

**UNIVERSITY OF EDUCATION, WINNEBA**

**AN ASSESSMENT OF ACADEMIC LEARNING TIME OF LESSONS TAUGHT  
BY TRAINED AND UNTRAINED PHYSICAL EDUCATION TEACHERS IN  
SENIOR HIGH SCHOOLS OF AKIM ODA DISTRICT.**



**ANIABRE MICHAEL**

**2013**

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**A Dissertation In The Department Of Health, Physical Education, Recreation And  
Sports, Faculty Of Science Education, Submitted To The School Of Graduate  
Studies, University Of Education, Winneba In Fulfilment Of The Requirement For  
Award Of The Master Of Education (Physical Education) Degree.**

**DECEMBER, 2013**

## DECLARATION

### STUDENT'S DECLARATION

I, Aniabre Michael, declare that this thesis with the exception of quotations and references contained in published works which have all been identified and acknowledge, is entirely my own original work, and it has not been submitted either in part or whole, for another degree elsewhere.

SIGNATURE.....

DATE.....



### SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this thesis was supervised by me in accordance with the guidelines on supervision of thesis as laid down by the University of Education, Winneba.

SUPERVISOR'S NAME:.....

SIGNATURE..... DATE.....

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## **DEDICATION**

This theses is dedicated to my dear mother, Getrude Ekude , my wife, Diana Tuekpe, my children, Desmond Noble Aniabre and Rosaline Aniabre, my siblings, Jerry Aniabre, Doris Aniabre, Mercy Aniabre and Gifty Yevu. Also, to Janet Sese Amadjin and John Amadjin Ayi.



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## ABSTRACT

The purpose of this study was to assess academic learning time of lessons taught by trained and untrained physical education teachers in Senior High Schools of Akim Oda District . The main objectives were to find out what phase of the practical lesson, (based on the instrument) did trained and untrained physical education teachers spend much time (highest time) and the disparities that persisted based on each sub-component of academic learning time in physical education interval recording instrument designed by Siedentop, Tousignant and Parker (1982).

Descriptive survey research design was used and the sample encompassed three trained and three untrained physical education teachers. Simple random sampling procedure was used to select the three trained physical education teachers and purposive sampling was also used to choose the only three untrained physical education teachers for the study.

One student in each lesson was targeted to represent highly skilled, average skilled and low skilled and the data collected were analysed using percentages in tables for the individual trained and untrained physical education teachers, mean percentage (average) time for the three trained teachers and the three untrained teachers and bar charts.

The average findings indicated that, trained teachers devoted the much time of 22.3% for warm-up in the general content sub-component 11.4% for technique in the subject matter knowledge sub-component, and 27.7% for skill practice in the subject matter motor content sub-components. Meanwhile, untrained teachers devoted much time of 13.1% for warm-up in the general content sub-component, 8.9% for strategy in the subject matter

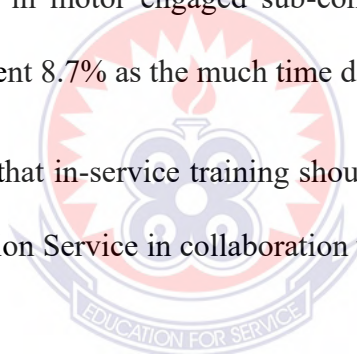
knowledge sub-component and 26.5% for skill practice in the subject matter motor content, all in the context

level.

Most importantly, trained physical education teachers spent the highest time (much time) of 61.0% for on-task, 2.4% for off-task and 13.0% for waiting while untrained physical education teachers spent much time of 37.5% for off-task, 19.6% for on-task and 22.5% for waiting.

Finally, trained physical education teachers devoted 21.1% for appropriate as the much time (highest time) spent in motor engaged sub-components while untrained physical education teachers also spent 8.7% as the much time devoted.

The researcher suggested that in-service training should be organized termly for the P.E. teachers by Ghana Education Service in collaboration with physical education lecturers in Ghana.



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Physical Education as a subject has a body of knowledge that has been developed through research. The content of Physical Education program from basic school through to the under graduate level consists of topics on history of development of Physical Education, Human Anatomy and Physiology, first aid, fitness, health education, games and athletics theory and practical sports and games skills, (Domfeh, Attah and Ayensu, 2006 pg.1-2).

All students must be given the chance to gain knowledge and skills needed to adopt active lifestyle in order to develop muscular strength, muscular endurance, cardiovascular endurance, flexibility and body composition. This psychomotor development objectives deal with the movement of the body as propelled by the mind. “It is achieved through the combined functioning of the muscular and nervous system. It basically deals with helping the individual to acquire movement skills, games skills, sports skills, and dance skills”, (Domfeh, Attah and Ayensu, 2006, pg.4). The purpose is to equip each individual with as many skills as possible so that his interests will be wide and varied. It aims at making movement useful and with little expenditure of energy.

One of the very essential roles of Physical Education is to develop the skills; health related fitness, physical competence, and cognitive understanding of physical activity that make students accept healthy and physically active life styles. To benefit from physical activity, students should learn the physical skills and join the class activities joyfully,

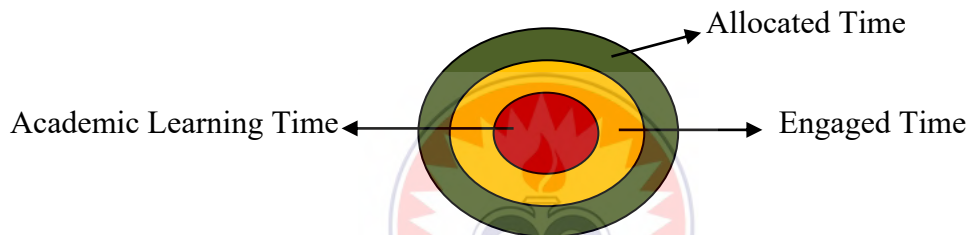


(Graham, 1987, pg.19) Physical Education teachers should give enough time to each student to learn and apply the physical activities. It is advisable that Physical Education teachers manage the students very well to decrease the non- instructional disruptions and reserve enough time for practice of the skills.

Beginning Teacher Evaluation Study (BTES) was conducted from 1972 to 1978 to understand the students' engagement time with the subject matter. The (BTES) is the California commission for teacher preparation and the overall purpose of the research program was to focus on academic learning time (ALT) as a measure of learning, (<https://www.icpsr.umich.edu/icpsrweb/icprs/studies/7691?keyword...>, 8th June, 2013). In the Beginning Teacher Evaluation study, three measures of instructional time were defined. Allocated Time is the whole time period a teacher allocates for instruction and practice in a particular subject area. Engaged Time is the portion of allocated time that a student is actually involved with the subject matter. However, Academic Learning Time (ALT) is the portion of the engaged time when the student is involved with the equipment that are appropriate to his or her ability, resulting in high success and low error rate (Parker, 1989, pg.7).

To understand what happens during Physical Education class is very imperative for effective teaching. Children in Physical Education classes spent about 20-25% of the class time waiting for something to happen (waiting in line, waiting for equipment, waiting for a turn, waiting for organizational period and many others). They spent up almost 20-25% of their time for managerial tasks and 20-25% for receiving information from their teacher. Only 25-40% of the class time remains for Physical activity. Even some of that time they might be performing activity that are beyond physical ability level,

in such cases they become either frustrated or bored (Odametey 2009, pg.3). In Physical Education classes when students appropriately perform the skill assigned to them, the teacher is credited with doing an efficient and effective job. Some experts like Parker and O’Sullivan(1983) stated that Academic Learning Time in Physical Education (ALT-PE) studies have been done almost exclusively with experienced teachers as from untrained and pre service teachers. It is reasonable that teachers or educators can hold their student teachers accountable for their performance during the apprentice or other field of experiences, (Odametey, 2009, pg. 4).



The diagram above shows the various portions of Allocated Time, Engaged Time and Academic Learning Time in Physical Education. Academic Learning Time (ALT) is defined as “the amount of time students are successfully covering content that will be tested,” (<http://www.edpsycinteractive.org/topics/process/ALT.html>, 10<sup>th</sup> April, 2013). It has to do with quality; it is the amount of time students spend actively working on tasks of an appropriate difficulty. Success breeds success. When a teacher targets the instruction of a new concept or skill, so students can succeed at least 75% of the time, students are more engaged and achieve at higher levels. This is because the portion of the engaged time that the students practice the actual task or skill to be learnt at an appropriate level of difficulty with more success rate than error rate is academic learning time in physical education.

Setting up academic tasks is very crucial to maximize Academic Learning Time in physical education lessons. “Academic tasks are activities set up by teachers to facilitate pupils learning, which can proceed with little or no direct teacher participation once they are up and running. Examples include practical, investigation and problem-solving activities” (Chris, 1998 pg.36). For academic tasks to be successfully employed, it is absolutely crucial that it is clear to students what they have to do, and to indicate the relationship between the task and the learning intended. It is easy to fall into the trap of thinking that the most important aspect is to get the students underway quickly with the task and then do deal with any problems as they arise. Doing so can lead to your having to dash from one group to another throughout the lesson, or else having to interrupt the class as a whole on several occasions. “In fact, the most important aspect for success is the careful preparation of the tasks and materials to be used (so that they are clear and, if necessary, self-explanatory), coupled with a clear briefing of what is required before the task is started” (Chris, 1998, pg.37). Some students may not pay attention during this briefing session if they know that you will simply give an individual briefing to anyone who wants one once the work has begun. If several students have this attitude, there will be many demands made on you at the start. It is therefore well worthwhile to ensure that as many students as possible are clear about the task in hand before the class is allowed to start the work.

Children’s lack of experience in performing activities and the fact that so many are unskilled and actually lack knowledge of game plans may lead to antisocial situations, if wise leadership is not provided on the school playground. Timid children may be left out of activities because other children fail to accept them or recognize them as equals.

Aggressive children may dominate the playing areas to the detriment of the remaining children. Bullies are apt to cause troubles. It is the responsibility of the physical education teacher to instruct, provide leadership, and to supervise students on the playground. Unless supervision is provided, a playground may become a hazard, a social menace, or a civic liability. The teacher must take the age and skill levels of the child into consideration in all teaching episodes. A physical activity which is not properly introduced to students can cause injury. A trained physical education teacher knows how to breakdown complex skill and to make it easy for students to perform it and enjoy it.

In Akim-Oda District, where the research study was carried out, it was a headache to note that the subject, physical education was relegated to the background. Trained physical education teachers from the University of Education, Winneba (UEW) and University of Cape Coast (UCC) were turned away by some headmasters and headmistresses with impunity. In some instances, the newly trained physical education graduate was given the option to teach another subject in addition to the physical education subject before he or she was assured a place in the school. That occurred as a result of misconceptions that the people have about the subject, physical education. “Some people share the view that there is no need for a student to study physical education if his aim for going to school is to acquire knowledge,” (Ayensu, 1998, pg.4). The physical education department in some of the senior high schools in Akim-Oda District were occupied by untrained physical education teachers. Untrained P.E. teacher is anybody who has not undergone any P.E. training in any university while trained P.E. teacher is anybody who has undergone a study of physical education in any university for period of terms not less than six semesters. It is worrying for somebody or a group of people to say that physical

education as a subject can be taught by any sports enthusiast or any sport expert. This statement could be a display of lack of knowledge both in scope and in depth of the subject.

However, physical education is a unique program which prepares the students in all domains in order to fit into the society. One essential aspect of effective and efficient way of teaching the subject is to increase the appropriate physical activity time where students perform the appropriate task successfully (Metzler, 1990, pg.45). But the difficulty level should not be over the ability level of the students. The amount of time that the students are involved in behavior such as receiving instructions, managerial activities and engaged activity were identified as important for researchers to investigate when studying class environment.

At the end of the study, how much class time is spent for physical activity, theoretical explanation, and class organization can be determined to analyze teaching effectiveness. In addition, how much class time is spent with management, warm-up activities, transition between events, and breaks during the class period can also be understood. Students' behaviors should also be analyzed in physical education classes. The study was designed to assess Academic Learning Time of lessons taught by trained and untrained physical education teachers in Akim-Oda District Senior High Schools which provide whole picture of physical education lessons and focused on motor appropriate behavior on subject matter like volley pass in volley ball.

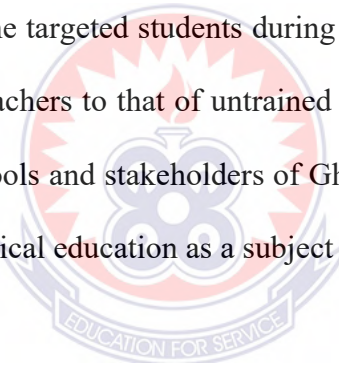
## 1.2 Statement of the Problem

To some people, physical education is seen as a play, which involves only jumping, throwing, and running and as such deserves no serious attention. It is a subject, they feel has nothing good to offer and consider teachers who pursue the subject in the University as not serious and weak minded. “Another erroneous idea people have about P.E. is that, it is for low minded –that is, physical educators are not scholars. This, of course is not true” (Ayensu, 2000, pg.6). To others, the subject is not worthy of study because it is not one of the examinable subjects by West African Examination Council (WAEC). Everybody’s attention is directed towards the West African Senior High School Certificate Examination (WASSCE). No consideration is given to the fact that without good health, good result cannot be achieved in the so-called examinable subjects. It is amazing for some people in Akim Oda District to say that physical education as a subject can be taught by any sports enthusiast or any sports fan. Owing to that, there were some untrained physical education teachers handling the subject in some senior high schools in Akim-Oda District. Therefore, the researcher deems it very imperative to assess the Academic Learning time for those untrained and trained physical education teachers in the district.

The most important phase of physical education lesson is the main content or the skill session which should be given a lot of engaged time. Thus Academic Learning Time (ALT-PE), practice is very essential tool for learning. The more effective teachers use times appropriately, the likelihood students’ achievement at a higher success rate. Whether trained teachers use ALT-PE better than untrained teachers is worth investigating to further enhance the teaching of physical education.

### **1.3 Purpose of the Study**

The purpose of the study was to assess Academic Learning Time of lessons taught by trained and untrained physical education teachers in Akim-Oda District Senior High Schools in the Eastern Region of Ghana. The effective use of the Academic Learning Time in Physical Education (ALT-P.E.) has been said to be extensively a measure of students' achievement. "The amount of time students are engaged in the subject matter in physical education has been found to have a high correlation with students' achievement," (<http://www.edpsycinterative.org>, 11<sup>th</sup> April, 2013). To fulfill the purpose of the study, the researcher used observation instrument to code the Academic Learning Time (ALT-PE) levels of the targeted students during the practical lessons and compared the results of the trained teachers to that of untrained teachers. Also, to educate the head teachers of senior high schools and stakeholders of Ghana Education Service so that they will place premium on physical education as a subject worthy of teaching and learning.



### **1.4 Research Questions**

The following research questions were answered:

1. What phase of the practical lesson do trained P.E. teachers spend much time based on the Teacher Observation Schedule?
2. What phase of the practical lesson do untrained P.E. teachers spend much time based on the Teacher Observation Schedule?

3. What difference exists in use of time between the trained and untrained P.E. teachers during the practical lesson?

### **1.5 Hypothesis**

There would be no significant difference between the trained and untrained physical education teachers during the practical lessons.

