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Instructional Materials and Students Performance in Physics in Senior High Schools of Cape Coast Metropolis, Ghana

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Abstract:
The paper explored the availability of instructional materials, uses of relevant instructional materials and the effect of instructional materials on students' academic achievement in physics. Senior High Schools in Cape Coast Metropolis were the settings for the study. The study emerged as one of the responses to the call of exploring mitigating factors of students' academic performance in physics in Ghana. 160 students and 13 physics teachers were used for the study. The findings showed that though some instructional materials are available, some critical and relevant ones are still in shortage. Except the projectors and the laboratory, both students and teachers revealed that all the other instructional materials are adequately used. The findings also showed that there is a strong association between the extent of using relevant instructional materials and performance of physics students. It suggested that Government should invest in the science programs to resource these SHS and provide them with relevant instructional materials especially laboratory facilities/apparatus. Individuals, corporate bodies, non-governmental organisations and old student's associations should partner government to invest in instructional materials in

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1. Introduction

Education is undoubtedly a preparation for life. It is related to acquisition of skills to earn a living and to improve society. Today as has always been, the definition of education is ever changing and increasing in scope. In fact, schools in modern times are confronted with new pressures arising from changing needs of students, societal expectation, economic changes and technological advancement. Nevertheless, if education programs are to be planned and if continued improvements are to be made, it is necessary to have some conception about the goals that are being aimed at. This is because, these educational objectives become the criteria by which materials are selected, contents outlined, instructional materials are developed, and human resources considered (Eggen & Kauchak, 2011; Jonassen & Grabowski, 2012; Kapp, 2012).

Education according to Chen and Bryer (2012) consists of two important components. These components are classified into input and output by the authors. The input consists of human resources and all associated materials while the output consists of the goals and outcome of educational process. The classification by Chen and Bryer (2012) helps to reason that for any meaningful goals to be achieved within the educational setup, human and material resources are indispensable. These dimensions of teaching and learning work are mutually inexclusive and if one wants to investigate and access the educational system to improve its quality and performance, the effect of one component on the other seriously needs to be examined. A complete assessment of how these components are intertwined to increase educational performance paves way to address any defect that might be found among them.

In fact, nstructional materials are as important as the instructional methods and serve as a a chanle or medium between the instructor and the students in delivering instructions. They may also serve as the motivation on the teaching-learning process. It is used to get the attention of the students and eliminate boredom. Instructional materials are highly important for teaching; especially for inexperienced teachers. Teachers rely on instructional materials in every aspect of teaching. They need material for background information on the subject they are teaching. Teachers often use instructional materials for lesson planning. These materials are also needed by the teachers to assess the knowledge of their students. Teachers often assess students by assigning tasks, creating projects, and administering examinations. Instructional materials are essential for all of these activities.

For instance, physics like all science subjects such as chemistry and biology are activity oriented and the suggested method for teaching it which is guided discovering method is resource based (Eggen & Kauchak, 2011). This suggests that mastery of physics concepts cannot be fully achieved without the use of instructional materials. The teaching of physics without instructional materials will certainly result to poor performance in the course. Jensen, Kummer and Godoy (2015) explained that no matter the level of professionalism and the level of training and skill of a science teacher, the teacher would not be able to impart effectively without adequate instructional materials and science resources in the school. Sinclair and Ferguson (2009) described instructional materials as teaching resources that may be used in

instructional process to disseminate or transfer informative message and ideas or which make possible communication in the teaching-learning process.

Hands-on instructional materials show, rather than tell, which increase information retention. A truism often heard in teaching is that if you have not learnt, I have not taught. Indeed, research has shown that where instructional materials which are used the learning environments are highly stimulating, the students appear to take greater interest in learning the subject (Biziuk & Namiesnik, 2010; Condic, 2015; Nwike, & Catherine, 2013). It has been documented that science education has suffered greatly due to poor instructional materials. The evidences have shown teaching and learning of pure science subjects is not achieving the desired objectives especially with high incidence of students' poor performance in chemistry and other science subjects at senior secondary certificate examination (Chen & Bryer, 2012; Kapp, 2012).The quality of instruction, teachers and materials in science resource centres within schools are usually considered substandard (Schmeck, 2013). Inadequate equipment and sometimes lack of quality teachers contribute to the poor teaching and learning in science education (Jensen et al, 2015). Many schools do not have laboratories and have to resort to other well-endowed schools where laboratories or science resource centers have been established (Eggen & Kauchak, 2011).

