population of 37,856 persons occupying an area of 29,936 square kilometers. The main activity of this region is fishing and domestic farming. The literacy rate of Kisumu county stands at 58%. The teacher pupil ratio is about 1:10. (Source County of education office, Kisumu 2014)

3.2. Research Design

This study employed survey and descriptive approach. During the survey the nature of the variables of interest and their associated or causative factors as they exist in the research population was described. This kind of research helps to acquire firsthand data from the respondents so as to formulate rational and sound conclusions and recommendations

3.4. Target Population

This study targeted all teachers handling children between the ages of three to six years in Kisumu sub county central zone to provide information on how they formulate their science instructional goals. Data was collected from 40 ECD Centers and 40 pre-school teachers were issued with questionnaires. The target population for this study therefore was 40 pre-school teachers in both public and private pre-schools in central zone in Kisumu East Sub-county Central Zone.

3.5. Sample Size and Sampling Procedure

In this study the sampling frame included 10-30% of the entire population of pre-schools in central zone. Cluster sampling was employed to and from the clusters random sampling was used to identify the schools whose teachers were incorporated into the study. In this study the pre-schools were categorized into two; Public and private pre-schools. In central zone there were 17 public pre-schools and 23 private pre-schools, simple random sampling was used to select the 7 private and 5 public schools. the sampling frame therefore for the study was 126 pre-school teachers fro whom 40 participants were sampled for actual involvement in the study.

3.6. Data Collection Instruments

The study utilized questionnaire, and observation checklist. The instrument was developed by examining the research objectives research questions and reviewed literature. Questionnaires were administered to pre-school teachers to gather information on the design of instructional planning for science teaching in pre-schools.

The study mainly made use of school records to obtain the curriculum content, the instructional design and materials and the assessment contents and interpretation. Data obtained was filled in a proforma designed for each category under the variables investigated.

3.7.1. Validity of the Instruments

Piloting was done in 7 private and 5 public schools. To ensure that the instrument employed was valid, and results obtained were accurate and truthful, pre-testing of the instrument was done to determine their validity and reliability. This targeted about 2 identical subjects as the one targeted in the study. The sample used during the pre-testing was not included in the main study. A test re-test technique or coefficient of stability method was used to estimate the degree to which the same result could be obtained with a repeated measure and accuracy. The researcher ensured that the data collected using various instruments represented the content area under study

3.8 Data Collection Procedure

The researcher made preliminary visits to the pre-schools. The visits were done for the purpose of establishing rapport with the head teachers and pre-schools teachers. Apart from that the researcher clarified to the respondents' important ethical issues such as privacy and confidentiality. Questionnaires were administered to the pre-schools teachers to extract information on the influence of learning domains on instructional planning for science teaching. The respondents were given a specific time to respond to the given questionnaires after which they handed them over to the researcher at a particular place. Data collection was done in a period of one month.

3.9. Data Analysis

For the researcher to achieve the study objectives, questionnaires and objectives checklist was used to collect data which was analyzed. This was to enable the researcher to fully capture all the important information from the respondents. Data was analyzed quantitatively and qualitatively. Quantitative data was first edited and checked for completeness and then coded and entered into the computer for analysis. The statistical packages for Social Sciences (SPSS) Version 22 were used for data analysis. Descriptive statistics was used to analyze the data. Qualitative data collected was translated thematically according to qualitative analysis. Here one looks across all the data to identify the common issues that recur, identify the main themes and give a summary of all the data collected, (Quinn 2002). The data was summarized and organized according to research questions into themes and presented in narrative forms with some basic statistics, like parentage, frequency tables among others.

3.10. Ethical Consideration

Prior to embarking on this research the proposal were presented to the supervisors for approval. Permission to do research was applied for from the department of higher learning. The study involved the use of human participants thus ethical consideration was identified and prioritized. Consent and confidentiality factors were valued during the entire duration of the study. In order to gain the consent of the respondents regarding this study written letter explaining the details of the research, its objectives, purpose and procedure before participating in the actual interview or administer

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.0 Introduction

This chapter presents the results of the analysis, interpretation and discussions of the findings. The presentation was done based on the research questions and the objectives of the study. The purpose of the study was to investigate the influence of learning domains on instructional planning for science teaching in pre-schools. A combination of quantitative and qualitative techniques was used in the collection of data. The findings were descriptively presented arithmetically in various sections

4.1 Questionnaire Return Rate

The questionnaires used in this study were administered to preschool teachers. Among the questionnaires administered none was left incomplete neither was there a research participant who declined to fill and complete the questionnaire administered. Hence the questionnaire return rate was 100%. The return rate is summarized in the table below.

