DIAGNOSING THE DISPARITY BETWEEN STUDENTS LEARNING STYLE AND TEACHER'S MODE OF DELIVERY IN THE CURRENT COURSE BOOK IN PREPARATORY SCHOOL OF ETHIOPIA

(THE CASE OF PREPARATORY SCHOOLS AT SEGEN AREA PEOPLE'S ZONE OF SNNPRS.)

By: Mesfin Kuyo Ouro

A Thesis Submitted to

The Department of Applied Physics

School of Applied Natural Science

Presented in Partial Fulfillment of the Requirement for the Degree of Master's in Physics

Office of Graduate Studies

Adama Science and Technology University

August, 2017

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DECLARATION OF THE AUTHER

I hereby declare that this M.Sc. Thesis Dissertation is my original work and has not been presented for a degree in any other universities , and that all source of materials used for thesis Dissertation have been duly acknowledged.

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This M.Sc.thesis Dissertation had been submitted to for examination with my approval as thesis advisor.

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August, 2017

Adama, Ethiopia

APPROVAL SHEET

ADAMA SCIENCE AND TECHENOLOGY UNIVERSITY

SCHOOL OF APPLIED NATURAL SCIENCE
APPLIED PHYSICS PROGRAM

This is to certify that the thesis prepared by Mesfin Kuyo in titled "**Diagnosing the Disparity between Students Learning style and Teacher's Mode of Delivery in the Current Course Book in Preparatory School of Ethiopia (The case of preparatory at Segen area people's zone of SNNPRS)."** Submitted in partial fulfillment of the requirement for master of degree of science in physics complies with the regulation of the university and meets the accepted standards with respect to originality.

Signed by the examination committee

Name	**Signature**	**Date**
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ABSTRACT

This study investigates the disparity between students' learning style and teachers' mode of delivery in the current course book in preparatory school of Ethiopia (The case of preparatory schools in Segen area people's zone of SNNPRS). By employing a descriptive serving method the study comprehensively assesses the problems of students' learning style and teachers' mode of delivery in three preparatory schools :Gidole preparatory school, Segen preparatory school and Kollango preparatory .Data was collected from grade 11 and 12 student s, preparatory school physics teachers, lab technicians and principals.144 students, six physics teachers, three lab assistants/technicians, and six School principals were *selected by purposive sampling techniques. The main data collection methods for this research were questionnaires and observation check list. Quantitative data were tabulated and organized in tables and analyzed using SPSS version-16 software and percentage, frequency, mean, standard deviation and variance were interpreted. The findings of this current study indicated that: - (i) Data analysis result showed that 57.28% were concrete learners,34.44% were analytic learners, 34.18% were communicative learners and 59.38% were authority oriented learners. (ii) The specific objectives are not balanced according to Bloom's taxonomy and there was not clear instruction for laboratory activities. (iii) Teacher guide had no concise description for teaching each lesson and does not help teacher to understand the objectives and methodology of text. (iv) Classroom observation indicated that there was disparity between teachers mode of delivery and students learning styles since the curriculum is not flexible and teachers do not followed different instructional mode of delivery (v) From teacher questioner 83.3% of teachers indicated that th ey did not take professional development training opportunities in the past five years about implementation of new curriculum, new resources and practical work of specific content. (From questioner of school status observation 50% of principals respondent indicated that Unav ailability of school facilities such as ICT room, physics laboratory, library etc*. were found obstacle to teachers to meet students interest

List of Acronyms

EGSECE-Ethiopian General Secondary Education Certificate Examination

MOE-Ministry of Education

NGOS-Non-Governmental Organization

SNNPRS-Southern Nation Nationalities and Peoples' Regional State

UEE- University Entrance Examination

CPD-Continuous Professional Development

LAB-Laboratory

Sci-fi- Science Fiction

CDICP-Curriculum Development and Implementation Core Process

SLEI-Science laboratory Environment Inventory

SPSS-Statistical Package for the Social Science

ICT-Information Communication technology

ICDR-Institute for Curriculum Development and Research

UNICEF-United Nations International Children's Emergency Fund

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

The current national trend in science education is the teaching learning process towards active learning and constructivism. This indicated that it is the learner centered approaches and the constructivist epistemology that the teaching learning process should follow in order to be efficient and effective. It is true constructivism has a major theoretical influence in contemporary science education. It offers teachers a moral imperative for deconstructing traditional objectivist conceptions of the nature of science, knowledge and for reconstructing their personal epistemologies, teaching practices and educative relationships with student (MOE, 2010).

An active process of the learner and gaining knowledge must be learner centered process as students are engaged in knowledge and other capacities like process skill and attitudes. Process skill include: observation, communication, classification, measurement, inference, prediction ,etc. as well as being enthusiastic about asking questions, solving problem, creativity, sharing, open mindedness, etc. Ethiopia needs students who have the capacity to solve problems that generally have positive attitudes towards science and technology and strive to transform their country. The second cycle of the preparatory school (grade 11 and 12) as bridge between first secondary education (grade 9-10) and prepares them for private or governmental institutions of higher education as regular or extension students. So far there was no research conducted in Ethiopia whether there is a gap between students learning style and teachers' mode of delivery. This study aims at filling this gap.

The study is organized in five chapters .The first chapter would begin with brief background to the students learning style and teachers mode of delivery in physics referring different researchers' investigations. In this chapter, it would present statement of problem; hypothesis of the study with the general and specific objectives, researcher's questions linked to the objectives of the study, significance of the study, scope of the study and limitation of the study. In chapter two, it would present the review of related literature on the problems based on different researchers' investigations in different countries.

In chapter three, it would present design and methodology of the study. Under this chapter , it would describe about study area , source of data and population of the study, sampling size, data collecting instruments and procedures of data analysis. In chapter four, it would draw results of the study, analysis and interpretation of the finding results. In chapter five it would present the summary, conclusions and recommendation of the study. Finally, it would present the bibliography and appendix.

In the traditional approach to physics teaching, relatively little attention seems to have been paid to the different preferred ways of learning among individual learners in a class room. However various scholars have classified learners in to different ways, according to their learning styles. (Atkins et.al 1995) has classified students in to two as communicative and analytic. It is teachers responsibility to identify the learning styles of students and proved instruction accordingly. Teachers should not be blind to the needs and interests of the learners, so that learning becomes more productive, learners should be active in the classroom while teachers are supposed to be facilitators and advisors. According to Harrison (1996) designing a new syllabus with a new course book and putting it to use does not necessarily effect a change in the teachers' classroom practice. For instance, (Nunan, 1988) in his paper "the frequent mismatch between the planed and the implemented curriculum in the actual classroom" argue that the learners' classroom practices will be more important than statements of intent in the determining learning out comes. This means classroom practice plays a decisive role in the student success or failure in the learning process. Thus concerning the significant role of classroom practices, (Allwright, 1991) have the following to say… "No matter how much intellectual energy is put in to the invention of new methods or the new approaches to syllabus design and so on what really matters is what happens when teachers and learners get together in classroom". A similar idea that goes with the above view is forwarded by (widdowson, 1990)). He proposed that: changes in a syllabus as such need have no effect on learning whatever. They will only do so if they inspire the teacher to introduce methodological innovations in the classroom, which are consistent in some way with the conceptions of content and the principles of ordering proposed in the new syllabus (1990). This means, Widdowson suggested that teachers who excuse the innovated or revised syllabus

should have a good knowledge of how to put in to practice the specified contents in line with the approach the teaching material favor.

1.2 Statements of Problem

The most serious problem that teachers face is "why learners do not learn what teachers teach in the classroom?" The possible answer to the question is mismatch between the learning of preference of learners and teaching mode of the teacher in the current course book. The researcher will identify the problem while teaching in the classroom of current book. In the classroom students reveal a tendency to actively participate in the classroom teaching learning process but they lack ability. The student-teacher relationship of instruction is so rough. Therefore, this proposes research is set out to improve the relationship between student's learning styles and teachers' mode of delivery in current books. Briefly the researcher attempts to answer the following questions:

1. Which type of learning style do the teachers favor?
2. Which method is better to attain the expected objectives?
3. How to harmonize students' preferences and teachers approach?
4. What are the possible ways to improve the relationships?

1.3 Hypothesis

The researcher will consider that the factors which influence the relationship between student's learning styles and teacher's mode of delivery in the new course books in preparatory schools of Ethiopia may be:

- The teachers teaching technique acts against students learning styles
- Discrepancy between the teachers' mode of teaching and the new books.
- The absence of only one best method to satisfy all the diverse learners' learning styles.
- The lack of effort to link the learners' learning style with teachers' mode of teaching.

1.4 Objectives of the Study

1.4.1 General Objectives of the Study

The general objective of this study is to investigate the disparity between students' learning style and teachers' mode of delivery in physics textbook.

1.4.2 Specific Objectives of the Study

With the aim of meeting the above mentioned general objectives, this study will have the following specific objectives:-

i. Identifying the different learning styles
ii. Investigating the teachers' mode of teaching ; the various techniques the teacher uses to present his/her lesson
iii. Comparing students' learning styles with teacher's mode of teaching
iv. Investigating the teachers' mode of delivery in light of new approach.

1.5 Significance of the Study

If this study is successful, it is hoped to contribute for a better learning.

The research may have the following importance:

- ✓ It increase teachers awareness about learners need
- ✓ It helps learners to modify their learning styles
- ✓ It makes teachers more familiar to those techniques of diagnosing learners with different learning style preferences.
- ✓ It may aid (benefit) teachers in teaching process and students in learning process
- ✓ It may have potential contribution to text book writers, teacher trainers, and improve teaching learning process
- ✓ It creates opportunity for other researchers to carry out further research in the are

1.6 Scope of the Study

This research focused on improving the approach of students learning and teachers teaching physics in new course book. So that this research is confined to grade eleven physics at rpreparatory schools in Segen area people's zone.

The school include in this study are:

1) Gidole preparatory school
2) Segen preparatory school
3) Ali preparatory school

1.6.1 Geographical Delimitation

This study is delimited to be conducted among particularly to Gidole, Segen and Ali secondary and preparatory school in Segen area people's Zone school in regard with its geographical scope due to time finance and energy constraints.

1.6.2 Content Delimitation

It's obvious that within a given society different problems exist, that of the study area will have also broad complex issues should be studied or needs a deep investigation but it is difficult to address all important issues at the same time that the problem influencing the study area. So particularly the study was delimited to investigating the relationship between students' learning style and teachers' mode of instruction in new course book in preparatory school of Ethiopia.

1.7 Limitation of the Study

It would have been possible to include other grades and all school found in Segen area people's zone in this study. However, due to the limitation of time, financial constraints, transportation problems and other facilities the study is restricted only to preparatory school for the same level at three preparatory schools of Ethiopia in Segen area people's zone.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

Discovery and inquiry processes can be described as method of teaching learning (Massiala1967), Borich and Tombari, L (1994:382) . Discovery: Studies conducted by Buner (1960), Thelen (1960), Ibid (1994:383) have shown that children regardless of their age can fruitfully engage in discovering solution to problems. Discovery based programs focus on powerful classroom environments that encourage students to participate in their own learning. Although various authors have referred to inquiry by using such terms as problem solving, critical thinking, conceptual learning; the essential elements of the process in many studies are those identified and elaborated on by (Dewey1933) as cited in Borich.D. and Tombari.L.(1994).According to Dewey, inquiry is the active, persistent and careful consideration of any proposed form of knowledge. Other authorities present their assumption about to bring desirable approach in teaching learning. Teachers should know that students' responses are mainly a function of teachers' behavior and that change in teachers' behavior cause change in the students' performance (Engelmann's) as cited in Sopher.J. and Gower.R(1997:2). Teachers' should be able to discriminate between a lumpy teaching sequence and a good one (Ball 1991) as cited in Borich.D. and Tombari.L.(1994:71) state that: the teacher is not the only one who can determine if something makes sense. In the class room students are helped to acquire the skill and understanding needed to judge the validity of instructional ideas and results. The teacher has critical role to play in facilitating students learning.

2.1 Learning Style and Mode of Delivery

Different authorities have been trying to define the term learning style. Explains it as follows: "All learners have preferences (choice) for way to learn called their learning style" whereas for (Dunn, 2000) (Curle, 1973) (Educational problems in developing societies: With case stuides of Ghana, Pakistan and Nigeria, 1973) learning style consists of distinct behaviors which serve as indicators of how student learn from the interact with his/her environment. On the other hand, (Mohamad.J, 2011)define learning style as a predisposition to particular ways of approaching

learning. The basic claim in the definitions is that learning styles are state of mind or body favorable to a particular ways of grasping something new. As it is said earlier, learners differ in the way they approach physics learning. Thus it is the teacher's responsibility to pin down and deal systematically with learners diversifies. Of course it seems difficult to identify the cognitive or affective need of learners and match with this diversity in a flexible and constructive manner. AllWright (1988) argues that, teachers, who are aware of their students learning style, wouldn't face any difficult for instructional planning. Similarly by (MoE, 1999) stress that teachers needed to use their teaching practices in such a way that they capitalize on the learning preference of their students.

2.2 Types of Learning Styles

Different studies suggested that learning styles may be as unique as hand writing (Dunn, 1982).Some students do their best work at late night. While others set an early alarm because they are most alert in the morning. Many students seek a quiet place in the Library. Others learn best in a crowd of people with a radio blaring; yet others study most effectively in a state perpetual motion. Some student seen unable to study without eating and drinking. Therefore we are a population of incredibly diverse learners. Concerning the categorization of learns, different educators have grouped and named learners indifferent ways. (Knowles 1982) and (Kolb, 1984)Point out that learners are categorized in to four types as:

1 Concrete learners: These are those who would like to have a clear example from the immediate environment.
2 Analytic learners: Learners of this type prefer to work on their own. They are capable of learning a new item by them and they remember the lesson better if they have learned it alone by reading materials. Learners of this type need to show general tendency towards other learning style, which otherwise hinders their communication ability.
3 Communicative learners: These are learners who prefer group interaction and learn best when working with others in class. They like to discuss on the concerned topic with friend. Activities like group assignment, pair work and group discussion suits them.
4 Authority oriented learners: Those who like to rely on teacher's activity.

2.3 External Factors for Divers-Learning Style

Based on the preference of external environment students divers learning style can classified as:

a) Students learn best in quiet surroundings: students need so much silence that only ear plugs will suffice but there is no simple round rule that appeals to all.
b) Students learn best in well-lighted areas: Some students are actually disturbed by bright light and become hyper active and less focused in their thinking. For them dimmer light is more effective.
c) Students learn best in the morning: Some students are at the best in the morning, while others function most effectively in the evening.
d) Eating or drinking while learning: some students learn better and score higher on tests if they are allowed to eat or drink during the times.

There are at least three areas described below that contributed to each student's individual learning style, (sadkerM.1997), (Keefe, 1987)

1. **Cognitive (information processing):** individuals have different modes of perception, organization and retention of information. Some students prefer to learn by reading and looking at material, while others need to listen and hear information spoken aloud. Still others learn best kinesthetically by whole body movement and participation. Some students focus attention narrowly and with great intensity; others pay attention to many things at once. While some others quick to respond, others rely on a slow pace approach. These and other information processing factors, all part of the cognitive domain, contribute to different learning styles.
2. **Affective (Attitude):** Individuals bring different levels of motivation and drive to learning challenges and the intensity or lack of intensity of this motivation is a critical determiner of learning style. Other aspects of the affective dimension include curiosity, the ability to tolerate and overcome frustration and the willingness to take risks. Some learners attribute success or failure to external factors like: "the teacher didn't review the material well" or "my score was high because I made some lucky guesses" others attribute performance to internal factors as "I didn't study enough "or "I didn't read directions carry fully." Those who usually attribute their performance to external factors do not take sufficient responsibility for their behavior. Those attribute performance to internal factors control their fate and can improve their performance. These and others affective factors contribute to individual learning styles.

3. **Physiology:** A student who is hungry and tired will not learn as effectively as a well-nourished and rested one. Different body rhythms causes are night owls. Some students can sit still for long period of time while others need to get up and move around.

2.3.1 School status Affecting students learning style and mode of delivery physics

School is one of the very important socializing agent as it is miniature society it, the school is adversity in its nature, no one culture, no one way, no one thinking ability, even if there is no the same working stale so for this diversity facilities that are found in the School very important for change . Laboratory is facility that is useful particularly for societies that teachers and students or other concerned body carry experiments, since the laboratory classroom learning instruments were applied and adapted version from the Science Laboratory Environment Inventory (SLEI) that it was developed by (Fraser B, 1993) with an awareness of the importance of laboratory lessons, aspects of laboratory classroom environments have been widely investigated in various settings. Peter Rudt (2008), stated in his report, "there is a good deal of evidence to indicate that students had become more positive after they move into new school buildings". The formal teaching learning process in a modern and well equipped area to open air gathers ((UNICEF, 2000)some of the school facilities are laboratories; library class room, Pedagogical center, Textbook and teacher guide … etc.

1. Textbook and teacher guide: The textbooks are very important to teaching and learning resources, a good textbook is considered as a major tool in the learning Providing explicit instruction on the use of illustrations and analogies can assist students in the effective reading, the textbook is relevant to encourage and motivate directly or indirectly learners' participation; motivating and assisting learners to transfer and apply learning appropriatel y to new situation, and directed to promote group and corporate learning ,improved social interaction and encourage problem solving skills and attitudes(Graham 2012).
2. Library: library is that helps students' information, to carry out assignments, to work home works, to improve rending ability, to improve self-learning ability and understanding, to improve academic achievement of the education. School library is the heart of the school (Rossoff, 1992). There will be an organized school library especially in

high school and preparatory school of Ethiopia .It also well – ventilated, there must be adequate light, adequate riding material such as books, newspaper current information …etc. The school libraries will be open for a longer time to give sufficient service for both teachers and students (MOE; 1995:6-7)

3. Pedagogical center: The study and theory of the methods and principles of teaching in which teachers and other concerned bodies proper for teaching in a qualified way, one can make a teaching – learning process be easy he/she must use pedagogical center. As stated in (MOE, 1995:4) pedagogical center is one of the major school facilities.

2.4 Teaching Methods

As (Jim, 2012) state that the subject content can be delivered in different ways in order to achieve the specific objectives and different methods are listed below:

1. **Lecture:** Content is delivered to students by teacher. Useful to simulate thinking.
2. **Discovery:** Teacher guides students to discover scientific facts for them selves
3. **Question and answer:** Teacher asks questions, students answer. Students also ask question
4. **Problem solving:** Students are presented with an exercise where they must find an answer to problem. Useful to develop desirable qualities such as seeking knowledge, enquiry etc.
5. **Assignments:** Specific task given to students to find out about a particular problem or issue
6. **Worksheets:** handouts to guide students in practical work.
7. **Demonstration:** Teacher carried out practical work if materials/ equipment are inadequate or procedure is too complex or unsafe for students.
8. **Practical activities:** Students carry out practical work individually or in groups; students gain hands on experience. Teacher has opportunity to interact with students.
9. **Field work:** Outdoor learning activity. Students to develop report writing and verbal report
10. **Project:** Short or long term investigation. Students develop skill in scientific method
11. **Case study:** The study carried out on a particular natural environment, then applied to another similar setting. Allows students to apply new knowledge and skills.

In physics, it is recommended that teacher use more than one teaching methods in a single lesson. The discussion method might be suitable for the beginning of the lesson, followed by discovery method, or a particular activity. The method should be used as much as possible that an opportunity to develop students' interest in the subject said (Graham, 2010). (Millar, 2008) similar justification effectiveness of teaching learners.

As ICDR (MOE), 1999 reports that teacher centered education is the older models of education, i.e., the teacher was the center of classroom activity. In this model, the teacher used chalk and talk or other methods of teaching in which the teacher was active and the students' passive during the teacher center, demonstration and question and answer methods. The learner centered education is the new approach of education that the students are not passive recipients of knowledge; they are active learners.

MOE (2010) reports, the current global and national trend in science and mathematics education are gearing the teaching learning process towards active learning and constructivism. The new curriculum frame work has also indicated that it is the learner centered approaches and the constructivism is a major theoretical influence in contemporary science and mathematics education. The active learning promotes long term retention of information, motivation students towards future learning, allows students to apply information and skill in new settings and develops the students thinking skills. CDICP (MOE), 2010, that active learning is the teachings learning process and hence to learn learning process and mathematics work excitement and with positive attitude. Kumar (1993), that practical work in physics even at school stage is essential because of the fullness that we "learning by doing", physics principles and applications are thus rendered more meaningful. Practical work provides an activity, which can be profitable and emotionally, satisfying .it opens possibilities for training in critical thinking and helps to develop initiative, resourcefulness and cooperatives. From the above considerations, it can be easily concluded that practical work must get a prominent place in any physics courses (p.186-187). (worldbank, 1993) Constraints equipment for developing country impact for science education and in similar way (Monoranjan, 2013) as mentioned pedagogical analysis activities offers or proposal enormous or huge potential for improving the delivery of information in all form of education. It involves various logical steps to arrive at logical inference, helps the students to understand concepts, principles or phenomena. (shimelis, 2005) Reported that the factors that

affect students negatively are shortage of instructional materials like teaching aids, teachers negative attitude towards students, poor teaching methods being the teachers used is teacher-center not a student-center and etc. CDICP (2010), one of the most intended problems in science instruction in Ethiopia is that the laboratories in our schools are not functional even when they are fully equipped and well maintained. This is partly due to lack of teachers' knowledge and skill in conducting laboratory activities, therefore, mostly students are learning more theoretically rather making them deal with experiences related with their life and environment situations, that renders the subject and boring, this contributes to diminish their interest towards the subject. Teacher's capacity is a very important factor for quality instruction in school. It is the intellectual ability, knowledge, and skills of the individual involved in the teaching and learning tasks that impact on job performance and effectiveness in the classroom. The current number of properly qualified teachers in Ethiopia schools is less than 50%. Currently, teachers' access to in service training is very limited. Lack of new ideas in teaching and learning and insufficient exposure to ICT also common problems of teachers. Therefore, the effective of teacher entered instruction which has been practiced for years, is still prevailing in our schools. (Leppairta, 2011) explained that a significant relationship between mathematics anxiety and performance of other natural sciences.

2.5 School Principals Role in Improving Learning Physics

The principals are part of a divisional administrative team whose function are to support and assist the schools in meeting the overall objectives of the division and the need of the individual students, principal also provides leadership, direction, and co-ordination within the school and principal's main focus should be to develop and maintain effective educational programs within his/her school and to promote the improvement of teaching and learning with his/her school. As the instructional leaders of their schools, principals have been key players not only in restructuring regular programs, but also in leading special education initiatives for inclusion (Lezotte, 1990)This idea also related to (Tojde, 2013).That is the function of the principal is to persuade and use his leadership stale to motivate all activities of subordinates to contribute willingly to organizational goals in accordance with their.