In Ghana, the main elective subjects taught in the senior high schools include biology, chemistry and physics. Physics as subject continues to witness consistent poor performance. According to Anamuah-Mensah (2007), the performance of the practical aspect has been abysmal. Statistics from 2003 to 2009 shows that averagely only 43.5% of physics students pass their physics paper in West African Senior Secondary Certificate Examination (WASSCE) with A1 to C6 (WASSCE, 2010). The poor performance has persisted to date. According to Buabeng, Ossei-Anto and Ampiah (2014), comparatively, majority of the SHS candidates in science perform better in subjects such as biology and chemistry than they perform in physics. The Chief Examiner Reports' of WAEC for SHS physics stated clearly that the performance of SHS candidates in physics is woefully marginal or poor (Buabeng et al, 2014)

These poor statistics about students' performance or achievement in physics have prompted educational researchers over the years to continuously make relentless efforts at exploring mitigating factors that might have accounted for the observed poor performance. Though the efforts have identified some mitigating factors, instructional materials and method seems to dominate the literature (Ajaja, 2009; Buabeng et al, 2014; Orleans, 2007; Ughamadu, 2005; Wambugu & Changeiywo, 2008). It has been argued that teaching materials and methods are crucial for positive academic achievement of students, and no matter how well-developed and comprehensive a curriculum is, its success is dependent on the quality of the teachers implementing it (Ajaja, 2009; Ughamadu, 2005). It is thus reasonable to argue that instructional materials have implications in teaching and learning. Following these premises and poor student's achievement of students in physics, this study seeks explore the availability of instructional materials, the extent of use of these materials and how these materials affect students' performance in physics in Cape Coast metropolis.

2. Theoretical Framework

This paper is guided by instructional material theory. Instructional material theory assumes that there is a direct link between the materials that the teachers use, and the students' learning outcomes. These outcomes include higher abilities to learn, quality strategies to learn and perform classroom activities and positive attitude towards learning. Further, the theory assumes that instructional materials have the capacity to develop into students the highest order of intellectual skills as they illustrate clearly, step by step how to follow the rules/principles and elaborate on the concepts, all of which have positive impact on solving new problems by analyzing the situation and formulating a plan (Laddunuri, 2012).

According to Atieno, (2014), instructional material can be used to develop higher learning abilities to the learners through self-teaching or guided learning. This implies that the instructional materials mainly comprise eliciting performance and providing feedback on performance correctness, in addition to providing learning guidance for guided discovery learning. Many of Atieno's ideas have broad implications for secondary teachers in senior high schools (SHS) in the Cape Coast metropolis. Many of these ideas have capacity building undertones with themes of students' acquisition of critical thinking and problem-solving skills. However, the theory does not relate to whether or not students can think critically in what aspects or how they can solve a particular problem by themselves. The current study holds the perception that the purpose of instructional materials or technology in education is to stretch students' imagination and to encourage them to solve problems in their lives.

Similar ideas are held by Lev Vygotsky, a Russian psychologist who held a view that tools and signs, which are in a form of instructional materials, have the capacity to develop in students' higher level of thinking, which is important in problem-solving activities. However, since they are considered to be domain-specific, the ways instructional materials can start cognitive development is yet to be studied with respect to classroom teaching. Thus, this study extends these views.Vuzo (2010), did a study on the problem of integrating visualised environment teaching strategies and the learning process in Tanzania secondary school classrooms. Her focus was on integrating visualised environment teaching strategies and the learning process using qualitative method. He found out that, scarcity of media resources and practical environment was the chief cause of students' problems in the mastery of subjects like geography and computer related programs as a subject and medium of instruction in Tanzania. She suggested that, educational planners should integrate quantitative and qualitative approach in planning for education. This integration will make sure that, optimal members of schools are constructed and all necessary resources for smooth teaching and learning are available.