Table 4.1: Questionnaire Return Rate

Respondent	Administered Number(public)	Administered Number(Private	Total returned	Return Rate
Teachers	17	23	40	100%
Total	17	23	40	100%

From the table it can be seen that out of 40 questionnaires administered to pre-school teachers in Kisumu East Sub County were all returned. From this information it can be concluded that at least all respondents returned the questionnaires. This suggests that the respondents were adequate to generate the required information.

4.2 Professional Qualification

The respondents were asked to indicate professional qualification which is presented in Table 4.2.

Table 4.2 Professional Qualification (N=40)

Respondent Category	Frequency	Percentage
ECD certificate	16	40%
ECD diploma	17	42.5%
P1 certificate	02	5%
Bachelor’s degree	03	7.5%
Others	02	5%
Total	40	100%

Out of 40 pre-school teachers 17(42.5%) were ECD diploma holders, followed by those with ECD certificate holders 16 (40%), those with Bachelor degree accounted for by 3(7.5%), while P1 certificate holders represented 2(5%) and those with other qualification were at 2(5%) This showed that majority of the respondents had had either certificate or diploma in ECDE hence was more reliable in giving the information.

4.3. Teaching Experience

Respondents were also requested to indicate their teaching experience based on the number of years they had taken in the services. Table 4.2 shows the response.

Table 4.3 Number of Years in Service (N=40)

	Frequency	Percentage
1-5	14	35%
	16	40%
Above 10 years	10	25%
Total	40	100%

The study found that majority of the respondents at (75%) cumulatively had taken more than 5 years offering their services as preschool teachers in ECDE settings. This implies that they had good experience and were therefore able to give information on how they perceived the influence of learning domains on instructional planning for science teaching among the pre-scholars.

4.4. Cognitive domain and instructional planning for science teaching in pre-schools.

The first objective of the study was to determine the influence of cognitive domain on instructional planning for science teaching in pre-schools in central Zone Kisumu East Sub-County. To address this research objective, a questionnaire was carefully developed to establish teacher's views on the influence of cognitive domains on instructional planning. The teachers view regarding the influence of instructional objectives on cognitive skills was measured on a five point LIKERT scale where strongly agree (SA) = 5, agree (A) = 4, neutral (N) = 3, disagree (D) = 2 and strongly disagree (SD) = 1.

Further, the researcher computed the frequencies and percentages as well as the mean regarding each statement. The results of the findings on teachers opinion on the influence of cognitive domains on instructional planning for science teaching in pre-school is presented in Table 4.3 shows truncated information available in appendix II.

Table 4.4: Teachers' Opinion on Influence of Cognitive Domain on Instructional Planning.

Levels of cognitive domain in Instructional planning	**SA**		**A**		**N**		**D**		**SD**		**Mean**
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	
Learning objectives for knowledge acquisition	20	50.0	17	42.5	0	0.0	3	7.5	0	0.0	4.35
Learning objectives for comprehension	21	52.5	15	37.5	3	7.5	1	2.5	0	0.0	4.4
Learning objectives for application	33	82.5	6	15.0	1	2.5	0	0.0	0	0.0	4.8
Learning objectives for analysis	30	75.0	10	25.0	0	0.0	0	0.0	0	0.0	4.75
Learning objectives for synthesis	11	27.5	9	22.5	11	27.5	5	12.5	4	10.0	3.45

From the findings, the preschool teachers generally appreciated the use of various sub categories of cognitive domain on instructional planning in pre-school with an aggregate mean score of 4.35 an indicator of positive approval which corresponds to agreeing as most teachers strongly agree or agree that cognitive domain influence instructional planning for science teaching in pre-school.

Majority of the teachers 37 (92.5%) consider integrating knowledge acquisition when planning for science instruction as they either strongly agree 20(50%) or agree 17 (42.5%) with only 3 (7.5%) of the teacher respondents disagreeing with this statement. This finding shows that almost all teachers see the importance of knowledge acquisition when planning for science activities. Further, 36(90%) agree that comprehension improves effectiveness in instructional planning. This shows that preschool teachers highly rated the significance of comprehension when designing for instructional planning. This concurs with the findings of Stempleskis (2007) who also found that comprehension encourages effectiveness in a lesson.

At a mean of 4.8, teachers unanimously agree that application enhances quality of instructional planning with 39 (97.5%) cumulatively agreeing and only 1 (2.5%) who reported being undecided. This finding outlines the importance of integrating application to enhance quality planning for science lessons. Through integrating application learners are able to use the knowledge acquired and practice it later in life.

On a similar note, 40 (100%) of the teachers agree that analysis should be included in science instructional planning with 30 (75%) strongly agreeing and the other 10 (25%) agreeing. This shows that there was an emphatic approval for the use of analysis consideration in science planning.

Regarding synthesis and evaluation the opinion of teachers was varied as to whether synthesis and evaluation are important in science planning, with 20 (50%) cumulatively agreeing, 11 (27.5%) being neutral while 9 (22.5%) cumulatively disagree. This divergent opinion is due to the fact that most of the teachers interviewed did not have lesson plans that captured synthesis and evaluation on the concepts planning. The question of whether to include synthesis and evaluation in the lesson plan was posed to one respondent and this is what she said about it.