CHAPTER THREE

3.RESEARCH DESIGN AND METHODOLOGY

3.1 The Research Design

The purpose of the study was to Diagnosing the disparity between learning style and teacher's mode of delivery in the current course books in preparatory school. The study was carried out by using descriptive survey design to collect the data.

3.2 Methodology

Quantitative method was used to gather information from students and teachers. In the qualitative aspect observation was used to collect data from physics teachers and school principals as well as form school compounds.

3.2.1 Research Area

The study was carried out in SNNPRS the area of Segen Area People's Zone currently Segen is the town of zone which is 488 km far from Addis Ababa and 5.35^0N, 37.46^0E geographical coordinates. Research carried on the three schools that are Gidole preparatory, Segen Town preparatory school and Ali Preparatory School.

3.2.2 Source and population of the Study

The target population of the study was preparatory (11-12 Grade) students in Gidole, Segen town Preparatory Schools and Ali Preparatory School. In addition all physics teachers, principals of the three schools as well as the laboratory technician were included. The total population of the study consisted of 319 students: six physics teachers, teachers, six school principals, and three laboratory technician to that of students taken as population of the study. To conduct the study the data which is used for this study would be in Segen area people's zone mentioned

preparatory school mainly gathered from primary sources includes teachers, directors, technicians and students of target school.

3.2.3 Sample Size and Sampling Techniques

This research was carried out at preparatory schools. In the process of data collection in this study worthful data would be found from the selected respondents. The 30% of the students would be selected by purposive sampling method, from medium and lower achiever students from Dirashe Gidole and Segen Town only and included 100% higher achiever students but included all Ali Kollango preparatory school students. Since higher achiever students and Ali Kollango preparatory school students they were few in number so researcher used available samples. The researcher used national examination result and physics class result to select samples from Gidole and Segen Preparatory. Six physics teachers', six directors and three physics laboratory technicians would be the participant of the study but class observation check list in each school researcher used. The teachers' samples in the preparatory school were selected using available sampling techniques since they were few in number. Specifically, the numbers of the teachers who teach physics, as well as the school principals were few in number and 12 teachers researcher selected only for classroom observation. To select representative sample of students from the three schools, 75 (58 = male and 17 = female) students out of 196 students from Gidole Preparatory School, 35 (28 = male and 7 = female) students out of 89 students from Segen Town Secondary and Preparatory School and 34 (28 = male and 6 = female) students from Ali Preparatory School were selected. Table 1 below presents the distribution of the sample.

Table 1:- Sampling Specification of Respondents

№	School name	Grade level	Level of achievement	№of Students total population			№ of Sample of respondent students			№ of teachers sample			№ of principals taken			№ of technicians taken		
				M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
	Dirashe		Higher	11	2	13	11	2	13	2	-	2	2	-	2	1	-	1

1	Gidole	11th	Medium	36	12	48	10.8	3.6	15										
			Lower	34	11	45	10.2	3.3	13										
		12th	Higher	8	2	10	8	2	10										
			Medium	34	9	43	10.2	2.7	12.9										
			Lower	26	11	37	7.8	3.3	11.1										
2	Segen Town	11th	Higher	4	1	5	4	1	5	2	-	2	2	-	2	1	-	1	
			Medium	12	2	14	3.6	0.6	4.2										
			Lower	15	5	20	4.5	1.5	6										
		12th	Higher	6	1	7	6	1	7										
			Medium	17	5	22	5.1	1.5	6.5										
			Lower	15	6	21	4.5	1.8	6.3										
3	Ali Kollango	11th	All	8	2	10	8	2	10	2	-	2	2	-	2	1	-	1	
		12th	All	20	4	2 4	2 0	4	24										

3.3 Instruments of Data Collection

In this study there are two kinds of instruments used to collect data. These were questionnaire and observation checklist. Questionnaires were prepared in two forms. The first part of the questionnaire was open –ended and second part of were close ended questions. These were distribute for teachers and students selected for the study.

3.4 Procedures for Data Collection

First, the questionnaires item and checklist were prepared and distributed among students and teachers' respondent in face to face situation. To help respondent give sufficient response and understand each concept of the item and minimize other short coming while data collection sufficient time were allowed. All the questionnaires were collected after they were filled.

Besides questionnaire employment, the researcher observed the classroom teaching learning atmosphere. This observation emphasized the student learning preference, classroom atmosphere and teacher's role of motivation. Observation checklists were filled properly.

3.5 Data Analysis Method

The data analysis from questionnaire and checklist were collected, organized, and tabulated on the table of each variable. The information from the gathered data was checked for accuracy and completeness. All data obtained from the concerned groups of respondents such as students, teachers, lab technician and school principals were systematically analyzed using descriptive statistics methods like percentage, frequency, mean, standard deviation and variance were used. The data was analyzed using SPSS version -16, software.

CHAPTER FOUR

4.RESULTS AND DISCUSSION

This chapter deals with analysis, interpretation and presentation of data. As discussed in previous parts, this study attempted to diagnose the disparity between learning style and teacher's mode of delivery in the current course books in preparatory school. As already mentioned earlier groups were used as data sources for the study (i.e. students, physics teachers', directors, physics laboratory technicians). The data collected using self-reported questionnaire were analyzed using descriptive statistics such as frequencies, means, percentages, and standard deviations and variance. Concerning the observation the data were analyzed quantitatively.

4.1 Background of the Respondents

Description of the background of the respondents' students taken in to consideration was school, grade levels, sex and age. For teachers', physics laboratory technicians and directors were Schools, sex, age, educational level (qualification), service years, field of study regarded and all were taken as the important backgrounds for the study.

Table2:- Student Backgrounds Respondents. (N =144)

№	Variables	Number of students (n)	Percentage (%)
1	Grad Levels		
	11^{th}	66	45.83
	12^{th}	78	54.17

2	Gender		
	Male	103	71.53
	Female	41	28.47
3	School		
	Dirashe Gidole	75	52.08
	Segen Town	35	24.31
	Ali Kollango	34	23.61
4	Age		
	15-19	92	63.9
	20-24	52	36.1
	25-29	0	0
	≥ 30	0	0

Table 2 showed that the number of students in grade 11 was 45.83 % (N = 66) of the total while 54.17 % (N = 78) was included from grade 12. The distribution of the respondents by gender was, 71.53 % (N = 103) male and female was 28.47% (N = 41). So the number of female and male student respondents was not balanced as generally observed in the Segen area people zone of selected three preparatory schools. This showed gender disparity which disfavors female participation at preparatory school level. The distribution of the respondents by school Dirashe Gidole was 52.08% (N=75), Segen Town was 24.31% (n = 35) and Ali Kollango was 23.61% (N = 34) respectively. Among the students 63.9% (N = 92), 36.1% (N = 52) of them were 15-19 and 20-24, years old respectively. The majority respondent students' ages were found in the 15-19 years that show 63.9% of the total sample of respondents. This indicates the common age range in most of Ethiopian secondary schools since the official age for beginners of secondary school is 15 years old. Based on this point of view, by the time a student reaches grade 12, she/he should be at least19 years of age.

Table 3:- Teachers' Backgrounds Respondents. (N = 6)

№	Variable	№ of Respondent(n)	Percentage %

1	Sex Male Female	 6 0	 100% 0%
2	Age 15-19 20-24 25-30	 0 0 4	 0% 0% 80%
3	Service year 1-5 6-10 11-15	 3 1 0	 50 16.7 0
4	Qualification TTI Diploma Degree (B.Sc.) M.Sc.	 0 0 6 0	 0 0 100 0

As it is presented in Table 3, the qualification of the sample schools' teachers is Bachelor Degree. This indicates that the minimum requirement of qualification for secondary school but for preparatory minimum requirement MSc personnel is not fulfilled so, the absence of MSc may affect teachers teaching method and students learning. Regarding the age of all teachers are above 25 years and below 40 years. while regarding Service year about 50% (3) teachers are 1-5 have Service year ,16.7% (1) teacher is 6-10 Service year,167% (1) 16-20 Service year and 16.7% (1) teacher have above 20 Service year .To determine the distribution of teachers by gender, teacher respondents were indicate their gender. The study found that 100% (6) of the teacher respondents were This finding show that in selected schools no female teachers in physics , this may have contributed to disparity enrolments among girls in Physics because they lacked role models.

4.2 Students Learning Style Preference

The learning style preference of students in physic was examined in relation to about learners a category of which listed;such as Concrete learners, Analytic/individual/learners, Communicative

/group/ learners and Authority oriented learners only researcher's would be selected and to show the similarity and differences students response in each learning style preference had been showed in table 4 below:-

Table4:- Students Response on Their Physics Learning Styles Preference

№	Items(input factors)	xi	Frequency(f)					Mean	Med	Mod	SD	Vari	R
			1SDA	2DA	3N	4A	5SA						
1	I understand physics concept when teacher use teaching aid material in class	N/fi	28	32	9	41	34	3.15	4	4	1.49	2.22	4
		%	19.4	22.2	6.2	28.5	23.6						
2	When learning new physics concepts, I attempt to understand them when I follow up plasma TV presentation	N	20	20	9	53	42	3.53	4	4	1.39	1.95	4
		%	13.9	13.9	6.2	36.8	29.2						
3	concept is better to be told scientific facts than to find them out from experiments when teacher show natural object model	N	28	32	9	41	34	3.15	4	4	1.49	2.22	4
		%	19.4	22.2	6.2	28.5	23.6						
4	I learn more when teacher using diagrams in physics teaching	N	30	25	4	66	19	3.13	4	4	1.41	1.99	4
		%	20.8	17.4	2.8	45.8	13.2						
	When learning new	N	19	18	8	51	48						

5	physics concepts, connect them to my previous experiences	%	13.2	12.5	5.6	35.4	33.3	3.63	4	4	1.39	1.95	4
6	I learn more by reading textbook and reference books	*N*	53	41	5	29	16						
		%	36.8	28.5	3.5	20.1	11.1	2.40	2	1	1.43	2.06	4
7	In physics, I think that it is important to learn physics by solving problems.	*N*	53	39	3	22	27						
		%	36.8	27.1	2.1	15.3	18.8	2.52	2	1	1.56	2.43	4
8	I would prefer to do my own experiments than to find out information from a teacher.	*N*	71	35	10	21	7						
		%	49.3	24.3	6.9	14.6	4.9	2.01	2	1	1.26	1.59	4
9	I benefit more from physics laboratory classes than lecture classes.	*N*	74	41	2	18	9						
		%	51.4	28.5	1.4	12.5	6.2	1.94	1	1	1.26	1.59	4
10	During physics activities, I prefer to ask other people for the answer rather than think for myself	*N*	71	38	3	23	9						
		%	49.3	26.4	2.1	16	6.2	2.03	2	1	1.31	1.73	4
	I learn more physics	*N*	66	23	5	29	21						

	when I would discuss with the teacher or	%	45.8	16	3.5	20.1	14.6	2.41	2	1	1.57	2.46	4
12	I am willing to participate in physics because students are involved in discussions**.**	*N*	66	26	6	29	17	*2.34*	*2*	*1*	*1.51*	*2.27*	*4*
		%	45.8	18.1	4.2	20.1	11.8						
13	I learn best in class when I can participate in related activities	*N*	45	27	3	39	30	*2.88*	*2.5*	*1*	*1.59*	*2.54*	*4*
		%	31.20	18.8	2.1	27.1	20.8						
14	I learn better in the class when teacher gives a lecture.	*N*	35	28	6	35	40	*3.12*	*4*	*5*	*1.59*	*2.52*	*4*
		%	20.5	16.4	3.5	20.5	23.4						
15	I learn better by reading what the teacher writes on the chalkboard	*N*	28	29	6	44	37	*3.23*	*4*	*4*	*1.51*	*2.28*	*4*
		%	19.4	20.1	4.2	30.6	25.7						
16	When I study physics I do not Understand, I still try to learn by teacher.	*N*	26	20	12	35	51	*3.45*	*4*	*5*	*1.53*	*2.33*	*4*
		%	18.1	13.9	8.3	24.3	35.4						
	I feel that teacher's	*N*	23	19	2	54	46						

17	guidance is very important, how can I study physics and do	%	16	13.2	1.4	37.5	31.9	*3.56*	*4*	*4*	*1.46*	*2.12*	*4*

Where 1(SDA) = strongly disagree, 2(DA) = disagree, 3(N) = Neutral, 4(A) = agree and 5(SA) = strongly agree, M is mean, SD standard deviation, VA = variance, f is frequency and, % is percentage, N is the number of respondents.

Table 4 shows the results of the learning style preference analyzed based on the Students opinion from item 1 up to item 4 questions shows Concrete learner students. Generally, each items statistically analyzed as follows: Regarding item 1 (I understand physics concept when teacher use teaching aid material in class) 28.4% (41) of the students replied agreed and 23.6 % (34) of the students replied strongly agreed; 6.2 %(9) of the students neutral on issue, while 22.2% (32) the students disagreed and 19.4 % (28) strongly disagreed and $(M = 3.15, SD = 1.49, VA = 2.22)$. The mean value of the item was above the expected mean value which indicated that 52% of stud ents agreed and a few students disagreed on the idea of item; this showed that majority students' prefer Concrete learning styles in physics teaching learning. For item 2 (When learning new physics concepts, I attempt to understand them when I follow up plasma TV presentation) 36.8% (53) of the students agreed, 29.2% (42) strongly agreed, 6.2% (9) of the students neutral on issue, while 13.9% (20) of the students disagreed and 13.9% (20) strongly disagreed and item had $(M = 3.53, SD = 1.40, VA = 1.9)$. The mean value of the item was above the expected mean value which indicated that 66% of students agreed and a few students disagreed on the idea of item; this showed that majority students' prefer Concrete learning styles in physics teaching learning. Regarding item (3) (concept is better to be told scientific facts than to find them out from experiments when teacher show natural object model), 22.2% (32) of the students disagreed with the item, 19.4% (28) was strongly disagree with the items idea, 6.2% (9) of the students neutral on issue, while 28.5% (41) of the students agreed and 23.6% (34) strongly agreed and item had $(M = 3.15, SD = 1.49, VA = 2.22)$. The mean value of the item was above the expected mean

value which indicated that 52.1% of students agreed and a few students disagreed on the idea of item; this showed that majority students' prefer Concrete learning styles in physics teaching learning. For item (4), (I learn more when teacher using diagrams in physics teaching) 45.8% (66) of the students agreed, 13.2% (19) strongly agreed, 2.8% (4) of the students neutral on issue, while 17.4% (25) of the students disagreed and 20.8% (30) strongly disagreed ($M = 3.13, SD = 1.41, VA = 1.98$). The mean value of the item was above of expected mean value which indicated that 59% of students agreed and a few students disagreed on the idea of item; this showed that majority students' prefer Concrete learning styles in physics teaching learning. The learning style preference analyzed Students opinion based on the item 5 up to item 9 questions shows in more analytic/ individual/ intrapersonal or naturalist learner of students. Regarding the item (5), (When learning new physics concepts, connect them to my previous experiences) 12.5% (18) of the students disagreed with the idea of the item; 13.2% (19) strongly disagreed with the item,5.6% (8) of the students neutral on issue, while 35.4% (51) of the students agreed with the issue, and 33.3% (48) strongly agreed with the issue, and secondly highest percentage of the student strongly agreed and item had ($M = 3.63, SD = 1.39, VA = 1.95$) .The mean value which indicated that 68.7% of the students were agreed on item issue. For Item (6),(I learn more by reading textbook and reference books),20.1% (29) of the students agreed 11.1% (16) strongly agreed,3.5% (5) of the students neutral on issue, while 28.5% (41) of the stu dents disagreed and 36.8% (53) strongly disagreed and ($M = 2.40, SD = 1.43, VA = 2.06$). The mean value of the item was below the expected mean value which indicated that 31.2% of students only agreed and majority students disagreed on the idea of item, this showed that majority students' not prefer analytic learning styles in physics teaching learning. Regarding Item (7) (In physics, I think that it is important to learn physics by solving problems.) about 15.3% (22) of the students agreed 18.8% (27) strongly agreed,2.1% (3) of the students neutral on issue, while 27.1% (39) of the students disagreed and 36.8% (53) strongly disagree on ($M = 2.52, SD = 1.56, VA = 2.43$). The mean value of the item was below the expected mean value which indicated that 34.1% of students only agreed and majority students disagreed on the idea of item, this showed that majority students' not prefer analytic learning styles in physics teaching learning. Confusing that problem solving was negatively impact on Students about individual Physics learning styles preference due to anxiety of solve problem. For Item (8), (I would prefer to do my own experiments than to find out information from a teacher.) 14.6% (21)

of the students agreed, 4.9 % (7) strongly agreed, 6.9 % (10) of the students neutral on issue, while 24.3% (35) of the students disagreed and 49.3% (71) strongly disagreed and $(M = 2.01, SD = 1.26, VA = 1.59)$. The mean value of the item was below the expected mean value which indicated that 19.5% of students only agreed and majority students disagreed on the idea o f item, this showed that majority students' not prefer analytic learning styles in physics teaching learning. Regarding item (9), (I benefit more from physics laboratory classes than lecture classes) 12.5% (18) of the students agreed, 6.2% (9) strongly agreed,1.4% (2) of the students neutral on issue, while 28.5% (41) of the students disagreed and 51.4% (74) strongly dis agreed and item had $(M = 1.93, SD = 1.26, VA = 1.59)$.

The mean value of the item was below the expected mean value which indicated that 18.7% of st udents only agreed and majority students disagreed on the idea of item, this showed that majority students' not prefer analytic learning styles in physics teaching learning.

The learning style preference analyzed Students opinion based on the item 10 up to item 13 shows more communicative or group learner students' questions: For Item (10) (During physics activities, I prefer to ask other people for the answer rather than think for myself) 26.4% (38) of the students disagreed, 49.3% (71) strongly disagreed,2.1% (3) of the students neutral on issue, while 16% (23) of the students agreed and 6.2% (9) strongly agreed and had $(M = 2.03, SD = 1.31, VA = 1.73)$. The mean value of the item was below the expected mean value which indicated that 22.2% of students only agreed and majority students disagreed on the idea of item, this showed that majority students' not prefer communicative learning styles in physics teaching learning. Regarding item 11 (I learn more physics when I would discuss with the teacher or other Students to clarify) about 20.1% (29) of the students agreed on the issue, 14.6% (21), strongly agreed on the issue, 3.5% (5) of the students neutral on issue, while 16% (23) of the students disagreed and 45.8% (66) strongly disagreed on the issue and had $(M = 2.42, SD = 1.57, VA = 2.46)$. The mean value of the item was below the expected mean value which indicated that 34.7% of students only agreed and majority students disagreed on the idea of item, this showed that majority students' not prefer communicative learning styles in physics teaching learning. For Item (12), (I am willing to participate in physics because students are involved in discussions.) 11.8% (17) of the students agreed 20.1% (29) strongly agreed,4.2% (6) of the students neutral on issue, whil18.1% (26) of the students disagreed and 45.8% (66)

strongly disagree on the issue and had ($M = 2.34, SD = 1.51, VA = 2.27$) . The mean value of the item was below the expected mean value which indicated that 31.9% of students only agreed and majority students disagreed on the idea of item, this showed that majority students' not prefer communicative learning styles in physics teaching learning. Regarding item (13), (I learn best in class when I can participate in related activities) 27.1% (39) of the students agreed on the issue , 20.8% (30) strongly agreed on the issue,2.1% (3) of the students neutral on issue, while 18.8% (27) of the students disagreed and 31.2% (45) strongly disagreed on the issue and had ($M = 2.88, SD = 1.59, VA = 2.54$). The mean value of the item was below the expected mean value which indicated that 47.9% of students only agreed and majority of the students disagreed on the idea of item this showed that not majority students' prefer group or communicative learning styles in physics teaching learning.

The learning style preference analyzed Students opinion based on the item 14 up to item 17 questions shows more authority oriented learner students. Regarding item 14 (I learn better in the class when teacher gives a lecture.) 24.3% (35), of the students agreed on the issue, 27.8% (40), strongly agreed on the issue, 4.2%(6) of the students neutral on issue, while 19.4% (28) of the students disagreed and 24.3% (35) strongly disagreed on the issue and had ($M = 3.12, SD = 1.59, VA = 2.52$) .The mean value of the item was above the expected mean value which indicated that 52.1% of students agreed and a few students disagreed on the idea of item this showed that majority students' prefer authority oriented learning styles in physics teaching learning. For item 15 (I learn better by reading what the teacher writes on the chalkboard) 30.6% (44) of the students agreed on the issue, 25.7% (37) strongly agreed on this issue,4.2%(6) of the students neutral on issue, while 20.1% (29) of the students disagreed not issue and 19.4% (28) strongly disagreed on the issue and had ($M = 3.23, SD = 1.51, VA = 2.28$). The mean value of the item was above the expected mean value which indicated that 56.3% of students agreed and a few students disagreed on the idea of item this showed that majority stude nts' prefer authority oriented learning styles in physics teaching learning. Regarding item (16), (When I study physics I do not Understand, I still try to learn by teacher.) 24.3%(35) of the students agreed on the issue , 35.4% (51) strongly agreed on the issue, 8.3%(12) of the students neutral on issue, while 13.9% (20) of the students disagreed and 18.1% (26) strongly disagreed on the issue and had ($M = 3.45, SD = 1.53, VA = 2.33$). The mean value of the item was above the

expected mean value which indicated that 59.7% of students agreed and a few students disagree d on the idea of item; this showed that majority students' prefer authority oriented learning styles in physics teaching learning. Regarding item (17), (I feel that teacher's guidance is very important, how to group students; discuss the new topic before learning process.) 37.5% (54) of the students agreed on the issue , 31.9% (46) strongly agreed on the issue, 1.4%(2) of the students neutral on issue, while 13.2%(19) of the students disagreed and 16% (23) strongly disagreed on the issue and had $(M = 3.56, SD = 1.46, VA = 2.12)$. The mean value of the item was above the expected mean value which indicated that 69.4% of students agreed and a few students disagreed on the idea of item, this showed that majority students' prefer authority orient ed learning styles in physics teaching learning.

As table 4 shows the general analysis of the disparity of students learning styles, Thus the students' needs in a typical are diverse such as concrete learner, analytic learners, communicative learners and authority oriented learners researcher find out so that, the Physics teacher to attain the expected objectives of lesson may employ different instructional methods which help each of the individual learners to interact with the content in a manner that he/she understands it well or the teacher should utilize the subject content in different ways in order to achieve the specific objectives.