### **1.6 Significance of the Study**

The significance of this study was to aid teachers to monitor the behaviour of students during physical education practical lessons to reduce management time so as to maximize academic learning time in physical education (ALT-PE). This is because teachers who allocate more time to a specific content (skill) area have students who achieve at higher levels than teachers who allocate less time to the same content. There would be conferencing by the recorders and the physical education teachers to highlight on the strength and the weaknesses of the teachers' lesson and this would help improve their pedagogical skills. The results would help bring out the disparities between trained and untrained P.E. teachers. Headmasters /headmistresses would also draw lessons from the study and have a change of attitude towards the subject. Education officers that pursued other program would also understand how trained and untrained P.E. teachers manage their classes. Finally, the stakeholder of Ghana Education Service (GES) would also draw lessons from the findings to aid them in designing holistic educational policies and program for schools in Ghana.



### **1.7 Delimitation**

The study is delimited to trained and untrained teachers, heads of senior high schools, students, parents and stakeholders of Ghana Education Service in Akim-Oda District in the Eastern Region of Ghana.

### **1.8 Limitation**

On account of time, the researcher limited the study to cover only six physical education teachers in the senior high schools in Akim-Oda District. However, if more teachers were used, the outcome could have been different.

### **1.9 Definition of Terms**

**Academic Learning Time (ALT):** That portion of engaged time when the student is involved with materials appropriate to his or her abilities resulting in high success and low error rates.

**Academic Learning Time-Physical Education (ALT-PE):** An application of the notion of (ALT) to the Physical education setting.

**Cognitive:** The student is appropriately involved in a cognitive task.

**Context Level:** Describes the context of the setting within which specific individual student behavior is occurring.

**General Content:** Class time during which students are not intended to be involved in physical education activity.

**Interim:** The student is engaged in a non instructional aspect of an ongoing activity.

**Learner Involvement Level:** Describes how individual learners are involved in the physical education setting described in the context level.

**Motor Appropriate (MA):** The student is engaged in a subject matter motor activity in such a way as to produce a high degree of success.

**Motor Engaged:** Motor involvement with subject matter-oriented motor activities related to the goals of the setting.

**Motor Inappropriate:** The student is engaged in a subject matter-oriented activity, but the activity-task is either too difficult for the individual's capabilities or so easy that practicing it could not contribute to lesson goals.

**Not Motor Engaged:** Any student involvement other than motor involvement with subject matter-oriented motor activities.

**Off-Task:** The student is either not engaged in an activity he or she should be engaged in or is engaged in an activity other than the one he or she should be engaged in.

**On-Task:** The student is appropriately engaged in carrying out an assigned non-subject matter task.

**Physical Activity:** activities that when performed develop strength, endurance and body flexibility.

**Subject Matter Knowledge Content:** Class time when the primary focus is intended to be on knowledge related to physical education content.

**Subject Matter Motor Content:** Class time when the primary focus is intended to be on motor involvement in physical education activities.

**P E:** Physical Education.

**GES:** Ghana Education Service.



## CHAPTER TWO

### LITERATURE REVIEW

The purpose of this chapter is to review literature related to the topic and it was organized under the following sub-headings:

2.0 Preparations of P.E. personnel in Ghana.

2.1 Learning Time in Physical Education (Allocated time, engage time, and Academic Learning Time in Physical Education (ALT-PE)

2.2 Factors that affect choice of content and method.

2.3 Ensuring effective presentation of practical P.E. lessons.

2.4 What sports enthusiasts do in P.E. classes

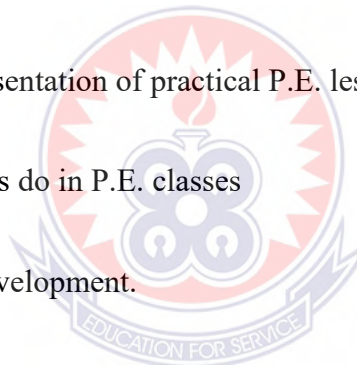
2.5 Monitoring content development.

2.6 The task system.

2.7 Time management.

2.8 Teaching and learning variables.

2.9 Behaviour management and task accountability.



## **2.0 Preparation of P.E Personnel in Ghana.**

Attempts were made before 1950 to train Ghanaians abroad with the hope that they would come home after their course of study to help develop the subject in the country. Messrs Ayi-Bonte and E.N. Teye Botchway were among the pioneers to benefit from this training program. In 1950, Ayi-Bonte was appointed the first P.E. organizer in the country, (Domfeh, Attah and Ayensu 2006 pg.15).

In the same year (1950), a one year course was introduced at Achimota School to prepare physical education teachers locally. Two years later in 1952, the course was transferred to the College of Technology, Kumasi (presently the Kwame Nkrumah University of Science and Technology) to run a one-year certificate course. E.N. Teye-Botchway was appointed head of the newly created department. In 1954, a second year further course was introduced for those who had completed one –year course, (Domfeh, Attah and Ayensu, 2006 pg.15). The two year trained specialists were certified to teach in post primary institutions (second cycle schools). The course gradually developed to a two year-continuous program by 1955.

Following the government's decision, the school of art, home science, music and P.E. were transferred from the College of Technology to the specialist Training College (S.T.C.), Winneba. From 1959-1962, the college offered one year and two year certificate courses. In 1963, a 4-year diploma course was introduced alongside the certificate courses. It continued till 1975, when the 2-year course was phased out and the 4-year diploma course reduced to three.

To accelerate the training of P.E. teachers, a 3-year post-secondary P.E. bias course was introduced in selected training colleges. In 1975 the first of its kind was set up at St. John Bosco, Navrongo and St. Francis Training College, Hohoe. A year later, the course was introduced at Wesley College, Kumasi.

In 1986, the Department of Health, Physical Education and recreation (HPER) was established to run a 4-year degree course at the University of Cape Coast with Messrs, E.T. Kodzi and Bediako as full time lecturers. The course was started with sixteen students (including one woman).

In 1992, the Specialist Training College, Winneba and some other Diploma Awarding Institutions were merged to form the University College of Education, Winneba (U.C.E.W.), to run three-year diploma and two-year post diploma degree courses. As a result of this, the U.C.E.W. started a two-year post diploma degree course in P.E. alongside the Diploma and certificate courses. U.C.E.W. now University of Education, Winneba runs a four-year Degree program.

The University of Cape Coast also started a 2-year post Diploma Degree course and post-graduate program in November 1993 with an enrolment of five and three students respectively.

The program in the post-secondary Teacher Training Colleges has undergone several changes over the years. Currently all Teacher Training Colleges (T.T.Cs) run three-year diploma programs. There is no specialization of subjects, however some courses are considered as core while others are considered as additional. First year students take a course in each of the basic school subject (including P.E.). While at the second year each

student selects two additional courses (one in each semester) in addition to the core courses. Physical education is one of the additional courses.

### **2.1. Learning Time in Physical Education**

Research has consistently indicated that quality learning time is the essential ingredient in effective schooling (Daryl Siedentop et al, 1986). Ghanaian curriculum developers have not examined the productive use of time in Physical Education classes in several ways which included allocated time and engaged time. Research on teaching in general has suggested that not all time allocated to academic activities are actually spent engaged in these activities. The engagement rates depend on the teachers ability to organize and manage the classroom as an efficient learning environment where academic activities runs smoothly, transitions are brief and orderly and little time is spent getting organized or dealing with inattention on resistance (Charles Maud et al, 1986).

According to Siedentop (1983), engaged time is a better measure of student opportunity to learn, than is allocated time. For the learning time to be productive the learning task must match the students' present skills and abilities, the student must have a fair chance at being successful. There are several ways at which to exercise the use of time in physical education classes. First, how many lessons are allocated for physical education as a subject on the school time table? How much time and attention does the teacher have/allocate for student learning? And second for how much of that allocated time are students actually engaged? This is exactly the notion that led to the development of the concept of academic learning time (Siedentop, 1980).

Many researchers like Siedentop (1980), recommended that non activity time in physical education classes should be minimized by developing important routines that can minimize disruptions. Therefore, once students have internalised the routines they will behave appropriately and predictably and be able to devote more time to learning. Many of these time saving routines have been described by Siedentop (1980) as;

- Devoting a high percentage of content time to practice, this means giving instructions and demonstrations quickly and efficiently and planning optimal time for students to actually practice the activities.
- Keep students on task. It is evident that, high rates of on task behavior are extremely important if learning is to take place. And students who are involved appropriately with a learning task will not be disruptive. Eventually, students can learn to stay on task themselves, especially if they learn to like the subject. They can become more self-directed and less in need of supervision.
- Assign tasks that are meaningful and matched to student's abilities, students should avoid doing trivial meaningless tasks, neither do they do task that are either much too simple or much too difficult.
- Keep the learning environment supportive and set high but realistic expectations. Students can be supported with positive feedback and praise for staying on-task, for trying hard and above all for getting better.

The notion that student engagement with the subject matter is a powerful predictor of achievement is not new (Carroll, 1963). It was for this reason that Berliner (1979) coined



the term “Academic Learning Time”. Is that portion of engage time when the student is involved with materials that were appropriate to his or her abilities, resulting in high success and low error rate.

Research into student’s behavior has consistently indicated that quality learning time is the essential ingredient in effective schooling. To learn efficiently, students must be engaged in activities that are appropriate in difficult level and otherwise suited to their current achievement levels and needs. It is important not only to maximize content coverage by pacing the students briskly through the curriculum, but also to see that they make continuous progress all along the way, moving through small stops with high or at least moderate rates of success and minimal confusion.

The statement above reveals that the amount learned is related to opportunity to learn, whether measured in terms of pages of curriculum covered or percentage of test items taught through lecture or recitation. Opportunity to learn is determined in part by length of school day and school year. Academic learning Time-Physical Education is an application of the notion of ‘ALT’ to the physical education setting. The (ALT-PE) was originally developed and subsequently refined by Siedentop and graduate students of the Ohio State University in Colombia, Ohio. Academic Learning Time in Physical Education is quality learning time (Siedentop 1980).The concept ALT-PE provides a simple convenient criterion by which to judge teaching effectiveness in physical Education.

The purpose of ALT-PE instrument as revealed by this study is to measure the portion of time in a Physical Education lesson that a student is involved in motor activity at an appropriate success rate. The total instrument is capable of describing not only the type of motor activity like skill practice, scrimmage, game, and fitness in which selected students are involved, but also context (general or subject matter) in which the total class is involved.

Classroom research has revealed that, with ALT-PE other positive correlates of achievement can be obtained. These include, accuracy of diagnosis (ability to predict the difficulty that students would have with particular items), appropriate prescription of tasks, frequent provision of academic goals and students responsibility for academic work and cooperative with academic task. Classroom research reveals that, ALT-PE is a time based concept that commonly uses interval recording techniques. As such, ALT-PE is limited by the nature of interval techniques (Siedentop 1980).

## **2.2 Factors that Affect Choice of Content and Method**

The various decisions the teacher makes at any instance or under each of the phases are influenced by some factors. It is worthy to note that these factors are inter-dependent.

**Age of learners:** Generally, the age of the student is an indication of his/her class, though there may be exceptions, since pupils may enter school at different ages. What is certain is that pupils about the same age fall within the same development stage, and therefore may exhibit similar mental, social, moral, emotional and physical characteristics. Children at different levels, supposedly, have different characteristics and therefore behave differently but similarly among themselves. For instance, what is interesting to

lower primary pupils may not be interesting to upper primary or junior high school pupils. Again, Piaget, an eminent psychologist, discussing mental development talked about mental abstraction and reasoning power of the child at each developmental level. Similarly, the growth and ability levels of the bones, organs and muscles are different at different developmental levels. These characteristics are significant for planning and making decisions about any physical education program, ([children.webmd.com/piaget-stages-of-development](http://children.webmd.com/piaget-stages-of-development), 7<sup>th</sup> July, 2013).

According to how children develop and behave they have been classified into three categories or developmental levels, ( Amissah and Tagoe ,2002, pg. 34-39)

- Developmental level 1- children of 6-8 years (Lower primary pupils)
- Developmental level 2-children of 9-11 years (Upper primary pupils)
- Developmental level 3-children of 12- 14 years (Junior High School Students)

During planning, the characteristics of the children have significant influence on the P.E. teacher in making appropriate decisions at the various phases of the teaching process. They affect the selection of activities, equipment and method of presentation.

**Class size:** Numbers count very much when it comes to planning in any institution or organization. The number in a class, as in any organization, guides the teacher in his/ her lesson planning and presentation. With the number of children in mind, the teacher decides on the number of working groups to put the children, the number of each set of teaching materials to gather and the method to use during presentation. The size of the class also influences the voice of the teacher, the size of the working area, assignments to give and disciplinary strategies to adopt.

**Sex of learners:** This refers to the gender of the learners. Some institutions are co-educational (that is a mixture of males and females); while others are single sex or segregated institutions (either males or females only). Understandably, males have characteristics and capabilities (physical, emotional, moral, and mental), which are different from that of females. These have great effects on what to teach, how to teach and other considerations (such as class management) necessary for exposing children to new experiences in physical education and sports, (Domfeh, Attah and Ayensu, 2006, pg. 79).

**Teaching –Learning Materials (TLMs):** These are items used to influence the senses to promote the learning process. In other words, they make learning easier. It is very important to consider TLMs whilst making decision about a lesson to be taught because they promote children’s understanding and retention of what is taught. The children see and use the TLMs to confirm the idea that; “I hear I forget, I see I remember, and I do I understand”. Also the number of the TLMs to look for and their appropriateness to the developmental level and the topic (skill) should be considered when planning for a lesson.

**Time:** This can be view from two angles. The exact time and the duration of the lesson. The teacher needs to consider when (the exact time) the lesson is coming on. Is it at a time when the sun is overhead, or at a time the sun is low? Is it immediately after break or just before break? These and many other considerations affect the reactions of the learners (their emotions, how they respond to motivational strategies and their preparedness to work). The exact time should, therefore, be considered in the types of decisions teachers make at each phase of the teaching-learning process.

Knowledge of the duration of the lesson (that is, the allocated time) also influences the objectives the teacher sets for the lesson, the content the teacher would like to cover and the method to adopt. The longer the duration the more extensive the content and objectives would be. In principle, the time allocated for P.E. is the same for other subjects. This is 30 minutes and 35 minutes for primary and the junior high schools respectively. In practice, however, one would realize that the duration of “engaged time” used in a practical P.E. lesson tends to be shorter. Although factors such as how pupils move from one activity to another, the way the teacher introduces activities to pupils and how the teacher corrects pupils’ mistakes affect the engaged time. Quite a considerable time or period of the allocated time is used for changing, before and after the lesson. This definitely affects decisions taken at the various phases of the teaching learning process.

**Relevant Previous knowledge:** This is the knowledge, idea or experience that learners already have, which has a bearing on, or related to the topic to be taught. Closely, learners always have some idea (in style, form, content and structure) on any new topic that is to be taught. The well accepted principle of teaching from the known to the unknown is based on this premise that lessons that are related to the experiences of pupils are easily and better understood. The more closely or relevant the previous knowledge is related to the topic that is to be taught the better the understanding. Therefore, the current accepted terminology “Relevant Previous Knowledge” (RPK).

The previous knowledge could be based on a topic that has already been taught or certain life experiences or practices, which relate to the topic. For the lesson notes, the teacher assumes the RPK and the reliability of it. It is usually confirmed at the beginning of the

lesson when the teacher introduces the new topic through preliminary activities, such as free practice in practical lessons and questioning in the theory lessons.

The RPK is a guide to the teacher to take decisions on where to start his lesson from. Example, “children have been throwing delicate objects to their friends in a forward-upwards swing of the arm”. This is quite a good example of an RPK for a topic like the underarm serve in volleyball. It is relevant because the action described above is closely related to the arm swing during the underarm serve.