> "*It is fairly true to say that in the past teachers concentrated on imparti*ng
> *facts or knowledge to the pupils developing some level of understanding*
> *but little ability to analyze synthesis and evaluate the knowledge so acquired*
> *little emphasis was placed in examination on testing the higher cognitive*
> *levels, more was placed on the recall of facts and their simple application.*

Bloom's Taxonomy 1956 Cognitive Domain is as follows. An adjusted model was produced by Anderson and Krathwhol in 2001 in which the levels five and six (synthesis and evaluation) were inverted (reference: Anderson and Krathwohl, A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives, (2001). This is why there are different versions of this Cognitive Domain model. Debate continues as to the order of levels five and six, which is interesting given that Bloom's Taxonomy states that the levels must be mastered in order. It was originally created in and for an academic context, (the development commencing in 1948), when Benjamin bloom chaired a committee of educational psychologists, based in American education, whose aim was to develop a system of categories of learning behaviour to assist in the design and assessment of educational learning. Bloom's taxonomy has since been expanded over many years by Bloom and other contributors. Notably Anderson and Krathwhol recently (2001), developed the Bloom's theories by extending bloom's work to more complex levels, and making them more relevant to the field of academic education, training and development. Bloom's taxonomy was primarily created for academic education, however it is relevant to all types of learning.

Interestingly, at the outset, Bloom believed that education should focus on 'mastery' of subjects and the promotion of higher forms of thinking, rather than a utilitarian approach to simply transferring facts. Bloom demonstrated decades ago that most teaching tended to be focused on fact-transfer and information recall - the lowest level of training - rather than true meaningful personal development. This remains a central challenge for educators and trainers in modern times. Much corporate training is also limited to non-participative, unfeeling knowledge-transfer, which is reason alone to consider the breadth and depth approach exemplified in Bloom's model. Bloom's taxonomy underpins the classical 'knowledge**,** attitude, skills' structure of learning method and evaluation, and aside from the even simpler Kirkpatrick learning evaluation model. Bloom's taxonomy of learning domains remains the most widely used system of its kind in education and also industry and corporate training. It's easy to see why, it is such a simple, clear and effective model, both for explanation and application of learning objectives, teaching and training methods, and measurement of learning outcomes. If one is involved in the design, delivery or evaluation of teaching, training, courses, learning and lesson plans, one should find Bloom's taxonomy useful, as a template, framework or simple checklist to ensure one is using the most appropriate type of training or learning in order to develop the capabilities required or wanted.

Training or learning design and evaluation need not cover all aspects of the taxonomy - just make sure there is coverage of the aspects that are appropriate. Bloom's Taxonomy underpins the classical 'Knowledge, Attitude, Skills' structure of learning method and evaluation taxonomy of Learning Domains remains the most widely used system of its kind in education particularly, and also industry and corporate training. It's easy to see why, because it is such a simple, clear and effective model, both for explanation and application of learning objectives, teaching and training methods, and measurement of learning outcomes. In my view, the question of the order of Synthesis and Evaluation is dependent upon the extent of strategic expectation and authority that is built into each, which depends on your situation. Hence it is possible to make a case for Bloom's original order shown above, or Anderson and Krathwhol's version of 2001 (which simply inverts levels 5 and 6).

The above version is the original, and according to the examples and assumptions presented in the above matrix, is perfectly appropriate and logical. The above order is appropriate for corporate and industrial training and development if 'Evaluation' is taken to represent executive or strategic assessment and decision-making, which is effectively at the pinnacle of the corporate intellect-set.

Inversion of Synthesis and Evaluation carries a risk unless it is properly qualified. This is because the highest skill level absolutely must involve strategic evaluation; effective management - especially of large activities or organizations – and relies on strategic evaluation. And clearly, strategic evaluation is by implication included in the 'Evaluation' category. In order to evaluate properly and strategically, we need first to have learned and experienced the execution of the strategies that we intend to evaluate.

4.5 Psychomotor Domain and Instructional Planning for STP

The second objective of the study was to examine the influence of psychomotor domain on instructional planning for science teaching in pre-schools. To analyze this research objective, a questionnaire was formulated to assess the teacher's views on the influence of psychomotor domain on instructional planning for science teaching.

The teachers questionnaire had statements measured on a five point LIKERT scale where strongly agree (SA) = 5, agree (A) = 4, neutral (N) = 3, disagree (D) = 2 and strongly disagree (SD) = 1. From the scores, the mean for each statement was determined. The table below shows the frequency, percentages and mean for the various statements relating to the influence of psychomotor domain on instructional planning for science teaching in pre-school. Table 4.5 is a truncated version of the questionnaire in appendix II section 2.2.