The learning styles and mode of delivery at Segen zone three preparatory schools students grouped in to four types such as:

1. Concrete learners: From concept questions, item1 - 4 indicated that the mean value of items was above expected mean and 57.28% average percentage. These indicated that the majority students were concrete learners.
2. Analytic learners: From analytic questions, item 5-9 the mean value of these items was below average mean and 34.44% average percentage. These indicated that a few students were analytic learners.
3. Communicative learners: From communicative questions, item 10-13 the mean value of these items was below average mean and 34.18% average percentage. These indicated that a few students were communicative learners.

4. Authority oriented learner: From authority oriented questions, item 14-17 indicated that the mean value of items was above expected mean and 59.38% average percentage. These indicated that the majority students were authority Oriented learners.

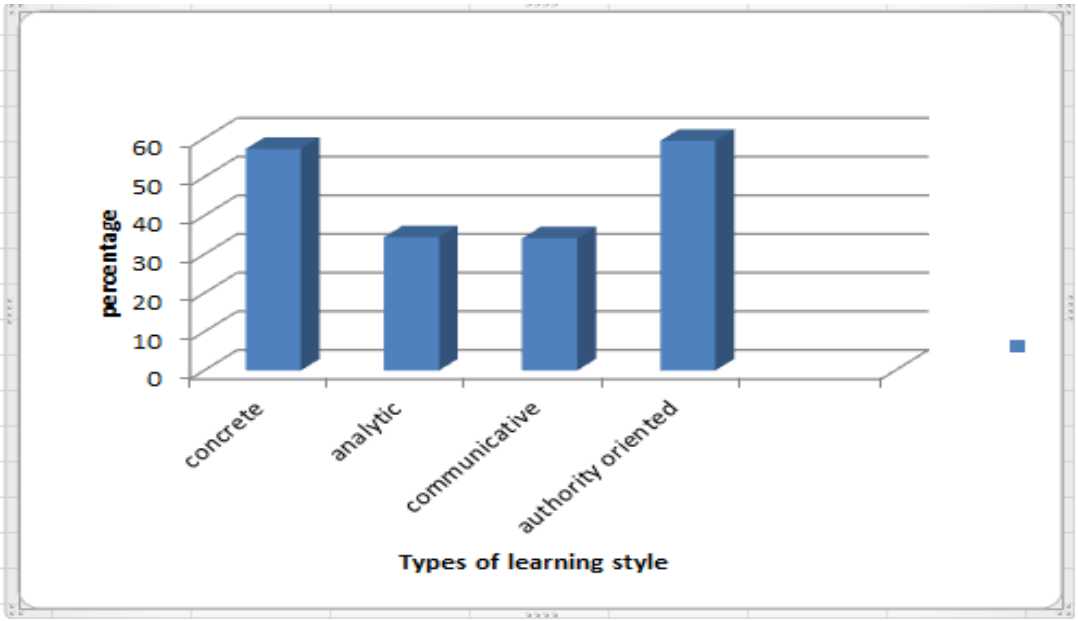

Figure1: Four types of learning styles

4.3 Impacts of School Status on Students' Learning Style and Teacher's Mode of Delivery Physics

School facility had own limiting effect to the students learning style and mode of delivery subject so some of the scale statements were preceded and forwarded to the respondents and the collected data was analyzed as follow:

Table 5:- Use of School Pedagogy Center Activities by Students' Respondents'

№	Items(input factors)	xi	Frequency(f)					Mean	Med	Mod	SD	Vari	R
			1N	2S	3O	4ST	5A						
1	Teacher& students make teaching learning aids from locally materials	№ /fi	52	22	14	45	11	2.59	2	1	1.43	2.06	4
		%	36.1	15.3	9.7	31.2	7.6						
	Teaching aid use	№	28	19	11	52	34						

2	in physics learning is to Promote	%	19.4	13.2	7.6	36.1	23.6						
3	when teacher use teaching learning aids in class I to Promotes understanding	№	30	14	6	48	46						
		%	20.8	9.7	4.2	33.3	31.9	*3.46*	*4*	*4*	*1.53*	*2.35*	*4*
4	When teacher use teaching aids I Motivate and arouses interest to learning physics	№	*27*	12	11	57	37						
		%	18.8	8.3	7.6	39.6	25.7	*3.45*	*4*	*4*	*1.44*	*2.06*	*4*
5	Teaching aids gives reinforcement me to understand new concept of physics	№	29	13	8	48	46						
		%	20.1	9	5.6	33.3	31.9	*3.48*	*4*	*4*	*1.51*	*2.29*	*4*

Where –N- Never, S- Seldom, O- Occasionally, St- Sometimes, A- Always

For item (1), (Teacher& students make teaching learning aids from locally materials) about 36.1%(52) of the students response was never, 15.3% (22) of the students response Seldom, while 9.7% (14) of the students responded Occasionally, 31.2% (45) of the students stated that it was Sometimes and 7.6%(11) of the students stated that it had always and have (M=2.59, SD =1.43, var =2.06). The mean value of the item indicated that Lack of Teacher& students' make teaching learning aids from locally materials. Regarding item 2 (Teaching aid use in physics learning is to Promote perception) about 19.4 % (28) of the student responded never ,13.2 % (19) of the student responded Seldom and 7.6% (11) of the student responded Occasionally and 36.1 % (52) of the student sometimes and 23.6% (34) of the student responded always and (M=3.31, SD=1.46,var =2.13). The mean value of the item indicated that teaching aid used in physics learning is to promote perception. Regarding item (3), (when teacher use teaching learning aids in class to Promotes understanding) 33.3% (48) of the students sometimes, 31.9%

(46) of the student responded always , while 20.8% (30) of the students responded never, 4.2% (6) of the students responded occasionally, 9.7% (14) of the students responded seldom teaching and have (M=3.46, SD =1 .53, var =2.35) the mean value of the issue indicated the preference of the majority of the students on the issue showed that teaching learning aids used in class to Promotes understanding learning physics. Regarding item (4), (When teacher use teaching aids I Motivate and arouses interest to learning) 39.6 % (57) of the students sometimes , 25.7% (37) of the students responded always , 7.6% (11) of the students Occasionally , while 8.3% (12) of the students responded seldom , and 18.8% (27) of the students responded never and have $(M = 3.45, SD = 1.44, VA = 2.06)$, the mean value of the issue indicated the preference of the majority of the students on the issue showed that teaching learning aids used to motivate and arouses interest to learning physics. Regarding item (5), (Teaching aids gives reinforcement me to understand new concept of physics) 31.9 (46) of the students sometimes, 33.3% (48) of the students responded always,5.6% (8) of the students responded Occasionally, while 9 % (13) of the students responded seldom and 20.1% (29) of the students responded never and have $(M = 3.48, SD = 1.51, VA = 2.29)$,the mean value of the issue indicated the preference of the majority of the students on the issue showed that teaching aid had given reinforcement to understand new concept of physics .

In table 5 except item 1 the mean value of item 2-5 was above the expected mean this showed that teaching aids are important to all those individual types of learners for concrete learner, analytic learner, communicative learner and authority oriented learners. Therefore the researcher jugged that the importance of school pedagogy center activities; helps the students to promote perception, understanding, Motivate and arouses interest to learning physics reinforcement to understand new concept of physics but in contrast majority students did not prepared teaching aids from locally materials.

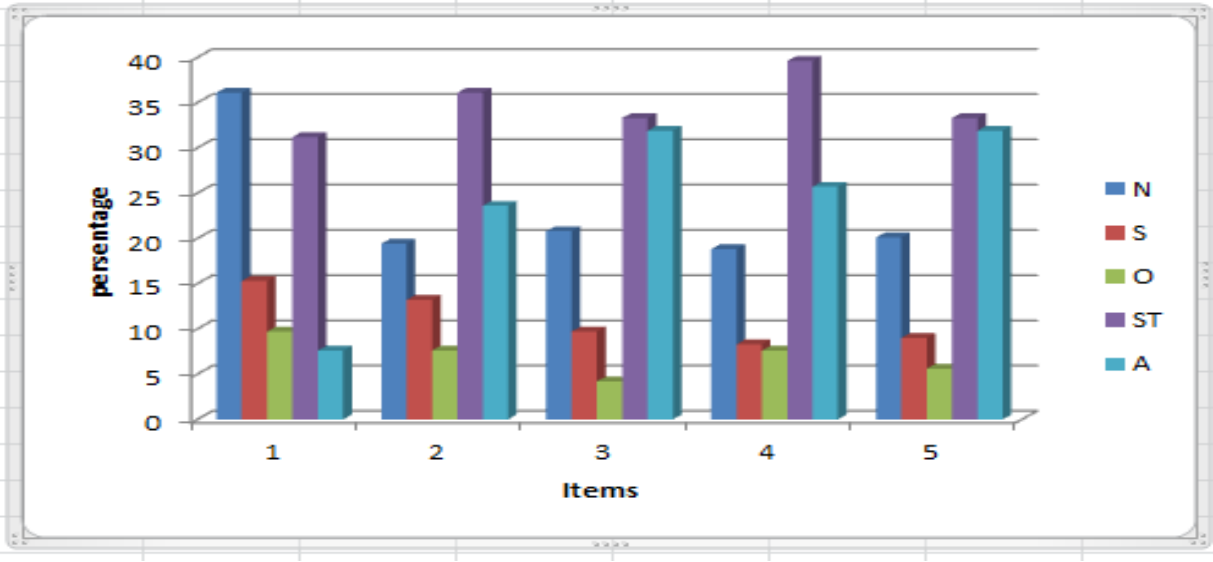

Figure2: **Use of School Pedagogy Center Activities**

4.4 Physics Text books

Some of the content of current physics text book activities were preceded and forwarded to the respondents and the collected data was analyzed as follow:

Table 6:- Content of Current Physics Text book Activities by Students Respondents'

№	Items(input factors)	Xi	Frequency(f)					Mean	Med	Mod	SD	Vari	R
			1P	2F	3G	4VG	5E						
1	Do instructions in the textbook tell students to solve problems?	№	15	14	81	27	7	2.97	3	3	0.95	0.90	4
		%	10.4	9.7	56.2	18.8	4.9						
2	Are given sufficient examples to learn?	№	18	13	53	56	4	3.10	3	4	1.04	1.09	4
		%	12.5	9	36.8	38.9	2.8						
3	Do the activities facilitate students' use of formula?	№	17	22	74	29	2	2.84	3	3	0.93	0.86	4
		%	11.9	15.3	51.4	20.1	1.4						

4	Do the exercises promote interesting of the text?	№	28	40	59	13	4						
		%	19.4	27.8	34.5	9	2.8	2.48	3	3	0.996	0.993	4
5	most activities in the text book from simple to complex	№	27	57	24	33	3						
		%	18.8	39.8	16.7	22.9	2.1	2.50	2	2	1.1	1.22	4
6	the text contains clear laboratory instruction, laboratory equipment's	№	94	42	4	4	0						
		%	65.3	24.6	2.8	2.8	0	1.43	1	1	0.69	0.47	4
7	the text contains clear pictorial materials like figure ,charts , graph	№	76	52	8	6	2						
		%	52.8	36.1	5.6	4.2	1.4	1.65	1	1	0.87	0.76	4
8	activities are balanced between individual and group work response	№	84	47	6	7	0						
		%	58.3	32.6	4.2	4.9	0	1.56	1	1	0.79	0.63	4

Regarding item 1 (Do instructions in the textbook tell students to solve problems?) 4.9 % (7) of the student replied excellent and indicated that the textbook tell students to solve problems, 18.8 % (27) of the student responded very good, 56.2 % (81) of the student responded good, 9.7 % (14) of the student responded fair, and 10.4 % (15) of the student responded poor and indicated that the textbook not tell students to solve problems and $(M = 3, SD = 0.95, VA = 0.90)$. The mean value of the item indicated the agreement of the majority of the students on the issue showed that textbook had instructions tell students to solve problems. For item (2), (Are students given sufficient examples to learn ?) 2.8% (4) of the students responded excellent, 38.9% (56) of the students responded very good ,36.8% (53) of the student

responded good while 9% (13) of students response was fair and 12.5% (18) of the students response was poor and ($M = 3.10, SD = 1.04, VA = 1.09$) ,the mean value of this item indicated the agreement of the majority of the students on issue indicated that text book given sufficient examples to learn. For Item (3), (Do the activities facilitate students' use of formula?) about 1.4% (2) of the students respond excellent, 20.1% (29) of the students responded very good , 51.4% (74) of the students responded good while ; 15.3% (22) of the students responded fair to the items idea and 11.9% (17) of the students responded poor and have ($M = 2.84, SD = 0.93, VA = 0.86$) ,the mean value of the item indicated that the agreement of the majority of the students on the issue showed that text book activities no facilitate students' to use formula. For Item (4), (Do the exercises promote interesting ?) about 2.8% (4) of the students respond excellent, 9% (13) of the students respond very good , 34.5% (59) good while ; 27.8% (40) of the students responded fair to the items idea and 19.4% (28) of the students responded poor and have ($M = 2.48, SD = 0.996, VA = 0.993$) the mean value of the item indicated that the agreement of the majority of the students on the issue students showed that textbook had absence of exercises promote interesting . For Item (5), (most activities in the text book from simple to complex?) about 2.1% (3) of the students respond excellent, 22.9% (33) of the students respond very good , 16.7% (24) good while ; 39.8% (57) of the students responded fair to the items idea and 18.8% (27)of the students responded poor and have ($M = 2.50, SD = 1.1, VA = 1.22$) , the mean value of the item indicated that the agreement of the majority of the students on the issue showed that textbook had absence of activities in the text book from simple to complex.

For Item (6), (Is the text contains clear laboratory instruction,?) about 2.8%(4) of the students respond very good, 2.8% (4) good while; 29.2% (42) of the students responded fair to the items idea and 65.3% (94) of the students responded poor and had ($M = 1.43, SD = 0.69, VA = 0.47$) , the mean value of the item indicated that the agreement of the majority of the students on the issue showed that textbook had not clear laboratory instruction. For Item (7), (Is the text contains clear pictorial materials like figure ,charts ,graph?) about 1.4% (2) of the students respond excellent, 4.2% (8) of the students respond very good 5.6% (4) good while; 36.1% (52) of the students responded fair to the items idea and 52.8%(76) of the st udents responded poor and have ($M = 1.65, SD = 0.87, VA = 0.76$) , the mean value of the item indicated that the agreement of the majority of the students on the issue showed textbook had poor clear pictorial materials like figure ,charts , graph. For Item (8), (activities are balanced between individual and group work response?) about 4.9% (7) of the students respond very good , 4.2% (6) good while ; 32.6%

(47) of the students responded fair to the items idea and 58.3% (84) of the students responded poor and have ($M = 1.56, SD = 0.79, VA = 0.63$) ,the mean value of the item indicated that the agreement of the majority of the students on the issue suggested that textbook had activities are unbalanced between individual and group work.

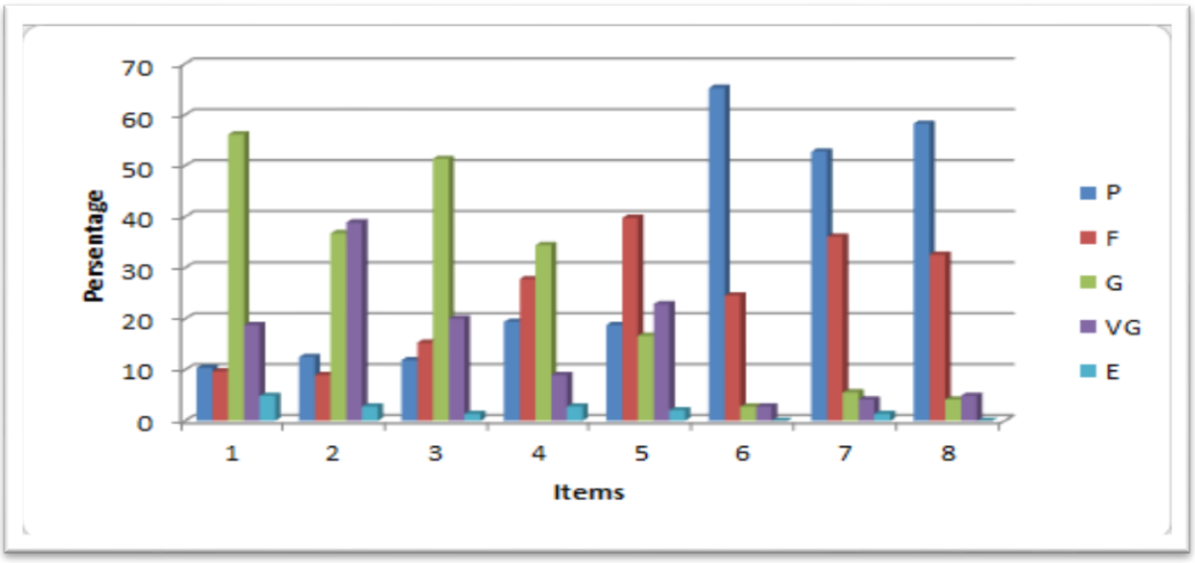

Figure 3: Content of Current Physics Text book Activities by Students Respondents'

From item 1 and 2 the mean value of these items was above mean average this showed that textbook to come good only for analytic learners and item 3-8 the mean value of these items below expected mean this indicated that textbook presentation approach no consider all typically learners, these concrete learners, communicative learners and authority oriented learners due to absence of clear instruction and text activities are unbalanced between individual and group work. These factors are excluded other learners rather than analytic learners .Textbook content presentation approach created the disparity of students learning styles.

Table 7:- School Status to Learn Physics by Students' Respondents'

№	Items(input factors)	xi	Frequency(f)					Mean	Med	Mod	SD	Vari	R
			1SDA	2DA	3N	4A	5SA						
	There is science and	№/ fi	53	17	13	53	8						

1	technology club	%	*36.8*	*11.8*	*9*	*36.8*	*5.6*	*2.63*	*3*	*1*	*1.43*	*2.05*	4
2	There is physics laboratory room separately	№	*64*	*40*	*1*	*34*	*5*						
		%	44.4	27.8	0.7	23.6	5.6	*2.14*	*2*	*1*	*1.30*	*1.70*	4
3	There is physics laboratory technician	№	116	22	1	5	0						
		%	80.6	15.3	0.7	3.5	0	*1.27*	*1*	*1*	*0.65*	*0.42*	*4*
4	Lack of facilities in physics laboratory	№	*69*	52	0	14	9						
		%	47.9	36.1	0	9.7	6.2	*1.90*	*2*	*1*	*1.19*	*1.43*	*4*
5	Low participation in doing demonstration or experiment	№	8	32	5	22	77						
		%	5.6	22.2	3.5	15.3	53.5	*3.89*	*5*	*5*	*1.39*	*1.76*	*4*
6	There is school pedagogy center	№	31	37	14	53	9						
		%	21.5	25.7	9.7	36.8	6.2	*2.81*	*3*	*4*	*1.31*	*1.71*	4
7	There is Pedagogical animation team	№	110	31	0	2	1						
		%	76.4	21.5	0	1.4	0.7	*1.28*	*1*	*1*	*0.61*	*0.37*	4
8	Low participation in doing physics teaching aids	№	5	6	5	45	83						
		%	3.5	4.2	3.5	31.2	57.6	*4.35*	*5*	*5*	*0.98*	*0.97*	4

9	There are available reference books in our library	№	8	37	18	62	19						
		%	5.6	25.7	12.5	43.1	13.2	*3.33*	*4*	*4*	*1.16*	*1.34*	4
10	There are available computers and internet serves	№	106	29	2	4	3						
		%	73.6	20.1	1.4	2.8	2.1	*1.39*	*1*	*1*	*0.83*	*0.69*	4
11	There are available class rooms& provision of equipment like table , chair, blackboard	№	6	45	15	40	38						
		%	4.2	31.2	10.4	27.8	26.4	*3.41*	*4*	*2*	*1.29*	*1.66*	4
12	Teacher give up tutorial, continues assessment	№	3	25	29	57	30						
		%	2.1	17.4	20.1	39.6	20.8	*3.59*	*4*	*4*	*1.07*	*1.14*	4

Where 1(SDA) = strongly disagree, 2(DA) = disagree, 3(N) = Neutral, 4(A) = agree and 5(SA)= strongly agree, M is mean, SD standard deviation, VA= variance , f is frequency and, % is percentage, N is the number of respondents

For item (1), (there is science and technology club?) about 5.6% (8) of the students response was strongly agree 36.8% (53) of the students responded agree , 9% (13) of the students neutral on issue, while and11.8% (17) of the students stated that disagree and36. 8 % (53) of the students stated that it had strongly disagree and have $(M = 2.63, SD = 1.43, VA = 2.05)$. The mean value of the item indicated that there was absence of science and technology club in preparatory schools. Regarding item 2 (There is physics laboratory room separately) about 3.5% (5) of the students response was strongly agree 28.6% (34) of the students responded agree, while 0.7% (1) of the students responded neutral and27.8%(40) of the students stated that disagree and 44.4% (64) of the students stated that strongly disagree & $(M = 2.14, SD = 1.30, VA = 1.70)$. The mean

value of the item indicated that there was none physics laboratory room separately in preparatory schools. Regarding item 3 (There is physics laboratory technician) about 3.5% (5) of the students responded agree, while 0.7% (1) of the students responded neutral and15.3% (22) of the students stated that disagree and 80.6% (116) of the students stated that strongly disagree and had $(M = 1.27, SD = 0.65, VA = 0.42)$. The mean value of the item indicated that there was absence of physics laboratory technician in preparatory schools. Regarding item 4 (Lack of facilities in physics laboratory) about 6.2% (9) of the students response strongly agree 9.7% (14) of the students responded agree and 36.10% (52) of the students stated disagree and 47.9%(69) of the students stated that strongly disagree and have $(M = 1.90, SD = 1.19, VA = 1.43)$. The mean value of the item indicated that the agreement of the majority there was not Lack of facilities in physics laboratory in preparatory.

According to the Ministry of Education (MoE, 1995)school facilities are required to be proportional to the number of students and teachers in the School. Regarding item 5 (Low participation in doing demonstration or experiment) about 53.5% (77) of the students response was strongly agree 15.3% (22) of the students response agree, while 3.5% (5) of the students responded neutral and 22.2% (32) of the students stated that disagree and 5.6% (8) of the students stated that strongly disagree and have $(M = 3.89, SD = 1.39, VA = 1.96)$. The mean value of the item indicated that the agreement of the majority there was Low participation in doing demonstration or experiment in preparatory schools. Regarding item 6 (There is school pedagogy center) about 6.2% (9) of the students response was strongly agree 36.8% (53) of the students response agree, while 9.7% (14) of the students responded neutral and 25.7%(37) of the students stated that disagree and21.5% (31) of the students stated that strongly disagree & $(M = 2.81, SD = 1.31, VA = 1.71)$. The mean value of the item indicated that the agreement of the majority of the students on the issue showed that there was not school pedagogy center in preparatory schools.