2.1. Empirical Literature

Aina (2013) undertook a research on the Instructional Materials and Improvisation in Physics Classes in Nigeria. The Objective for the study was to observe the convenience of instructional materials, its usages and improvisation and its effects towards teaching and learning of Physics in secondary schools. Questionnaires containing 64 items for 23 physics teachers and 39 physics students were designed to compile data for the study. The study employed percentages and frequency to examine collected answered questionnaires from the participants. The study indicated a shortage in instructional materials, improper use of available improvised teaching instructional materials and the use of local materials to improvise physics teaching instructional materials. The study then suggested that there should be the availability of financial support in the educational sector by the government mostly in the study of science and many others. Aina's study is benchmark for the present study. Aina's findings and conclusions seem to suggest the significance role of instructional materials in teaching. Replicating a similar study in Ghana will contribute to evidence in Ghana.

In Ghana, Buabeng, Osei-Anto and Ampiah (2014) investigated the activities in physics class rooms in Senior High Schools. The objective was to investigate the interaction pattern and the techniques of instruction employed for teaching physics coverage level of physics syllabus. The data was collected using questionnaires with the study employing the survey design. Physics teachers and physics final year students of senior high schools were the respondents for the study. The results from the study showed that interactions in classrooms is mostly teacher centered which cannot support inquiry-based teaching and learning which is known to promote conceptual change and enhance student performance. The study then recommends that introductions should be made to physics teachers on efficient pedagogies of teaching and the presentation of information to learners. Although Buabeng et al (2014) have demonstrated the critical role of instructional methods to enhancing students' achievement, their focus was limited to method of teaching rather than instructional materials. Method of teaching may be acquired through training and schooling and may easily be corrected if it threatens students' achievements. However, instructional materials are sometimes outside the teacher control and therefore any deficiency could not ordinary be corrected in the short term making its implications critical. It is thus reasonable to explore whether instructional materials are mitigating factors for the falling standard of performance in physics in Ghana so that appropriate response could be recommended.

In another development Arop, Umanah and Effiong (2015) conducted a study to investigate the effect of instructional materials on the teaching and learning of social local government area of Benue state. The research was guided by four research questions and hypothesis. Survey design was adopted and both students and teachers constituted the population for study. A sample of hundred subjects was drawn from five schools and responded to the administered questionnaires. Data collected was analyzed using simple percentage (%) for research question and chi square for hypothesis. However, the four hypothesis which were tested at 0.05 level of significance were all rejected. The study revealed that selection of relevant instructional materials, availability and ability of the teacher had significant relationship with the teaching and learning of social studies in Oju local government area. The study recommends among others that government and schools heads should ensure the provision of instructional materials in secondary. The findings in Arop, Umanah and Effiong (2015) support the earlier studies reviewed providing strong argument to assume that instructional materials are important antecedents for improved student performance. This reinforces the need to consider instructional materials in the investigation of the current poor performance by physics candidates in Ghana.In the Ebonyi State in Nigeria, Omebe and Akani (2015) embarked on a study on the Effect of Instructional Resources on Student's Achievement in Physics and Chemistry in Secondary Schools in Ebonyi State, Nigeria. The study aimed at determining the effect of instructional resources on the achievement of students in Physics. The study employed the quasi-experimental design which works with post-test, pre-test, non-equivalent and control group. Simple random sampling was used to select four schools from Ebonyi State which participated in the data compilation for the study. The study also used intact classes. Two out of the four participant schools were consigned to the control group whiles the other two were assigned to the treatment group.

The study employed only physics achievement test (PAT) as its only instrument. The study used the ANCOVA to test the null hypotheses whereby research questions were answered by the mean and standard deviations. The results from the study showed that physics students educated with instructional resources attained greater and better marks than the other students taught without instructional resources. The study revealed no gender partiality in the achievements of students in physics. The study then recommended that both male and female students must be invigorated through counseling to embrace physics as the part of the topics essential for the breakthrough of the country's technology.