Table 4.5: Teachers' Opinion on the Influence of Psychomotor when Planning for Science Lessons.

Levels of psychomotor domain in instructional planning	SA		A		N		D		SD		Mean
	F	%	F	%	F	%	F	%	F	%	
Learning objectives for reflex movement.	35	87.5	5	12.5	0	0.0	0	0.0	0	0.0	**4.88**
earning objectives for fundamental movement	27	67.5	10	25.0	3	7.5	0	0.0	0	0.0	**4.6**
Learning objectives for perceptual ability.	22	55.0	16	40.0	0	0.0	2	5.0	0	0.0	**4.45**
Learning objectives for physical abilities	36	90.0	4	10.0	0	0.0	0	0.0	0	0.0	**4.9**
Learning objectives for skilled movement.	22	55.0	14	35.0	4	10.0	0	0.0	0	0.0	**4.45**
Learning objectives for activities strengthening the small muscle manipulation	30	75.0	10	25.0	0	0.0	0	0.0	0	0.0	**4.75**

Source: Researcher's Analysis (N=40; F is Frequency)

Specifically, 40(100%) of the preschool teachers cumulatively agree that they always consider reflex movement when planning for psychomotor domain in science teaching at a mean of 4.88 indicating that they strongly agree. This is an emphasis on proper instructional planning for science teaching in pre-school. On a similar note 37(92.5%) of the preschool teachers cumulatively agree that they plan for fundamental movement in science lessons with only 3(7.5%) being neutral thus a mean of 4.6 was realized regarding this statement.

Majority of teachers at 38(95%) cumulatively agreed that they consider perpetual abilities when planning for science lessons while only 5% indicated otherwise. This implies that teachers know the significance of psychomotor domain in a science class. Significantly, preschool teachers unanimously agree that well designed skilled movement should be included in the science lesson plans with 36(90%) strongly agreeing and 4(10%) agreeing. Further, 40(100%) of the preschool teachers unanimously agree that they plan for science activities that will strengthen the small finger muscles hence encourage manipulation of material with 30(75%) strongly agreeing and 10(25%) agreeing. These findings outline the significance and popularity of psychomotor domain on instructional planning. This concurs with the findings of Chelimo (2014) who also found that preschool children should be taught using the three learning domains for them to participate fully during the lesson and to retain their memory. The study also found that teachers pay very much attention on the psychomotor domain when planning for instruction. One pre-school teacher had this to say on psychomotor domain.

> "*It is now recognized that there is need to see objectives with reference to the affective and psychomotor domain. The development of proper attitude, interest and values in children is extremely important as in the development of physical skills.*

Harrow's interpretation of the psychomotor domain is strongly biased towards the development of physical fitness, dexterity and agility, and control of the physical 'body', to a considerable level of expertise. As such the Harrow model is more appropriate to the development of young children's bodily movement, skills, and expressive movement than, say, the development of a corporate trainee's keyboard skills. By the same token, the Harrow model would be perhaps more useful for the development of adult public speaking or artistic performance skills than Dave's or Simpson's, because the Harrow model focuses on the translation of physical and bodily activity into meaningful expression. The Harrow model is the only one of the three Psychomotor Domain versions which specifically implies emotional influence on others within the most expert level of bodily control, which to me makes it rather special.

4.6 Findings on the Influence of Affective Domain on Instructional Planning

The third objective of the study was to assess the influence of affective domain on instructional planning for science teaching in pre-schools in Central Zone, Kisumu East Sub County. To address this research objective, a questionnaire was carefully developed to establish teacher's views on influence of affective domain on instructional panning.

The preschool teachers gave their opinion on a five point LIKERT scale where strongly agree (SA) = 5, agree (A) = 4, neutral (N) = 3, disagree (D) = 2 and strongly disagree (SD) = 1. The teachers were asked to respond to six statements relating to the use of various instructional materials to enhance writing skills among preschool learners. Their responses were analyzed to give frequencies and percentages of various response and effectively, the mean score on each statement computed. Table 4.6 is truncated version of the Questionnaire in Appendix II Section 2.3

Table 4.6: Teachers' Opinion on Influence of Affective Domain on Instructional Planning for Science.