Regarding item 7 (There is Pedagogical animation team) about 0.7% (1) of the students response was strongly agree 1.4% (2) of the students response agree , while and 21.5% (31) of the students stated that disagree and 76.4% (110) of the students stated that strongly disagree and have $(M = 1.28, SD = 0.61, VA = 0.37)$. The mean value of the item indicated that the agreement of the majority of the students on the issue showed that there was not pedagogical animation

team in preparatory schools. Regarding item 8 (Low participation in doing physics teaching aids) about 57.6%(83) of the students response was strongly agree 31.2% (45) of the students response agree, while 3.5%(5) of the students responded neutral and 4.2% (6) of the students stated that disagree and 3.5% (5) of the students stated that strongly disagree $(M = 4.35, SD = 0.98, VA = 0.97)$. The mean value of the item indicated that the agreement of the majority of the students on the issue showed that there was Low participation in doing physics teaching aids in preparatory schools. Regarding item 9 (There are available reference books in our library) about 13.2% (19) of the students response was strongly agree 43.1% (62) of the students response agree, while 12 .5% (18) of the students responded neutral and 25.7% (37) of the students stated that disagree and 5.6% (8) of the students stated that strongly disagree and have $(M = 3.33, SD = 1.16, VA = 1.34)$. The mean value of the item indicated that the agreement of the majority of the students on the issue showed that there was an available reference book in our library in preparatory schools.

Regarding item 10 (There are available computers and internet serves) about 2.1% (3) of the students response was strongly agree 2.8% (4) of the students response agree, while 1.4% (2) of the students responded neutral and 20.1% (29) of the students stated that disagree and 73.6% (106) of the students stated that had strongly disagree and have $(M = 1.39, SD = 0.83, VA = 0.69)$. The mean value of the item indicated that the agreement of the majority of the students on the issue showed that there was lack of an available computers and internet serves in preparatory schools. Regarding item 11 (There are available class rooms& provision of equipment like table, chair, blackboard etc.) about 26.4% (38) of the students response was strongly agree, 27.8% (40) of the students response agree, while 10.4% (15) of the students responded neutral and 31.2% (45) of the students stated that disagree and 4.2% (6) of the students stated that strongly di sagree and $(M = 3.41, SD = 1.29, VA = 1.66)$. The mean value of the item indicated that the agreement of the majority of the students on the issue showed that there was lack of an available class rooms& provision of equipment like table, chair, in preparatory schools.

Regarding item 12 (Teacher give up tutorial, continues assessment) about 20.8% (30) of the students response was strongly agree 39.6% (57) of the students responded agree, while 20.1% (29) of the students responded neutral and 17.4% (25) of the students stated that disagree and 2.1% (3) of the students stated that strongly disagree and $(M = 3.59, SD = 1.07, VA = 1.14)$.

The mean value of the item indicated that the agreement of the majority of the students on the issue showed that there was teacher giving tutorial, continues assessment in preparatory schools it had created a positive impact on the students' disparity learning style and mode of delivery .

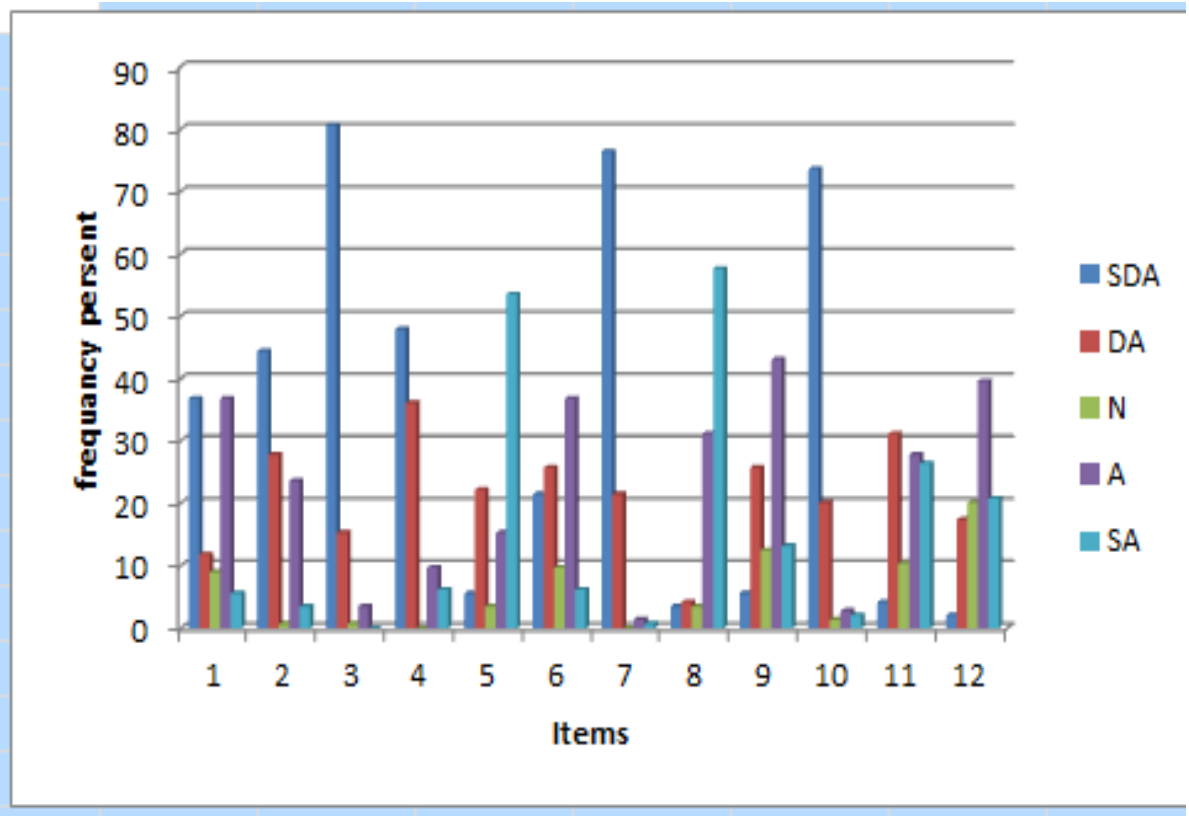

Figure 4: Result of School Statuses by Students Respondents'

As table 7 show result of school status in terms of the disparity between students learning styles. Item 1-4, 6-7 and 10 the mean value of these items was below mean average this showed that the school situation listed in given items have created disparity between learning styles. Item 11 and 12 the mean value of these items had above mean average this indicated that school status favorable for authority oriented learners due to teacher giving tutorial teaching and item 9 mean value of this item was above the expected mean this showed that school status good for analytic learners due to they remember lesson better if they have learned it alone by reading materials. Therefore researcher concluded that the Segen zone preparatory schools status not favorable for concrete learners and communicative learners.

On open ended questions the students gave their answers as follows.

1. List 3 Audio-Visual aids if present in your school
   - Most of the students list plasma, computer and TV
2. List 4 activity aids doing by teacher and students in your school

- Projectile of motion diagram, incline plane, pendulum, spring balance here students list all activity aid from mechanic part of physics branch

3. Have the students been working in groups? If yes what kind of collaborative activities took place? Yes, kind of collaborative activities were –Group assignments, group reading, doing homework in the text book, discussion on unclear topic and solve UEE questions
4. What kind of materials and tools were available in physics laboratory for the students to perform experiments? Most of the students lists kind of materials and tools were available in physics laboratory are

-Digital voltage, Ammeter, Resistance, incline plane, Electric motor, thermometer, vacuum pump, magi net, be balance, ruler and different masses.

- No here laboratory of physics and laboratory technician in our school

5. Are there any additional comments you would like to make that are not addressed in this questionnaire? -yes most of the students have the following responses
   1) Teacher does not give examples after teach days' lesson topic ,no use teaching aid ,teacher not show practical work in laboratory, in lab room no facilities like manual ,sheets, reference books ,no given tutorial and Library: have lack of new reference books, needed physics dictionary,
   2) ICT: No given internet serves, in preparatory school any plasma distribution and lack of electric power to used ICT center.
   3) School administrative ;was no see all students equal ,no apply school of rule on bad students,
      - ❖ Special no separate toilet room for female students in Gidole preparatory this problem have own impact on female students' as suggested

4.5 Teacher's Capacity and the Role of the Teachers to Students Learning Physics

Regarding teachers' professional-development capacity and contribution the following table 8 showed and analysis collected data.

Table 8:- Teacher's Professional-Development Opportunities in the Past Five Years

№	Items(input factors)	Xi	Frequency(f)					Mean	Med	Mod	SD	Vari	*R*
			1P	2F	3G	4VG	5E						
1	Implementation of new curriculum	№ /fi	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0	0	*1*
2	Implementation of new resources	№	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0	0	*1*
3	Teaching through problem solving	№	0	0	3	3	0						
		%	0	0	50	50	0	3.5	3.5	3	0.55	0.3	*1*
4	Continuous Assessment or evaluation	№	0	0	5	1	0						
		%	0	0	83.3	16.7	0	3.17	3	3	0.41	0.17	*1*
5	Teaching strategies	№	0	1	5	0	0						
		%	0	16.7	83.3	0	0	2.83	3	3	0.41	0.17	*1*
6	Facilitating investigations	№	0	6	0	0	0						
		%	0	100	0	0	0	2	2	2	0	0	*0*

7	Practical work of specific content knowledge	№	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0.41	0.17	*0*
8	Use of technology like ICT, plasma TV	№	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0.41	0.17	*1*
9	Use of manipulative (e.g. Ammeter voltmeter	№	0	0	6	0	0						
		%	0	0	100	0	0	3	3	3	0	0	*0*
10	Inquiry learning (e.g. CPD, Action Research)	№	0	0	5	1	0						
		%	0	0	83.3	16.7	0	3.17	3	3	0.41	0.17	*1*
11	Student centered active learning in group	№	0	0	0	5	1						
		%	0	0	0	83.3	16.7	4.17	4	4	0.41	0.17	1

Where f is the frequency, N is the number of respondents, E-excellent, VG-very good ,G-good F-fair , P-poor and % is Percentage.

For item (1), (Implementation of new curriculum) about 83.3% (5) of the teachers response were poor and the item have $(M = 1.17, SD = 0, VA = 0)$, the mean value of the item less than that of expected mean which indicated that all of teachers were poor in professional-development opportunities on the implementation of new curriculum in the past five years. Item2 the idea of this item had a strong similarity of statically value and its mean value of item had almost closer value which showed in item 1.

For item (3), (Teaching through problem solving) about, 50% (3) of the teachers responded good, 50% (3) of the teachers responded very good and $(M = 3.5, SD = 0.55, VA = 0.3)$.

The mean value of the item was above the expected mean which indicated that most of teachers use teaching through problem solving method. For item (4), (continuous Assessment or evaluation) about83.3 % (5) of the teachers responded good, 16.7% (1) of the teachers responded very good and the item had $(M = 3.17, SD = 0.41, VA = 0.17)$, the mean value of the item was equal to expected mean which indicated that most of teachers use assessment and evaluation method. Items 5, 9 and10 the idea of these items was a strong similarity of statically values and its mean values of each item was almost closer value which showed in item4.

Form item (6), (Facilitating investigations) about 100% (6) of the teachers responded fair and the item have $(M = 2, SD = 0, VA = 0)$,the mean value of the item less than of expected mean which indicated that all of teachers fair in professional-development opportunities on the use facilitating investigations teaching method in the past five years and no variability. For item (7), (Practical work of specific content knowledge) about 83.3% (5) of the teachers responded poor, 16.7% (1) of the teachers responded fair and the item have $(M = 1.17, SD = 0.41, VA = 0.17)$,the mean value of the item less than of expected mean which indicated that most of teachers poor in professional-development opportunities on the Practical work of specific content knowledge in the past five years. Item8 the idea of this item had a strong similarity of statically value and its mean value of each item had almost closer value which showed in item 7. For item (11), (Student centered active learning in group) about 83.3% (5) of the teachers responded very good, 16.7% (1) of teachers responded excellent and the item have $(M = 4.17, SD = 0.41, VA = 0.17)$, the mean value of the item was above the expected mean which indicated that most of teachers use Student centered active learning group method used.

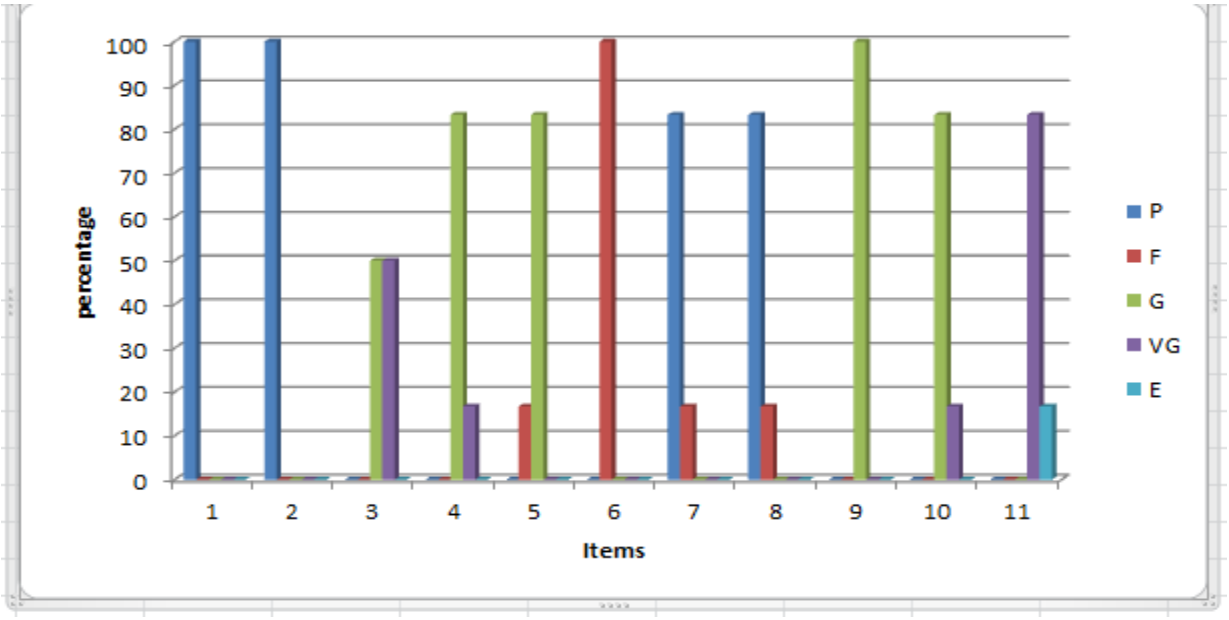

Figure 5: Teacher Professional-Development Opportunities for Past Five Years

Table 8 show result of teachers' professional development opportunities in the past five years. Item 3,4 and 9- 11 the mean value of these items had above expected mean this indicated that majority teachers' had professional capacity of implementing teaching through problem solving ,inquiry teaching learning and active learning or student centered method and in contrast item 1,2 and 5-8 the mean value of these items had below expected mean this indicated that teachers' had not professional capacity built for five past years about implementing of new curriculum and new resources, practical work and using ICT, plasma TV technology. Researcher concluded that the Segen zone preparatory schools teachers' had not opportunities to develop using ICT, plasma TV , practical work and new resources implementation capacity for past five years, this result created disparity between teachers' mode of delivery.

4.6 Physics Text books and Teacher Manual Organization by Teachers' Respondents

Researcher harmonize questions regarding to Physics text books and teacher Manual contents, exercises and activities, attractiveness, methodological guidance, supplementary materials, context, physics text and teacher's manual are the following table 9 showed and analysis collected data.

Table 9:Various Physics Textbook and Teacher Manual Organization Evaluation Checklist

№	Items(input factors)	xi	Frequency(f)					Mean	Med	Mod	SD	Vari	R
			1P	2F	3G	4VG	5E						
1	Is the subject matter presented either topically or functionally in a logical, organized / horizontally and vertically manner?	N/fi	0	0	6	0	0						
		%	0	0	100	0	0	3	3	3	0	0	0
2	Does the content serve as a window into learning about the target objectives	N	0	0	6	0	0						
		%	0	0	100	0	0	3	3	3	0	0	0
3	does the content contain real-life issues that challenge to think critically about his/her worldview?	N	0	0	6	0	0						
		%	0	0	100	0	0	3	3	3	0	0	0
4	Are the text selections representative of the variety of phenomena of nature	N	0	0	2	4	0						
		%	0	0	33.3	66.7	0	3.67	4	4	0.52	0.27	1
5	Are the formulas and rules presented in a logical manner and in increasing order of difficulty?	N	0	6	0	0	0						
		%	0	100	0	0	0	2	2	2	0	0	0
6	Are the new principle presented in a variety of ways	N	0	0	2	4	0						
		%	0	0	33.3	66.7	0	3.67	4	4	0.52	0.27	1
7	Are the new formula and principle presented												

	at an appropriate rate so that the text is understandable and so that students are able to retain new formula and principle?	N	4	1	0	1	0						
		%	66.7	16.7	0	16.7	0	1.67	1	1	1.21	1.47	3
8	Are there interactive and task-based activities that require Students to use new formula and principle to solve problems?	N	4	2	0	0	0						
		%	66.7	33.3	0	0	0	1.33	1	1	0.52	0.27	1
9	Are laboratory activities sufficient?	N	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0.41	0.17	1
10	Are students given sufficient examples to learn simple to Complex techniques for solve problems?	N	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0.41	0.17	1
11	Do the activities facilitate students' use of formal and Rules by creating situations in which these rules are needed?	N	6	0	0	0	0						
		%	100	0	0	0	0	1	1	1	0	0	0
12	Does the text make easier by addressing one New concept at a time instead of multiple new concepts?	N	6	0	0	0	0						
		%	100	0	0	0	0	1	1	1	0	0	0
13	Do the exercises												

	promote critical thinking of the text?	N	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0.41	0.17	1
14	Is the cover of the book appealing?	N	5	0	0	0	1						
		%	83.3	0	0	0	16.7	3.33	3	3	0.82	0.67	2
15	Is the visual imagery of high aesthetic quality?	N	1	5	0	0	0						
		%	16.7	83.3	0	0	0	1.83	2	2	0.41	0.67	1
16	Is the text interesting enough that students will enjoy reading it?	N	1	5	0	0	0						
		%	16.7	83.3	0	0	0	1.83	2	2	0.41	0.67	1
17	Does the manual help teachers understand the objectives and methodology of the text?	N	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0.41	0.17	1
18	Are correct or suggested answers given for the exercises in the text book?	N	0	0	6	0	0						
		%	0	0	100	0	0	3	3	3	0	0	0
19	Are teachers given techniques for activating students' background knowledge before reading the text	N	0	6	0	0	0						
		%	0	100	0	0	0	2	2	2	0	0	0
20	Are teachers given adequate examples for	N	1	5	0	0	0						

	teaching students to solve, understand concept find the main idea? And lead to active learning style?	%	16.7	83.3	0	0	0	1.83	2	2	0.41	0.17	1
21	Does the manual suggest a clear, concise method for teaching each lesson, student center, group discussion, practical work?	N	4	2	0	0	0						
		%	66.7	33.3	0	0	0	1.33	1	1	0.52	0.27	1
22	Does the manual give instructions on how to incorporate audiovisual material produced for the textbook?	N	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0.41	0.17	1
23	Does the manual provide teachers with exercises to practice, test, manual give instructions how to do laboratory activities and review formulas?	N	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0.41	0.17	1
24	Does the manual provide additional exercises for reinforcing the text?	N	1	5	0	0	0						
		%	16.7	83.3	0	0	0	1.83	2	2	0.41	0.17	1
25	Is the textbook appropriate for the curriculum?	N	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0.41	0.17	1
26	Does the text coincide												

	with the course goals?	N	5	1	0	0	0						
		%	83.3	16.7	0	0	0	1.17	1	1	0.41	0.17	1
27	Is the textbook appropriate for the students who will be using it?	N	4	2	0	0	0						
		%	66.7	33.3	0	0	0	1.33	1	1	0.52	0.27	1
28	Is the text free of material that might be offensive?	N	2	0	3	1	0						
		%	33.3	0	50	16.7	0	2.5	3	3	1.22	1.5	3
29	Are the examples and explanations understandable?	N	4	2	0	0	0						
		%	66.7	33.3	0	0	0	1.33	1	1	0.52	0.27	1
30	Will students enjoy reading the text selections?	N	4	2	0	0	0						
		%	66.7	33.3	0	0	0	1.33	1	1	0.52	0.27	1
31	Will the content meet students' felt needs for learning physics or can it be adapted for this purpose?	N	3	3	0	0	0						
		%	50	50	0	0	0	1.5	1.5	1	0.55	0.3	1
32	Are the textbook and teacher's manual appropriate for the Teacher who will be teaching from them?	N	6	0	0	0	0						
		%	100	0	0	0	0	1	1	1	0	0	0

E-excellent VG-very good G –good F-Faire P-poor

For item (1), (Is the subject matter presented either topically or functionally in a logical, organized / horizontally and vertically manner?) about 100 %(6) of the teachers responded good, and the item have $(M = 3, SD = 0, VA = 0)$,the mean value of the item equal to that of expected mean which item indicated that the agreement of the all of the teachers on the subject matter presented either topically or functionally in a logical, organized / horizontally and vertically manner 100% of teachers suggested that good and 0(zero) SD (standard deviation) this showed there is no variability. Items 2, 3 and18 the idea of these items were a strong similarity of statically value and mean value of each item was almost closer value which showed in item1 and content and general features of teacher's manual corrected or suggested answers were given for the exercises in the current text books of physics. For item (4), (Are the text selections representative of the variety of phenomena of nature?) about 33.3 % (2) of the teachers responded good, 66.7% (4) of the teachers responded very good and the item had $(M = 3.67, SD = 0.52, VA = 0.27)$,the mean value of the item was above the expected mean which item indicated that the agreement of the most of the teachers on the text selections representative of the variety of phenomena of nature content ,66.7% of teachers suggested that very good in the current physics text books. Items 6 the idea of this item was a strong similarity of statically value and mean value of this item was almost closer value which showed in item 4.

For item (5), (Are the formulas and rules presented in a logical manner and in increasing order of difficulty?) about100%(6) of the teachers responded fair and the item have $(M = 2, SD = 0, VA = 0)$,the mean value of the item was below the expected mean which item indicated that the agreement of the all of the teachers on the formulas and rules presented in a logical manner and in increasing order of difficulty ,100% of teachers suggested that fair and 0(zero) SD (standard deviation) this showed there is no variability. Item 19 the idea of this item was a strong similarity of statically value and the mean value of item was almost closer value which showed in item 5.