Another survey was carried out in Nigeria by Adebayo and Adigun (2018), on the Impact of Instructional Aids on Students' Academic Performance in Physics in Secondary Schools in Federal Capital Territory (FCT) Abuja, Nigeria with the objective to investigate the of the availability, application and impact of instructional aids to improve academic performance of physics students. The respondents for the study were 3,150 physics students from senior secondary two (SS2) to senior secondary three (SS3) and 163 teachers. The study adopted the descriptive survey method with questionnaires having 60 items on them for the teachers and 15 items for the teachers. Frequency counts and percentages were used to analyze the research questions. The study depicted a significant difference in academic performance of students which instructional aids were used to teach them. The study also indicated that shortages were in the convenience of instructional materials. The study therefore recommended that policy statement on convenience, variety, supply and maintenance of instructional aids in FCT schools should be conveyed by the government.

It is learnt from the empirical review that instructional materials could be considered as important antecedents of students' academic achievements. Nevertheless, the evidence in the Ghanaian case is very limited. A critical assessment of the literature shows that other countries such as neigbouring Nigeria have continually explore to avenue to arrest fall in

students' academic performance. In fact, physics as subject continues to threaten students' academic excellence in Ghana. According to Buabeng, Ossei-Anto and Ampiah (2014), comparatively, majority of the SHS candidates in science perform better in subjects such as biology and chemistry than they perform in physics. The Chief Examiner Reports' of WAEC for SHS physics stated clearly that the performance of SHS candidates in physics is woefully marginal or poor (Buabeng et al, 2014). It is the same science students who excel in biology and chemistry also sit for physics but mostly fail. It may not be erroneous to assume that instructional materials could be a contributing given the sounding evidences from other jurisdictions (Adebayo & Adigun, 2018; Aina, 2013; Omebe & Akani, 2015; Arop, Umanah & Effiong, 2015).It is against these that the present study seeks to explore the availability of instructional materials, determine the extent of usages and implications of students' performance in physics using Cape Coast Metropolis as study setting.

2.2. Concept of Instructional Materials

Shirima (2013) viewed instructional materials as didactic materials which are supposed to make learning and teaching possible. According to Olufunke, (2012) instructional materials are materials or tools locally made or imported that could made tremendous enhancement of lesson impact if intelligently used. Ikerionwu and Isola, 2010) also explianed that instructional materials are objects and devices used by a teacher to faciliate teaching and learning and to make the lesson easier and clearer to the learner. Instructional materials are also viewed as concrete or physical materials which provide visual or sound or both to the learners or students sense organs suring lessons (Agina-Obu, 2005).

This suggests that instructional materials come in different forms. It may be audio, visual or audiovisual. Audio materials may relate to those teaching devices, objects or aids that makes use of hearing senses. These include radio, recordings, tapes and televisions. On the other hand, visual instructional aids are teaching materials which appeal to the eye or sight. These include chalkboard, slide, charts, pictograms and filmstrip. As the name suggests audiovisual materials for teaching combine materials which appeal both the sight and ears. These include motion pictures, televisions and computers. Instructional materials are interchangeably used with the following: instructional aides, educational tools, educational media, teaching resources, teaching-learning resources, curriculum materials, instructional resources, educational devices etc.

2.3. Importance of Instructional Materials

Instructional materials are highly important for teaching, especially for inexperienced teachers. Teachers rely on instructional materials in every aspect of teaching. They need materials for background information on the subject they are teaching. Young teachers usually have not built up their expertise whenever they enter into the field. Teachers often use instructional materials for lesson planning. These materials are also needed by teachers to assess the knowledge of their students. Teachers often assess students by assigning tasks, creating projects, and administering exams. Instructional materials are essential for all of these activities (Schunk & Pajares, 2009).

