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**ACTUAL PROBLEMS IN TEACHING PHYSICS**

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**Abstract**

The educational problem of faint interest in Physics lies not only on the side of pupils but also on the teachers. Teaching is frequently done in a boring manner: mainly textbook reading during lessons, instead of real experiments or multimedia teaching methods. Lessons are schematic, with no innovative scenarios like role-playing, or competitions. A negative perception of Physics creates a kind of negative feedback - in lower secondary school Physics lessons are reduced to the very minimum of 4 hours in total, in the whole year's cycle.

**Keywords:** Physics, teaching methods, experiments, pupils.**Introduction**

Physics is a science that deals with the behavior of matter. The branches of physics are electricity, optical heat, sound, properties of matter, and atomic physics. Teaching and learning physics as a science subject is divided into two parts: theoretical and practical. The theoretical aspect is concerned with principles, laws, hypotheses, and formulas. In this case, the basic principles and laws governing certain phenomena in nature and taught. Also, students are taught the hypothesis put forward by the scientist before coming to the laws of physics and the formulas expressing these laws. In practice, laboratory activity is a characteristic feature. Students are taught the various steps involved in measuring, observing, and recording data in tabular form. Applied physics helps to regroup all the physical sciences concerned with data collection, data collection methods, detailed conceptualization (beyond simple thought experiments), and the implementation of laboratory experiments. This is often contrasted with theoretical physics, which is more concerned with predicting and explaining the physical behavior of nature than with gaining knowledge about it. It is difficult to describe physics as a dynamic field of science. It should not be taught as a series of formulas to be memorized and used only for "cultural" purposes, but as a dynamic field of science that asks questions and explains how the world works.

The problem and perspective of teaching physics in secondary school should be considered as a matter worthy of investigation because physics as a general science is very related to society. It is known that from the point of view of the technological and scientific society, Physics is a science, without which the great development of the country's economy could not be achieved.



The researcher observed that high school physics students found physics to be difficult to learn, thus making the students develop an unfavorable attitude towards learning the subject. Also, Physics is taught by teachers as a series of formulas to be memorized and applied only for learning, to teach students to think critically and independently instead of accepting such knowledge without further questioning. Therefore, the subject of this study is an empirical problem worthy of investigation.

### **Materials and methods**

1. Planning learning objectives: these are statements that define the expected purpose of a lesson or activity in terms of the knowledge or skills to be demonstrated. In this process, teachers need to focus more on the abilities of their students when planning inquiry. In addition, teachers must have information related to students' prior knowledge and their ability to perform inquiry-based activities. 2. Designing teaching and learning materials: teaching and learning materials are animate, inanimate objects, human and non-human resources that can be used by the teacher in the teaching and learning process. is described as a set of materials containing. This can help the teacher to achieve the preferred learning objectives. When planning inquiry-based instruction, teachers identify the activities that students are expected to perform and all teaching and learning materials such as books, apparatus, technological tools, and other materials that allow students to gather information. they should give training materials. 3. Develop question-asking strategies: When planning inquiry-based teaching and learning, teachers should ask questions that enable students to meet predetermined learning objectives. These questions should include questions that require recall, interpretation, and higher-order thinking from students. 4. Development of teaching and learning strategies: here teachers need to clarify the learning objectives to the students. They should also plan activities and clarify what steps students will take to complete these activities. In addition, teachers should give instructions to students and tell them whether these activities should be done in groups or individually. Also, teachers should consider the teaching techniques used in the teaching and learning process. 5. Assessment: assessment is done by assessing students' performance in activities they are expected to perform with the help of technological tools. At this stage, the teacher should know about how to evaluate the inquiry process. The study recommends that teachers improvise local teaching and learning materials to effectively use IBTL in teaching physics. Policymakers should organize regular training sessions for teachers to improve their teaching skills using the label approach.

### **Discussion**

Many physics classes use the foundations of mathematics at both the middle school and high school levels. However, according to the results of the study, the researchers found that several problems require the availability of necessary materials for mathematics in the teaching and learning process of physics. The first problem, the beginning of all problems, is the out-of-sync sequence of material in the mathematics and physics curriculum; this situation led to the inhibition of the teaching and learning process. As a result, physics is considered a difficult subject to learn. Such an impression does not arise simply from the complexity of the composition of physics; instead, it caused the necessary material to be taught in mathematical physics. The first problem leads to the emergence of the second problem, which is that physics



teachers have heavier workloads because they have to teach mathematics first in addition to physics. It should be done this way because mathematics has several prerequisites that are necessary for physics. Therefore, the physics teaching activity includes two agendas that explain the essential materials of mathematics and the teaching and learning materials of physics. As a result, the process of teaching and learning physics becomes complicated. Later, this situation becomes an additional burden for physics teachers. In the teaching process, physics teachers often face difficulties in explaining mathematical essential teaching and learning materials well. Due to teaching challenges, mathematics teachers are hesitant when they have to reteach teaching and learning materials that are used and implemented in physics. The situation is complicated by the fact that physics teachers have to speed up their activities in teaching mathematical prerequisites due to the limited time available; as a result, the direction of their teaching activities is in the field of program, compactness, and method based on memorization. A further problem is the reduction of time devoted to the teaching and learning process of physics while explaining the necessary mathematical material. The third problem is that physics teachers face difficulties in achieving learning objectives. As some researchers point out, physics teachers spend most of their time teaching short mathematics at the beginning; they only teach mathematics teaching and learning materials that serve as essential physics materials. The chain of problems and difficulties that physics teachers have to solve does not stop there. Due to the limited time allocation and physics curriculum loads, the assessment process is not ideal as they stumble in mathematics.

#### **Conclusion**

Physics should also explain mathematics teaching and learning materials when solving physics problems if students have mathematical barriers; as a result, time allocation is less efficient and wasteful. In addition, if teachers have to deal with students with low mathematical knowledge, then they design test items with simple order and numbers and even simple reasoning skills. Ideally, the assessment a physics teacher should administer is equipped with remedial work for students who do not achieve a passing grade and enrichment materials for students who master the lessons.

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