Levels of affective domain in instructional planning	SA		A		N		D		SD		Mean
	F	%	F	%	F	%	F	%	F	%	
Science learning objectives for senses and stimuli.	25	62.5	10	25.0	3	7.5	2	5.0	0	0.0	**4.45**
learning objectives for active attention to stimuli and motivation to willingly respond to feelings of satisfaction.	18	45.0	19	47.5	2	5.0	1	2.5	0	0.0	**4.35**
Science learning objectives for developing beliefs and attitude. .	3	7.5	9	22.5	7	17.5	16	40.0	5	12.5	**2.73**
learning objectives for skills of organizing knowledge according to priority.	28	70.0	11	27.5	1	2.5	0	0.0	0	0.0	**4.68**
learning objectives that enable learners to develop characterization or a philosophy later in life	13	32.5	22	55.0	4	10.0	1	2.5	0	0.0	**4.18**

Source: Researcher's Analysis (N=40; F is Frequency)

The study found that majority of preschool teacher respondents considered affective domain in their science instructional planning. They plan for objectives that arose sensitivity to the stimuli while planning for science teaching with a cumulative score of 35(87.5%) agreeing. However, 3(7.5%) of the respondents were neutral regarding this statement with another 2(5%) disagreeing. This shows that despite the majority of preschool teachers considering objectives that arose sensitivity in their lesson plans, some few others do not.

Further, a cumulative 37(92.5%) of the respondents agree that they involve learners in active attention to stimuli and motivate them willingly to response to their feeling of satisfaction at a mean score of 4.35. This is an indication that most of the preschool teachers value participation of learners. This observation is also supported by the findings of Whitbread (2013) who also found that involving learners in active attention to stimuli promotes learning. Organizing science objectives according to the learners' priority was supported by 39(97.5%) of the preschool teachers with the other 1(2.5%) being neutral. Gunnin (2013) established that instructional planning should prioritize learners interest and ability for more productive lessons to take place.

The findings of the study agree with the pre-school teacher's activity guide (KIE, 2004),
Which requires the teacher to develop simple activities which children can understand?
and participate in during the lesson. The activities and materials should be organized in such a way that children come up with their own discoveries. The teacher should give each child a chance to contribute to his or her learning. Pre-school science activities help children explore and understand the world around them, satisfy curiosity and get answers to questions. A teacher responded to this issue saying that.

> “A *part from planning your teaching in order to help the student, you should also plan to help yourself. If you enter a class with only a vague idea of what and how you are going to conduct a lesson you will probably leave it having caused a certain amount of confusion among learners and lost their respect in the process.*

The findings support Karaka, Nyangasi and Guthii, (2004) that a child should be an active participant in learning. Various people have since built on Bloom's work, notably in the third domain, the 'psychomotor' or skills, which Bloom originally identified in a broad sense, but which he never fully detailed. This was apparently because Bloom and his colleagues felt that the academic environment held insufficient expertise to analyse and create a suitable reliable structure for the physical ability 'Psychomotor' domain. While this might seem strange, such caution is not uncommon among expert and highly specialized academics - they strive for accuracy as well as innovation. In Bloom's case it is as well that he left a few gaps for others to complete the detail; the model seems to have benefited from having several different contributors fill in the detail over the years, such as Anderson, Krathwhol, Masia, Simpson, Harrow and Dave (these last three having each developed versions of the third 'Psychomotor' domain).

In each of the three domains Bloom's Taxonomy is based on the premise that the categories are ordered in degree of difficulty. An important premise of Bloom's Taxonomy is that each category (or 'level') must be mastered before progressing to the next. As such the categories within each domain are levels of learning development, and these levels increase in difficulty.

The simple matrix structure enables a checklist or template to be constructed for the design of learning programmes, training courses, lesson plans, etc. Effective learning -

especially in organizations, where training is to be converted into organizational results - should arguably cover all the levels of each of the domains, where relevant to the situation and the learner.

The learner should benefit from development of knowledge and intellect (Cognitive Domain); attitude and beliefs (Affective Domain); and the ability to put physical and bodily skills into effect - to act (Psychomotor Domain Bloom's Taxonomy second domain, the Affective Domain, was detailed by Bloom, Krathwhol and Masia in 1964 (Taxonomy of Educational Objectives: Volume II, The Affective Domain. Bloom, Krathwohl and Masia.) Bloom's theory advocates this structure and sequence for developing attitude - also now commonly expressed in the modern field of personal development as 'beliefs'. Again, as with the other domains, the Affective Domain detail provides a framework for teaching, training, assessing and evaluating the effectiveness of training and lesson design and delivery, and also the retention by and affect upon the learner or trainee.

CHAPTER FIVE

SUMMARY OF FINDINGS CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter provides summary of the findings from chapter four, conclusion and recommendations of the study based on the objectives of the study. The main objective of this study was to establish the influence of learning domain on instructional planning for science teaching in pre-schools in central zone of Kisumu East Sub-County.

5.1 Summary of the Findings

The findings revealed that learning domains influence instructional planning for science teaching in pre-schools. The knowledge of learning domains and its importance influence the instructional planning for science teaching. Majority of teachers strongly agree or agreed that they consider planning for cognitive domain. This finding also shows that all level of cognitive domain was included as follows. Most teachers 37(92.5%) considered integrating knowledge acquisition when planning for science instruction as they either strongly agreed or agreed. In cognitive domain only 3(7.5%) of the teachers disagreeing. In the second level of cognitive domain 36(90%) of the respondent agreed that they consider planning for comprehension. This shows that pre-school teachers highly rated the significance of comprehension when designing for science instructional planning. In the level of application39 (97.5%) strongly agree or agree that they consider objectives that will capture application. All respondents 40 (100%) agreed that they consider analysis, this shows that there is an emphatic approval for the use of this level of cognitive domain.