Teachers are often expected to create their own lesson plans. This can be difficult, especially if the teacher has limited background knowledge on the subject. Teachers are expected to have a wide variety of expertise in many different fields. Often, they need instructional aides to supplement their knowledge. Instructional materials can help provide background knowledge on the subject the teacher is planning for, and offer suggestions for lesson plans. Lesson planning is often the most stressful aspect of teaching. Teachers are usually dependent on them to do their job properly

Assessing students correctly can sometimes be a challenge. There is some controversy about the effectiveness of exams in assessing the ability of students. Instructional materials can offer some insight into the best methods of creating exams. These materials can also help teachers create assignments and project ideas for students. Teachers are required to use several different methods for assess their students in order to provide the most accurate assessments. Instructional materials often provide innovative and creative ways to assess students' performance. It is hard to imagine any teacher who is capable of teaching effectively without the accompaniment of instructional materials. In addition to this, any teacher who is deprived of instructional materials most likely experiences stress and anxiety on a daily basis.

2.4. Research Methods

The study is conducted using descriptive survey design. The target population is science students in selected Senior High School (SHS) of Cape Coast Metropolis and physics teachers of these selected schools. 160 science students studying physics were sampled along with 13 physics teachers. Questionnaire is the main instrument used for the data collection. The questionnaire is designed to collect responses on questions relating to:

- Availability of physics instructional materials
- The extent of usage of thee instructional materials in teaching and learning of physics
- Perceived effect of the availability and usage on students' achievement in physics

Questions relating to availability and usage are assessed on 'Yes or No' basis. However, in relation to the effect of the instructional material (availability and usage), a four-point Likert scale was used. The completed questionnaires were finally scored, and values tabulated. The same scores were given items with the response strongly agree, agree, disagree and strongly disagree. For ease of analysis, the responses of strongly agree and agree were combined and strongly disagree and disagree were also combined. Items with "yes" and "no" responses were scored 2 and 1 respectively. Since the study was purely descriptive, descriptive analysis was used. The main statistical tool that was used for analyzing the data was simple percentages and frequencies. The percentages were used to analyze all the responses. Frequency and percentage tables were used to describe the data that were collected from respondents using Statistical Package for Social Sciences (SPSS).

3. Results and Discussions

The analysis and discussions are based on the three thematic areas which form the focus of the study. The results are presented in turns and captured in Tables. These are as follows:

3.1. Availability of Instructional Materials for Teaching and Learning of Physics

Under this section, the researchers sought to identify the types of and availability of instructional materials for teaching and learning physics. Some of the materials include audio tape, radio, charts, models, computers, projectors, models and physics laboratory. The students were asked to indicate if these materials are available in their respective schools or otherwise.

Instructional Materials	Availability of Instructional Materials			
	Yes		No	
	Freq	Percent	Freq	Percent
Audiotapes and radios	98	61.25	62	38.75
Charts	139	88.88	21	13.12
Adequate Computers	87	54.38	73	45.63
Functioning Projectors	49	30.63	111	69.38
Relevant Videos	77	48.13	83	51.87
Resourced Laboratory	38	23.75	122	76.25

Table 1: Availability of Instructional Materials
Source: Fieldwork, 2018

Table 1 details the summary of availability of instructional materials in the respective schools. It is learnt from Table 1that the schools generally have some relevant instructional materials for teaching physics. To be more specific, 98 of the respondents (61.25%) of the respondents provided that they have audiotapes and radios, almost all of the participants, 139 (88.88%) showed that they have physics charts for their studies. Computers are relatively available as represented by 87 responses (54.38%). However, it could be observed from the table that some important materials for the study of physics are less available in the various schools. These are functioning projectors, relevant videos and resourced laboratories. Regarding functioning projectors, relevant videos and resourced laboratory, it emerged that only 30.63%, 48.13% and 23.75% respectively of the respondents indicated that these instructional materials are available. One of the most important instructional materials is resourced laboratory. The results revealed this is virtually absents. This explains why the students have not been doing well in the practical assessment (Anamuah-Mensah, 2007).

Similar questions were posed to the physics teachers. The responses received are reported in Table 2. The assessment was based on the six-audio tape and radio, charts, models, computers, projectors, models and physics laboratory.