### **2.3 Ensuring Effective Presentation of Practical P.E. Lessons**

The teacher needs to take note of the following to ensure an effective learning by all children: - the poorly skilled, the average skilled and the highly skilled

**Dressing:** Both the teacher and the children must appear neat, simple and decent. The teacher’s dress should be a pair of shorts or tracksuit down, a short sleeve flannel shirt (t-shirt) and a pair of flat-soled canvas shoe. The whistle and the watch are part of the teacher’s dress. The children must also put on neatly sown shorts and short sleeve flannel shirts, according to the colours prescribed by the school. The dress worn must allow free movement: it must not be too tight or too loose. Moreover, the dress should not be multicoloured, and should be devoid of inscriptions and pictures, which may attract the attention of children.

**Working area:** The working area must be demarcated to show learners the area being used for the lesson. The size of the area depends on the size of the class and the nature of activities. If the class size is large, the area should be large enough to accommodate all the children to avoid overcrowding and bumping into each other. Activities, which

involve moving about such as chasing partners, picking tails, all- in-tag and imitating moving objects (birds, aeroplane, car, motorbike, train, etc.); and throwing objects require a large working area. However, an area, which is too large for the class, will make the children scatter all around, and this will make class control very difficult. In such situations too, the teacher will have to shout to get his/her instructions to all the children, which is not good.

Within the working area, children will walk, run, jump and lie, therefore, the area must be free from, or cleared of injurious materials such as bottles, stumps and sharp objects and, even, equipment. The area also should not be slippery and so avoid gravel and water-log areas. Moreover, the demarcated area must not slope too much or be undulating to cause children toppling or rolling over.

**Equipment:** These are the materials sent to the field and used to promote the teaching learning process. As said earlier, the materials should have been inspected and tried to make sure they are in good order.

To ensure the safety of the materials and avoid injures, the materials must not be put in the working area. They must be put outside the working area and spread or placed such that when children go for them it will not create pandemonium. When children are made to go for equipment each child would like to be the first to pick one, and probably pick the newest, nicest, or the strongest. This makes them push or even fight each other thereby injuring themselves. Children must also not be allowed to play with, or use the materials without authorization. Materials may be spoilt, or cause injury to children.

Again, children must be guided to use materials, especially, if children are seeing the materials for the first time.

**Position of the teacher in relation to the children:** the teacher must have all children in front of him/her, and as much as possible the teacher must at all time be able to see all the children and vice versa. The teacher must always give instructions with all the children in view, no child must be behind the teacher in other words, the teacher must not be “teaching in a circle”. This is to ensure close supervision to avoid injuries and promote effective learning.

Position of the teacher and the children in relation to the sun: As much as possible both the teacher and the children must avoid the rays of the sun, but if it is not possible, the teacher should face the rays of the sun. This is to avoid interruptions or interference with the children’s concentration or attention. Children are now being exposed to new experiences and any interference can affect the understanding of them. The teacher can be unaffected because he/she already has the knowledge.

**Communication:** The teacher describes activities and gives teaching points during the delivery of the lesson. He/she also gives corrective instructions to either individuals or group. During such periods the teacher’s voice must be clear, audible and friendly, so that every child would hear and love to listen. There must not be any ambiguity in the teacher’s choice of words. In describing activities, the teacher must not use too many words; it must be simple and straight to the point. Where possible, the activity must be demonstrated to save time, energy and avoid confusion.



**Demonstration:** In physical education, demonstration is pictorial presentation of an activity or skill to be performed. It is used in place of description to save time. It involves performing an activity for the learners to observe. Its main purpose is to help the learners to know exactly how the activity is performed. Through demonstration, learners build a mental picture of how the activity is performed. It is also used when the activity to be described is dangerous (life threatening) or complex and words cannot easily be used to describe it but will make the activity seem abstract or when apparatus to be used is expensive and limited in supply. Moreover, demonstration is used when activity is being introduced for the first time or when majority of the learners are not making the right movements and teacher wants the learners to see or draw their attention to the correct performance for them to imitate.

The activity method being an effective means of learning should be well demonstrated to avoid children imitating the wrong movements. Demonstrations should be perfect or near perfect. The demonstrator's position also should be such that all learners can see what is being demonstrated. It is not enough for learners to just see the demonstration, they must be directed to the specific thing they must see or observe.

The teacher or resource person can demonstrate, but this will be at the beginning of performance for learners to observe activity for the first time and imitate. A learner who is performing well can also be made to demonstrate, but this comes on during the performance of an activity when majority of learners are not performing the activity well. In such cases, demonstration is used to correct mistakes. As much as possible teachers and very good performers should seldom demonstrate (though they can demonstrate as resource persons), since they do not pose any challenge to the rest of the learners, and if

such people get injured, it puts fear in the rest of the learners. Moreover the same person must not always be called to demonstrate.

**Class control:** The teacher can adopt the following to achieve class control or discipline

- Prepare well for a lesson. It is necessary the teacher tries the activities or gets a performer to perform the activity for him/her to see. This will help the teacher to give good demonstration and corrective measures to win the confidence of the learners.
- Be pleasant, fair, firm and flexible to all learners.
- Get leaders of organized groups, if any on your side.
- Avoid too much partner work (pair work) and there should be no close contact work.
- Stress good points and avoid ridicule. Progress in performance must be slow and gradual.
- Learners must not be hurried through an activity.
- Teacher must take complete control of the class. Teacher should let learners feel that his or her attention is everywhere.

Get to know learners and call them by their names, so that you can create an atmosphere, which will make learners attend classes, even if it is voluntary.

Demand courtesy and give courtesy in return. Use words like “thank you” and “please.”

**Giving support/Spotting:** This is very important in practical P.E. lessons, especially in gymnastic activities. During performance, learners change their body posture and

direction while in the air, and this affects their balance or stability. Performers, therefore, need to be spotted when they break contact with the ground and their centre of gravity is off balance. Performers are held immediately they take off from the ground to help them gain balance or stability. Potting can be done while standing, kneeling or squatting, and by one or two persons, (Domfeh, Attah and Ayensu, 2006 pg. 94).

Stand-by spotting is giving when performers move from mediocre to intermediate or advance stage of the skill. In this type of spotting, the spotter stands by and only goes in to support performer if spotter anticipates danger. Stand-by spotter usually stands close to where the performer will finish performance; in front or at the side of apparatus/human support or mat/mattress.

**Use of whistle:** The whistle is used rarely or sparingly to stop a rowdy situation and to start a competitive activity as found during the game session in practical P.E. lessons. When learners are quiet and ready for instruction, the teacher should only give verbal order for the start of an activity. Usually the orders, “ready, go!” is used for activities which involve moving place to place, and “Ready, begin/start!” is used for stationary activities.

#### **2.4 What Sports Enthusiasts do in P.E. Classes**

Physical education is core subject in primary schools, junior high schools and senior high schools in Ghana. It uses physical activities as a means to impart useful knowledge, useful skills, attitudes and fitness. Through physical education lessons, sports talents can be unearthed. “Sport is derived from play, and sports are institutionalized forms of motor

play,” ( Siedentop , Mand and Taggart, 1986 pg. 186). Physical education is however, not just sports. Sport is just an aspect of physical education.

For full benefits to be derived from the subject it must be taught by trained physical education teachers not just anybody. A sport enthusiast is a person who has interest in sports or has played sports before. Such a person may have interest in an aspect of athletics, table tennis, handball, volleyball, or soccer. That person’s knowledge will be limited to only his /her area of interest or practice.

Siedentop and Elder (1989), used the expertise research literature to examine seven effective elementary physical education specialists. The conclusions about expertise were;

- Expertise is highly specific to context and subject matter. It is useful to talk about expert handball teacher at the middle school level or an expert gymnastic teacher with young children. However, the expertise shown in one subject and at one level may not generalize to other subjects and levels;
- Expertise is performance- oriented. Expert teachers often may not be able to explain their own expertise. The expertise is in the doing rather than explaining it;
- Experience is a necessary condition for expertise, but not a sufficient condition. Expertise probably develops over long period of time in ways that are not clearly understood. Thus, it is unlikely that expertise can be taught in the same ways as effective teaching skills;
- Expertise lies at the nexus of a highly skill teaching and mastery of a particular subject matter (that is gymnastics or pole vaulting or basketball). Thorough

mastery of a subject is necessary condition for teaching it expertly. You can teach effectively with a limited of a subject, but to teach expertly, you have to have expertise in the subject; and

- Teaching effectively is within reach of most first year teachers. The skills are identifiable and can be improved through practice. Expertise takes longer, and the path towards its achievement is less clear.

Untrained physical education teachers who are mandated to teach physical education in addition to their main subjects teach or manage only their area of expertise. They may not follow the syllabus strictly and the phases of practical P.E. lessons because of limited knowledge they have about the subject.

## **2.5 Monitoring Content Development**

Promoting students' skill development in physical education depends greatly upon the design of sequenced, logical, and progressive learning tasks. Effective teachers are keenly aware of students' skill development to date and have an eye for leading students from simple to complex learning progressions. Teachers accomplish this best through monitoring individual student's progressions. However, supervisors who cannot know each student's skill level will find general monitoring extremely helpful for post-teaching conferences. This monitoring of a teacher's sequencing of learning tasks is called content development (Metzler, 1990, p.110). He further said this is based on four levels of task progression and instructional information: information, extension, refinement and application.

**Information:** The phase whereby the teacher imparts the initial, most basic information about a task to students. This includes verbal and nonverbal demonstrations, lectures, and any audiovisual devices that provide students with basic task information.

**Extension:** A teacher's attempts to reduce the complexity and difficulty of a task by ordering its parts logically to form a sequence. This involves slowly building on the initial information given to students and breaking the task into component parts for learners to perform. Students can also be given tips or strategies for completing the task within extensions. Non-criterion tasks are usually given to the student; that is learning tasks are pursued without measuring performance or outcomes on them.

**Refinement:** This focuses on what it means to perform the task well. Students are given some tangible performance criteria to strive for in practice and are able to work towards those goals. Refinement includes more tips and strategies, but that information centers on how to accomplish specific rather than general tasks.

**Application:** Developing the learning tasks for the work setting (that is games, drills, performances, recitals and personal experiences outside of class). Application is learning for utilitarian purposes with sport and movement skills. Application tasks are characterized by a narrow focus. An example from golf will help illustrate content development in physical education. A teacher who is trying to help students with putting skills tells students about the equipment, intent, timing, rules and basic principles of the putting stroke during information. During extension she introduces students to the proper grip, stance, and alignment for putting, either verbally or through demonstration. Students then engage in a general type of practice to get acquainted with the new skill. For

refinement, the teacher designs a series of tasks that specify certain situations (various distances, degree of break) and specifies performance criteria to be met before going from one task to the next. When most students complete the final refinement task, the class is then ready for Application. Application tasks might involve putting competition at a miniature golf course or the monitoring of putting accuracy during a complete round of golf, (Metzler, 1990, pg.111).

## **2.6 The Task Systems**

Task system is model which was introduced by Walter Doyle and it was through research program that the model was developed, extended and refined (Odametey, 2009 pg.24). It was a regularized pattern for accomplishing certain kinds of task. Doyle first observed two task systems; the managerial task system and the instructional task system.

Managerial task system includes both the actual management of materials and space along with the establishment and maintenance of appropriate behavior. “Teacher management has come to be a term that is reserved for almost everything the teacher does that is not directly related to the content to be taught” (Ocansey, 2009, pg.8). He added that, in physical education, management is usually intended to mean both the manner and ability of the teacher to maintain appropriate behavior and the manner in which the teacher organizes a class.

Managerial tasks are typically made more explicitly clear to students at the outset. Teachers supervise students’ responses more closely. Compliance is often responded to positively and non-compliance is quickly desisted. In recent start of school year study, managerial tasks are typically quiet narrow, completely unambiguous and so carefully

developed that they can be maintained throughout the school year with minimal effort by the teacher. Managerial tasks are more ambiguous, less well supervised and subsequently, taught with inconsistent managerial boundaries, most often creating something chaotic and frequently negative climate. Management is important because good managers can solicit and maintain students' engagement in the content and because poor managers use too much class time in management, which takes away time with the content. Teachers who fail to establish clear and narrow managerial task spend much time attending to managerial issues and constantly have to prompt and desist students to keep them within the boundaries.

The instructional task system include all the different kinds of academic tasks, especially focusing on those involved in what Doyle (1979) called the grade exchange system. Instructional task presents a considerably more complex set of operations in physical education that are typically presented to a large group of students whose skills and interest are most easily characterized by a marked heterogeneity.

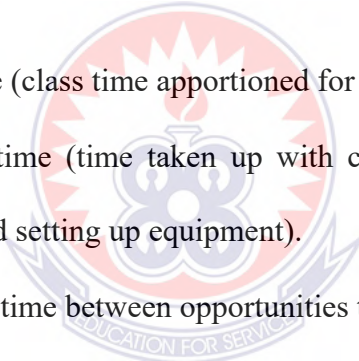
In classrooms when formal accountability is made contingent upon task performance, the performance rates increases, but when it is so frequently applied it cannot consistently drive highly on task instructional system. Instructional task system is fascinating to watch students either on task as stated, off task, on modified task or avoid the task.



## 2.7 Time Management

In the early 1980s, much of the research on effective teaching focused on teacher and use of class time. Indeed, many of the differences in effectiveness of teachers are thought to be based on how well class time is managed for instruction. The research resulted in many constructs of time; one such construct is functional curriculum time, time in which students are meaningfully engaged with the lesson content. Effective teaching provides students with increased amount of functional curriculum time and reduced amount of non-content (no- engaged) time (Metzler, 1990, p.62).

Other categories of time management are pertinent for physical education instruction:

- 
- Allocated time (class time apportioned for learning activities).
  - Management time (time taken up with clerical and preparatory tasks like calling roll and setting up equipment).
  - Waiting time (time between opportunities to participate).
  - Transition time (time spent moving to and between class activities)
  - Demonstration time (time spent showing students how to perform skills)
  - Instructional time (time spent providing students with cues and feedback)
  - Engaged time ( actual time for participation)
  - Academic learning time (time spent in relevant participation with regular student success).

Academic learning time in physical education measures the amount of time individual students actually work with physical education content at an appropriate level of difficulty. Appropriate level of difficulty is defined as a level with a high success rate. It

is based on the findings that high success rate is a significant factor in determining appropriateness. “Classroom research has assumed that a reasonable success rate for learning should approach 80 percent (80%), and that is what Siedentop (1991), recommended for physical education.

## **2.8 Teaching and Learning Variables**

A variable is a quantity, characteristic or concept that is capable of taking different values. In the teaching learning process, the variable ranged from the content to be transacted to the attitude of the learners. The same content can be transacted in different ways depending on the desired outcomes. Learners differ both amongst each other and within each other, for example, in terms of ability, interest in a particular discipline, etc. teacher behavior varies from class to class and from teacher to teacher (wikieeducator.org/variables in teaching process, 24th may, 2013).

Presage variables: Refer to the characteristics and properties that teachers bring into the teaching and learning environment. These include teacher formative experiences and teacher training experiences. Specific examples of teacher characteristics and properties include teacher’s age, gender, physical or fitness condition, knowledge of physical education activities, ability to demonstrate, training college or university educational background, motives for pursuing physical education, and attitude towards physical education.

Context variables: These refer to the existing conditions to which the teacher must adjust in order to effect or influence student behaviour in a particular teaching and learning situation. They include all the characteristics of the educational setting about which the

teacher can do very little. Specific examples include the student's skill level in a particular sport or activity prior to beginning instruction, the student's attitude towards the physical education content, the social background of the student, the size of the teaching area, amount of time, type or condition of equipment, and the physical education curriculum ( Ocansey, 2009,pg.20).