For item (7), (Are the new formula and principle presented at an appropriate rate so that the text is understandable and students are able to retain new formula and principle?) about 66.7% (4) of the teachers response were poor , 16.7% (1) of the teachers responded fair 16.7% (1) of the

teachers responded very good, and the item have ($M = 1.67, SD = 1.21, VA = 1.47$) ,the mean value of the item was below the expected mean which item indicated that the agreement of the majority of the teachers on the issue showed that new formula and principle presented at an appropriate the text is understandable and students are able to retain new formula and principle. For item (8), (Are there interactive and task-based activities that require Students to use new formula and principle to solve problems?) about 66.7% (4) of the teachers response were poor , 33.3% (2) of the teachers responded fair and the item have ($M = 1.33, SD = 0..52, VA = 0.27$) the mean value of the item was below the expected mean which indicated that the agreement of the most of the teachers on the interactive and task-based activities that require Students to use new formula and principle to solve problems ,66.7% of teachers suggested that poor . Item 21,27,29 and 30 the idea of these items have a strong similarity of statically values and its mean values of each item was almost closer value which showed in item 8 ,methodological guidance and context in current textbook physics respectively.

For item (9), (Are laboratory activities sufficient?) about 83.3% (5) of the teachers responses poor, 16.7% (1) of the teachers responded fair and the item had ($M = 1.17, SD = 0.41, VA = 0.17$) the mean value of the item was below the expected mean which indicated that the agreement of the most of the teachers on the sufficient of laboratory activities response ,83.3% of teachers suggested that poor. tems10, 13, 22, 23,25and 26 the idea of these items have a strong similarity of statically values and the mean value of each item was almost closer value which showed in item 9. Exercises and activities does not promote students to critical thinking, no given instructions on how to incorporate audiovisual materials and laboratory activities in current textbooks of physics respectively.

For item (11), (Do the activities facilitate students' use of formal and rules by creating situations in which these rules are needed?) about 100% (6) of the teachers response were poor and the item had ($M = 1, SD = 0, VA = 0$) , the mean value of the item was below the expected mean which indicated that the agreement of the all of the teachers on the issue showed that 100% of teachers suggested that poor and 0 (zero) SD (standard deviation) this showed there was no variability. Item 12 and 32 the idea of these items were a strong similarity of statically value and the mean value of each item was almost closer value which showed in item11. The text did not make easier by addressing one new concept at a time instead of multiple new concepts and the

textbook and teacher's manual were not appropriate for the teacher who will be teaching from current textbooks of physics. For item (14), (Is the cover of the book appealing?) about 83.3% (5) of the teachers response were poor, 16.7% (1) of the teachers responded excellent and the item had $(M = 3.33, SD = 0.82, VA = 0.67)$ the mean value of the item was above the expected mean which indicated that the agreement of the most of the teachers on the cover of the book appealing, 83.3% of teachers suggested that poor and 0.82 SD (standard deviation) this showed there was high variability.

For item (15), (Is the visual imagery of high aesthetic quality?*)* about 16.7% (1) of the teachers response were poor, 83.3% (5) of the teachers responded fair and the item had $(M = 1.83, SD = 0.41, VA = 0.67)$ the mean value of the item was below the expected mean which indicated that the agreement of the most of the teachers on the visual imagery of high aesthetic quality, 83.3% of teachers suggested that fair. Items16,20 and 24 the idea of these items was a strong similarity of statically values and the mean value of each item was almost closer value which showed in item15, the text was not interesting enough that students will enjoy reading it, teachers were not given adequate examples to teach students to solve, understand concept without find the main idea and no lead to active learning style and the manual also did not provide additional exercises for reinforcing the current textbooks of physics.

For item (17), (Does the manual help teachers understand the objectives and methodology of the text?*)* about 83.3%(5) of the teachers response were poor, 16.7% (1) of the teachers responded fair and had $(M = 1.17, SD = 0.41, VA = 0.17)$ the mean value of the item was below the expected mean which indicated that the agreement of the most of the teachers on the manual help teachers understand the objectives and methodology of the text, 83.3% of teachers suggested that poor. For item (28), (Is the text free of material that might be offensive /Attack, as opposed to defensive/?) about 33.3% (2) of the teachers response were poor , 50 % (3) of the teachers responded good, 16.7% (1) of the teachers responded very good, and the item have $(M = 2.5, SD = 1.22, VA = 1.5)$ the mean value of the item was below the expected mean which indicated that the agreement of the most of the teachers on the text free of material that might be offensive,50% of teachers suggested that good. For item (31), (Will the content meet students' felt needs for learning physics or can it be adapted for this purpose?*)*about 50%(3) of the teachers response were poor 50%(3) of the teachers responded fair and had

($M = 1.5, SD = 0.55, VA = 0.3$) the mean value of the item was below the expected mean which indicated that the agreement of the half of the teachers on the content meet students' felt needs for learning physics or can it be adapted for this purpose, 50% of teachers suggested that poor will the content meet students' felt needs for learning physics the current text books.

Table 9 show textbook and teacher manual organization and from the result researcher find out:

1. Item 1-4 the textbooks are presented either topically or functionally in logical organized horizontally and vertically manner. The mean value of these items had above expected mean this indicated that the current textbooks had suitable content presentation approach.

2. Item 5, 7, 8 the textbooks are not formulas and principle presented at an appropriate rate, the text is not understandable and students are unable to retain formula principle. The mean value of these items had below expected mean this indicated that the current textbooks had not formula and principle presented at an appropriate manner.

3. Item 9,10, 17, 19, 21, 25 and 26 the teacher manual does not given clear, concise method for teaching each lesson and not help teacher to understand the objectives and methodology of the text. The mean value of these items had below expected mean this indicated that the cu rrent manual had unapparent methodology guidance for student center, group discussion and practical

4. Item 11-13 the textbooks does not make easier by addressing one new concept at a time alternative of multiple new concepts and not promote critical thinking. The mean value of these items had below expected mean this indicated that the current textbooks not easier by addressing one new concept at a time alternative of multiple new concepts.

5. Item 16, 20, 27, 30 and 31 the textbook is not interesting enough that students will enjoy reading and lead to active learning style. The mean value of these items had below expected mean this indicated that the current textbook does not students will enjoy reading and lead to active learning style. Therefore researcher concluded that the current textbook and manual of preparatory schools of Ethiopia created disparity between students learning styles and teacher's mode of delivery due to researcher find out the above listed problems.

On open ended questions the physics teachers were gave their answers as follows below:

1. List all the teaching method that you use the most of time and provided in current textbook and teacher guide book. Most of physics teachers used the traditional method of teaching (lecture, question and answering and discussion) because of shortage of time to cover the portion and the contents in the text books can't match with allotted periods in teacher guide and specially physics text book of grade 12 they mentioned as difficult to cover in time it.
2. List which factors affects students learning style and teacher's mode of delivery in current books.

- Lack of material listed in text books
- Lack of instructional steps to perform physics lab activities
- Some activities, examples ,exercise questions unclear
- Text book contents over allotted period of time and miss place topics order in some text unit .
- Lack of interest towards physics relative other subjects because they perceive the subject as a difficult due to text book has over wide in volume.
- The current text books not balance or consider the ability of students and teacher capacity

3. Can the text book deliver the recommend approaches and strategies without much need of adaptation of materials? If no reason out, if yes reason out.

- No because in preparatory school in physics lab or pedagogical center have lack of materials such listed in new physics text books
- text book can deliver the recommend approaches and strategies without adaptation like students center approaches and strategies, discovery, demonstration or practical activities ,project and case study methods are due to time consuming and some topic no have clear explanation.

4. In the text book according to Bloom's taxonomy specific objectives such as cognitive domain, Affective domain and Psychomotor domain are balanced if no reason which domain over dominates? According to Bloom's taxonomy specific objectives are not balanced but cognitive domain over others dominates. This unbalanced taxonomy domain leads students only develop cognitive domain.

5. What the difference between traditionally and modern teaching?

   Traditionally, the laboratory, all the instructional materials, discussions, the tests, etc. support the transmission of facts (or information). Thus, traditionally teaching centers on information transmission. However, in the modern conceptions effective physics teaching emphasizes on understanding (or learning) of the concept, laws, generalizations, etc.

A. What is active learning?

   Active learning is defined as any instructional method that engages students in the learning process. Or active learning requires students to do meaningful learning activities and think about what they are doing.

B. How do you prepare lesson plan for active learning? A few of teachers' had given:

   - ❖ To use active learning in physics lessons that promote students' active learning should hold the following seven (7) elements **"PASFACT"**

P: planning, AS: Activity oriented Student centered method/central players,

F: Facilitation/teacher's needs to facilitate,

A: Assessment/lesson checking and monitoring learning

C: communication/use simple language and T&L: Teaching learning aids/help learn better

Lessons that actively engage students mentally (minds-on), physically (hands -on) and attitudinally (hearts-on) in learning for the attainment of the lesson objectives.

They call such lesson **ASPI** lesson. **A:** Activity –based **S:** Student-centered **P:** Practical work/lab work **I:** Improvisation of T&L materials

- ❖ strive to promote **ASPI** lessons through strengthening **PASFACT** areas;
- ❖ **ASPI** lesson is realized through **PIEI** process.

PIEI is the process we shall follow to actualize **ASPI lessons** and as a result students' better learning outcomes could be realized.

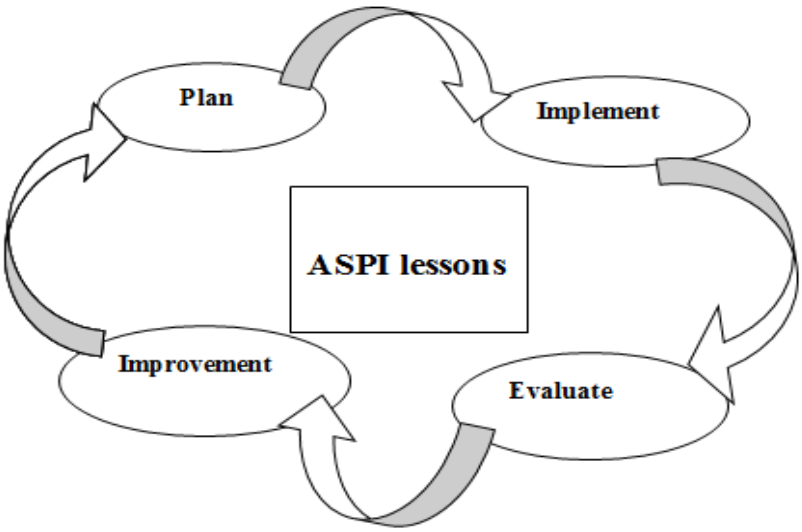

Figure 6: The Cyclical Nature of ASIP Lesson

From open ended questioner researcher consider majority teachers did not use active method teaching.

6. Have the students been working in groups? If yes what kind of collaborative activities took place? Here teachers responses similar to students answer open ended question2: Yes, kind of collaborative activities were –Group assignments, group reading, doing homework in the text book, discussion on unclear topic and solve UEE questions

7. What kind of materials and tools were available in physics laboratory for the students to perform experiments?

-Digital voltage, Ammeter, Resistance, incline plane, Electric motor, thermometer, vacuum pump, magi net, be balance, ruler and different masses.

- No here laboratory of physics and laboratory technician in our school

8. Did students have opportunity to reflect on their Learning process? If yes explain?

- Yes they have opportunity reflect on learning process during they participate in group discussion, doing homework, class work, teacher give individual assignment.

4.7 Laboratory Activities to Attract and Interested of Learners in Physics Teaching

Regarding various Laboratory activities that you may practice to attracts and interests' learner in physics the following tables 10 and 11 showed and analysis collected data but table 11 observation Check list for assessment of laboratory work filled by lab technician.

Table 10:- Laboratory Activities that Practice to Attract and Interested Learners in Physics

№	Items(input factors)	xi	Frequency(f)					Mean	Med	Mod	SD	Vari	R
			1N	2S	3O	4St	5A						
1	Application of physics and art	№ /fi	3	0	0	0	0						
		%	100	0	0	0	0	1	1	1	0	0	0
2	Application of physics knowledge in technology	№	0	0	0	2	1						
		%	0	0	0	66.7	33.3	4.33	4	4	0.58	0.33	1
3	Solving problem exercises and projects	№	0	0	3	0	0						
		%	0	0	100	0	0	3	3	3	0	0	0
4	Use “Physics for life”	№	1	2	0	0	0						
		%	33.3	66.7	0	0	0	1.67	2	2	0.58	0.33	1
5	Demonstrating simple experiments and toys	№	2	1	0	0	0						
		%	66.7	33.3	0	0	0	1.33	1	1	0.58	0.33	1
6	Exploitation history related to physics discoveries and physicists’ lives	№	0	1	2	0	0						
		%	0	33.3	66.7	0	0	2.67	3	3	0.58	0.33	1
7	Seeing paradoxes and tricks	№	1	2	0	0	0						
		%	33.3	66.7	0	0	0	1.67	2	2	0.58	0.33	1

8	Reading sci-fi literature and watching sci-fi films.	№	3	0	0	0	0	1	1	1	0	0	0
		%	100	0	0	0	0						
9	Watching films, video programs and using computers (ICT)	№	3	0	0	0	0	1	1	1	0	0	0
		%	100	0	0	0	0						
10	Teacher well Experiencing lab using	№	0	3	0	0	0	2	2	2	0	0	0
		%	0	100	0	0	0						

Where N- Never, S- Seldom, O- Occasionally, St-Sometimes, A-Always

According to result item1, (Application of physics and art) about 100 % (3), of the technician responded never, all technician may not application of physics and art practice to attracts and interests learner in physics and had $(M = 1, SD = 0, VA = 0)$ the mean value of the item below of expected mean which indicated that the agreement of the all of the technicians,100% of technicians suggested that never and an 0(zero) SD (standard deviation) this showed there is no variability. Items 8 and 9 the idea of these items had a strong similarity of statically values and mean value of each item was almost closer value which showed in item1.

Regarding item 2, (Application of physics knowledge in technology) about 66.7 % (2) of the obviously, majority technicians responded that sometimes use application of physics in technology, 33.3 % (1) of the technicians responded that always use application of physics knowledge in technology and had $(M = 4.33, SD = 0.58, VA = 0.33)$ the mean value of the item was above the expected mean which indicated that the agreement of the most of the technicians response ,66.7% of technicians suggested that sometimes. From item 3, (Solving problem exercises and projects) about 100 % (3) of the obviously, all technicians responded that occasionally use Solving problem exercises and projects (inquiry) teaching properly. Solving problem exercises and projects practice to attracts and interests learner in physics and had

($M = 3, SD = 0, VA = 0$) (M=3, SD=0, VA=0) the mean value of the item was equal to expected mean which item indicated that the agreement of the all of the technicians response 100% of technicians suggested that Occasionally and 0(zero) SD (standard deviation) this showed there is no variability. Regarding item 4, (Use "Physics for life") about 33.3% (1) of the technicians responded that never use Physics for life practice to attracts and motivate learner in physics, 66.7% (2) of the technicians responded that Seldom use Physics for life and the item have ($M = 1.67, SD = 0.58, VA = 0.33$) the mean value of the item was below the expected mean which indicated that the agreement of the most of the technicians response, 66.7% of technicians suggested that seldom. Items7 the idea of this item, Seeing paradoxes and tricks has a strong similarity of statically values and mean value of item was almost closer value which show ed in item 4. From item 5,(Demonstrating simple experiments and toys) as the table above indicates 66.7% of technicians responded that never use demonstrating simple experiments and toys,33.3% of technicians responded that seldom use demonstrating simple experiments and toys practice to attracts and motivate learner in physics and had ($M = 1.33, SD = 0.58, VA = 0.33$) the mean value of the item was below the expected mean which indicated that the agreement of the most of the technicians response ,66.7% of technicians suggested that never . For item6, (Exploitation history related to physics discoveries and physicists' lives) as the table above indicates 33.3% (1) of technicians responded that seldom use exploitation history related to physics discoveries and physicists' lives,66.7% (2) of technicians responded that occasionally use and the item was the mean value of the item obviously equal to expected mean which item in dicated that the agreement of the most of the technicians response ,66.7% of technicians suggeste d that occasionally and it may have created a positive impact on the preference of students' learning style and mode of delivery physics. For item 10,(Teacher well Experiencing lab using) as the table above indicates 100% of technicians responded that seldom use teacher well experiencing lab using properly and had ($M = 2, SD = 0, VA = 0$) the mean value of the below of expected mean which indicated that the agreement of the all of the technicians response ,100% of technicians suggested that seldom.

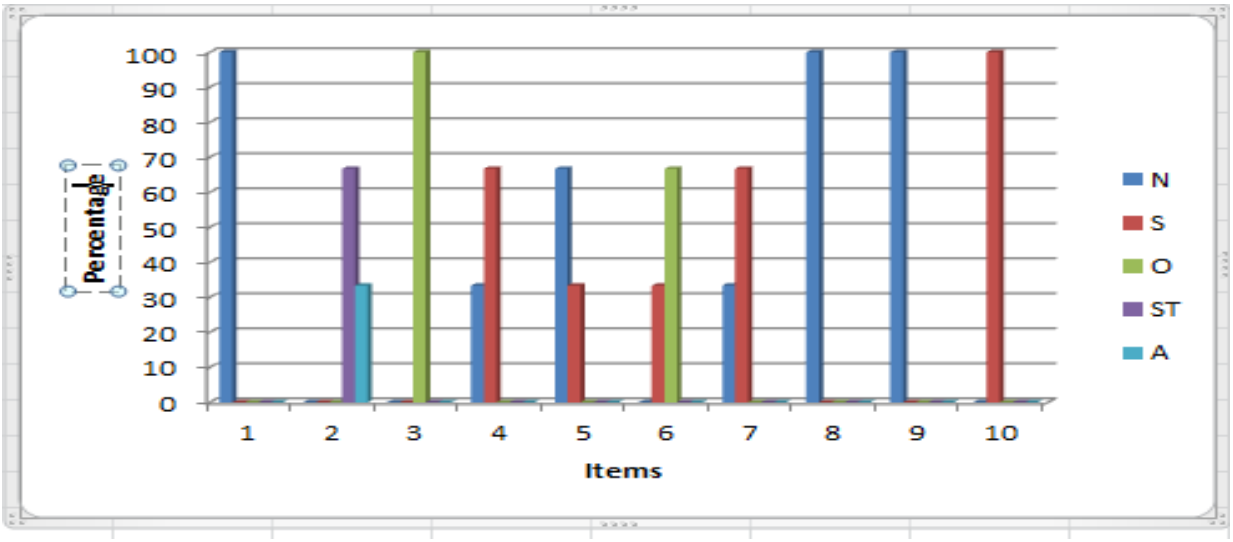

Figure 7: Laboratory Practices to Attract and Interested Learner in Physics

Table 11:- Check list for Assessment of Laboratory Work, Library and Pedagogical Center

R.No	Tasks/types of aids	Comment		
		Frequency		
			Yes	No
1	There is available science lab	*N*	3	0
		%	100	
2	No Separate physics lab	*N*	2	1
		%	66.7	33.3
3	Lack of facilities	*N*	3	0
		%	100	0
4	Lack of apparatus	*N*	3	0
		%	100	0
5	Lack of furniture	*N*	2	1
		%	66.7	33.3
6	Lack of finance	*N*	3	0
		%	100	0
7	There is Prepared physics manual	*N*	0	3
		%	0	100
8	There is planed lab activities	*N*	0	3

		%	0	100
9	There is reported lab activities	*N*	0	3
		%	0	100
10	Low participation	*N*	3	0
		%	100	0
11	There is enough physics supplementary books	*N*	1	2
		%	33.3	66.7
12	There is enough physics reference books	*N*	1	2
		%	33.3	66.7
13	There is facilitated laboratory in the school	*N*	0	3
		%	0	100
14	Students have lower attention in reading physics books in the laboratory	*N*	3	0
		%	100	0
15	There is available laboratory materials in the school	*N*	1	2
		%	33.3	66.7
16	There is facilitated pedagogical center	*N*	1	2
		%	33.3	66.7
17	Poorly organized pedagogical center	*N*	2	1
		%	66.7	33.3
18	The Students participation in doing modifying physics teaching aid is weak	*N*	3	0
		%	100	0

As in table 11:- mentioned there were not suitable conditions to maintain laboratory activities without physics lab manual and planed physics lab work. It is, impossible to perform (implement) (experiment or demonstration that) practical work that provides an activity which can profitable and emotionally satisfying and opens up possibilities for training in critical thinking. However, from the research- observation and the response of the respondents of questionnaire and open ended questions all of the three preparatory schools found at Seges area people's zone were not physics lab technician, were not well-equipped will laboratory equipment lack of facilities in the laboratory, even if the Kollango preparatory school have science laboratory but the physics teachers did not use these laboratory due to lack of experiences of teachers in conducting laboratory activities, shortage of time to use laboratory, at

Gidole and Segen town have absence of separate physics laboratory room and that limit the opportunities for using laboratory. The result showed that the pedagogical centers were organized poorly (66.7%). In the schools, most of physics teachers didn't use teaching materials to support the teaching learning process and the Students participation in doing modifying physics teaching aid is weak (100%) .In most of the schools (Gidole and Kollango) preparatory school, there were not enough physics reference books and supplementary books to enhance the facts, theories and principles of physics that the contents have learned in physics classes. For item (14) (Students have lower attention in reading physics books in the laboratory) 100% Students have lower attention in reading physics books in the laboratory.