In the psychomotor domain teachers considered planning for psychomotor outcomes as majority strongly agreed or agreed that they plan for attainment of psychomotor skills of the basic from simple to complex domain in all level. Specifically in levels 40(100%) consider reflex movement while planning for psychomotor outcomes, 37(92.5%) agreeing of fundamental movements, 38(95%) agreeing on perceptual abilities, 36(90%) agree on physical abilities while 40(100%) agree planning for science activities that will enhance and encourage manipulation of materials.

In affective learning domain 33(82.5%) plan for affective outcomes while planning for science activities. Whereas respondent agree that they include the various levels of learning outcomes for affective domains, respondent indicated that they did not frequently include learning outcome for attainment of belief or attitude change in their science instruction plans

5.2 Recommendations

In order to achieve effectiveness of lesson planning in pre-schools, there is need to address the following issues: Lesson planning should be regarded as a process that encompasses many activities, which have to be undertaken systematically. Lesson planning involves much more than making arbitrary decisions about "what I'm going to teach today." Many activities precede the process of designing and implementing a lesson plan. Similarly, the job of systematic lesson planning is not complete until after the instructor has assessed both the learner's attainment of the anticipated outcomes and effectiveness of the lesson in leading learners to these outcomes.

Even teachers who develop highly structured and detailed plans rarely adhere to them in lock-step fashion. Such rigidity would probable hinder, rather than help, the teaching-learning process. The elements of a lesson plan should be thought of as guiding principles to be applied as aids, but not blueprints, to systematic instruction. Precise preparation must allow for flexible delivery. During actual classroom interaction, the instructor needs to make adaptations and to add artistry to each lesson plan and classroom delivery.

Effective lesson planning is the basis of effective teaching. A plan is a guide for the teacher as to where to go and how to get there. However, lesson planners should not let the plan dominate- they should be flexible in their planning so that when the opportunities arise they can go with the flow.

Lesson planners should exercise flexibility in the development and implementation of lesson plans. Things may not always go to plan in most lessons. Teachers should have the ability to cope when things go wrong. It is useful when planning to build in some extra and alternative tasks and exercises. In addition, teachers need to be aware of what is happening in the classroom. Whatever the level of experience, it is important that all teachers take time to think through their lessons before they enter the classroom.

Successful teachers are invariably good planners and thinkers. They didn't get that way overnight. The road to success requires commitment and practice, especially of those skills involved in planning lessons, activities, and managing classroom behavior. Planning lessons is a fundamental skill all teachers must develop and hone, although implementation of this skill in actual teaching can, and usually does, take some time.

In order to come up with effective lesson plans, the following ought to be embraced by the planners:-the need to have in places the relevant expertise; the lesson planning exercise should be participatory; the exercise requires adequate time allocation; there is need to ensure that the programmes are seen as part of the ‘whole’ delivery in a centre and not thought of as separate courses; teamwork is very important in lesson planning.

The need for teachers to come up with good instructional objectives has been over emphasized. It is stressed that in writing instructional objective the teacher has to cater for different levels of learning in the cognitive domain Bloom's Taxonomy is a wonderful reference model for all involved in teaching, training, learning, coaching - in the design, delivery and evaluation of these development methods. At its basic level (refresh your memory of the Bloom Taxonomy overview if helpful), the Taxonomy provides a simple, quick and easy checklist to start to plan any type of personal development. It helps to open up possibilities for all aspects of the subject or need concerned, and suggests a variety of the methods available for delivery of teaching and learning. As with any checklist, it also helps to reduce the risks of overlooking some vital aspects of the development required.

The more detailed elements within each domain provide additional reference points for learning design and evaluation, whether for a single lesson, session or activity, or training need, or for an entire course, programme or syllabus, across a large group of trainees or students, or a whole organisation.

And at its most complex, Bloom's Taxonomy is continuously evolving, through the work of academics following in the footsteps of Bloom's early associates, as a fundamental concept for the development of formalised education across the world.

As with so many of the classical models involving the development of people and organisations, you actually have a choice as to how to use Bloom's Taxonomy. It's a tool - or more aptly - a toolbox. Tools are most useful when the user controls them; not vice-versa.

Use Bloom's Taxonomy in the ways that you find helpful for your own situation.

5.3 Suggested areas of Further Research

Other researchers and scholars could carry on as follows: Replicate the study to other zones for consistency of findings and critically examine the strategic interventions being employed by the Ministry of Education in addressing issues related to lesson planning in pre-schools in Kenya.

