

Identification of Factors that Undermine the Teaching-Learning Process in the Subject of Physics at Secondary School Level

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Abstract

Teaching of Physics involves theoretical as well as practical skills development of students at secondary school level. The main aim of the study was to identify the factors that undermine the teaching learning process in the subject of physics. All secondary school's science teachers were considered as population of the study. Two hundred (200) science teachers (100 each male and female) were selected as sample of the study through stratified random sampling techniques. Data was collected through a self-developed questionnaire of reliability coefficient 0.84 and were analyzed using statistical tools. The unavailability of physics teachers, laboratory, classrooms, related books were concluded undermining factors. Lack of physics teachers, and unfavorable working environment were found dominant in male teachers' school than female. The educational authorities with the collaboration of community can play their role to overcome these undermining factors in the subject Physics.

Key Words: Teaching Physics, Undermining Factors, Teaching-Learning Process, Laboratory, Implement.

Introduction

Physics is the basic subject among the entire sciences disciplines (Wenham, Dorling, Snell & Taylor, 1984). This instills pupils with rational thinking and presents the theories required for grasping the method of exactly how things work. Technology is completely bound to physics because of its importance in addressing the facts including the interaction of matter and energy. This interaction according to [Juceviciene and Karenauskaitė \(2004\)](#), [Zhaoyao \(2002\)](#) is needed for the scientific requirements of the altering society of the world.

Physics is the study of matter, energy, and their mutual interactions. It deals with the observation and measurement which makes the individuals enable to comprehend the laws of nature and the world at large. In Pakistan, physics is taught as a linear subject beginning from secondary level to higher secondary level (grade 9-12). But the current study is limited to grade 9th physics at secondary school level. At this level, science is separated into three (3) branches including Chemistry, Biology and Physics. In addition, each subject is divided into two (2) bodies of knowledge comprising: theoretical knowledge and practical knowledge.

Literature Review

The role of literature review is different in various circumstances based on the nature, scope, and background of the task. A good literature review determines the investigator's huge knowledge about the topic and may frowningly assess the available literatures ([Shah, Ahmed & Khan, 2018](#)). The following paragraphs present the literature review concerning the current topic.

The secondary school education is important and challenging, being a change from general science to field-based programs. Right at this stage, the pupils begin physics, as a discipline, to follow their future professions in

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rudimentary sciences or pre-professional courses such as engineering and technology, and medicine at the upper level. Therefore, there is a dire need to offer the pupils with an adequate theoretical background of physics that would finally prepare them capable to meet the dares of pre professional courses and academics after the secondary stage (National Curriculum for Physics IX-X, 2006; p. 1).

But pupil's interest in Physics at secondary school level may be affected by many factors. In addition, pupils' interest and achievement are closely connected with the instructor and pupils' rapport in a particular subject (Igboke; 2004). According to [Onah and Ugwu \(2010\)](#), gender, instructor qualification and laboratory amenities have very important impacts on pupils' performance in Physics at secondary level.

Science practical is a necessary part of all science curricula (Physics, Chemistry, and biology) from grades 9-12 in Pakistan. It is prerequisite for all pupils to perform practical work as an essential component of the physics 9th course. Practical work is evaluated by assessing bodies. Ten (10) marks are given to each pupil for practical examination contained in their respective transcript. In this context, pupils are instructed to keep records of all the laboratory work performed in a practical notebook including all their practicals, the experimental procedure and arrangements exercised, all sorts of observations made, the analysis of these observations and findings. Although the physics teachers at secondary school level in Pakistan do not perform practical work to the pupils during classroom instruction. According to [Faize \(2011\)](#), the teachers do not provide regular practical demos while teaching physics contents. Instead, practical work is carried out in the laboratory. Practical activities are always performed in a hurry with small impetus ([Zaman, Bhatti & Ghias, 2012](#)).

The principal purpose of physics is to discover the law that governs certain occurrences or to confirm a certain law that has been resulting from a theory. Demo of experiment is essential for comprehending the doctrines of physics. Carrying out experiments personally is of ought most importance since it includes learning by doing. Consequently, an organized scientific-training and genuine laboratory work are of greater significance for fresh minds ([Trivedi & Sharma, 2013](#)). Physics is a highly conceptualize subject, where a concept is a notion or model that brings together many observations and experiences (Khan, Akhter, & Khan, 2018).