Process variables: These also refer to the behaviours of teachers and students within the teaching and learning environment. When teachers and students bring their various, characteristics and personal properties into the classroom how do they interact? What behaviours do teachers and students exhibit in the classroom? What are the actual activities of teachers and students in the classroom? Specifically, responses to these questions include the amount of time students spend doing activities, how students do such activities, how the teacher presents activities, feedback the teacher provides following student performance, cues teacher emits for performance, teacher's efforts to actively supervise student etc. Thus, process variables include teacher behavior, pupil behaviour, and interaction between teacher and student behaviour.

Product variables: product variables refer to the effects of teaching. Other names used in the literature to describe this variable phenomenon include outcome and achievement. Product variables express those changes that come about in pupils as a result of their involvement in the subject matter with the teacher and other pupils. Product variables can be expressed as long term effect/ achievement or short term effect/ outcome. Physical education outcome are obtainable in the psychomotor domain (level of attainment on the national fitness test-short term and student adherence to daily fitness regimen-long term

effects); or in the cognitive domain (development of knowledge and critical thinking process); or affective domain (social and attitude changes and or development).

These variables provide a frame work for discussing teaching in general and research on teaching teachers can use this model to examine relationships between the variables, (Ocansey, 2009 p.21). For example, the relationship between a presage and product, context versus process etc. These relational frames of reference allow teachers to look at teaching and to look more critically into the teaching and learning process. For example, if a teacher is interested in examining the frequency of dispensation of feedback in a lesson and the extent to which students opportunity to respond is influenced, a process-process framework is the focus for the examination, Ocansey added.

## **2.9 Behaviour Management and Task Accountability.**

Effective teachers project a businesslike atmosphere in their classes, both by planning for preventive management and by carrying out interactive management programs. Preventive management involves taking steps to reduce the potential for behavior problems, such as establishing class rules and using behavior contracts with students. Interactive management decisions are made during class when preventive measures are not sufficient. In a sense, behaviour management is time management – increasing the amount of functional curriculum time while reducing none content time of a specific nature. Being “businesslike” means showing students that class time is learning time and that deviations from learning tasks are neither expected nor tolerated. This also means that students should be properly informed of desired behaviour and participation

expectation and that they will be held accountable through teaching monitoring, feedback, and contingency programmes.

Task accountability involves outlining the specific procedures and expectations assigning learning task in class and supplying sufficient information about how the class can best use their time within that task.



## CHAPTER THREE

### METHODOLOGY

The purpose of this research was to assess academic learning time of lessons taught by trained and untrained physical education teachers in Akim-Oda District Senior High Schools in the Eastern Region of Ghana. This chapter presents the methodology as stated below;

#### 3.0 Research Design

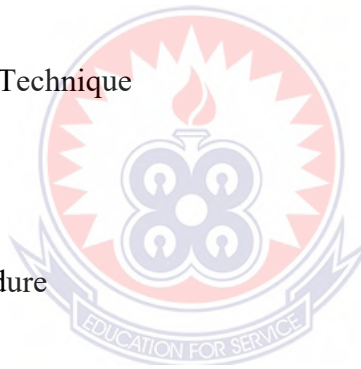
#### 3.1 Population

#### 3.2 Sample and Sampling Technique

#### 3.3 Instrumentation

#### 3.4 Data Collection Procedure

#### 3.5 Data Analysis Procedure



### **3.0 Research Design**

The descriptive research design was used to assess academic learning time of lessons taught by trained and untrained physical education teachers in Akim-Oda District Senior High Schools. “Descriptive research design is a scientific method which involves observing and describing the behaviour of a subject without influencing it in any way” (Azila, 2012, pg. 43). It involves the collection of data in order to test hypothesis or

answer research questions. It is concerned with the conditions and relationships that exist, such as determining the nature of prevailing conditions, practices and attitudes, opinions that are held, processes that are going on or trends that are developed (Azila, 2012, pg. 43-44). The purpose of descriptive research design is to observe, describe and document aspects of a situation as it naturally occurs. “Descriptive research design is often used because of the low cost and easy accessible information”, ([www.dissertation-statistics.com/research-designs.html](http://www.dissertation-statistics.com/research-designs.html), 28<sup>th</sup> may, 2013).

### **3.1 Population**

“A study population is the total number of a defined class of people selected because they are relevant to the research questions” ([en.wikipedia.org/wiki/sampling-statistics](http://en.wikipedia.org/wiki/sampling-statistics), 12<sup>th</sup> June, 2013). The population of this study was thirteen physical education teachers from Akim Oda District Senior High Schools. Ten of them were trained and three were untrained. Akim Oda is a town in Southern Ghana in the Eastern Region and is the capital of the Birim Central Municipal District. Cocoa is an important part of the Akim Oda economy, including plantations and casual plantings along the roadsides. Its forests contain valuable trees that enhance lumbering. Akim Oda in 2012 had a settlement Population of 58,788, ([population.mongabay.com/population/Ghana/22965640/akim-oda](http://population.mongabay.com/population/Ghana/22965640/akim-oda), 17<sup>th</sup> June, 2013). The study was carried out in co-educational schools. The class sizes ranging from a minimum of forty students and a maximum of fifty students in both form one and form two with the average age of 15 years and 16 years respectively.

### 3.2 Sample and Sampling Technique

Simple random sampling procedure was used by the researcher to select three trained teachers for the study. This was the subset of individuals, a sample chosen from a larger set or a population. Each individual was chosen randomly and entirely by chance, such that each individual had the same probability of being chosen at any stage during the sampling process. “A simple random sampling is an unbiased surveying technique”, ([www.investopedia.com/terms/s/simple-random-sample.asp](http://www.investopedia.com/terms/s/simple-random-sample.asp), 28<sup>th</sup> May, 2013).

After sports technical meeting for all physical education teachers organized by the Oda Senior High Schools Sports Organizer on the 12<sup>th</sup> April, 2013, the researcher met the Physical Education teachers. The researcher gave a brief discussion with the teachers and brought out ten pieces of paper of which three of them had an inscription of “chosen” and seven “not chosen”. The pieces of papers were placed in a bowl on top of a pigeonhole which was above the head level of the teachers to pick. The teachers who picked “chosen” were used by the researcher for the study. That was only done for the ten trained physical education teachers.

Also, the researcher then used purposive sampling to select the only three untrained physical education teachers for the study. The purposive sampling is a form of non-probability sampling in which decisions concerning the individuals to be included in the sample are taken by the researcher, based upon a variety of criteria which may include specialist knowledge of the research issues, or capacity and willingness to participate in the research, ([www.gifted.uconn.edu/siegle/research/samples/purposivesampling.htm](http://www.gifted.uconn.edu/siegle/research/samples/purposivesampling.htm), 28<sup>th</sup> May, 2013). “A purposive sample, also commonly called a judgmental sample, is one



that is selected based on the knowledge of a population and the purpose of the study. The subjects are selected because of some characteristics”

([en.wikipedia.org/wiki/nonprobability-sampling](http://en.wikipedia.org/wiki/nonprobability-sampling), 28<sup>th</sup> May, 2013), that was based on the three untrained physical education teachers for the study. Therefore, three trained and three untrained physical education teachers were used for this study.

### **3.3 Instrumentation**

The researcher used observation instrument designed by Siedentop, Tousignant and Parker (1982). The instrument is often used to judge teaching effectiveness in physical education practical lesson. Specifically, its purpose is to describe the amount of time physical education teachers engaged their students in motor activity at an appropriate level of difficulty. This is based on the assumption that pupils learn more the longer they are engaged in motor activity at an appropriate level of difficulty, ([cw.routledge.com/textbooks/04151117/pdfs/observation27.pdf](http://cw.routledge.com/textbooks/04151117/pdfs/observation27.pdf), 30<sup>th</sup> May, 2013).

Academic Learning Time in Physical Education (ALT-PE) interval recording instrument is two level hierarchical decision-making systems. The first level of the system requires a decision on the context of the setting under observation. The second level involves observations of the individual learner’s involvement. The context level describes the context of the setting within which specific individual student behavior is occurring. This level comprises two major facets; general content and subject matter content.

The general content is the class time during which students are not intended to be involved in physical education activities. This encompasses Transition (T) which is the time devoted to managerial and organizational activities related to instruction.

Management (M) is the time devoted to class business that is unrelated to instructional activity, Break (B) is the time devoted to rest and or discussion of issues unrelated to the subject matter and Warm-up (WU) is the time devoted to routine execution of physical activities whose purpose is to prepare the individual for engaging in further, but not designed to alter the state of the individual on a long-term basis.

Subject matter knowledge content; is the class time when the primary focus is intended to be on knowledge related to physical education content. This also includes Technique (TN) that is the time devoted to transmitting information concerning the physical form (topography) of a motor skill, thus when the teacher gives oral description about how to perform the skill to be learnt. Strategy (ST) is the time devoted to transmitting information concerning plans of action for performing either individually or as a group while Rules (R) is the time devoted to transmitting information about regulations that govern activity related to the subject matter. Social behaviour (SB) is the time devoted to transmitting information about appropriate and inappropriate ways of behaving within the context of the activity, and Background (BK) is the time devoted to transmitting information about a subject matter activity such as its history, traditions, rituals heroes, heroines, records, importance in later life, or relationship of fitness

Subject matter motor content is the class time when the primary focus is intended to be on motor involvement in physical education activities. This includes Skill Practice (P) which is the time devoted to practice of Skills or chains of skills outside the applied context with primary goal of skill development. Also, Scrimmage/Routine (S) is the time devoted to refinement and extension of skills in an applied setting (that is in the setting that is like or simulate the setting in which the skill is actually used) and during which

there is frequent instruction and feedback for the participants. Game (G) is the time devoted to the application of skills in a game or competitive setting when the participants perform without intervention from the instructor or teacher while Fitness (F) is the time devoted to activities whose purpose is to alter the physical state of the individual in terms of strength, cardiovascular endurance or flexibility.

In the light of the above, the learner involvement level describes how individual learners are involved in the physical education setting which is described in the context level. The learner involvement level has two facets, not motor engaged and motor engaged

Not motor engaged is any student involvement other than motor involvement with subject matter-oriented motor activities. This includes Interim (I), that is when the student is engaged in non-instructional aspect of an ongoing activity while Waiting (W) occurs when the student has completed a task and is waiting for the next instruction or opportunity to respond. On-task (ON) is when the student is appropriately engaged in carrying out an assigned non-subject-matter task. For example, management task, transition task and warm-up task. Off-task (OF) is when the student is either not engaged in an activity he or she should be engaged in or is engaged in an activity other than the one he or she should be engaged in. Cognitive (C) is when the student is appropriately involved in a cognitive task.

Motor engaged is involvement with subject matter-oriented motor activities related to the goals of the setting. Thus the categories under the heading not motor engaged may include motor activity, but not subject matter-oriented motor activity. It includes Motor Appropriate (MA) that is when the student is engaged in a subject matter motor activity

in such a way as to produce a high degree of success and Motor Inappropriate (MI) is when student is engaged in a subject matter-oriented activity, but the activity-task is either too difficult for the individual's capabilities or so easy that practicing it could not contribute to lesson goals. Supporting (MS) is when the student is engaged in subject matter motor activity whose purpose is to assist others in learning or performing the activity. All these are the category descriptions of the Academic Learning Time interval recording instrument designed by Siedentop, Tousignant and Parker (1982). The summary of this instrument was presented in appendix b.

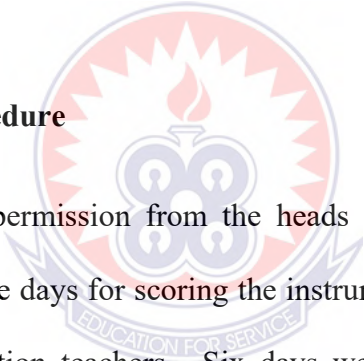
### **3.4 Training Procedure**

The researcher with three research assistants who were also physical education teachers underwent training of how to code the interval recording instrument designed by Siedentop, Tousignant and Parker (1982). The researcher provided printed materials to learn sufficient definitions so that distinctions among categories are clear with the research assistants. This was first done by observing studying and learning the category descriptions used in the academic learning time in physical education interval recording sheet. Secondly, the researcher with the assistants used pre-recorded six seconds "observe" and six seconds "record", audio record as a cue to code physical education practical lessons taught by a colleague P.E. teacher in his school to ascertain the coding events. Also, the researcher and the assistants then made three days observation recording on a videotape PE practical lessons of some mentees on teaching practice and compared the data. The research assistants were made to practice until they met a reliability standard.

The research assistants were finally trained on how to use inter observer agreement calculation techniques. They were trained to understand that data can be presented as a percentage of each category and that this system provides a total picture of what the class does throughout a lesson and it presents the picture of the involvement of several students.

The training procedure took ten days and the data collected in each day were immediately compared by the researcher and the research assistants and there were high level of consistency in the results. All that took two week before the actual data for the study were collected.

### **3.5 Data Collection Procedure**

The logo of the University of Education, Winneba, is a circular emblem. It features a central lamp with a flame, set against a background of a sunburst. Below the lamp is a banner with the motto "EDUCATION FOR SERVICE". The entire emblem is surrounded by a decorative border.

The researcher obtained permission from the heads of the concerned teachers before scoring the instrument. The days for scoring the instrument were also scheduled with the concerned physical education teachers. Six days were used for the exercise and the lessons were tennis serve in volleyball, over arm pass in handball, shooting with the instep of the foot in soccer, forward roll in gymnastics, three cross step running rhythm in javelin throw and non-visual method of baton changing in athletics. The targeted student in each lesson was given a tag as a means of easy identification and all lessons were taught in the morning for data collection based on the teacher observation schedule.

The researcher used interval recording method which involves the observer counting the number of motor appropriate (MA) practice trials at an appropriate level of difficulty.

For reliability and validation, the researcher compared his result with one of the observers and the other two observers also compared theirs using the percentage stated below and there were high percentages of agreement in the result. The process was repeated on the following day and there were high level of agreement and consistency in the results.

$$\frac{\textit{Agreements}}{\textit{Agreement + Disagreement}} \times 100 = \% \textit{ of Agreements}$$

The reliability refers to the degree to which independent observers agree on what they see and record. Also, the researcher satisfied the reliability by making sure that observers eschewed visual or auditory cues that could be used to detect the observations being made.

Agreement is the number of the same episode or agreements of the two observers on the same lesson while disagreement is the number of different episode coded or disagreements of the two observers on the same lesson.

However, the academic learning time in physical education was calculated by counting all the intervals that had motor appropriate (MA) recorded at the learner involvement level, divided by the number of intervals, multiplied by hundred. That was percentage figure calculated as;

$$\frac{\textit{Number of motor appropriate}}{\textit{Number of intervals}} \times 100\% = \textit{Academic Learning time in Physical Education}$$

### **3.6 Data Analysis Procedure**

The data collected through interval recording for lessons taught by trained and untrained physical education teachers were analysed using the two level hierarchical decision-making systems of the instrument which are in five categories. These are the general content, the subject matter knowledge, the subject matter motor, not motor engaged and motor engaged. The data collected were analysed using percentages in tables, mean percentages (average) and bar graphs. One student in each lesson was used as a targeted student to represent highly skilled, average skilled and low skilled after which the researcher and the research assistants compared the data collected and discussed the lessons. Besides, the data collected was also analyzed in narrative and descriptive manner.