4.8 Classroom Observation

Early, as it mentioned under methodology, observation is one of the tool for data gathering .Here, the data is purposefully gathered based on the following things, such as Teaching-learning process, Student counseling /support, Teaching materials, Student learning preference, Students attention in the class room while teacher teaching, Teachers motivation role and Class room atmosphere in table 12 the data and information gathered are analyzed and discussed as follow:

Table12:-Classroom Observation Checklist

№	Items(input factors)	xi	Frequency(f)					*Mean*	*Med*	*Mod*	*SD*	*Vari*	*R*
			1*P*	2*F*	3*G*	4*VG*	5*E*						
1	Subject matter knowledge	N/fi	0	4	8	0	0						
		%	0	33.3	66.7	0	0	2.67	3	3	0.49	0.24	1
2	Ability to manage classroom	N	0	0	4	7	1						
		%	0	0	33.3	58.3	8.3	3.75	4	4	0.62	0.39	2
3	Response to students questions	N	0	0	12	0	0						
		%	0	0	100	0	0	3.92	3	3	0	0	0

4	Encourage students' active learning	N	4	2	6	0	0						
		%	33.3	16.7	50	0	0	2.17	2.5	3	0.94	0.88	2
5	Encourage students' participation	N	0	0	12	0	0						
		%	0	0	100	0	0	3	3	3	0	0	0
6	Curiosity to learn from others/students	N	0	12	0	0	0						
		%	0	100	0	0	0	2	2	2	0	0	0
7	Realize individual variation	N	4	2	6	0	0						
		%	33.3	16.7	50	0	0	2.17	2.5	3	0.94	0.88	2
8	Encourage female learners	N	0	12	0	0	0						
		%	0	100	0	0	0	2	2	2	0	0	0
9	Willingness to assist others	N	0	0	12	0	0						
		%	0	0	100	0	0	3	3	3	0	0	0
10	Use of teaching materials like Diagram, pictures, color chalk etc. properly	N	4	2	6	0	0						
		%	33.3	16.7	50	0	0	2.17	2.5	3	0.94	0.88	2
11	Prepare teaching materials in pedagogical centers / at home	N	4	2	6	0	0						
		%	33.3	16.7	50	0	0	2.17	2.5	3	0.94	0.88	2
12	Consult school students for teaching aid preparation	N	4	2	6	0	0						
		%	33.3	16.7	50	0	0	2.17	2.5	3	0.94	0.88	2
13	Prefer talking each other to listening	N	0	4	8	0	0						
		%	0	333.	66.7	0	0	2.67	3	3	0.49	0.24	1
14	Prefer note taking of teacher talk	N	0	0	1	7	4						
		%	0	0	8.3	58.3	33.3		4	4	0.49	0.24	1

15	Prefer group work or individual solve problem	N	1	11	0	0	0	1.92	2	2	0.29	0.08	1
		%	8.3	91.7	0	0	0						
16	Writing	N	0	0	2	10	0	3.83	4	4	0.39	0.15	1
		%	0	0	16.5	83.3	0						
17	Talk to each other	N	0	1	11	0	0	2.92	3	3	0.29	0.08	1
		%	0	8.3	91.7	0	0						
18	Raise questions	N	1	11	0	0	0	1.92	2	2	0.29	0.08	1
		%	8.3	91.7	0	0	0						
19	Check students are relax, alert and ready to listen what he /she speak	N	0	1	11	0	0	2.92	3	3	0.29	0.08	1
		%	0	8.3	91.7	0	0						
20	Arouse curiosity and interest in the topic using enjoyable examples	N	0	4	8	0	0	2.67	3	3	0.49	0.24	1
		%	0	33.3	66.7	0	0						
21	Praise students participation	N	0	4	8	0		2.67	3	3	0.49	0.24	1
		%	0	66.7	33.3	0	0						
22	Students number in the class	N	0	3	9	0	0	2.8	3	3	0.45	0.21	1
		%	0	25	75	0	0						
23	Free from external and internal noise	N	0	0	3	9	0	3.8	4	4	0.45	0.21	1
		%	0	0	25	75	0						
24	Brightness and suitable air temperature	N	0	0	0	7	4	4.44	4	4	0.51	0.27	1
		%	0	0	0	58.3	33.3						
25	Students sitting arrangement	N	0	0	4	8	0	2.67	3	3	0.49	0.24	1
		%	0	0	33.3	66.7	0						

Where f is the frequency, N is the number of respondents, E-excellent VG-very good G-good F-fair P-poor and % is Percentage.

Regarding item 1 (Subject matter knowledge) as could observed teachers of preparatory schools 66.7% (8) good Subject matter knowledge , 33.3% (4) of the teachers fair on the issue, and had $(M = 2.67, SD = 0.49, VA = 0.24)$. The mean value which indicated that observation of the majority of the teachers on the issue that showed had good Subject matter knowledge. Item15 the idea of this item, was a strong similarity of statically value and mean value of item was almost closer value which showed in item1. Students Prefer group work to solve problem in classroom this showed that students are communicative learners, due to they like to work with each other. Regarding item2 (Ability to manage classroom) as could observe teachers of preparatory schools 58.7 % (7) very good ability to manage classroom, 33.3% (4) of the teachers good on the issue, 8.3% (1) excellent on the issue and had $(M = 3.75, SD = 0.62, VA = 0.39)$. The mean value of this item indicated that observation of the majority of the teachers had ability to manage classroom.

For item 3 (Response to students questions) as could observed teachers of preparatory schools about 58.3% (7) of the teachers very good response to students questions,25% (3) good of the tea chers and 16.7%(2) of the teachers excellent response to students questions and have $(M = 3.92, SD = 0.66, VA = 0.45)$. The mean value of this item indicated the observation of the majority of the teachers had ability response to students' questions that showed interaction between teacher and students are based on question and answering method of teaching learning ways. For item 4 (Encourage students' active learning) as could observed teachers of preparatory schools about 33.3% (4) of the teachers poor encourage students' active learning, 50% (6) good of the teachers and 16.7% (2) of the teachers fair encourage students' active learning and have $(M = 2.17, SD = 0.94, VA = 0.88)$ the mean value of the item was below the expected mean which indicated that the agreement of the 50% of the teachers does not encourage students' to active learning and researcher consider a few teachers encourage students' active learning me thod in teaching learning physics. Regarding item 5 (Encourage students' participation) as could observe teachers of preparatory schools 100 % (12) good encourage students' participation and had $(M = 3, SD = 0, VA = 0)$ the mean value of the item was equal to expected mean which indicated that 100% of observers' suggested that encourage students' participation in classroom is good and 0(zero) SD (standard deviation) this showed there is no variability. Item 9 the idea of this item, which Willingness to assist others had a strong similarity of statically value and mean

value of item was almost closer value which showed in item 5. Students Prefer instruction from teacher this showed that students are author learners, due to they depend on activities of teacher. According to item 6 (Curiosity to learn from others/students) about 100% (12) of observer answered that fair teachers lack of curiosity to learn from others/students and the item had ($M = 2, SD = 0, VA = 0$) the mean value of the item was blow the expected mean which indicated that the obviously the majority of the researcher observed, 100%(12) of teachers that fair and 0(zero) SD (standard deviation) this showed there is no variability. Items 8 the idea of these items, which are encourage female learners ,arouse curiosity and interest in the topic using enjoyable examples respectively also was a strong similarity of statically value and mean value of item was almost closer value which showed item 6.

According to item 7 (Realize individual variation) about 33.3% (4) of observer answered that poor teachers lack of realize individual variation, 16.7% (2) of observer answered fair, 50% of observer answered and the item had ($M = 2.17, SD = 0.94, VA = 0.88$) the mean value of the item was blow the expected mean which indicated that the obviously the researcher observed, 33.3% of teachers had poor realize individual variation .Items 11 and 12 the idea of these items, which are Prepare teaching materials in pedagogical centers at home, Consult school students for teachi ng aid preparation respectively also have a strong similarity of statically value and mean value of each item was almost closer value which showed in item 7 and teachers did not used teaching aid to lesson and advise students to prepared teaching aid in teaching learning of physics.

For item 10 (Use of teaching materials like Diagram, pictures, color chalk etc. properly on black board) as could researcher observed teachers of preparatory schools about 33.3% (4) of the teachers poor,16.7% of teachers fair, 50% of teachers good to use of teaching materials like Diagram, pictures, color chalk etc. properly on black board, and ($M = 2.17, SD = 0.94, VA = 0.88$) . The mean value of this item below of expected mean which indicated that the observation result showed that the majority teachers had lack of ability use of teaching materials like Diagram, pictures, color chalk. Regarding to item (13) (Prefer talking each other to listening) as could rese archer observe teachers of preparatory schools about 66.7% (8) of the teachers very good their st udents prefer talking each other to listening,33.3%(4) of the teachers excellent their students Pref er talking each other to listening and had ($M = 2.67, SD = 0.49, VA = 0.24$) .The mean value of

this item was above the expected mean which indicated that the observation result showed that teachers had ability of use teaching through discussion method and one can say that the students are communicative learners due to they like work to each other. Items 14 the idea of this item, which Prefer note taking of teacher talk also had a strong similarity of statically values and its mean values of item was almost closer value which showed in item 13.

Regarding to item (16) (Writing) as could researcher observe students attention in the class when teachers teaching about 8.3% (1) of the teachers good their students Prefer Writing, 83.3% (10) of the teachers very good their students prefer Writing and ($M = 4.33, SD = 0.49, VA = 0.24$) . The mean value of this item was above the expected mean which indicated that the observation result showed that the majority of teachers had ability of use teaching through discussion method and one can say that the students are communicative learners due to they like work to each other. Regarding to item (17) (Talk to each other) as could researcher observe students attention in the class when teachers teaching about 8.3% (1) of the teachers fair their students Prefer talk to each other ,91.7%(11) of the teachers good their students prefer talk to each and had ($M = 3.83, SD = 0.39, VA = 0.15$) the mean value of this item was above the expected mean which item indicated that the observation result showed that the majority of teachers depend only use of teaching through discussion method and one can say that the students are communicative learners due to they like talk to each other. Items 19 the idea of this item, which Check students are relax, alert and ready to listen what he /she speak also have a strong similarity of statically value and mean value of item was almost closer value which showed in item 17. Regarding to item (18) (Raise questions) as could researcher observe students attention in the class when teachers teaching about 8.3% (1) of the teachers poor their students raise questions, 91.7% (11) of the teachers fair their students raise questions and ($M = 1.92, SD = 0.29, VA = 0.08$) . The mean value of this item was below the expected mean which indicated that the observation result showed that the majority students not raise questions used to participate of teaching learning physics due to students in class learning no give attention in the class when teachers teaching.

Regarding to item (21) (Praise students participation as could researcher observe teachers motiva tion to his/her students in the class when teachers teaching about 66.7% (8) of the teachers good their students Praise students participation,33.3% (4) of the teachers fair their students Praise stu dents participation and had ($M = 2.67, SD = 0.49, VA = 0.24$) the mean value of this item was below the expected mean which indicated that the observation result showed teachers 66.6% of them good motivate students learning in the class room and one can say that the students are authority learners due to they keep motivation from their teacher's. Items 25 the idea of this item, which Students sitting arrangement in classroom also had a strong similarity of statically values and mean values of item was almost closer value which showed in item 21. Regarding to item (22) (Students number in the class) as could researcher observe students number in the class about 25% (3) of the classroom atmosphere teachers fair especial Gidole preparatory school students number in the class over standardized sitting , 75% (9) of the classroom atmosphere teachers good their students number in the class and had ($M = 2.8, SD = 0.45, VA = 0.21$). The mean value of this item was below of expected mean which indicated that the observation result of the majority showed good students number in the class.

Regarding to item (23) (Free from external and internal noise) as could researcher observe the class room atmosphere was free from external and internal noise about 25% (3) of the classroom atmosphere teachers good , 75% (9) of the classroom atmosphere teachers very good it free from external and internal noise and had ($M = 3.8, SD = 0.415 VA = 0.21$). The mean value of this item was above of expected mean which indicated that the observation result of the majority showed very good of the classroom atmosphere free from external and internal noise. Regarding to item (24) (Brightness and suitable air temperature) as could researcher observe the class room atmosphere about 58.3% (7) of the brightness and suitable air temperature classroom atmosphere teachers very good, 41.7% (5) of the brightness and suitable air temperature classroom atmosphere teachers excellent and had ($M = 4.44, SD = 0.51, VA = 0.27$). The mean value of this item was above the expected mean which indicated that the observation result of the majority showed very good and excellent of the brightness and suitable air temperature classroom atmosphere.

Form the above analysis the general analysis of the class room observation students' learning style physics and teachers' mode of delivery:

1. The mean value of item 1 and7 had below expected mean value which indicated that 66.7% of teachers had subject matter knowledge to delivery teaching of physics and realize individual variation but 33.3% of teachers had lack of subject matter knowledge to delivery teaching of physics and realize individual variation.
2. The mean value of item 10-12 had below expected mean which indicated that 50% of teachers does not use of teaching aid materials and advice their students to preparing teaching aid from local materials.
3. From item 14, students learning styles preference during classroom observation 58.3% of students prefer note taking from teacher talk and writing. A few students prefer group work and solving problems. In other way, these students are attentive to teacher's activities in classroom.
4. .From items 21, 33.3% of teachers only motivate the students participation in the classroom.

The above listed problems are dangerous obstacle for learners learning styles and teachers mode of delivery in three Segen zone preparatory schools.

4.9 School Principals Role in Improving Students Learning Physics

Researcher harmonizing questions regarding the principal roles in improving teaching learning students' reference of style and mode of delivery the subject used the mean and standard deviations of the responses of the respondents. The mean values between 2 and 3 indicate the fair, the mean values between 3 and 4 indicate the very good and the mean vales between 4 and 5 indicate the excellent of the respondents on the issues. The response of the respondents were table 13 discussed as follows.

Table 13:- Problems that Teachers and Students Bring to School Principal

№	Items(input factors)	xi	Frequency(f)					Mean	Med	Mod	SD	Vari	R
			1SDA	2DA	3N	4A	5SA						
1	Lack of Class room	N/fi	4	0	0	0	2	2.33	1	1	2.07	4.27	4
		%	66.7	0	0	0	33.3						
	Ict room and	N	0	0	0	2	4						

2	Internet serves problems /computer needing repair	%	0	0	0	33.3	66.7	4.67	5	5	0.52	0.27	1
3	Laboratory, pedagogy center, library room and furniture problems	N	0	0	0	4	2						
		%	0	0	0	66.7	33.3	4.33	4	4	0.52	2.70	4
4	Lack of new reference books	N	0	0	0	6	0						
		%	0	0	0	100	0	4	4	4	0	0	0
5	miss class	N	0	0	2	4	0						
		%	0	0	33.3	66.7	0	3.67	4	4	0.52	0.27	1
6	students behavioral problem	N	0	1	3	2	0						
		%	0	16.7	50	33.3	0	3.17	3	3	0.75	0.57	1
7	lack of punctuality	N	0	0	0	6	0						
		%	0	0	0	100	0	4	4	4	0	0	0
8	Lack of remediation teaching	N	1	2	0	1	2						
		%	16.7	33.3	0	16.7	33.3	3.17	3	2	1.72	2.97	4
9	Lack of practical teaching in laboratory	N	0	0	0	4	2						
		%	0	0	0	66.7	33.3	4.33	4	4	0.52	0.27	1
10	Lack of continuous assessment for students	N	0	0	2	2	2						
		%	0	0	33.3	33.3	33.3	4	4	3	0.89	0.8	2
11	Lack of content cover in time	N	2	0	0	4	0						
		%	33.3	0	0	66.7	0	3	4	4	1.55	2.40	3
12	Lack of text book evaluation format	N	0	0	0	4	2						
		%	0	0	0	66.7	33.3	4.33	4	4	0.52	0.27	1
13	Socioeconomic problem	N	0	0	0	4	2						
		%	0	0	0	66.7	33.3	4.33	4	4	0.52	0.27	1
14	Lack Teaching materials	N	1	4	1	0	0						
		%	16.7	66.7	16.7	0	0	2	2	2	0.63	0.4	2

SA-strongly agreed A –agreed N- Neutral DA-disagreed SDA-strongly dis agreed Regarding item 1 (Lack of Class room) about 33.3%(2) of the response were strongly agreed 66.7%(4) of the principals were response strongly disagree of the lack of class room and had $(M = 2.33, SD = 2.07, VA = 4.27)$ the mean value of the item indicated that the agreement of the majority there were available class room in preparatory schools. Regarding to item (2) (Ict room and Internet serves problems /computer needing repair) about 33.3% (2) of the principals were response agreed, 66.7% (4) of the principals were response strongly agreed Ict room and Internet serves problems /computer needing repair and have $(M = 4.67, SD = 0.52, VA = 0.27)$. The mean value of this item was above the expected mean which indicated that the of the majority principals showed about Ict room and Internet serves had problems.

Regarding to item (3) (Laboratory, pedagogy center, library room and furniture problems) about 33.3% (2) of the principals were response agreed, 66.7% (4) of the principals were response strongly agreed Laboratory, pedagogy center, library room and furniture problems and had $(M = 4.33, SD = 0.52, VA = 0.27)$. The mean value of this item was above the expected mean which indicated that the of the majority principals showed about Laboratory, pedagogy center, library room and furniture one of the most problems in physics instructional in preparatory schools. Items 9,12and13 the idea of these items had a strong similarity of statically value and its mean values of each item was almost closer value which showed in item 3. Regarding to item (4) (Lack of new reference books) about 100% (6) of the principals were response agreed and had $(M = 4, SD = 0, VA = 0)$ .The mean value of this item was above the expected mean which indicated that the majority of principals showed there were problems of new reference books in library room of preparatory schools and 0(zero) SD (standard deviation) this showed there is no variability. Item 7 the idea of this item, which lack of punctuality have a strong similarity of statically value and it mean value of item was almost closer value which showed in item 4. Regarding to item (5) (miss class) about 33.3% (2) of the principals were response neutral, 66.7% (4) of the principals were response agreed miss class is one of students and teachers behavioral problem and had $(M = 3.69, SD = 0.52, VA = 0.27)$. The mean value of this item above of expected mean which item indicated that the majority of principals agreements showed that there was miss class problems. Regarding to item (6) (students behavioral problem) about

50% (3) of the principals were response neutral, 33.3% (2) of the principals were response agreed and 16.7 %(1) of the principals were response disagreed students behavioral problem and had $(M = 3.17, SD = 0.75, VA = 0.57)$. The mean value of this item slightly above of expected mean which item indicated that the majority of principals showed about 50% of principals behavioral problem neutral. Regarding to item (8) (Lack of remediation teaching) about 33.3% (2) of the principals were response strongly agreed, 33.3% (2) of the principals were response disagreed and 16.7 %(1) of the principals were response strongly disagreed and 16.7%(1) of the principals were response agreed remediation teaching problem, $(M = 3.17, SD = 1.72, VA = 2.97)$ The mean value of this item was above the expected mean which indicated that the majority principals showed absence of remediation teaching problem.

Regarding to item (11) (Lack of content cover on time) about 33.3% (2) of the principals were response strongly disagreed and 66.7 %(4) of the principals were response strongly agreed content cover on time problem and had $(M = 3, SD = 1.55, VA = 2.40)$. The mean value of this item was equal to expected mean which indicated that the majority of principals showed about 66.7% content cover on time problem. here cause root to lack of content cover on time may be problems listed above in item (5) miss class , item (6) students behavioral problem ,item (7) lack of punctuality and (8) Lack of remediation teaching these problems had impact on the students preference learning style and teachers mode of delivery in physics. Regarding to item (14) (Lack Teaching materials) about 66.7% (4) of the principals were response disagreed, 16.7% (1) of the principals were response neutral and 16.7 %(1) of the principals were response strongly disagreed lack teaching materials and had $(M = 2, SD = 0.63, VA = 0.4)$. The mean value of this item was below the expected mean which item indicated that the majority principals showed about 66.7% lack of teaching materials disagreed.

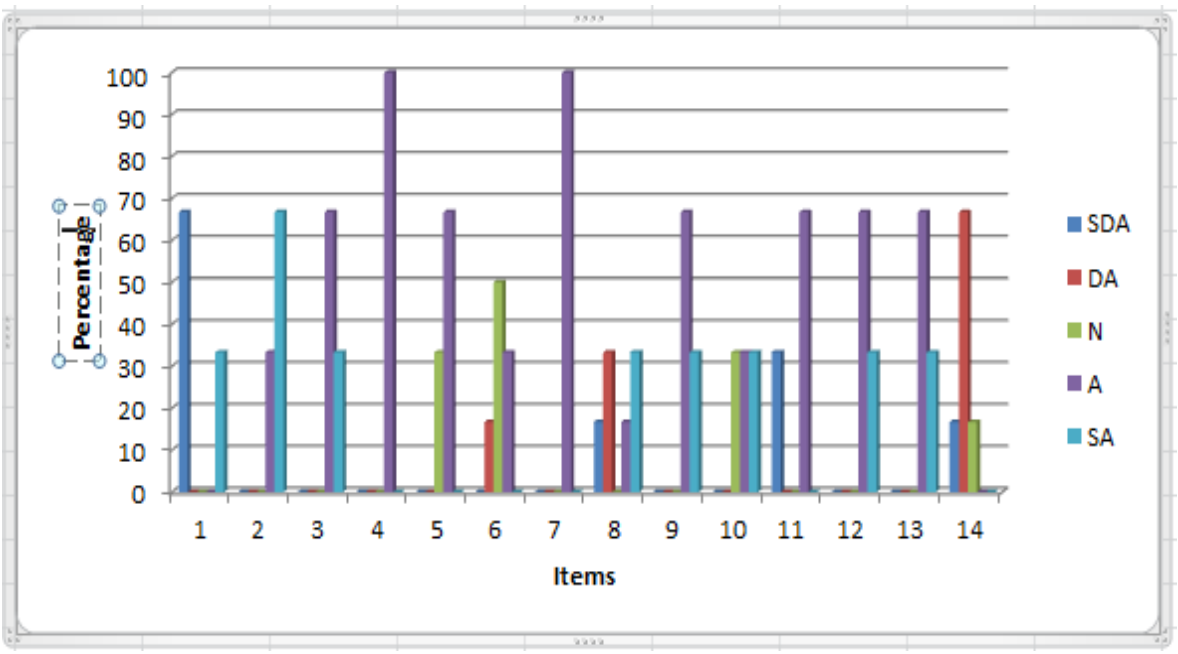

Figure 8: Show Problems Students and Teachers Rise to School Principal

Table14:- Lists Various Team Work Activities

№	Items(input factors)	xi	Frequency(f)					Mean	Med	Mod	SD	Vari	*R*
			1P	2F	3G	4VG	5E						
1	The value of group work of all teachers understand &functional	N/fi	1	5	0	0	0	1.83	2	2	0.41	0.17	1
		%	16.7	83.3	0	0	0						
2	How would you describe the quality of group relationship?	N	2	4	0	0	0	1.67	2	2	0.52	0.27	1
		%	33.3	66.7	0	0	0						
3	Has there been development of knowledge & active learning method	N	4	2	0	0	0	1.33	1	1	0.52	0.27	1
		%	66.7	33.3	0	0	0						
4	Students	N	6	0	0	0	0	1	1	1	0	0	0
		%	100	0	0	0	0						

	interesting to did in group												
5	Relationship b/n teachers& students	N	0	0	6	0	0	3	3	3	0	0	0
		%	0	0	100	0	0						
6	Co-curriculum activities	N	0	4	2	0	0	2.33	2	2	0.52	0.27	1
		%	0	66.7	33.3	0	0						
7	School administrative activities	N	0	0	0	3	3	3.5	3.5	3	0.55	0.3	1
		%	0	0	0	50	50						

E-excellent VG-very good G-good F–fair P-poor

Regarding to item (1) in the tale14 (The value of group work of all teachers understand &functional) about 83.3% (5) of the principals were response fair, 16.7% (1) of the principals were response poor and had $(M = 1.83, SD = 0.41, VA = 0.17)$. The mean value of this item was below the expected mean which indicated that the majority of principals agreed showed about 83.3% of teachers not understand and functional value of team work.