Instructional Materials	Availability of Instructional Materials			
	Yes		No	
	Freq	Percent	Freq	Percent
Audiotapes and radios	8	61.54	5	38.46
Charts	11	84.62	4	30.77
Adequate Computers	7	53.85	6	46.15
Functioning Projectors	5	38.46	8	61.54
Relevant Videos	6	46.15	7	53.85
Resourced Laboratory	4	30.77	9	69.23

Table 2: Availability of Instructional Materials
Source: Fieldwork, 2018

Table 2 illustrates the responds of the teachers with regards to the availability instructional materials. It reveals that instructional materials like audiotapes and radios, charts, computers are adequately available in the various schools. With regards to audiotapes and radios, 8 (61.54%) of the teachers indicated that such materials are available in their schools. Moreover, whooping 11(84,62%) of the teachers indicated that physics charts are available in their schools. Additionally, it is also revealed that teachers confirm the availability of computers in their schools. These evidences or findings are similar from the results generated in respect of the students' data.

Consistent with the responses from the students, the teachers provided that resourced physics laboratory is absent in their schools. It is concluded that whiles most of the schools have some relevant instructional materials, important materials such as projectors, videos and laboratories are not available. This could affect the teaching and learning of this complex subject. Physics contains some topics which are complex and can be effectively handled with the aid of projectors, computers, videos and laboratories. The inadequacies of these instructional materials could mitigate teaching and learning. This affirms the earlier study by (Nguyen, Williams & Nguyen, 2012). The poor students' achievement or performance in physics may not be treated in isolation from the unavailability and inadequacy of relevant instructional materials found in this study. Thus, the study supports the findings and conclusions drawn by Oladejo,

Olosunde, Ojebisi and Isola (2011). Oladejo et al (2011) concluded from their study that inadequacy of instructional materials cannot be separated from poor performance.

Instructional material especially laboratory equipment is relevant to develop higher learning abilities to the learners through self-teaching or guided learning (Atieno, 2014). This implies that the instructional materials mainly comprise eliciting performance and providing feedback on performance correctness, in addition to providing learning guidance and for discovery learning. This makes the inadequacy of some of these materials critical challenge.

3.2. Level of Use of Instructional Materials

The availability of the instructional materials is one thing and applying them is another. It is the application of these materials which could produce the desire results. According to Atieno (2014), it is when the relevant instructional materials are used that a teacher is able to develop higher learning abilities to the learners. It is therefore a useful academic exercise to follow up the explored instructional materials to determine the extent of their use. This is the focus of the second objective of the study. The assessment is done from both students and teachers perspective. The results are reported in Table 3.

Instructional Materials	**Uses of Instructional Materials**			
	Students		Teachers	
	Yes		Yes	
	Freq	Percent	Freq	Percent
Audiotapes and radios	123	76.88	9	69.23
Charts	154	96.25	10	76.92
Adequate Computers	83	51.88	8	61.54
Functioning Projectors	41	25.63	6	46.15
Relevant Videos	111	69.38	9	69.23
Resourced Laboratory	49	30.63	4	30.77

Table 3: Extent of Usage of the Available Instructional Materials
Source: Fieldwork, 2018

It is surprising that the extent of usage of all the instructional materials is very high. Except the projectors and the laboratory, both students and teachers revealed that all the other instructional materials are adequately used. This prompted further question to clarify seems contradiction. Thus, the findings in Table 1 seem not to support the results found in Table 3. The students and teachers were asked why they claim that some of the instructional materials which are not available are still used extensively. The general feedback was that they sometimes make personal arrangements to get some of the materials to use. Some teachers and students revealed some materials such as charts and videos are often borrowed. The respondents however admitted that they are unable to provide these materials to meet the needs of the students.

It can also be observed that, the projectors and laboratories are the least instructional materials which are used. The results in Table 1 explained why they do not use them often (unavailability). Some teachers explained that they do not have the capacity to provide them. It is quite understandable because laboratory equipment is often expensive including projectors. Thus, although some of them have the laboratory, it lacks some basic instructional materials like rheostat, resistance box, galvanometer, lens, microscope, spring balance, pendulum bob and bunsen burner. This is quite surprising as these are basic materials for pure physics. The absence of these materials undoubtedly slows down smooth teaching and learning of physics.