## CHAPTER FOUR

### RESULTS, FINDINGS AND DISCUSSION

#### 4.1 Results

The purpose of this study was to assess academic learning time of lessons taught by trained and untrained physical education teachers in Akim Oda District Senior High Schools. This chapter presents data on how trained and untrained physical education teachers dispensed time for students to learn skills at an appropriate level of difficulty with more success rate than error rate. Descriptive statistics were conducted and the categories under investigation were expressed as percentages in tables, mean percentages in tables (average) and charts.

Before the number of intervals for each targeted student was counted, the raw data recording sheets were scrutinized for missed intervals or coding errors after which the occurrence for each behavior category was counted and converted to percentage figures by dividing the occurrences by the total number of observed intervals.

However, academic learning time in physical education (ALT-PE) was calculated by counting all intervals that had motor appropriate (MA) recorded at the learner involvement level, divided by the number of observed intervals, multiplied by hundred.

Based on the research questions and the hypothesis of the study, the researcher desired to determine the percentage of occurrence for the facets of the two hierarchical decision making system of the instrument used. Mean percentage of the results were finally found



for each category descriptions (each sub-component) for the three trained and three untrained physical education teachers. The mean percentages (average) were also found by summing the percentages of each category description (each sub-component) of occurred behavior in the academic learning time interval recording sheet for the three trained physical education teachers, divide by three. The same method was used to calculate the mean percentage for the three untrained physical education teachers. The primary notion of such analyses was to find out where in the practical lessons did trained and untrained physical education teachers spent much time (highest time) for a particular behavior in each sub-component on the academic learning time interval recording sheet and the disparities that existed between trained and untrained physical education teachers in the teaching of the practical lessons.

#### **4.2 Results of Lesson Context Facet of ALT-PE**

The outcome of lesson context level of academic learning time in physical education was discussed taking the three sub-categories into consideration. The first category was general content; this is the class time during which students were not intended to be involved in physical education activities. The second category was the subject matter knowledge content which was the class time when the primary focus was intended to be on knowledge related to physical education content. The third category was the subject matter motor content which was the class time when the primary focus was intended to be on motor involvement in physical education activities.

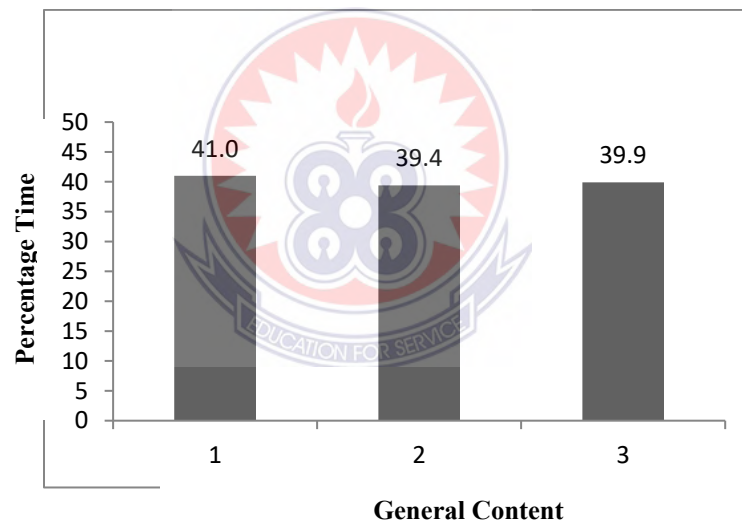
## 2.1 Results of Lessons' General Content for Each Trained P.E. Teacher

The results of lesson general content of academic learning time in physical education indicated that trained physical education teacher one spent 41.0% of the class time, trained teacher two spent 39.4% and trained teacher three spent 39.9% respectively.

Detailed of the results were presented in table 1 and figure 1 below.

**Table 1. Percentage Time Results of General Content Category for Each Trained P.E. Teacher.**

General Content	Teacher One	Teacher Two	Teacher Three
Transition (T)	10.9	9.7	10.2
Management (M)	7.5	8.2	6.4
Break (B)	0.0	0.3	0.1
Warm up (WU)	22.6	21.2	23.2
<b>Total Percentage (%)</b>	<b>41.0%</b>	<b>39.4%</b>	<b>39.9%</b>



**Figure 1. Graphical Representations of Percentage Time Results For Each Trained P.E. Teacher In General Content Category.**

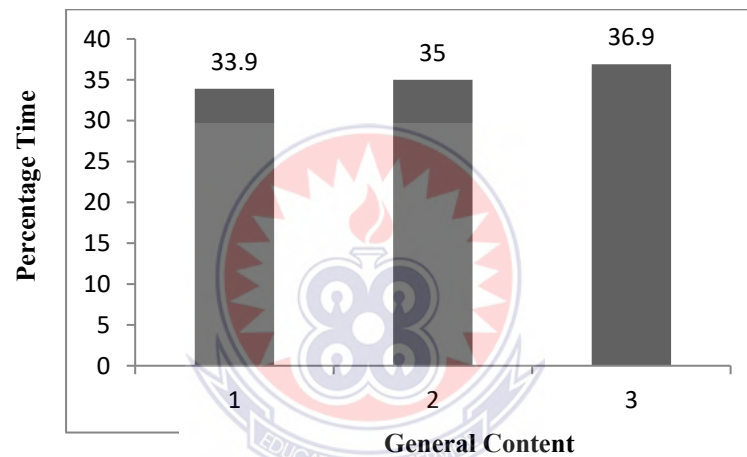
## 4.2.2 Results of Lessons' General content for Each Untrained P.E. Teacher

The results of untrained physical education teachers indicated that, untrained teacher one devoted 33.9% of the class time for the general content, untrained teacher two spent 35.0% of the class time and untrained teacher three also spent 36.9% of the class time for

the general content category of the lessons taught. However, detailed of these results were presented in table 2 and figure 2 below.

**Table2. Percentage Time Results Of General Content Category For Each Untrained P. E. Teacher.**

<b>General Content</b>	<b>Teacher One</b>	<b>Teacher Two</b>	<b>Teacher Three</b>
Transition (T)	9.9	10.0	11.2
Management (M)	12.0	10.9	12.5
Break (B)	0.0	0.0	0.0
Warm up (WU)	12.0	14.1	13.2
<b>Total Percentage (%)</b>	<b>33.9%</b>	<b>35.0%</b>	<b>36.9%</b>



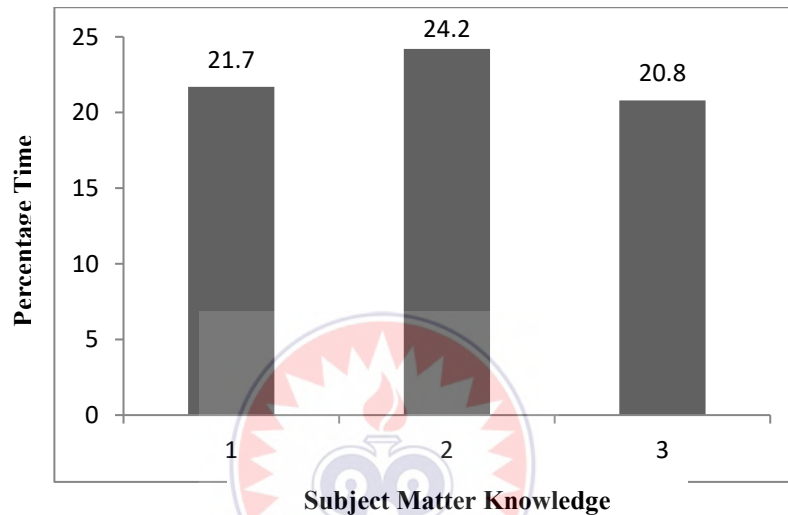
**Figure 2. Graphical Representations Of Percentage Time Results For Each Untrained P.E. Teacher In General Content Category.**

#### **4.2.3 Results of Subject Matter Knowledge For Each Trained P.E. Teacher.**

Result of the subject matter knowledge for each trained physical education teacher showed that, trained teacher one spent 21.7% of the class time, trained teacher two spent 24.2% and trained teacher three spent 20.8% respectively. Table 3 below presented detailed about the results.

**Table 3. Percentage Time Results of Subject matter knowledge for Each Trained P.E. Teacher**

<b>Subject matter knowledge</b>	<b>Teacher One</b>	<b>Teacher Two</b>	<b>Teacher Three</b>
Technique (TN)	11.3	12.5	10.4
Strategy (ST)	7.2	7.4	6.8
Rules ®	0.4	0.3	0.4
Social behavior (SB)	0.3	0.4	0.3
Background (BK)	2.5	3.6	2.9
<b>Total Percentage (%)</b>	<b>21.7%</b>	<b>24.2%</b>	<b>20.8%</b>

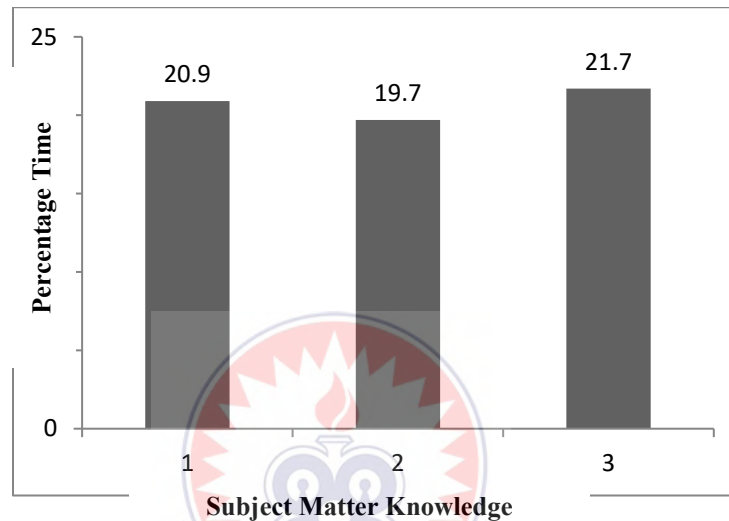
**Figure 3. Graphical Representations of Percentage Time Results Of Subject Matter Knowledge For Each Trained P.E. Teacher.**

#### **4.2.4 Results of Subject Matter Knowledge for Each Untrained P.E Teacher.**

Untrained physical education teacher one spent 20.9% for subject matter knowledge, untrained teacher two spent 19.7% and untrained teacher three spent 21.7% respectively for subject matter knowledge. Table 4 and figure 4 below presented detailed of the percentage time results of the subject matter knowledge for each untrained physical education teacher.

**Table 4. Percentage Time Results Of Subject Matter Knowledge For Each Untrained P.E. Teacher.**

<b>Subject matter knowledge</b>	<b>Teacher One</b>	<b>Teacher Two</b>	<b>Teacher Three</b>
Technique (TN)	8.0	7.0	9.1
Strategy (ST)	9.1	9.3	8.2
Rules (R)	0.2	0.3	0.4
Social behavior (SB)	2.0	2.1	2.9
Background (BK)	1.6	1.0	1.1
<b>Total Percentage (%)</b>	<b>20.9%</b>	<b>19.7%</b>	<b>21.7%</b>



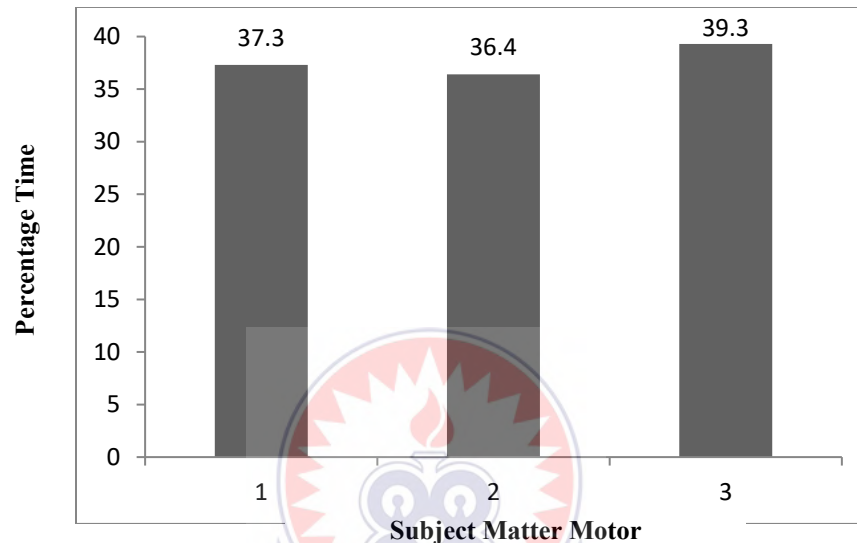
**Figure 4. Graphical Representations Of How Each Untrained P.E. Teacher Dispensed Percentage Time For Subject Matter Knowledge.**

#### **4.2.5 Results Of Subject Matter Motor For Each Trained P.E Teacher**

The percentage results of the subject matter motor level of the lessons taught by trained physical education teachers indicated that, trained teacher one spent 37.3% of the class time for subject matter motor, trained teacher two spent 36.4% of the class time and trained teacher three also devoted 39.3% of the class time respectively. Table 5 and figure 5 below showed detailed about the results.

**Table 5. Percentage Time Results of Subject Matter Motor Content for Each Trained P.E. Teacher.**

<b>Subject matter Motor</b>	<b>Teacher One</b>	<b>Teacher Two</b>	<b>Teacher Three</b>
Skill Practice (P)	27.7	26.6	28.9
Scrimmage (S)	3.5	3.4	3.0
Game (G)	4.9	6.0	6.3
Fitness (F)	1.2	0.4	1.1
<b>Total Percentage (%)</b>	<b>37.3%</b>	<b>36.4%</b>	<b>39.3%</b>

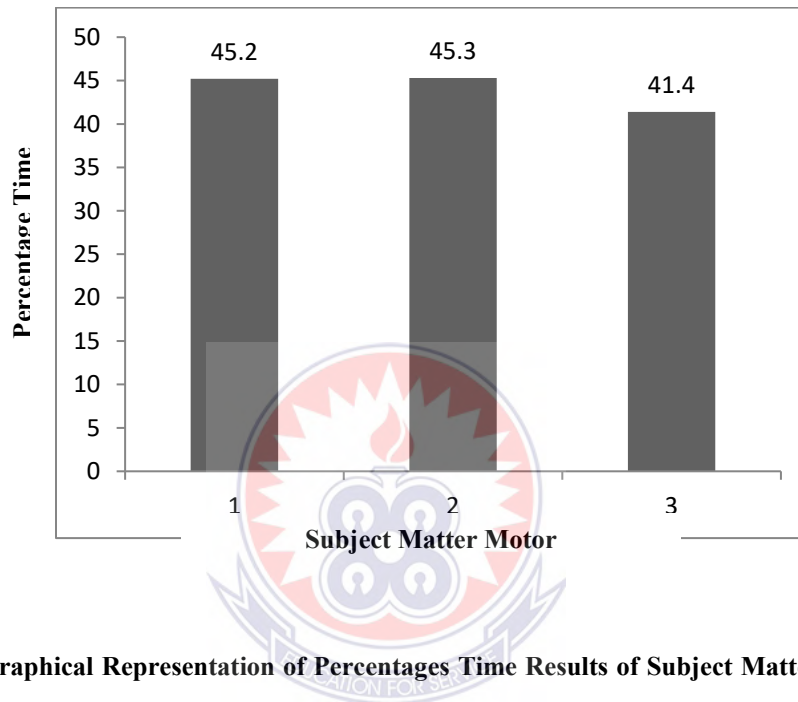
**Figure 5. Graphical Representation Of Subject Matter Motor Percentage Time Results For Each Trained P.E. Teacher**

#### 4.2.6 Results Of Subject Matter Motor For Each Untrained P.E. Teacher

The percentage results of the subject matter motor level of lessons taught by untrained physical education teachers showed that, untrained teacher one spent 45.2% of the class time, untrained teacher two spent 45.3% of the class time and untrained teachers three also devoted 41.4% of the class time respectively. Table 6 and figure 6 below gave detailed about the results.