Regarding to item (2) in the tale14 (How would you describe the quality of group relationship?) about 69.7% (4) of the principals were response fair, 33.3% (2) of the principals were response poor and had $(M = 1.67, SD = 0.52, VA = 0.27)$. The mean value of this item was below the expected mean which indicated that the majority of principals' agreement showed about 66.7% of the quality of group relationship of team fair. Regarding to item (3) in the tale18 (Has there been development of knowledge & active learning method?) about 66.7% (4) of the principals w ere response poor, 33.3% (2) of the principals were response fair and had $(M = 1.33, SD = 0.52, VA = 0.27)$ .The mean value of this item was below the expected mean which indicated that the majority of principals agreement showed about 66.7% of there is development of knowledge & active learning method poor. According to many academicians investigation, the student- centered methods of instruction are useful to the actual conditions in the classroom to conduct the appropriate teaching- learning progress. The current global and national teaching- learning process towards active learning and constructivism (CDICP), 2010) Active learning instructional strategies include a wide range of activity that share the common

elements of "involving students in doing things and thinking about they are doing" (Bonwell and Elson, 1991 as cited in Elson, 2010). Activating learning instructional strategies can be created and used to engage students in thinking critically or creatively and speaking with partners (Eison, 2010).

Regarding to item (4) (Students interesting to did in group) about 100% (6) of the principals were response poor, students had poor interesting too did in group and ha ($M = 1, SD = 0, VA = 0$) . The mean value of this item below of expected mean which indicated that the majority of principals agreement showed about 100% of poor and 0(zero) SD (standard deviation) this showed there is no variability. Regarding to item (5) (Relationship b/n teachers& students) about 100% (6) of the principals were response good, students have poor interesting to did in group and had ($M = 1, SD = 0., VA = 0$). The mean value of this item was equal the expected mean which this item indicated that the majority of principals agreement showed 100% of good and 0(zero) SD (standard deviation) this showed there is no variability. Regarding to item (6) in the tale18 (Co-curriculum activities) about 69.7% (4) of the principals were response fair, 33.3% (2) of the principals were response good and had (M=2.33, SD= 0.52, VA=0.27). The mean value of this item was below the expected mean which indicated that the majority of principals' agreement showed about 66.7% of the Co curriculum activities fair. Regarding to item (7) (Scho ol administrative activities) about 50% (3) of the principals were response good, 50% (3) of the principals were response very good and had (M=3.5,SD=0.55,VA=0.3). The mean value of this item was above theexpected mean this item indicated that the majority principals agreement showed about 50%, 50% of the School administrative activities good and very good.

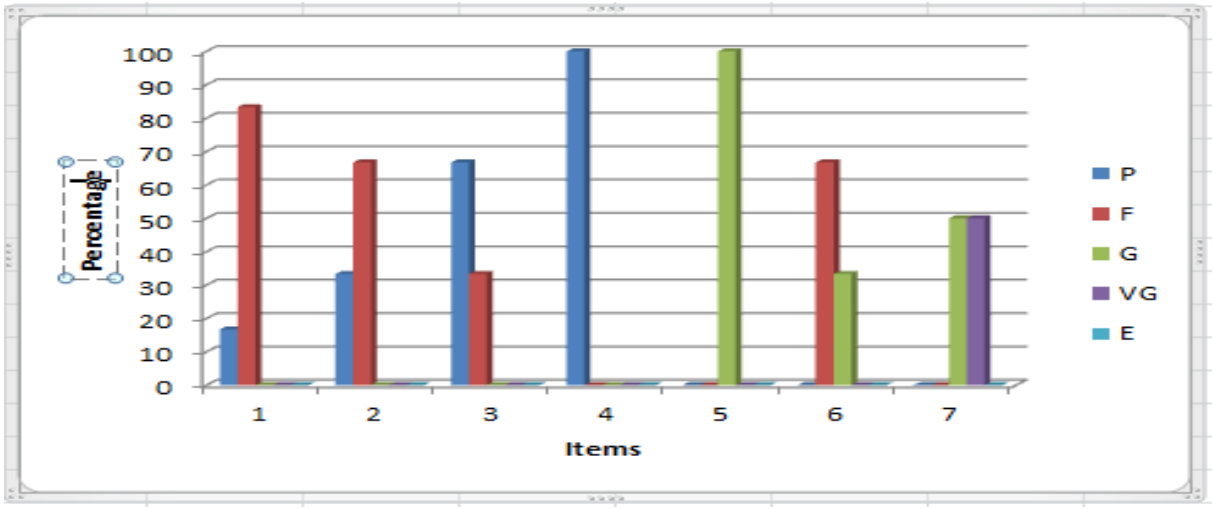

Figure 9: Team Work Practice in School

4.10 Physical Observation of Preparatory School

Early, as it mentioned under methodology ,observation one of the tool for data gathering so Physical observation of preparatory schools researcher used to check questions answered by students', teachers', lab technicians' and principals. Here, the data is purposefully gathered based on the following things, such as laboratory, school pedagogical center, ICT (information communication technology) room and library, in table 15 the data and information gathered are analyzed and discussed as follow:

Table 15:- Physical Observation Checklist for Preparatory School

№	Items(input factors)	xi	Frequency(f)					Mean	Med	Mod	SD	Vari	R
			1*SDA*	2*DA*	3*N*	4*A*	5*SA*						
	laboratory is functional	*N/fi*	*4*	*2*	*0*	*0*	*0*	1.33	1	1	0.52	0.27	1
		%	*66.7*	*33.3*	*0*	*0*	*0*						
2	have physics laboratory technician	*N*	*4*	*2*	*0*	*0*	*0*	1.33	1	1	0.52	0.27	1
		%	66.7	33.3	0	0	0						
3	Lack furniture (tables chair…)	*N*	2	0	0	2	2	3.33	4	1	1.86	3.47	4
		%	33.3	0	0	33.3	33.3						
4	absence of	*N*	0	2	0	2	2						

	separate laboratory rooms	%	0	33.3	0	33.3	33.3	3.67	4	2	1.37	1.87	3
5	fully equipped	*N*	1	1	0	2	2						
		%	16.7	16.7	0	33.3	33.3	3.5	4	4	1.64	2.7	4
6	laboratory manual	*N*	6	0	0	0	0						
		%	100	0	0	0	0	1	1	1	0	0	0
7	handling& usage of materials	*N*	6	0	0	0	0						
		%	100	0	0	0	0	1	1	1	0	0	0
8	pedagogy center is functional to users	*N*	6	0	0	0	0						
		%	100	0	0	0	0	1	1	1	0	0	0
9	have animation team	*N*	6	0	0	0	0						
		%	100	0	0	0	0	1	1	1	0	0	0
10	have own room	*N*	3	1	0	2	0						
		%	50	16.7		33.3		2.17	1.5	1	1.47	2.17	3
11	there is updated science kits	*N*	6	0	*0*	*0*	*0*						
		%	100	0	*0*	*0*	*0*	1	1	1	0	0	0
12	fully equipped	*N*	3	1	0	2	0						
		%	50	16.7	0	33.3	0	1	1	1	0	0	0
13	computers full and functional properly	*N*	6	0	0	0	0						
		%	100	0	0	0	0	1	1	1	0	0	0
14	Give internet serves	*N*	6	0	0	0	0						
		%	100	0	0	0	0	1	1	1	0	0	0
15	Full with safety material	*N*	2	4	0	0	0						
		%	33.3	66.7	0	0	0	1.67	2	2	0.52	0.27	1
16	Have own rooms	*N*	0	0	0	2	4						
		%	0	0	0	33.3	66.7	4.67	5	5	0.52	0.27	1
17	Clean and	*N*	6	0	0	0	0						

	attractive place	%	100	0	0	0	0	1	1	1	0	0	0
18	Give short training how use computer	*N*	2	4	0	0	0	1.67	2	2	0.52	0.27	2
		%	33.3	66.7	0	0	0						
19	lack of furniture	*N*	2	2	0	2	0	2.67	2	1	1.86	3.47	4
		%	33.3	33.3	0	33.3	0						
20	Have librarian person	*N*	0	0	2	2	2	4	4	3	0.89	0.80	2
		%	0	0	33.3	33.3	33.3						
21	lack of reference physics books	*N*	0	0	0	2	4	3.67	4	4	0.52	0.27	1
		%	0	0	0	33.3	66.7						
22	Lack of library furniture	*N*	1	3	9	0	2	2.83	2	2	1.72	2.97	4
		%	16.7	50	75	0	33.3						
23	Lack of library room	*N*	2	2	0	2	0	2.67	2	1	1.86	3.47	4
		%	33.3	33.3	0	33.3	0						
24	open in time for users	*N*	2	2	0	2	0	2.67	2	1	1.86	3.47	4
		%	33.3	33.3	0	33.3	0						

SA-Strongly agreed A- Agreed N-Neutral DA -Disagreed 1SDA -Strongly disagreed

For item (1), (laboratory is functional) about 66.7 % (4) of the principals response was strongly disagreed, 33.3% (2) of the principals stated that disagreed and $(M = 1.33, SD = 0.52, VA = 0.27)$. The mean value of the item indicated that the respondents strongly disagreed on the issue largely .The disagreement on the issue indicate that physics laboratory is not work or functional.

Item 2 the idea of this item, which physics laboratory have technician, had a strong similarity of statically value and mean value of item was almost closer value which showed in item 1 and had the same result with table 7 items 2 and 3. Regarding item 3 (lack furniture (tables, chair…)) 33.3 % (2) of the principals replied strongly agreed and indicated that there was no lab furniture (tables, chair…) in the laboratory; 33.3 % (2) of the principals responded agreed and there was no lab furniture (tables chair…) in the lab room; and 33.3 % (2) of the principals responded strongly disagreed and there was enough lab furniture (tables, chair…) in the lab room , and $(M = 3.33, SD = 01.86, VA = 3.47)$. The mean value of the item indicated that the lack of lab furniture (tables, chair…) in the lab room. For item 4 (absence of separate laboratory

rooms.) 33.3% (2) of the principals responded dis agreed, 33.3% (2) of the principal responded agreed and 33.3%(2) of principals response was strongly agreed and $(M = 3.67, SD = 1.37, VA = 1.87)$ the mean value of this item indicated that statistically significant which showed that the absence of separate laboratory rooms effect . For Item (5), (laboratory fully equipped) about 33.3% (2) of the principals responded strongly agreed, 33.3% (2) of the principals responded agreed, 16.7% (1) of the principals responded dis agreed; 16.7% (1) of the principals responded strongly disagreed to the item idea and had , $(M = 3.5, SD = 1.64, VA = 2.7)$, the mean value of the item indicated that above the expected mean. Regarding items (6), (laboratory have manual) about 100 % (6) of the principals responds strongly disagreed, principals of each preparatory school they are agreed on laboratory no have manual. and have $(M = 1, SD = 0, VA = 0)$ the mean value of the item indicated that it was statistically significant and 0 (zero) SD (standard deviation) this showed there is no variability and showed that the lack of laboratory manual have own influence on students attitude negatively. Items 7,8,9,11,13,14and 17 the idea of these items had a strong similarity of statically value and mean value of each item was almost closer values which showed in item 6.

Therefore researcher concluded that laboratory, school pedagogical center, ICT room roles were directly affecting the learning teaching process. Regarding item 10 (school pedagogical center have own room) 33.3 % (2) of the principals replied agreed and indicated that school pedagogical center had own room; 16.7 % (1) of the principals responded disagreed and; and indicated that school pedagogical center not had own room and 50 % (3) of the principals responded strongly disagreed and indicated that school pedagogical center no had own room and $(M = 2.17, SD = 1.47, VA = 2.17)$. The mean value of the item indicated that the lack of school pedagogical center had own room. Item 12 the idea of this item, which school pedagogical center fully equipped, had a strong similarity of statically value and mean value of item was almost closer value which showed in item 10. Regarding item 15 (ICT room Full with safety) 33.3 % (2) of the principals replied strongly disagreed , 66.7 % (4) of the principals responded disagreed and $(M = 1.67, SD = 0.52, VA = 0.27)$.The mean value of the item indicated that the lack of ICT room safety. Item 18 the idea of this item, which school ICT room not give short training how use computer, have a strong similarity of statically value and mean value of item has almost

closer value which showed in item 15. For item (16), (ICT have own room) about 66.7 % (4) of the principals response was strongly agreed, 33.3 %(2) of the principals stated that agreed and had $(M = 4.67, SD = 0.52, VA = 0.27)$ The mean value of the item indicated that above expected mean the respondents all agreed on the issue largely.

For item (19), (lack of furniture for ICT room) about 33.3 % (2) of the principals response was strongly disagreed, 33.3 %(2) of the principals stated that disagreed and 33.3 % (2) of the principals stated that agreed and had $(M = 2.67, SD = 1.86, VA = 3.47)$. The mean value of the item indicated that the respondents disagreed on the issue largely .The disagreement on the issue indicated that ICT room is not lack of furniture. For item (20), (school have librarian person) about 33.3 %(2) of the principals response was neutral, 33.3 % (2) of the principals stated that agreed and 33.3% (2) of the principals stated that strongly agreed and had $(M = 4, SD = 0.89, VA = 0.80)$. The mean value of the item indicated that the respondents agreed on the issue largely. For item (21), (lack of reference physics books in the library) about 33.3 %(2) of the principals response was neutral, 66.7 %(4) of the principals stated that agreed and had $(M = 4., SD = 0.89, VA = 0.80$. The mean value of the item indicated that the respondents agreed on the issue largely .The agreement on the issue indicate that schools no had lack of reference physics books in the library.

For item (22), (lack of library furniture) about 50 %(3) of the principals response was neutral, 16.7 % (1) of the principals stated that strongly disagreed and 33.3 % (2) strongly agreed and had $(M = 2.83, SD = 1.72, VA = 3.47)$. The mean value of the item indicated that 50% of respondents neutral on the issue they cannot know furniture in the library enough or not. Regarding item 23 (Lack of library room) 33.3 %(2) of the principals replied strongly disagreed, 33.3% of the principals disagreed and indicated that not Lack of library room; 33.3 %(2) of the principals responded agreed; and indicated that Lack of library room and $(M = 2.17, SD = 1.47, VA = 2.17)$. The mean value of the item was indicated that the Lack of library room. Item 24 the idea of this item, which school ICT room not give short training how use computer, have a strong similarity of statically value and it mean value of item was almost closer value which showed in item 23. From schools physical observation responded showed that the unavailability of school facilities such as ICT room, laboratory, library and pedagogical center and even some of them are not found and some of them are very small in size with

shortage of reference materials in the library, the laboratory of those schools were not giving service. In general, the absence of such school facilities and teaching-learning conditions forced students' attitude negatively to learn the subject and as the result this condition leads learning feebleness and achieve poorer performance. This implies that as many findings such as (Curle, 1973)and (Chamie, 1983) has shown that the absence of facilities were also the causes for influence of students' in schools.

On open ended questions the school principal were gave their answers as follows below: Most of them for each question have given the following responses

Which criteria you used as important to evaluate of batter tender for teachers' work?

- students achievement/ result ,Professional qualifications
- Technical capacity/ experience ,Previously executed works/ performance record

Which expenditure directly improves the well-being the teaching learning of preparatory school?

- Construction of schools libraries and public libraries, laboratory centers and pedagogy centers and ICT room, contraction of class rooms& with provision of equipment
- Give short work shop to upgrade knowledge and skill and give training about student center / active learning method, continuous assessment, curriculum frame work for Ethiopia education (KG-Grade 12)

In your school group meeting is effective? If no what factors affect?

- Lack of resources ,Lack of belief in the idea and Wrong skill mix
- Failure to integrate the work of the team with the school principal
- Culture of individualism and Poor communication between teachers and students.

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes the major findings of the study and draws conclusion on the basis of the findings and then forwards recommendations that are thought to be helpful to address the identified problems regarding the students learning style and teachers' mode of delivery in current textbook, of students to learn physics.

5.1 Summary

The main objective of this study is to "Diagnosing the problems between students learning style and teacher's mode of delivery in the current course book of Ethiopia, at Segen Area People's Zone of preparatory schools. The study attempted to answer the basic research questions related to: The students learning style preference, pedagogy center activities, textbook and teacher guide, lab activities, teachers and principals role around. On bases of study questions, to get relevant data researcher used two data gathering instruments questions and observation. The source of data for this study was students, teachers, principals and Lab technician. There were 6 principals, 6 teachers, 319 students and 3 Lab technicians. However the sample size was consisted of 6 principals (100%), 6 teachers (100%), 144 Students (45.14%) and 3 Lab technician (100%) respondents. The data gathering instruments questions are forwarded as primary and secondary sources and used to get relevant data for the study. The gathered data were analyzed using descriptive statistics including Percentage, Means, Standard deviations and variance. In the idea of the basic research questions, the study had identified the following major findings based on the date analysis:

From table 4 ,the preference of students learning style all of the students had their own prefer learning style for physics subject according to data analysis in the previous chapter and from concept questions,item1 - 4 indicated that the mean value of items had above expected mean and 57.28% average percentage indicated that majority students were concrete learners.

Analytic questions, item 5-9 the mean value of these items had below average mean and 34.44% average percentage indicated that a few students were analytic learners. From communicative questions, item 10-13 the mean value of these items had below average mean and 34.18% average percentage indicated that a few students were communicative learners.

From authority oriented questions, item 14-17 indicated that the mean value of items had above expected mean and 59.38% average percentage. These indicated that the majority students were authority Oriented learners.

From table 9 Organization of teacher guide and textbooks evaluation checklist it was concluded that

1. Item 1-4, 66.7% of teachers indicated that the textbooks are presented either topically or functionally in logical organized horizontally and vertically manner. The mean value of these items had above expected mean this indicated that the current textbooks had suitable content presentation approach.

2. Item 5-8, 66.7% of teachers indicated that the textbooks had no formulas and principles presented at an appropriate rate, the text content were understandable and students were unable to retain formula & principles. The mean value of these items was below the expected mean this indicated that the current textbooks had not formula and principle presented at an appropriate

3. From item 21, 66.7% of teachers indicated that the teacher manual had not given clear, concise description for teaching each lesson and does not help teacher to understand the objectives and methodology of the text. The mean value of theis item was below the expected mean this indicat ed that the current manual had unapparent methodology guidance for student center, group discussion and for practical activities.

4. Item 11-13 the textbooks did not make easier by addressing one new concept easy. Multiple of new concepts do not promote critical thinking. The mean value of these items was below the expected mean this indicated that the current textbooks not easier by addressing one new concept at a time alternative of multiple new concepts.

5. Item 16, 20, 27, 30 and 31 the textbook is not interesting enough that students will enjoy reading and lead to active learning style. The mean value of these items was below expected mean this indicated that the current textbook does not students will enjoy reading and lead to active learning style. Finally open ended questionnaire of teacher the specific objectives are not balanced according to Bloom's taxonomy. Therefore the current textbook and manual of

preparatory schools of Ethiopia created disparity between students learning styles and teacher's mode of delivery due to the find out the above listed problems.

Form table 12, the general analysis of the class room observation students' learning style physics and teachers' mode of delivery:

1. The mean value of item 1 and 7 was below expected mean value which indicated that 66.7% of teachers had subject matter knowledge to delivery teaching of physics and realize individual variation but 33.3% of teachers had lack of subject matter knowledge to delivery teaching of physics and realize individual variation.
2. The mean value of item 10-12 was below expected mean which indicated that 50% of teachers does not use of teaching aid materials and advice their students to preparing teaching aid from local materials.
3. From item 14, students learning styles preference during classroom observation 58.7% of students prefer note taking from teacher talk and writing. A few students prefer group work and solving problems. In other way, these students are attentive to teacher's activities in classroom.
4. From item 21, 33.3% of teachers only motivate the students' participation in the classroom.

The above listed problems are dangerous obstacle for learners learning styles and teachers mode of delivery in three Segen zone preparatory schools.

5. From table 8 item 1, 2 and 7, the mean value of these items was below expected mean which indicated that 83.3% of teachers does not taken professional development training opportunities in the past five years about implementation of new curriculum, new resources and practical work of specific content. Finally from open ended question item 5, many teachers does not preparing weekly their lesson plane based on active learning approach.

In additional from laboratory checklist and physical observation questions there was no separate physics laboratory, absence laboratory technician in three schools. In each of the school the Principal have an act of conducing environment, motivating students as well as teachers, facilitating school materials and conditions even the building for school. All of these need the role of principal to improve students' learning style to the subjects but from the analysis of this research they were not well doing such activates. From physical observation result the lack of facility of the school starting from the school compound, school blocks, laboratory blocks,

library blocks, class materials, laboratory equipment's, library reference books, availability of new technologies /plasma TVs, computer center, access of computer and even qualification level of teachers in the subject were not appropriate as a standard. Therefore the school status one that created disparity between students learning styles and teacher's mode of delivery in three preparatory schools.

5.2 Conclusion

After the analysis of all the data gathered by using the instruments designed for the study, the researcher come up, based on the finding, the following conclusions. All of the students had own prefer learning style to learning physics. Data analysis result showed that 57.28% were concrete learners, 34.44% were analytic learners, 34.18% were communicative learners and 59.38% were authority oriented learners. The majority types of learners in three Segen zone schools were concrete learners and authority oriented learners but a few analytic learners and communicative learners. Classroom observation indicated that 66.7% of students prefer note taking from teacher talk and writing but a few students prefer group work and solving problems.

Teachers do no teach student in modern method, from open ended question 66.7% of teachers indicated that they teach by traditional approach such as lecture, question and answer, group discussion and problem solving intermittent and excluded practical work, project, Field work and case study .From classroom observation result indicated that 33.3% of teachers had lack of subject matter knowledge to delivery teaching and realizationstudents variation according to their learning styles. From classroom observation result indicated that 50% of teachers do not use teaching aid materials and consult students to preparing teaching aids from local materials. From teacher questioner table 8, 83.3% of teacher indicated that they did not taken professional development training opportunities in the past five years about implementation of new curriculum, implementation of new resources and practical work of specific content. From table 9 Organization of teacher guide and textbooks evaluation checklist: 66.7% of teachers indicated that the teacher manual had not given clear, concise description for teaching each lesson and does not help teacher to understand the objectives and methodology of the text. Finally from open ended questionnaire item 4 most teachers said that the specific objectives are not balanced according to Bloom's taxonomy and over wide volume difficult to cover in time contents and miss place topics order in some text units. Therefore the current

physics text books and teacher guide one of that created disparity between students learning styles and teacher's mode of delivery in Segen zone preparatory schools of Ethiopia.

Finally from laboratory check list and school observation checklist; the Segen zone preparatory schools had lack of facilities like Separate physics laboratory room, Library reference books, pedagogy center, etc. the school status showed that not favorable condition to active learning method. Therefore, researcher could conclude that there were a clear disparity between the students style of learning and teachers' mode of delivery.