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APPENDICES

APPENDIX I: TRANSMITTAL LETTER

Juliana Achieng Opiyo
Cell phone: 0708 19 36 95

Date...............................

Dear Respondent,

<u>RE: INFLUENCE OF LEARNING DOMAINS ON INSTRUCTIONAL PLANNING FOR SCIENCE TEACHING IN PRE-SCHOOLS IN CENTRAL ZONE KISUMU EAST SUB-COUNTY</u>

I am a post-graduate student in the University of Nairobi pursuing a master's degree in Early Childhood Education. I am carrying out a study on the above subject. You have been selected to take part in the study as a respondent.

Attached is a questionnaire aimed at gathering information, which will be vital for the above research. I am kindly requesting you to respond to the questionnaire items as honestly as you can and to the best of your knowledge. The questionnaire is for the purpose of research only and therefore the responses shall be absolutely confidential and anonymously given.

In case the study will be of interest to your organization it can be availed once the study is complete.

Your participation in this survey is highly appreciated.

Yours faithfully

JULIANA ACHIENG OPIYO.
<u>ADM. NO: E57/73608/2014</u>

APPENDIX II: QUESTIONNAIRE FOR THE PRE SCHOOL TEACHERS

SECTION A

	QUESTIONS	**RESPONSES**		**INSTRUCTIONS**
1.0	**INTRODUCTION AND BACKGROUND**			
1.1	Institution	___________________________		Indicate in full
1.2.	Gender	Male ……………….………..……. Female……………………….…..…..	1 2	Tick the appropriate one
1.3.	Age	_____________________________		Indicate In Full
1.4	How long have you worked as a teacher?	Less than 4 years ………..……... 5 – 10 Years ……………..……. 11 Years and above …..……….	1 2 3	Tick the most appropriate
1.5	What is the highest education level that you completed?	Primary ………………….……. Secondary …………..…..……. College…………………....…… University ……………….…….	1 2 3 4	Tick the most appropriate answer
1.6	What is your main area of professional training?	P_1……………………...……. ECE……………..….…………. Not trained …………………….. Any other……………....…….. Indicate others ……………......	1 2 3 4 5	Tick the most appropriate answer
1.7	How do you categorize your pre school pupils	According to age According to ability According to their individual interest Others	1 2 3 4	Tick the most appropriate answer Specify

SECTION B

	QUESTIONS	RESPONSES					INSTRUCTIONS
2.1.	Do you consider integrating knowledge acquisition to inform your instructional planning	**SA**	**A**	**N**	**D**	**SD**	Tick the appropriate one
		1	**2**	**3**	**4**	**5**	
	Adoption of comprehension improve affectiveness to instructional planning	**SA**	**A**	**N**	**D**	**SD**	Tick the appropriate one
		1	**2**	**3**	**4**	**5**	
	Integrating of application enhances quality of instructional planning.	**SA**	**A**	**N**	**D**	**SD**	Tick the appropriate one
		1	**2**	**3**	**4**	**5**	
	Analysis should be included in science instructional planning.	**SA**	**A**	**N**	**D**	**SD**	Tick the appropriate one
		1	**2**	**3**	**4**	**5**	
	Synthesis and evaluation are important in science assessment and should always be considered when planning.	**SA**	**A**	**N**	**D**	**SD**	Tick the appropriate one
		1	**2**	**3**	**4**	**5**	

	QUESTIONS	RESPONSES					INSTRUCTIONS
2.2.	I always consider reflex movement when planning for science teaching	**SA** **1**	**A** **2**	**N** **3**	**D** **4**	**SD** **5**	Tick the appropriate one
	I plan for fundamental movement in science lessons	**SA** **1**	**A** **2**	**N** **3**	**D** **4**	**SD** **5**	Tick the appropriate one
	I consider perceptual ability when planning for science teaching.	**SA** **1**	**A** **2**	**N** **3**	**D** **4**	**SD** **5**	Tick the appropriate one
	I plan for activities that will encourage physical ability in my science lesson plan	**SA** **1**	**A** **2**	**N** **3**	**D** **4**	**SD** **5**	Tick the appropriate one
	I consider planning for skilled movement while planning for science teaching	**SA** **1**	**A** **2**	**N** **3**	**D** **4**	**SD** **5**	Tick the appropriate one
	I plan for science activities that will strengthen the small muscle hence encourage manipulation of material.	**SA** **1**	**A** **2**	**N** **3**	**D** **4**	**SD** **5**	Tick the appropriate one