3.3. Effect of Instructional Materials on the Teaching and Learning of Physics

This section deals with how instructional materials affect the academic performance of students in Physics. This section is important because, it throws more light on how students are motivated to study physics when the requisite instructional materials are available and used.

Statement	**Level of Agreement %(N)**			
	Strongly agree	Agree	Disagree	Strongly disagree
I score high marks when instructional materials are used in class	61.25(98)	33.13(53)	5.62 (9)	0
I am able to easily execute my assignment when instructional materials are used in class	53.75(86)	45.63(73)	0.62(1)	0
Laboratory experiment increase my understanding of complex physics concepts	70.63(113)	29.38(47)	0	0
The use of instructional materials increases group work and collaboration in my school	48.13(77)	30.00(48)	12.50(20)	9.37(15)

Table 4 Effect of Instructional Materials on Teaching and Learning of Physics
Source: Fieldwork, 2018

From Table 4, it could be observed that about 94.38% of the students perceive that instructional materials aid them in scoring high marks in class. This means that the non-availability or inadequacy and low utilisation of some of the instructional materials contribute to low marks score. It is also found that when instructional materials are in place, students are able to execute any assignment proficiently. This is evident from the fact that 151 of the students which represent 99.38% of the total respondents perceive that with the presence of instructional materials, students are able to work on their assignment. Similarly, all the students think that the use of laboratory as instructional materials increase their understanding of complex physics concepts. About 78.13% (125) of the students perceive that instructional materials could enhance their group works.

The findings echo the theoretical contribution by Vygotsky (2014). Vygotsky (2014) argued that human mind develops through interaction with materials in the learning process where people learn from each other and use their experiences to successfully make sense of the materials they interact with. These experiences are crystallized in cultural tools and the learners have to master such tools in order to develop specific knowledge and skills in solving specific problems and, in the process, become competent in specific profession. In the classroom, these tools can be a picture, a model, laboratory tools or pattern of solving a problem. It is however, not surprising that the findings have revealed that instructional materials contribute to teaching and execution of assignment.

Empirically, the results support the earlier findings by Adalikwu and Iorkpilgh (2013). Adalikwu and Iorkpilgh study revealed that students taught with instructional materials performed significantly better than those taught without instructional materials and also that the use of instructional materials generally improved students' understanding of concepts and led to high academic achievements. Additionally, the findings affirm the conclusions drawn by Arop, Umanah and Effiong (2015).Arop, Umanah and Effiong also revealed that selection of relevant instructional materials, availability and ability of the teacher to improve all had significant relationship with the teaching and learning of social studies in Oju local government area.

4. Conclusions and Recommendations

The study investigated explored the relationship between instructional materials and students' performance in physics. The study setting was senior high schools in Cape Coast Metropolis. Three main objectives were used: first to explore the availability of relevant instructional materials in teaching physics; secondly to determine the extent of usage of the available instructional materials in teaching and learning physics and finally to determine whether or not the use of instructional materials has implications on the students' performance in physics. Regarding the first objective, the conclusion is that though most of the schools have some relevant instructional materials, essential material such as resourced laboratory, projectors and videos were found to be inadequate.

Surprisingly, it was revealed that the extent of usage of all the instructional materials is very high. Except the projectors and the laboratory, both students and teachers revealed that all the other instructional materials are adequately used. Both teachers and students make personal arrangements to get some of the instructional materials to support teaching and learning. The findings showed that there is a strong association between the extent of using relevant instructional materials and performance of physics students. These findings have implications on teaching and learning of physics. The absence of relevant instructional materials implies that students' achievement in physics will be negatively affected. Additionally, since the students perceive that the subject could be easy if the needed instructional materials are available, the absence of these materials could undermine the interest of the students in the study of physics. This may also reduce the number of students who would offer to study physics in higher institutions and this would pose threat to Ghana's technological advancement. It suggested that Government should invest in the second cycle institutions especially those running science programs to resource them and provide them with relevant instructional materials especially laboratory facilities/apparatus. Individuals, corporate bodies, non-governmental organisations and old students' associations should partner government to invest in instructional materials in order to arrest the abysmal performance of physics candidates.

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