5.3 Recommendations

Finally, based on the findings of the study, the researcher has suggested the following recommendation. The researcher hoped that ,if this recommendation becomes realized it help to create a good relationship between students' learning styles and teachers' mode of delivery, so as to makes physics learning meaningful in preparatory schools at Segen Area People's Zone Dirashe woreda,Segen Town and Ali woreda.

1. The library should consist enough supplementary and reference physics books and it should also be facilitated.
2. Dirashe woreda,Segen Town and Ali woreda education offices should search a means of build separate physics laboratory and establish well-equipped and facilitated laboratory in each of preparatory school.
3. Ministry of education, Regional education Bureau, Zonal education department and Dirashe woreda,Segen Town and Ali woreda. Education offices should prepare series trainings workshops on the approaches and methods of teaching physics on the newly designed preparatory school physics curriculum to achieve the goals of physics education.
4. The concerned authority should capacitate physics teachers, lab technician to the implementation of laboratory activity suggested in preparatory school physics curriculum effectively and successfully.
5. Physics teachers should give an attention to apply different methods of teaching from lecture to practical work they should use local materials in doing laboratory activities if no industrial materials(apparatus)

6. Physics teachers should understand the nature and characteristics of the appropriate teaching-learning methods to be used in conjunction with the newly designed preparatory school physics curriculum.
7. The schools should establish well organized pedagogical centers and assign science and mathematics teacher that work in the center.
8. Physics teachers even the preparatory school society, should need to conduct abroad-based public engagement campaign that draws attention to the need of physics education in these schools.
9. Physics teachers should motivate their students to develop their interest by giving rewards and praise to the students who score high result and giving positive response to their students.
10. Physics teachers should encourage to their students by giving supplementary and tutorial classes voluntarily.
11. Teachers should recognize the preference student learning in order to follow the approach that suit students learning preference
12. Students preferred ways of learning should be prime factor in deciding teaching methodology and choice of materials
13. Ministry of education, curriculum designer experts should be responsible to revise newly physics textbook and teacher guide based on student center approach method.
14. principals:-should create a possible relationship with all collaborators like students, teachers, parents, the community, and NGOs to motivate ,encouraging students to get acquainted with the new technology that help students to understand the concept of the learning physics subjects.
15. Communities, students and other school societies should recognize the position and respect of the teachers.
16. Textbook writers should provide simple and logical presentation of the content of physics textbooks in a way to link the learners' learning style with teachers' mode of teaching and to meet students' interest.

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APPENDIX A

Questionnaire for students

Dear students

The purpose of this Questionnaire is to Diagnosing the Disparity between Students' Learning Style and Teacher's Mode of Delivery in the Current Course Books in Preparatory School of Ethiopia (The case of preparatory schools in Segen area people's zone of SNNPR.) and to give appropriate solution to overcome the problem. Hence your genuine response has a great value for outcome of study, do you are kindly requested to provide response honestly.

N.B

You do not need to write your name

When you are filling the questions please tick (√) in box provided or write what you feel and know when necessary. The researches would like to extend warmest thanks for your cooperation.

Part I . General back ground of the respondent

Name of the School _____ Grade level_____

Sex Male☐ Female☐

Age 15-19 ☐ 20-24☐ 25-29 ☐ above30 ☐

Part II closed ended Questionnaire

Direction 1 In the following lists you will find various learning activities that you may involve in physics class. Read each of them and judge your agreement in learning physics in class according to the following rating scale and a put mark (√) in the appropriate box.

Rating Scale

5-strongly agreed 4-agreed 3-Neutral 2-dis agreed 1-strongly disagreed

Direction 2. In the following lists you will get various school pedagogy center activities that you

No	Items	5	4	3	2	1	Remark
1	I understand physics concept when teacher use teaching aid material in class						
2	When learning new physics concepts, I attempt to understand them I follow up plasma TV presentation						
3	concept is better to be told scientific facts than to find them out from experiments when teacher show natural object model						
4	I learn more when teacher using diagrams in physics teaching						
5	When learning new physics concepts, connect them to my previous experiences						
6	I learn more by reading textbook and reference books						
7	In physics, I think that it is important to learn physics by solving problems.						
8	I would prefer to do my own experiments than to find out information from a teacher.						
9	I benefit more from physics laboratory classes than lecture classes.						
10	During physics activities, I prefer to ask other people for the answer rather than think for myself						
11	I learn more physics when I would discuss with the teacher or other Students to clarify						
12	I am willing to participate in physics because students are involved in discussions						
13	I learn best in class when I can participate in related activities						
14	I learn better in the class when teacher gives a lecture.						
15	I learn better by reading what the teacher writes on the chalkboard						
16	When I study physics I do not Understand, I still try to learn by teacher.						
17	I feel that teacher's guidance is very important, how can I study physics and do home work						

may practice. Read of them and judge how often use following activities? Use the following rating scale and put the mark (√**)** in the appropriate box.

Rating Scale

5-Always 4- Some times 3-Occasionaly 2-Seldom 1- never

No	Items	5	4	3	2	1	Remark
1	Teacher& students make teaching learning aids from locally materials						
2	Teaching aid use in physics learning is to Promote perception						
3	when teacher use teaching learning aids in class I to Promotes understanding						
4	When teacher use teaching aids I Motivate and arouses interest to learning physics						
5	Teaching aids gives reinforcement me to understand new concept of physics						

Direction 3 In the following lists you will get various physics text book activities that you may practice. Read of them and judge your agreement. Use the following rating scale and put the mark (√**)** in the appropriate box.

Rating Scale

5-excellent 4-very good 3-good 2-fair 1-poor

No	Items	5	4	3	2	1	Remark
1	Do instructions in the textbook tell students to solve problems?						
2	Are students given sufficient examples to learn ?						
3	Do the activities facilitate students' use of formula?						
4	Do the exercises promote interesting of the text?						
5	most activities in the text book from simple to complex						

6	the text contains clear laboratory instruction, laboratory equipment's						
7	the text contains clear pictorial materials like figure ,charts , graph						
8	activities are balanced between individual and group work response						

Direction 4 In the following list you will find various activities that you may observe or participate. Read each of them judge your agreement of your school in reaction to physics education use the following rating scale

and puts a mark (√) in the appropriate box

Rating Scale

5-strongly agreed 4-agreed 3-Neutral 2- disagreed 1- strongly disagreed

No	Items	5	4	3	2	1	Remark
1	There is science and technology club						
2	There is physics laboratory room separately						
3	There is physics laboratory technician						
4	Lack of facilities in physics laboratory						
5	Low participation in doing demonstration or experiment						
6	There is school pedagogy center						
7	There is Pedagogical animation team						
8	Low participation in doing physics teaching aids						
9	There are available reference books in our library						
10	There are available computers and internet serves						
11	There are available class rooms& provision of equipment like table , chair, blackboard etc.						
12	Teacher give up tutorial, continues assessment						

Part III Open ended Questionnaire for students

1. List 3 Audio-Visual aids if present in your school

_____, _____,_____

2. List 4 activity aids doing by teacher and students in your school

_____, _____

_____, _____

3 .Have the students been working in 1to5groups? If yes

What kind of collaborative activities took place

_____,_____, _____

_____, _____, _____

4 . What kind of materials and tools were available in physics laboratory
for the students to perform experiments?

_____, _____, _____,
_____, _____,_____

_____, _____, _____

5 . Are there any additional comments you would like to make that are not addressed in this questionnaire?

_____
_____
_____

APPENDIX B

Dear Teacher

The purpose of this Questionnaire is to Diagnosing the Disparity between Students' Learning Style and Teacher's Mode of Delivery in the Current Course Books in Preparatory School of Ethiopia (The case of preparatory schools in Segen area people's zone of SNNPR.) and to give appropriate solution to overcome the problem. Hence your genuine response has a great value for outcome of study, do you are kindly requested to provide response honestly.

N.B

You do not need to write your name

When you are filling the questions please tick (√) in box provided or write what you feel and know when necessary. The researches would like to extend warmest thanks for your cooperation.

Part 1, General back ground of the respondent

1) Name of the school _____Grade level _____

2) Sex Male☐ Female☐

3) Age 20-25☐ 26-30☐ 31-35☐ 36-40☐ above 40☐

4) Educational level certificate (TTI) ☐ Diploma☐ B.se ☐ M.sc ☐

5) field of study (Qualification)

Major _____ Minor _____

6) Serves years 1 - 5 ☐ 6-10☐ 11-15☐ 16-20 ☐ above 20 ☐

Part II Closed ended Questionnaire for teachers

Direction 1 Have you taken part in the following list you will various activities that professional-development opportunities on the following topics if you participated. Indicate their effect on your physics teaching by use the following rating scale and put a mark (√) in the appropriate box

Rating Scale

5-excellent 4-very good 3-good 2-fair 1-poor

No	Items	5	4	3	2	1	Remark
1	Implementation of new curriculum						
2	Implementation of new resources						
3	Teaching through problem solving						
4	Assessment and evaluation						
5	Teaching strategies						
6	Facilitating investigations						
7	Practical work Specific content knowledge						
8	Use of technology like ICT, plasma TV						
9	Use of manipulative (e.g. Ammeter voltmeter, thermometer,)						
10	Inquiry learning (e.g. CPD, Action Research)						
11	Student centered active learning in group						

Direction 2 In the following lists you will get various physics text book and teacher Manual organization activities that you may observe or practice. Read of them and judge your agreement. Use the following rating scale and put the mark (√**)** in the appropriate box.

Rating Scale

5-excellent 4-very good 3 –good 2-adequate 1-poor

No	**I .Items of Textbook Evaluation Checklist**	5	4	3	2	1	Remark
	A. Content						
1	Is the subject matter presented either topically or functionally in a logical, organized / horizontally and vertically manner?						
2	Does the content serve as a window into learning about the target objectives						
3	does the content contain real-life issues that challenge to think critically about his/her worldview?						

4	Are the text selections representative of the variety of phenomena of nature						
	B. Formulas and principles						
5	Are the formulas and rules presented in a logical manner						
6	Are the new principle presented in a variety of ways						
7	Are the new formula and principle presented at an appropriate rate so that the text is understandable and so that students are able to retain new formula and principle?						
	C. Exercises and Activities						
8	Are there interactive and task-based activities that require Students to use new formula and principle to solve problems?						

9	Are laboratory activities sufficient?						
10	Are students given sufficient examples to learn simple to Complex techniques for solve problems?						
11	Do the activities facilitate students' use of formal and rules by creating situations in which these rules are needed?						
12	Does the text make easier by addressing one new concept at a time instead of multiple new concepts?						
13	Do the exercises promote critical thinking of the text?						
	D. Attractiveness of the Text and Physical Make-up						
14	Is the cover of the book appealing?						
15	Is the visual imagery of high aesthetic quality?						
16	Is the text interesting enough that students will enjoy reading it?						
	II .Teacher's Manual						
	A. General Features						
17	Does the manual help teachers understand the objectives and methodology of the text?						
18	Are correct or suggested answers given for the exercises in						

	the text book?						
	B. Methodological Guidance						
19	Are teachers given techniques for activating students' background knowledge before reading the text?						
20	Are teachers given adequate examples for teaching students to solve, understand concept find the main idea? And lead to active learning style?						
21	Does the manual suggest a clear, concise method for teaching each lesson, student center ,group discussion , practical work,?						
	C. Supplementary Exercises and Materials						
22	Does the manual give instructions on how to incorporate audiovisual material produced for the textbook?						
23	Does the manual provide teachers with exercises to practice, test, manual give instructions how to do laboratory activities and review formulas?						
24	Does the manual provide additional exercises for reinforcing the text?						
	III. Context						
25	Is the textbook appropriate for the curriculum?						
26	Does the text coincide with the course goals?						
27	Is the textbook appropriate for the students who will be using it?						
28	Is the text free of material that might be offensive?						
29	Are the examples and explanations understandable?						
30	Will students enjoy reading the text selections?						
31	Will the content meet students' felt needs for learning physics or can it be adapted for this purpose?						
32	Are the textbook and teacher's manual appropriate for the teacher who will be teaching from them?						

Part III . Open ended Questionnaire for teachers

1,list all the teaching method that you use are the most time and provided in current textbook and teacher guide book.

_____
_____
_____
_____

2, list which factors affects students learning style and teacher's mode of delivery in currentbook._____
_____
_____
_____

3,can the text book can deliver the recommend approaches and strategies without much need of adaptation of materials if no reason out ,if yes reason out

_____
_____
_____
_____
_____
_____

4, In the text book according to Bloom's taxonomy specific objectives such as cognitive domain, Affective domain and Psychomotor domain are balanced if no reason which domain over dominates?

_____
_____

5,What the difference between traditionally and modernteaching?_____
_____
_____
_____
_____
_____

A, What is active learning?_____
_____
_____

B, How do you prepare lesson plan for active learning?

6 .Have the students been working in groups? If yes What kind of collaborative activities took place?_____,_____, _____
_____, _____, _____

7. What kind of materials and tools were available in physics laboratory
For the students to perform experiments?

_____, _____, _____,
_____, _____,_____
_____, _____, _____

8. Did students have opportunity to reflect on their
Learning process? If yes what are they?

_____
_____
_____

9. Are there any additional comments you would like to make that are not addressed in this questionnaire?

_____
_____
_____
_____

APPENDIX C

Questionnaire for laboratory Technician

Dear laboratory Technician

The purpose of this Questionnaire is to Diagnosing the Disparity between Students' Learning Style and Teacher's Mode of Delivery in the Current Course Books in Preparatory School of Ethiopia (The case of preparatory schools in Segen area people's zone of SNNPR.) and to give appropriate solution to overcome the problem. Hence your genuine response has a great value for outcome of study, do you are kindly requested to provide response honestly.

N.B You do not need to write your name

When you are filling the questions please tick (√) in box provided or write what you feel and know when necessary. The researches would like to extend warmest thanks for your cooperation

Part 1, General back ground of the respondent

1) Name of the school _____ Grade level_____

2) Sex Male☐ Female☐

3) Age 20-25 ☐ 26-30 ☐ 31-35 ☐ 36-40☐ above 40 ☐

4) Educational level certificate (TTI) ☐ Diploma ☐B.se ☐ M.sc ☐

5) field of study (Qualification)

Major_____ Minor _____

6) Serves years 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ above 20 ☐

Part II Closed ended Questionnaire for physics laboratory Technician

Direction 1. In the following questionnaire item lists you will get various Laboratory activities that you may practice to attracts and interests learner in physics. Read of them and judge how often you use in laboratory .Use the following rating scale and put the mark (√) in the appropriate box

Rating Scale

5-Always 4 -sometimes 3 -Occasionally 2- Seldom 1-never

No	Items	5	4	3	2	1	Remark
1	Application of physics and art						
2	Application of physics knowledge in technology						
3	Solving problem exercises and projects						
4	Use “Physics for life”						
5	Demonstrating simple experiments and toys						
6	Exploitation history related to physics discoveries and physicists’ lives						
7	Seeing paradoxes and tricks						
8	Reading sci-fi literature and watching sci-fi films.						
9	Watching films, video programs and using computers (ICT)						
10	Teacher well Experiencing lab using						

Part III. Are there any additional comments you would like to make that are not addressed in this questionnaire?

_____
_____
_____
_____

APPENDIX D

Questionnaire for school principal

Dear Principal

The purpose of this Questionnaire is to Diagnosing the Disparity between Students' Learning Style and Teacher's Mode of Delivery in the Current Course Books in Preparatory School of Ethiopia (The case of preparatory schools in Segen area people's zone of SNNPR.) and to give appropriate solution to overcome the problem. Hence your genuine response has a great value for outcome of the study; you are kindly requested to provide response honestly.

N.B.

You do not need to write your name

When you are filling the questions please tick in the box provided or write what you know when necessary. The researches would like to extend warmest thanks for your cooperation

Part I. General back ground of the respondent

1) Name of the school _____

2) Sex Male ☐ Female ☐

3) Age 20-25 ☐ 26-30 ☐ 31-35 ☐ 36-40 ☐ above 40 ☐

4) Educational level certificate (TTI) ☐ Diploma ☐ B.se ☐ M.sc ☐

5) Field of study (Qualification) educational administration ☐

Others Major _____Minor _____

6) Serves years as school principal _____

Part II. Questionnaire

Direction1. In the following lists various activities problems that teachers and students bring to you in school that you may observe. Read of them judge your agreement use the following rating scale and put a mark (√) in the appropriate box

Rating Scale

5-strongly agreed 4 –agreed 3- Neutral 2-disagreed 1-strongly disagreed

No	Activities	5	4	3	2	1	Remark
1	Lack of Class room						
2	Ict room and Internet serves problems /computer needing repair						
3	Laboratory, pedagogy center, library room and furniture problems						
4	Lack of new reference books						
5	miss class						
6	students behavioral problem						
7	lack of punctuality						
8	Lack of remediation teaching						
9	Lack of practical teaching in laboratory						
10	Lack of continuous assessment for students						
11	Lack of content cover on time						
12	Lack of text book evaluation format						
13	Socioeconomic problem						
14	Lack Teaching materials						

Direction 2 In the following lists you will get various team work activities that you may practice in school. Read of them and judge your agreement. Use the following rating scale and put the mark (√**)** in the appropriate box.

Rating Scale

5-excellent 4-verygood 3-good 2 –fair 1-poor

No	Activities	5	4	3	2	1	Remark
1	The value of group work of all teachers understand &functional						
2	How would you describe the quality of group relationship?						
3	Has there been development of knowledge & active learning Method						
4	Students interesting to did in group						
5	Relationship b/n teachers& students						
6	Co-curriculum activities						
7	School administrative activities						

4.What criteria are you used for the evaluation of better tender for teachers' works? Tick (√) in box. ☐ Price ☐ students' achievement/ result ☐ Professional qualifications ☐ financial strength ☐ Technical capacity/ experience☐ previously executed works/ performance record

5. In your opinion, which of the following expenditure can directly improve the well-being of the teaching learning of the school? [Tick the appropriate ones]

☐ give reward /incentive for effective teachers ☐ Construction of schools libraries and public libraries ☐ Construction of laboratory centers and pedagogy centers

☐ Construction of ICT room, contraction of class rooms& with provision of equipment

☐ Give short work shop to upgrade knowledge and skill

☐ give training about student center / active learning method, continuous assessment, curriculum frame work for Ethiopia education (KG-Grade 12)

6 Is there group meeting effective if no what factors affect?

_____

_____

_____

_____

APPENDIX E

CLASSROOM OBSERVATION CHECKLIST

Name of the School _____ Grade level _____

Unit _____ Subject _____

Lesson _____

_____

Use the following rating scale for observation

Rating Scale

5-excellent 4- very good 3-good 2 -fair 1 -poor

No	Items	5	4	3	2	1	Remark
	I . Teaching –learning process						
1	Subject matter knowledge						
2	Ability to manage classroom						
3	Response to students questions						
4	Encourage students' active learning						
5	Encourage students' participation						
6	Curiosity to learn from others/students						
	2 . Student counseling/ support						
7	Realize individual variation						
8	Encourage female learners						
9	Willingness to assist others						
	3 . Teaching material						
10	Use of teaching materials like Diagram, pictures, color chalk etc properly						
11	Prepare teaching materials in pedagogical centers / at home						
12	Consult school students for teaching aid preparation						
	4 . Students learning preference						
13	Prefer talking each other to listening						
14	Prefer note taking to teacher talk						
15	Prefer group work to individual solve problem						
	5 . Students attention in the classroom while teacher teaching						
16	Writing						

17	Talk to each other						
18	Raise questions						
	6 . Teachers motivation role						
19	Check students are relax, alert and ready to listen what he /she speak						
20	Arouse curiosity and interest in the topic using enjoyable examples						
21	Praise students participation						
	7 . Classroom atmosphere						
22	Students number in the class						
23	Free from external and internal noise						
24	Brightness and suitable air temperature						
25	Students sitting arrangement						

CHECK LIST FOR ASSESSMENT OF LABORATORY WORK

Name of the school_____

No	Tasks	Comment		Remark
1	There is available science lab	Yes	No	
2	No Separate physics lab			
3	Lack of facilities			
4	Lack of apparatus			
5	Lack of furniture			
6	Lack of finance			
7	There is Prepared physics manual			
8	There is planed lab activities			
9	There is reported lab activities			
10	Low participation			

11	There is enough physics supplementary books			
12	There is enough physics reference books			
13	There is facilitated laboratory in the school			
14	Students have lower attention in reading physics books in the laboratory			
15	There is available laboratory materials in the school			
16	There is facilitated pedagogical center			
17	Poorly organized pedagogical center			
18	The Students participation in doing modifying physics teaching aid is weak			

Physical Observation checklist for Preparatory School

Name of School _____

Use the following rating scale for observation of school

Rating Scale

5-Strongly agreed 4- Agreed 3-Neutral 2 -Disagreed 1 -Strongly disagreed

No	Items	5	4	3	2	1	Remark
	I. Laboratory						
1	laboratory is functional						
2	have physics laboratory technician						
3	lack furniture (tables chair…)						
4	absence of separate laboratory rooms						
5	fully equipped						
6	laboratory manual						
7	handling& usage of materials						
	II. School Pedagogical center						
8	pedagogy center is functional to users						
9	have animation team						
10	have own room						

11	there is updated science kits						
12	fully equipped						
	III ICT (information communication technology) room						
13	computers full and functional properly						
14	Give internet serves						
15	Full with safety material						
16	Have own rooms						
17	Clean and attractive place						
18	Give short training how use computer						
19	lack of furniture						
	IV. library						
20	have librarian person						
21	lack of reference physics books						
22	Lack of library furniture						
23	Lack of library room						
24	open on time for users						

Part IV. Are there any additional comments you would like to make that are not addressed in this questionnaire?

_____

_____

_____

_____

APPENDIX F

Selection Criteria for Respondent Students

Name of School_____ Grade level_____

Year_____

Achiever level	Total popn			Grade																			
				11th										12th									
	M	F	T	EGSEC G10 result	M	F	T	%	Class result average of G9&10	M	F	T	%	EGSEC G10 result	M	F	T	%	Class result G11	M	F	T	%
higher				3.6-4.0				100	90-100				100	3.6-4.0				100	90-100				100
medium				3.0-3.5				30	70-89				30	3.0-3.5				30	70-89				30
lower				2.5-2.9				30	50-69				30	2.5-2.9				30	50-69				30
Total																							

N.B- For grade 12 students' selection criteria researcher used Grade 10EGSEC Result of (2007E.C) &Grade 11physics examination class result of (2008E.C).

-For grade 11 students selection criteria researcher used Grade 10EGSEC Result of (2008E.C) &Grade10 physics examination Class result of (2008E.C).And Grade 9 physics examination Class result of (2007E.C) average result.