	QUESTIONS	RESPONSES					INSTRUCTIONS
2.3.	I consider objectives that arose sensitivity to the existence of stimuli while planning for science teaching	**SA** **1**	**A** **2**	**N** **3**	**D** **4**	**SD** **5**	Tick the appropriate one
	I involve learners in active attention to stimuli and motivate them to willingly response to their feelings of satisfaction.	**SA** **1**	**A** **2**	**N** **3**	**D** **4**	**SD** **5**	Tick the appropriate one
	I value learners' beliefs and attitude while setting science objectives.	**SA** **1**	**A** **2**	**N** **3**	**D** **4**	**SD** **5**	Tick the appropriate one
	I organize for science objectives for learners to organize them according to priority.	**SA** **1**	**A** **2**	**N** **3**	**D** **4**	**SD** **5**	Tick the appropriate one
	I design science objectives that will enable learners to develop characterization or a philosophy later in life	**SA** **1**	**A** **2**	**N** **3**	**D** **4**	**SD** **5**	Tick the appropriate one

APPENDIX III: LETTER OF AUTHORIZATION FROM THE UNIVERSITY

UNIVERSITY OF NAIROBI
COLLEGE OF EDUCATION AND EXTERNAL STUDIES
SCHOOL OF CONTINUING AND DISTANCE EDUCATION

Our Ref.: UON/CEES/KSM/1/16

University Of Nairobi Plaza
Oginga Odinga Street
P.O. Box 825,
KISUMU. Kenya

Telephone: Kisumu 057-2021534

27th May, 2016

TO WHOM IT MAY CONCERN

RE: OPIYO JULIANA ACHIENG - REG NO: E57/73608/2014

This is to inform you that the above named **Juliana Achieng Opiyo** is a student at the University of Nairobi, College of Education and External Studies, School of Education pursuing Masters Degree in **Early Childhood Education**.

Juliana has completed her course work and examinations successfully and she is now undertaking her Research Project which is a pre-requisite for the course. The Project is entitled: ***"Influence of Learning Domains on Instructional Planning for Science Teaching in Pre-Schools in Central Zone Kisumu East Sub-County"*** The purpose of this letter therefore is to request you to allow the student to access the data or information she may need for purpose of this study. The data is required for her academic purposes only and not for any other reasons.

We would appreciate any assistance that may be given to enable her carry out the study.

Yours faithfully,

Dr. RAPHAEL O. NYONJE, PhD
RESIDENT LECTURER
KISUMU CAMPUS

ISO 9001: 2008 CERTIFIED
The Fountain of Knowledge Providing Leadership in Academic Excellence

APPENDIX IV: RESEARCH AUTHORIZATION FROM COUNTY GOVERNMENT

COUNTY GOVERNMENT OF KISUMU

MINISTRY OF EDUCATION, YOUTH, CULTURE AND SOCIAL DEVELOPMENT

P.O. BOX 2738-40100 KISUMU

Our ref: CGK/ECDE/1/16 10th June, 2016

TO WHOM IT MAY CONCERN

RE: OPIYO JULIANA ACHIENG ID NO.: 13405557

The above named is an ECDE teacher within Central Zone of Central Sub county of Kisumu County at Mahavir ECDE Centre undertaking Masters Degree in Early Childhood Education at University of Nairobi.

She is undertaking research project kindly allow her gather information relevant to the study for academic purposes.

Your ultimate response and considerations towards the same will highly be appreciated.

Yours faithfully,

Letensia Awino Okello

ECDE Advisor Central Zone

APPENDIX V: RESEARCH PERMIT FROM NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email:dg@nacosti.go.ke
Website: www.nacosti.go.ke
when replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/16/97023/11658**

Date:

8th November, 2016

Juliana Achieng Opiyo
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Influence of learning domains on instructional planning for science teaching in pre-schools in Central Zone Kisumu East Sub County,"*** I am pleased to inform you that you have been authorized to undertake research in **Kisumu County** for the period ending **31st October, 2017.**

You are advised to report to **the County Commissioner and the County Director of Education, Kisumu County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kisumu County.

The County Director of Education
Kisumu County.

National Commission for Science, Technology and Innovation is ISO 9001:2008 Certified

THIS IS TO CERTIFY THAT:
MS. JULIANA ACHIENG OPIYO
of NAIROBI UNIVERSITY, 380-40100
KISUMU,has been permitted to conduct
research in *Kisumu County*

on the topic: *INFLUENCE OF LEARNING DOMAINS ON INSTRUCTIONAL PLANNING FOR SCIENCE TEACHING IN PRE-SCHOOLS IN CENTRAL ZONE KISUMU EAST SUB COUNTY.*

for the period ending:
31st October,2017

Permit No : NACOSTI/P/16/97023/11658
Date Of Issue : 8th November,2016
Fee Recieved :Ksh 1000

....
Applicant's Signature

....
Director General
National Commission for Science, Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.
2. Government Officer will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one (1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEACH CLEARANCE PERMIT

Serial No.A 11715

CONDITIONS: see back page

APPENDIX VI: MAP OF THE STUDY AREA