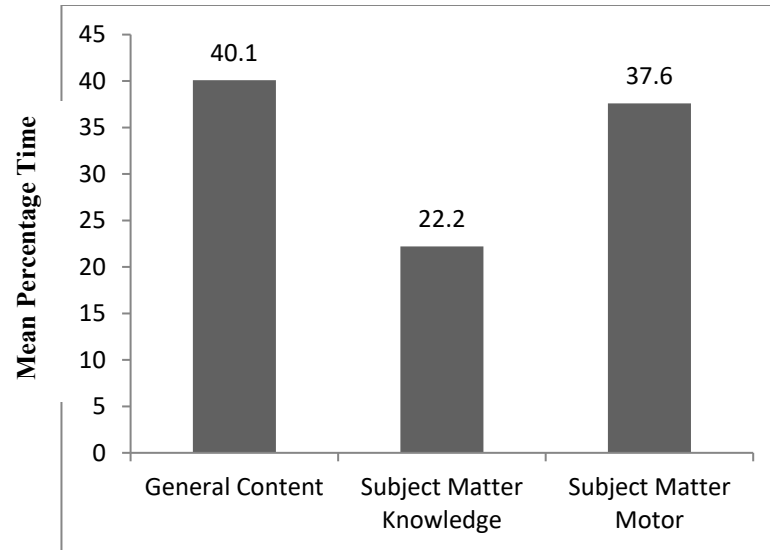
**Table 6. Percentage Time Results of Subject Matter Motor Content for Each Untrained Physical Education Teacher.**

<b>Subject matter Motor</b>	<b>Teacher One</b>	<b>Teacher Two</b>	<b>Teacher Three</b>
Skill Practice (P)	26.0	27.6	25.9
Scrimmage (S)	6.7	5.1	4.1
Game (G)	11.7	11.6	10.6
Fitness (F)	0.8	0.9	0.8
<b>Total Percentage (%)</b>	<b>45.2%</b>	<b>45.3%</b>	<b>41.4%</b>

**Figure 6. Graphical Representation of Percentages Time Results of Subject Matter Motor for Each untrained P.E. Teacher.**

#### **4.2.7 Mean Percentage Results (Average) of Context Facet for Trained P.E Teachers.**

The mean percentage results of lessons context facet showed that trained physical education teachers spent 40.1% of the class time for general content, 22.2% for subject matter knowledge and 37.6% for subject matter motor content. Figure 7 below presents graphical representation of mean percentage time (average time) for trained physical education teachers.

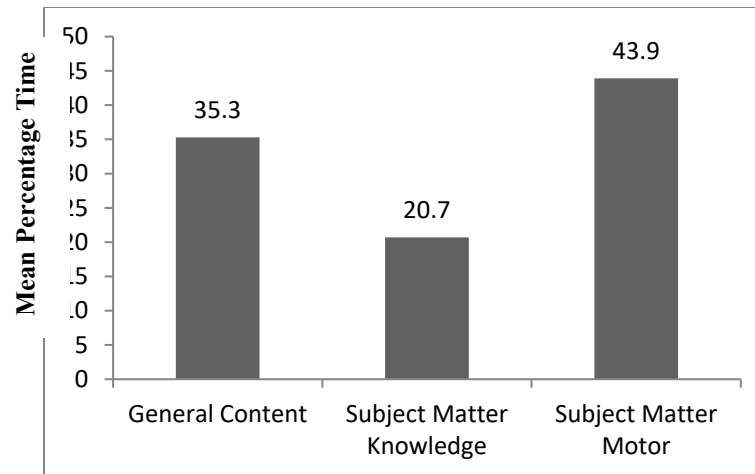


**Figure 7. Graphical Representation of Mean Percentage Time Results (Average) of Lesson Context for Trained P.E Teachers.**

#### **4.2.8 Mean Percentage Results (Average) of Lesson Context Facet for Untrained P.E Teachers.**

The results indicated that untrained physical education teachers spent 35.3% of the class time for general content, 20.7% for subject matter knowledge and 43.9% for subject matter motor content. Figure 8 below showed graphical representation of mean percentage time results of lesson context for untrained physical education teachers.





**Figure 8. Graphical Representation of Mean Percentage Time Results Of Lesson Context For Untrained P.E. Teachers.**

#### **4.3 Results of Learner Involvement Category Description of ALT – P.E**

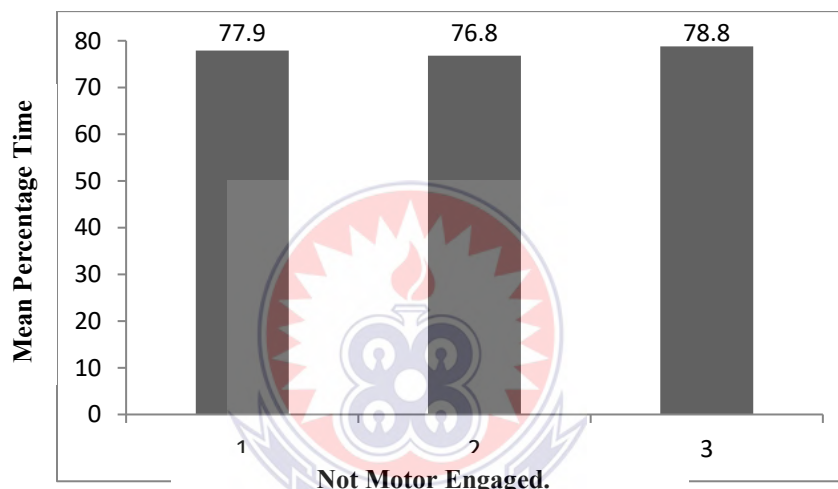
The learner involvement level described how individual learners were involved in the physical education setting. It encompassed two facets, not motor engaged and motor engaged. Not motor Engaged is any student involvement other than motor involvement with subject matter oriented motor activities while motor Engaged is motor involvement with subject matter –oriented motor activities related to the goals of the setting.

##### **4.3.1 Percentage Results of Not Motor Engaged For Each Trained P.E. Teacher.**

The percentage results of not motor engaged level indicated that, trained physical education teacher one spent 77.9% of the class time, trained physical education teachers two spent 76.8% of the class time and trained physical education teacher three spent 78.8% of the class time respectively. Table 7 and figure 9 below presented detailed of the results.

**Table 7. Percentage Results of Not Motor Engaged For Each Trained Physical Education Teacher.**

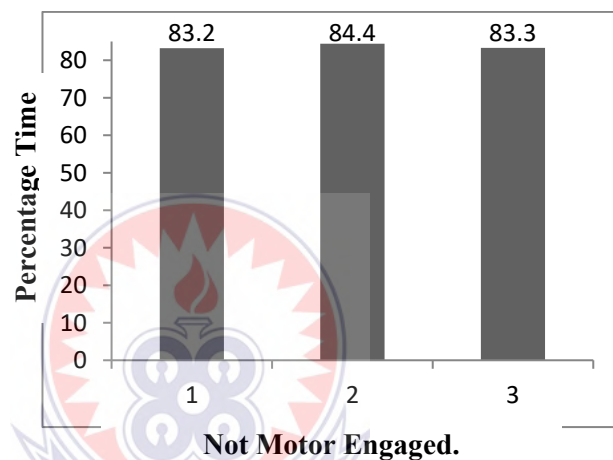
<b>Not Motor Engaged</b>	<b>Teacher one</b>	<b>Teacher two</b>	<b>Teacher three</b>
Interim (I)	0.4	0.6	0.9
Waiting (W)	13.5	13.2	12.2
Off –Task (OF)	1.6	2.3	3.3
On – Task (ON)	62.1	59.7	61.3
Cognitive ©	0.3	1.0	1.1
<b>Total percentage (%)</b>	<b>77.9%</b>	<b>76.8%</b>	<b>78.8%</b>

**Figure 9. Graphical Representation of Percentage Time Results of Not Motor Engaged For Each Trained P.E. Teacher.****4.3.2 Percentage Results of Not Motor Engaged For Each Untrained P.E. Teacher.**

Untrained physical education teacher one spent 83.2% of the class time for not motor engaged, untrained physical education teacher two spent 84.4% of the class time and untrained physical education teacher three also devoted 83.3% of the class time for not motor engaged level of the lessons taught. Table 8 and figure 10 below present detailed of percentage time results spent by each untrained physical education teachers for not motor engaged of the learner involvement category of ALT-PE lessons taught.

**Table 8. Percentage Results of Not Motor Engaged For Each Untrained P.E. Teacher**

<b>Not Motor Engage</b>	<b>Teacher one</b>	<b>Teacher two</b>	<b>Teacher three</b>
Interim (I)	2.3	2.1	3.2
Waiting (W)	22.3	23.4	21.9
Off –Task (OF)	38.0	36.9	37.7
On – Task (ON)	19.6	20.2	18.9
Cognitive ©	1.0	1.8	1.6
<b>Total percentage (%)</b>	<b>83.2%</b>	<b>84.4%</b>	<b>83.3%</b>

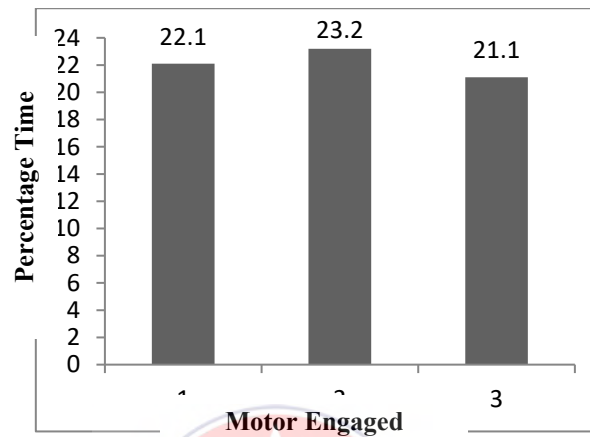
**Figure 10. Graphical Representation of Not Motor Engaged Percentage Time For Each Untrained P.E. Teachers.**

#### **4.3.3 Percentage Time Results of Motor Engaged For Each Trained P.E. Teacher.**

The percentage time results for motor engaged level of lessons taught by trained physical education teachers showed that, trained teacher one spent 22.1% of the class time , trained physical education teacher two spent 23.2% of the class time and trained physical education teacher three also devoted 21.2% of the class time for motor engaged of the lesson taught. Table 9 and figure 11 below present detailed of the results.

**Table 9. Percentage Time Results of Motor Engaged For Each Trained P.E. Teacher.**

<b>Motor Engaged</b>	<b>Teacher one</b>	<b>Teacher two</b>	<b>Teacher three</b>
Motor Appropriate (MA)	21.1	22.0	20.1
Motor Inappropriate (MI)	0.5	0.8	0.6
Supporting (MS)	0.5	0.4	0.5
<b>Total percentage (%)</b>	<b>22.1%</b>	<b>23.2%</b>	<b>21.2%</b>

**Figure 11. Graphical representation of Percentage Time Results of Motor Engaged for Each Trained P.E. Teacher.**

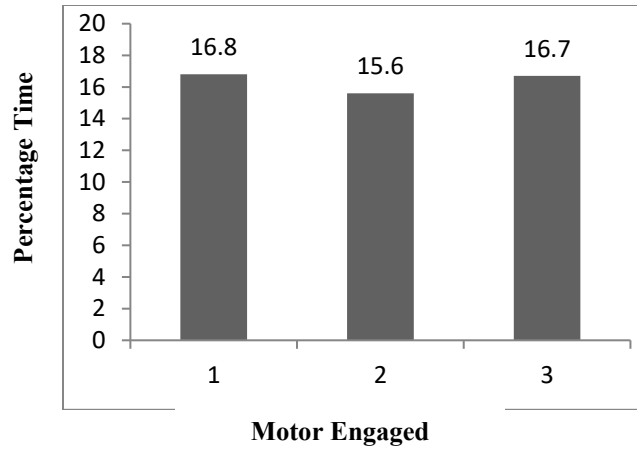
#### 4.3.4 Percentage Time Results of Motor Engaged For Each Untrained P.E. Teacher

Untrained physical education teacher one spent 16.8% of the class time for motor engaged, untrained physical education teacher two spent 15.6% of the class time and untrained physical education teacher three spent 16.7% of the class time respectively.

Detailed about the percentage time results of motor engaged for each untrained P.E. teacher has been displayed in table 10 and figure 12 below.

**Table 10. Percentage Time Results Of Motor Engaged for Each Untrained P.E. Teacher**

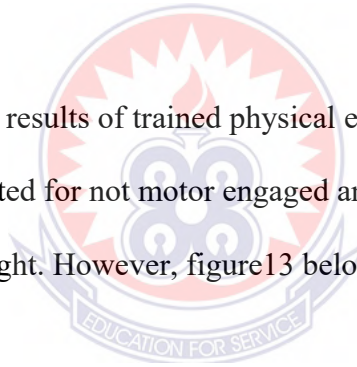
<b>Motor Engaged</b>	<b>Teacher one</b>	<b>Teacher two</b>	<b>Teacher three</b>
Motor Appropriate (MA)	9.3	8.8	7.9
Motor Inappropriate (MI)	7.2	6.6	8.7
Supporting (MS)	0.3	0.2	0.1
<b>Total percentage (%)</b>	<b>16.8%</b>	<b>15.6%</b>	<b>16.7%</b>

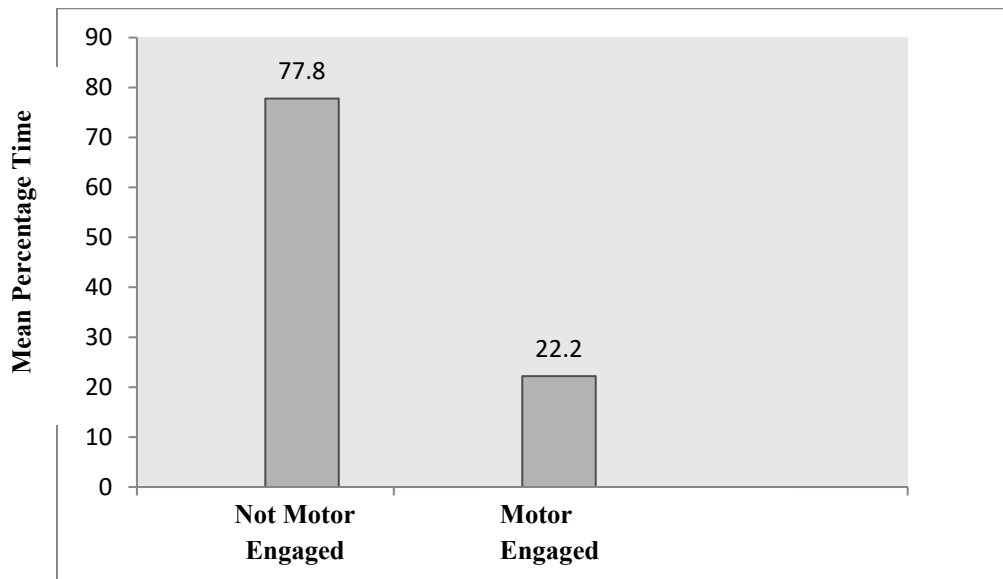


**Figure 12. Graphical Presentation of Motor Engaged Percentage Time Results for Each Untrained P.E. Teacher**

#### **4.3.5. Mean Percentage Time Results (Average) of Learner Involvement Facet For Trained P.E. Teachers**

The mean percentage time results of trained physical education teachers indicated that 77.8% of the class time was devoted for not motor engaged and 22.2% was also spent for motor engaged of the lessons taught. However, figure 13 below presents detailed of the results