The learning process without an adequate teaching method is unsuccessful. In Pakistan, the science teachers are mostly capable in lecture method and science teachers utilize this method most favorably in their physics classrooms ([Chaudhry, 1993](#); [Iqbal, 2004](#)). Besides theoretical knowledge, the practical work occupies a minute place in the teaching. Likewise, according to [Akhtar \(2004\)](#), [Iqbal \(2004\)](#), [Rehman \(2004\)](#), [Bibi \(2005\)](#), the instructors are not capable of using active learning methods to teach science subjects. In Pakistan, according to [Faiz and Dahar \(2011\)](#) physics teachers are competent in using traditional teaching approaches like lecture and demonstration methods but are not proficient to utilize active learning approaches that are mostly required for teaching the subjects of science. Physics must be taught to learners conceptually utilizing new teaching methods instead of memorized learning ([Akhter, Majeed, & Naseer, 2019](#)). Moreover, the study of [Khan, Shah, and Ghazi \(2020\)](#) recommends that the government may take steps for the proper training of teachers to ensure all possible methods and techniques for the better development of the learners.

According to [Ahmad, Saleem, and Rehman \(2020\)](#), science subject deals with the events and practical phenomenon that happens around us. In this context, the well-equipped labs in the institutes display good results in students learning. Practical work is an essential portion of science as cookery is in the kitchenette, but what value is given to practical work in science education?

In revising the objectives and aims of or indeed causes and justifications concerning practical practice, [Solomon \(1980\)](#) normally summarize most teachers' main views. The aims of practical work, according to [Shulman and Tamir \(1973\)](#) are: to provoke and continue interest, satisfaction, broad-mindedness, attitude, and inquisitiveness in science; to improve problem-solving talent and innovative thinking; to arouse traits of logical thinking and scientific technique (e.g., constructing hypotheses and generating suppositions); to encourage theoretic understanding and academic competency; and to grow practical abilities (e.g., formation and execution inquiries, observations, documenting information, and evaluating and understanding outcomes).

[Anderson \(1976\)](#) has given the aims of practical work: to raise understanding of the human enterprise of science to develop pupil aesthetic and intellectual insight; to promote science investigation skills that can transmit to other areas of problem-solving; to assist the pupil to appreciate and in part adopt the role of the scientist; and

to assist the pupil develop both in gratitude of the orderliness of systematic knowledge and also in comprehending the indefinite nature of scientific models and theories.

Previous Studies on Undermining Factors in Science Education

The author [Chisman \(1984\)](#) underlined the below problems in Pakistani science education including absence of facilities in about ninety percent (90%) schools; shortage of adequate amount of science instructors in high schools; dearth of well- accomplished science instructors; instructors low enthusiasm for the teaching of science; old curriculum of science; poorly transcribed science course books of science; conventional instructional methods utilized by science teachers; lack of collaborations amongst different agencies and institutes like textbook boards, curriculum wing, examination boards, resource centers etc.; weak inspection and monitoring; and shortage of good governance in science education.

In Pakistan, the studies conducted by the researchers ([Rehman, 2003](#); [Memon, 2007](#); [Halai, 2008](#)) on curriculum reform in science education have identified several problems that are considered as the main sources of science backwardness containing: science teaching is a low salaried occupation and the instructors have a stumpy rank in the social setup, and these features stop the teachers, intellectuals and researchers to enter into this occupation; unavailability of appropriate number of science teachers; little spending on education; unavailability of science laboratories and science equipment; obsolete curricula of science; weak assessing system of the science education program; teacher's training quality in Pakistan is inferior; very low educational requirements for becoming a teacher; trainer teachers are not adequately trained, and hence they are not able to train the pupil teachers appropriately; inadequate and weak monitoring system of teachers training programme; and even the basis of the recruitment of teachers is difficult to justify. The teachers are recruited politically and sometimes even a bribery is exercised; lack of science teachers and pedagogical knowledge.

Halai (2008) also comments that there are many teachers who at no time studied science in the institute, still teach science subjects due to lack of science instructors. Unavailability of science teacher (Still in certain highly developed nations like Sweden, UK, Canada, and the USA) generates extra load for the instructors that compel them to demonstrate in many overcrowded classrooms; and due to this reason they tend to concentrate on completing the course outline for the exams and cannot do justice with their teaching profession. However, a teacher is an individual of great worth in society and education is the purest and unique occupation ([Zahoor, Jumani, & Malik, 2019](#)). The role of teachers is very important for better learning. They must be trained for discussion, lab activities, and assessment to identify misconceptions ([Rasul, Shahzad & Iqbal, 2019](#)).

Many researchers identified several problems that create hurdles in learning physics ([Mehmood, 2007](#); [Ishak & Mohamed, 2008](#); [Kasanda, 2008](#); [Rajib, 2013](#)). These problems included: lack of subject matter knowledge is the chief cause of pupils' weak knowledge of physics content at high school level; low education of science teachers flop to deliver active instruction to pupils and consequently produce science pupils with weak subject matter knowledge; encumbered syllabus; unnecessary stress on attainment in exam without due concern to right comprehension; insufficient experience in learning Physics (as they have learnt physics as a single subject from grade-XI) might be the possible reason; congested science schoolrooms; encumbered and lengthy science curriculum; and unavailability of resources. Moreover, according to [Ibeh et al. \(2013\)](#), shortage of educated/trained physics teachers, insufficient teaching-learning resources, apparatus, instruction aids and tools, shortage of management/government intensive capital, lack of teachers and pupils motivation, and bumpy schoolrooms remained the difficulties/problems that create hurdles in the way to develop the outlook of secondary school pupils towards the subject of physics.