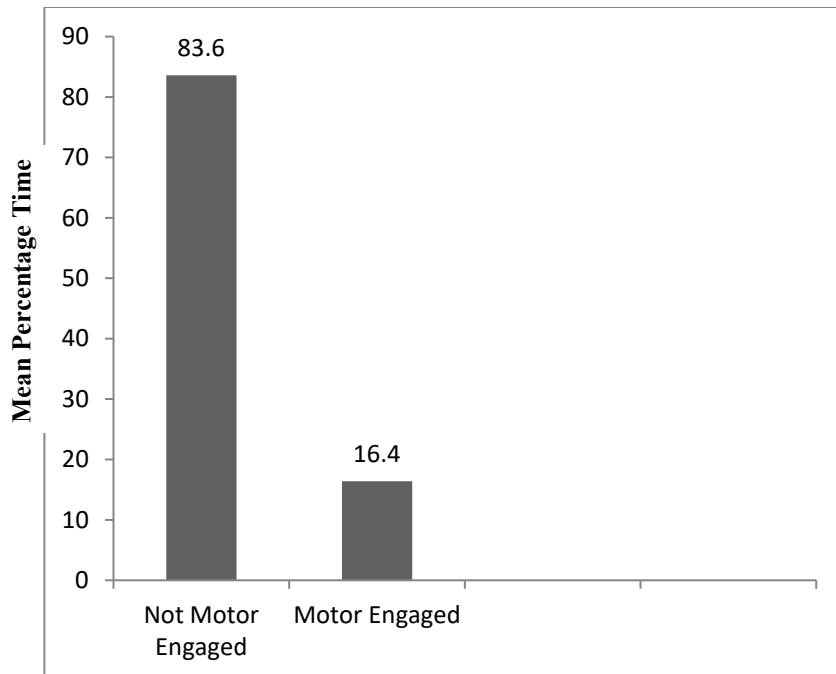




**Figure 13. Graphical Representation of Mean Percentage Time Results (Average ) of Learner Involvement Facet For Trained P.E. Teachers.**

#### **4.3.6. Mean Percentage Time (Average Time) Results of Learner Involvement Facet For Untrained P.E. Teachers.**

The mean percentage time results of learner involvement facet showed that untrained physical education teachers spent 83.6% of the class time for not motor engaged and devoted 16.4% of the class time for motor engaged category of the lessons taught. Figure 12 below also presents detailed about the results.



**Figure 14. Graphical Representation of Mean Percentage Time Results (average) of Learner Involvement Facet For Untrained Physical Education Teachers.**

#### **4.4 Findings of Mean Percentage Time (Average) Results for Context Facet.**

Descriptive statistics was conducted to determine what phase (sub-component) of the practical lesson did trained and untrained physical education teachers spend much time based on the ALT –PE interval recording instrument. The analysis of results for context level includes general content, subject matter knowledge and subject matter motor content.

The mean percentage results of the general content level showed clearly that trained physical education teachers spent much time of 22.3% for warm-up, while untrained physical education teachers spent much time of 13.1% for warm –up. Trained physical education teachers also devoted 10.3% for transition while untrained physical education teachers spent 10.4% for transition. Besides, trained physical education teacher devoted

7.4% of the class time for management while untrained physical education teachers spent 11.8% of the class time for management. However, trained physical education teachers devoted total summary of 40.1% of the class time for the general content category while untrained physical education teachers also spent total summary of 35.3% of the class time in the general content level.

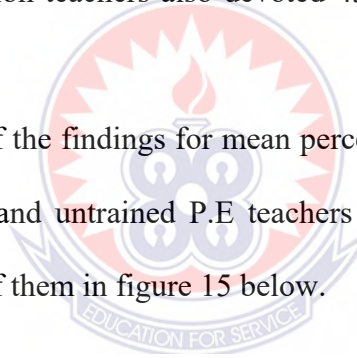
The mean percentage results of the subjects matter knowledge content showed that trained physical education teachers spent much time (highest time) of 11.4% on technique while untrained physical education teachers spent much time of 8.9% for strategy, among the subject matter knowledge sub-components. Trained physical education teachers spent 7.1% of the class time for strategy while untrained physical education teachers spent 8.0% of the class time for technique. In addition, trained physical education teachers spent 0.4% of the class time for rules while untrained physical education teachers also devoted 0.3% of the class time for rules. Trained physical education teachers spent 0.3% for social behavior while untrained physical education teacher spend 2.3% of the class time for social behavior. Trained physical education teachers spent 3.0% of the class time for background while untrained physical education teachers spent 1.2% of the class time for background. However, trained physical education teachers devoted the total summary of 22.2% of the class time for subject matter knowledge in the context category while untrained physical education teachers spent 20.7% for the same subject matter knowledge.

The mean percentage results of the subject matter motor content level showed that trained physical education teachers spent much time (highest time) of 27.7% for skill practice



while untrained physical education teachers also devoted much time of 26.5% for skill practice. Trained physical education teachers devoted 3.3% of the class time for scrimmage while untrained physical education teachers spent 5.3% of the class time for scrimmage. In addition, trained physical education teachers spent 5.7% of the class time for game while untrained physical education teachers spent 11.3% of the class time for game. Also, trained physical education teachers devoted 0.9% of the class time for fitness while untrained physical education teachers spent 0.8% of the class time for fitness. However, trained physical education teachers spent the total summary of 37.6% of the class time for subject matter motor content sub-component in the context level while untrained physical education teachers also devoted 43.9% of the class time in the same level.

The summary analysis of the findings for mean percentage results (average time) of the context facet for trained and untrained P.E teachers are presented in table 11 and the graphical representation of them in figure 15 below.

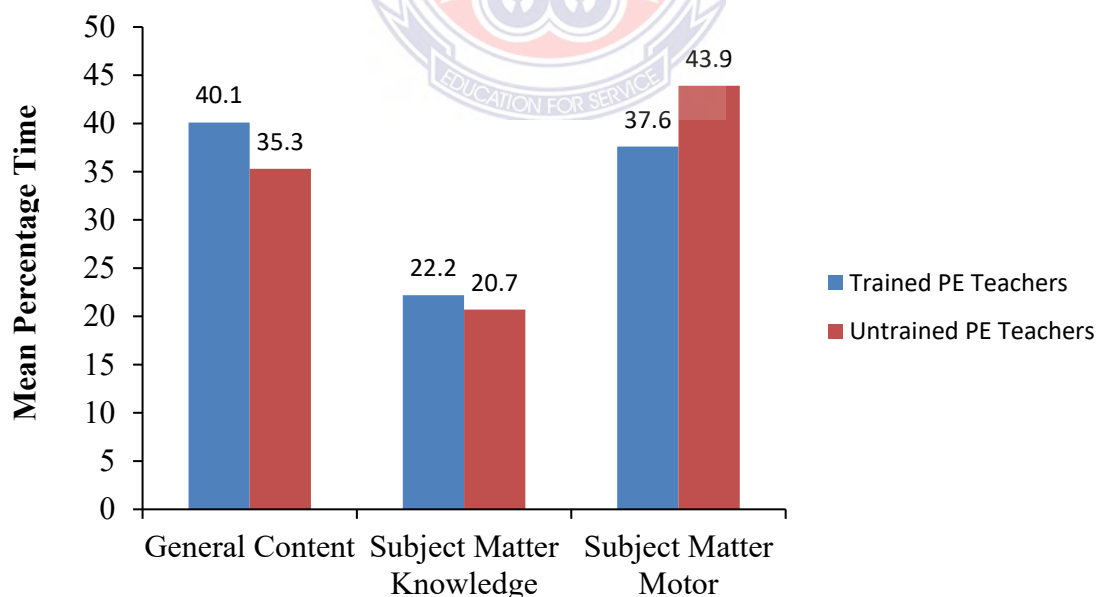


**Table 11. Summary Of Mean Percentage Results/Findings (Average) Of The Context Facet For Trained And Untrained P.E. Teachers**

<b>General Content</b>	<b>Trained PE Teacher</b>	<b>Untrained PE Teacher</b>
Transition (T)	10.3	10.4
Management (M)	7.4	11.8
Break (B)	0.1	0.0
Warm up (WU)	22.3	13.1
<b>General content total</b>	<b>40.1%</b>	<b>35.3%</b>

<b>Subject matter knowledge</b>	<b>Trained PE Teacher</b>	<b>Untrained PE Teachers</b>
Technique (TN)	11.4	8.0
Strategy (ST)	7.1	8.9
Rules (R)	0.4	0.3
Social behavior (SB)	0.3	2.3
Background (BK)	3.0	1.2
<b>Total Percentage (%)</b>	<b>22.2%</b>	<b>20.7%</b>

<b>Subject matter Motor content</b>	<b>Trained PE Teacher</b>	<b>Untrained PE Teacher</b>
Skill Practice (P)	27.7	26.5
Scrimmage (S)	3.3	5.3
Game (G)	5.7	11.3
Fitness (F)	0.9	0.8
<b>Subject Matter Motor Content</b>	<b>37.6%</b>	<b>43.9%</b>
	<b>100%</b>	<b>100%</b>

**Figure 15. Graphical Representation of Summary Results (average) of Context Level For Trained And Untrained P.E. Teachers.**

#### **4.5 Findings Of Mean Percentage Results (Average) of Learner Involvement Facet For Trained And Untrained P.E. Teachers.**

Differences were found between lessons taught by trained and untrained physical education teachers. The mean percentage time results (average) for learner involvement category encompassed not motor engaged and motor engaged. The results of not motor engaged explicitly indicated that, trained physical education teachers spent much time (highest time) for on-task which was 61.0% while untrained physical education teachers also devoted much time (highest time) of 37.5% for off-task in not motor engaged sub-component of the study. Besides, trained physical education teachers spent 0.6% of the class time for interim but untrained physical education teachers spent 2.5% for interim. Waiting time spent by trained physical education teachers was 13.0% while untrained physical education teachers also spent 22.5% of the class time waiting. 0.8% was devoted by trained physical education teachers on cognitive while untrained physical education teachers also devoted 1.5% for cognitive. However, the total mean percentage time devoted by trained physical education teachers for not motor engaged was 77.8% while untrained physical education teachers used 83.6% for not motor engaged in the learner involvement facet of the study.

Most importantly, the mean percentage results for motor engaged sub-component indicated that trained physical education teachers devoted the highest time (much time) of 21.1% for motor appropriate while untrained physical education teachers also spent 8.7% as the highest or much time for motor appropriate. Motor inappropriate time spent by trained physical education teachers was 0.6% while untrained physical education teachers spent 7.5% for motor inappropriate. In addition, trained physical education teachers

devoted 0.5% for supporting while untrained physical education teachers also devoted 0.2% for supporting. However, the summary results showed that, trained physical education teachers spent 22.2% of the class time for motor engaged while untrained physical education teachers devoted 16.4% of the class time for motor engaged in the learner involvement facet of the study.

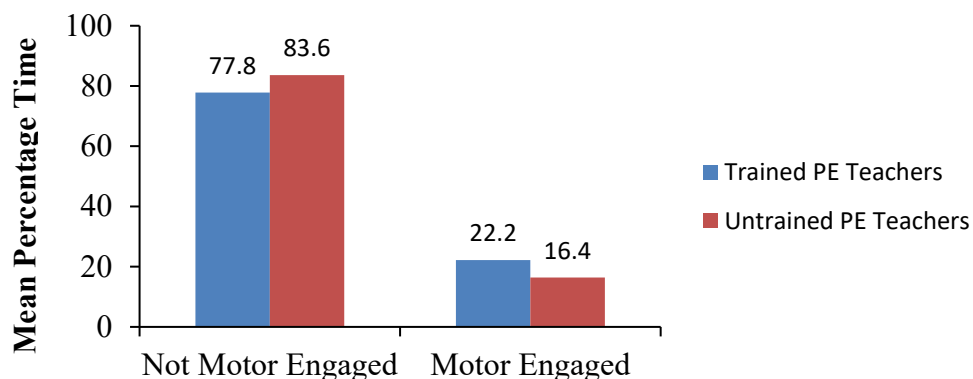
The summary of the findings for mean percentage time (average) results of the learner involvement facet was presented in table 12 and the graphical representation of them had also been given in figure 16 below.

**Table 12. Summary Results /Findings (Average) Of Learner Involvement Facet For Trained And Untrained P.E. Teachers**

<b>Not Motor Engaged</b>	<b>Trained PE Teachers</b>	<b>Untrained PE Teachers</b>
Interim (I)	0.6	2.5
Waiting (W)	13.0	22.5
Off –Task (OF)	2.4	37.5
On – Task (ON)	61.0	19.6
Cognitive (C)	0.8	1.5
<b>Total mean percentage time (%)</b>	<b>77.8%</b>	<b>83.6%</b>

<b>Motor Engage</b>	<b>Trained PE Teachers</b>	<b>Untrained PE Teacher</b>
Motor Appropriate (MA)	21.1	8.7
Motor Inappropriate (MI)	0.6	7.5
Supporting (MS)	0.5	0.2
<b>Total Mean Percentage (%)</b>	<b>22.2%</b>	<b>16.4%</b>
	<b>100%</b>	<b>100%</b>



**Figure 16. Graphical Representation Of Mean Percentage (Average) Results Of Learner Involvement Facet For Trained And Untrained P. E. Teachers.**

### **Research Question 1**

What phase of the practical lesson do trained physical education teachers spend much time based on the teachers observation schedule?

The results of context phase showed that trained physical education teachers spent much time (highest time) on lesson's general content category, which was 40.1% of the class time. However, out of the 40.1%, 22.3% of the class time was devoted for warm-up. Besides, in the learner involvement facet, trained physical education teachers devoted much time (highest time) for not motor engaged which was 77.8% but out of it, 61.0% of the class time was devoted for on-task.

### **Research Question 2**

What phase of the practical lesson do untrained physical education teachers spend much time based on the teacher observation schedule?

The results of context phase showed that untrained physical education teachers spent much time (highest time) for subject motor content phase which was 43.9%. However, in the learner involvement facet, untrained physical education teachers devoted much time (highest time) for not motor engaged which was 83.6%. But out of the 83.6%, 37.5% was devoted for off-task behaviors.

### **Research Question 3**

What difference exists in use of time between the trained and untrained physical education teachers during the practical lesson?

The finding showed that trained physical education teachers spent more time for on-task, 61.0% than untrained physical education teachers who devoted more time of 37.5% for off-task behaviors. Trained physical education teachers devoted 2.4% of the class time for off-task behaviors. Also, untrained physical education teachers devoted more time of 22.5% for waiting than trained physical education teachers who spent 13.0% of the class time for waiting for the next instruction or opportunity to respond. Most importantly, untrained physical education teachers devoted more time of 21.1% for motor appropriate than untrained physical education teachers who spent 8.7% of the class time for motor appropriate.

#### **4.6 Discussion of the Findings**

It was found that trained physical education teachers spent 22.3% of the class time for warm-up which was more than 13.1% of the class time devoted by untrained physical education teachers for warm-up. Experts confirmed that warm-up time is important because it increases muscle efficiency, reduces potential for muscle injury, improves reaction time and improves speed of movement of muscles and ligament. ([www.entraîneurdefoot.com/tousienglish.html](http://www.entraîneurdefoot.com/tousienglish.html), 3<sup>rd</sup> October, 2013). Experts added that the duration and intensity of warm-up should be adjusted according to the environmental temperature and the amount of clothing worn.

Besides, trained physical education teachers spent more time of 7.4% for management (m) while untrained physical education teachers also devoted much time of 11.8% for management. Minimal times on managerial episodes are needed using routines in order to maximize academic learning time in physical education.

In the learner involvement facet, the findings showed that trained physical education teachers spent 61.0% of the class time for on-task while untrained physical education teachers devoted 19.6% of the class time for on-task. “It is evident that, high rates of on-task are extremely important if learning is to take place. Students who are involved appropriately with a learning task will not be destructive” (Siedentop, 1983). Eventually, students can learn to stay on-task themselves, especially if they learn to like the subject and that may come from the teacher. They can become more self-directed and less in need of supervision. Student can be supported with positive feedback and praise for staying on-task, for trying hard and above all for getting better.

Also, untrained physical education teachers spent more time of 22.5% for waiting than trained physical education teachers who devoted 13.0% of the class time for waiting for the next instruction or opportunity to respond. The researcher believed that it was inappropriate for both trained and untrained physical education teachers. Using additional equipment which are appropriate taking students capabilities into account helps to decrease waiting time and increase activity time.

Furthermore, trained physical education teachers devoted 27.7% of the class time for skill practice while untrained physical education teachers also spent 26.5% of the class time for skill practice. Skill practice times were quite high of the lessons taught by trained and untrained physical education teachers.

*“Students who spend more time in good practice learn more. Similarly, if a physical educator wants students to learn motor skill, they have to be engaged with subject matter at an appropriate level of difficulty for a sufficient amount of time to produce learning.*

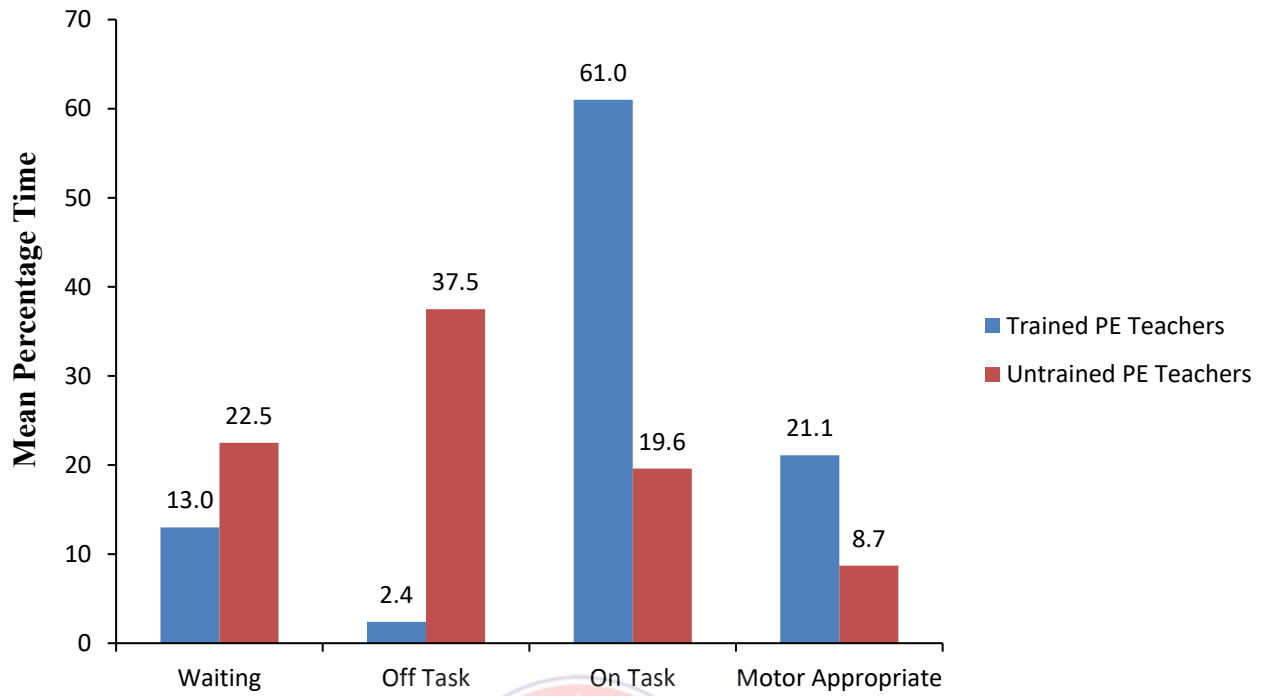
*Teachers who provide their students with more time to practice activities specifically related to learning objective are more effective". (Rink, 1996, Pg 171 – 172).*

In addition, untrained physical education teachers devoted much time of 37.5% for off-task which the researcher believed was inappropriate and ineffective because it was quite high. However trained physical education teachers devoted 2.4% of off-task. This was quite better. An effective teacher manages students well to decrease non-instructional disruptions and increase time for learning. After that he or she organizes that learning time with activities which match the students' capabilities so that an optimal amount of learning occurs (Siedentop, 1991).

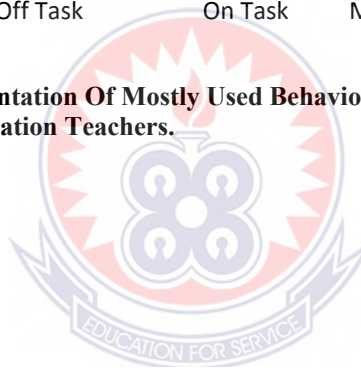
Most importantly, trained physical education teachers spent 21.1% of the class time for motor appropriate which was quite higher than the class time devoted by untrained physical education teachers for motor appropriate. Although effective teaching is a term that can be difficult to define in a precise manner, but it can be argued that teachers are viewed as effective in their teaching when students achieve intended learning outcomes. Academic learning time in physical education is quality learning time. The concept ALT-PE provides simple convenient criterion by which to judge teaching effectiveness in physical education (Siedentop 1980).

Figure 17 below is the graphical representation of mostly used behaviour results (average) of students in the study for the two group of teachers under study.





**Figure 17. Graphical Representation Of Mostly Used Behaviors Of Students In The Class Of Trained And Untrained Physical Education Teachers.**



## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Summary of the Findings

The purpose of this study was to assess academic learning time of lessons taught by trained and untrained physical education teachers in Akim Oda District Senior High Schools. This chapter dealt with summary, conclusion and recommendations

The researcher began by comparing the lesson context level and learner involvement category of the individual trained and untrained physical education teachers to find out the percentage time dispensation using academic learning time interval recording instrument in physical education which has two major facets with five sub-components. The findings for the trained physical education teachers indicated a logical harmony or consistency in the results and the three untrained physical education teachers also maintained different homogeneous standard in the percentage time. These findings showed that there were differences between trained and untrained physical education teachers in time dispensation which has influence on the students learning. The percentage time spent for students to practice the skills indicated that, the individual trained physical education teachers spent 21.1%, 22.0% and 20.1% respectively while the individual untrained physical education teachers also spent 9.3%, 8.8% and 7.9% for skill practice. That showed the homogeneity of the percentage time spent among the trained P.E. teachers and different homogeneity results among untrained physical education teachers. Therefore, there were heterogeneous states of the results between trained and untrained physical education teachers in the results of the study.

However, the analysis was finally based on the mean percentage time (average) dispensed by trained and untrained physical education teachers to unfold the much time (the highest time) spent at each level (each sub-component) of the lessons taught and the disparities that persisted based on the ALT-PE interval recording instruments .

### **5.1.1 Evaluation of the Mean Percentage Time of Lesson Context for Trained and Untrained Physical Education Teachers.**

The findings indicated that trained physical education teachers spent much time (highest time) of 22.3% in the lesson general content phase for warm-up but untrained physical education teachers spent 13.1% as the highest time or much time spent for warm-up. Experts confirmed that warm-up time is important because it increases muscles efficiency, reduces potential for muscle pulls, improves reaction time and improves speed of movement of muscles and ligaments, [www.entraineurdefoot.com/tousienglish.html](http://www.entraineurdefoot.com/tousienglish.html), 3rd, October, 2013).

Experts added that the duration and intensity of warm-up should be adjusted according to the environmental temperature and the amount of clothing worn. Also untrained physical education teachers devoted 11.8% of the time to class business that was unrelated to instructional activity (management) that was higher than 7.4% which trained physical education teachers devoted for management. However, trained physical education teachers spent 40.1% of the total class time for the lesson general content level while untrained physical education teachers spent 35.3% as the total class time.

In the subject matter knowledge content level, trained physical education teachers spent much time (highest time) of 11.4% for technique while untrained physical education

teachers spent much time of 8.9% for strategy among the subject matter knowledge sub-components. However, the total class time devoted for subject matter knowledge content showed that trained physical education teachers spent 22.2% of the class time while untrained physical education teachers spent 20.7% as the total class time in the subject matter knowledge content category.

The study of the subject matter motor content indicated that trained physical education teachers spent time (highest time) of 27.7% for skill practice while untrained physical education teachers also devoted 26.5% as time spent or the highest time spent for skill practice in that category of the study. However, trained physical education teachers spent the total class time of 37.6% for subject matter motor content level while untrained physical education teachers also spent the total class time of 43.9% for the subject matter motor content category in the context facet.

In summary, trained physical education teachers spent total class time of 27.6% for subject matter motor content while untrained physical education teachers also devoted 43.9% for subject matter motor in the lesson context category.

### **5.1.2 Evaluation of the Mean Percentage Time of Lesson's Learner Involvement and Total ALT - PE for Trained and Untrained Physical Education Teachers.**

In not motor engaged category of the learner involvement facet, trained physical education teachers spent time (highest time) of 61.0% for on-task, 13.0% for waiting and 2.4% for off-task while untrained physical education teachers devoted 37.5% for off-task as time (highest time) spent in that sub-component, 19.6% for on-task and 22.5% for waiting for the next instruction or opportunity to respond to a task. However, the total

class time devoted by trained physical education teachers for not motor engaged was 77.8% while untrained physical education teachers also devoted 83.6% for not motor engaged in the learner involvement facet.

Most importantly, trained physical education teachers spent much time (highest time) of 21.1% for motor appropriate, 0.6% for motor inappropriate and 0.5% for supporting while untrained physical education teachers also spent much time (highest time) of 8.7% for motor appropriate, 7.5% for motor inappropriate and 0.2% for supporting. However, the study revealed that trained physical education teachers devoted 22.2% as the total time spent for motor engaged in the learner involvement facet while untrained physical education teachers also devoted 16.4% for the motor engaged.

To be precise, trained physical education teachers devoted much time (highest time) of 61.0% on on-task behaviours while untrained physical education teachers also devoted 37.5% as the much time or the highest time for off-task behaviours in the learner involvement facet. However, in the academic learning time in physical education, trained physical education teachers devoted 21.1% for motor appropriate while untrained physical education teachers also spent 8.5% as the highest or much time spent in motor engaged sub-component.

## **.5.2 Conclusion**

The results of both trained and untrained physical education teachers in the general content level (sub-components) indicated that both teachers spent much time (highest time) for warm-up but there was significant difference or disparity between the percentage time spent by them. Trained physical education teachers devoted 22.3% of the

time for warm- up while untrained physical education teachers devoted 13.1% for warm-up.

The objective of warm- up is to raise total body temperature and muscles temperature to prepare the entire body for vigorous activity. The warm-up period prepares the cardiovascular system, respiratory system, nervous system and the musculoskeletal system by gradually increasing the demand on that system so that they are able to accommodate the demands of more strenuous activity. “In general, aim for five to ten minutes warm-up period before any workout”,

([www.livesstrong.com](http://www.livesstrong.com)>SportsandFitness>Fitness>Yoga, 17th October, 2013).

In the subject matter knowledge content level, trained physical education teachers spent the highest or much time of 11.4% for technique, thus time devoted to transmitting information concerning the physical form (topography) of motor skill while untrained physical education teachers also devoted 8.9% for strategy as the highest or much time spent among the subject matter knowledge content sub-component of the study.

Trained physical education teachers spent the highest or much time of 27.7% for skill practice while untrained physical education teachers also devoted much time (highest time) of 26.5% for skill practice in the subject matter motor content category of the study.

Besides, trained physical education teachers devoted 61.0% of the class time as the highest or much time spent for on-task in not motor engaged level while untrained physical education teachers devoted the highest time in that sub-component for off-task which was 37.5%. That also showed a great dichotomy between the performance between trained and untrained physical education teachers in not motor engaged sub-category of

learner involvement level of the study. Trained physical education teachers devoted 13.0% of the class time for waiting while untrained physical education teachers also spent 22.5% of the class time for waiting. Another significant difference was observed here.

Most importantly, trained physical education teachers used 21.1% as the highest time (much time) spent in the motor engaged level to engage the students in the subject matter motor activity with the objective to produce high degree of success (motor appropriate) while untrained physical education teachers also devoted 8.7% as the much time (highest time) devoted in motor engaged sub-component. The total mean percentage time devoted for motor engaged for trained physical education teachers was 22.2% while untrained physical education teachers also used 16.4%. This finding also unfolds a significant difference at this crucial level between the trained and untrained physical education teachers in the teaching of the practical physical education lesson.

Even though the results of this study indicated that there were ineffective class management by the research respondents in the teaching of the practical lessons, trained physical education teachers held the students accountable for their learning better than untrained physical education teachers taking the time devoted for on-task, off-task, waiting and motor appropriate into account towards the attainment of the lessons objectives.

Academic Learning Time in Physical Education is a duration analysis developed to measure the amount of time students spend in several components of a lesson. Its main purpose is to provide a measure of what percentage of class students are active versus what percentage of class is spent in undesirable behaviors such as waiting or off-task.

Based upon the results, several conclusions can be drawn and if necessary, improvements made.

### **5.3 Recommendations.**

1. It is recommended that Ghana Education Service in collaboration with physical education lecturers (experts) of the universities in Ghana should organize termly in-service training for physical education teachers in order to improve upon the pedagogical skills.
2. Ghana Education Service in collaboration with physical education lecturers of the universities in Ghana should organize yearly symposium for the head teachers of the second cycle schools, especially those of them who did not offer P.E. at the university level to differentiate between physical education and sports and the values of physical education to the students so that they will place premium on it as a subject worthy of teaching and learning.
3. Physical education teachers should endeavour to spend minimal time on managerial behavior using routines in order to maximize academic learning time in physical education.
4. Physical education teachers should improvise and use adequate teaching aids in order to minimize waiting time.
5. Also, head teachers should base on this study to accept only trained physical education teachers for the teaching of the subject.



6. Physical education teachers should hold their students accountable during the skill practice by actively monitor their work and give feedback as they perform to minimize off-task behaviours.



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## APPENDIX 'A'

### Akim Oda Location Map (Ghana)



## APPENDIX 'B'

### Academic Learning Time in Physical Education (ALT-PE) coding sheet

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
S	C																										

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
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S	C																										

#### CONTEXT LEVEL

#### LEARNER INVOLVEMENT LEVEL

GENERAL CONTENT	SUBJECT MATTER KNOWLEDGE	SUBJECT MATTER MOTOR	NOT MOTOR ENGAGED	MOTOR ENGAGED
Transition (T)	Technique (TN)	Skill Practice (P)	Interim (I)	Motor Appropriate (MA)
Management (M)	Strategy (ST)	Scrimmage/Routine (S)	Waiting (W)	Motor Inappropriate (MI)
Break (B)	Rules (R)	Game (G)	Off-task (OF)	Supporting (MS)
Warm Up (WU)	Social Behaviour (SB)	Fitness (F)	On-task (ON)	
	Background (BK)		Cognitive (C)	