Education is directed towards the memorization of fundamental conceptions and their reproduction in the exams ([Sadiq, 2003](#)). According to Joe [Cuseo \(n. d\)](#), many countries comprising Pakistan face problems in teaching Physics. These problems including unavailability of educated physics teachers in the institutes; outdated physics apparatus in the labs; no usage of computers; no structure for maintenance of apparatus; nonexistence of laboratory improvement policies and resources; and physics is taught mostly via lecture method.

Numerous investigators like [Thair and Tregust \(1999\)](#), [Millar \(2004\)](#), Halai (2008), [Ranade \(2008\)](#), [Asikainen and Hirvonen \(2010\)](#), have realized some reasons of pupils' weak performance in Physics subject matter knowledge. These reasons are inadequate teachers subject matter knowledge in Physics; insufficient

pedagogic understanding, unreliable philosophies and understandings of teaching and learning physics; lack of science teachers; overcrowded classes; no practical work; shortage of lab apparatus; poor quality of course books; an exam-dominated schooling structure; no activity-based method is exercised; insufficient teaching resources; and weak learning atmosphere.

According to [Banu \(2011\)](#), the teachers employed generally conventional teaching methods to help pupils to comprehend physics theories and conceptions. Despite the fact, there are specific and strong directives for the teachers to employ demos in the physics curriculum at secondary level. In addition, the teachers and pupils were restricted to carry out practical work. But there are hurdles, while employing these restrictions comprising: shortage of sufficient apparatus: teachers and pupils in the private schools confronted relatively more problems than those in public schools; low teacher-pupil ratios; no proper place for lab assistants; and teachers' high workloads.

Unluckily, practical work does not acquire an appropriate position in science education in Pakistan. But, according to [Woolnough \(1991\)](#), the causes endorsed in favor of this carelessness of hands-on work comprising: overcrowded science schoolrooms; science instructors low practical capabilities; poor time-management abilities to carry on hands-on and experimental activities; the theory dominated exam system and offers a smaller amount of value to hands-on activities. As a result, the pupils in Pakistan got inadequate practical expertise. As an alternative, the pupils appear in a paper substitute for the practical exam. The pupils without any pressure make preparation and appear in the paper by just remembering a few practical skills and methods.

Rational of the Study

The utilization and effect of science have enlarged manifold in the current world. The economically developed countries have their foundation on a powerful science education program. Pakistan as a developing country is in dire need of a quality science education program, which may be established from the primary level and then steadily extended to higher level. Keeping in mind the significance of science education, the researcher carries out the current study.

Objectives of the Study

The study was having the following objectives:

- 1) To identify the factors that undermine the teaching learning process in the subject of Physics at secondary school level
- 2) To compare the male and female schools' teachers over the undermining factors.

Research Hypotheses

To achieve the objectives the following research hypothesis were framed:

- 1) There are various factors for teachers that undermine the teaching-learning process in Physics subject of grade 9th at the secondary school level;
- 2) There is no significant difference between male and female teachers over undermining factors in the teaching of grade 9th Physics at secondary school level.

Research Methodology

This was a survey research design in which data were collected through a questionnaire to identify the undermining factors.

Population and Sample of the Study

All secondary school's Physics teachers of Haripur district were assumed as the target population of this study. It consisted of total of 257 secondary schools (EMIS, 2012-13; 2013). The study sample comprised of 200 secondary school's Physics teachers. These teachers were selected through stratified random sampling techniques. The sample was further divided into two male and female strata such that there were 100 Physics

teachers in each stratum.

Instrument of the Study

To examine the undermining elements in the teaching-learning process in Physics subject of 9th grade, a self-constructed questionnaire was utilized to carry out this survey type research. This questionnaire was planned on a simple “Yes/No” response, encompassing 25 items divided into four (4) factors: physics teacher, physics classroom, physics laboratory work, and working environment. These factors comprised of 7, 5, 5, and 8 items respectively. To make it refined, experts (physics) and educationists’ views were found. The questionnaire was revised in the light of their suggestions. The reliability coefficient (Cronbach’s Alpha) of the instrument was calculated as 0.84.

Data Collection and Data Analysis

The scholar individually paid visits to the concerned institutes and collected data from the Physics teachers using the self-constructed questionnaire. The data was analyzed through utilizing mean scores, percentages, standard deviations, and t-tests employed through Statistical Package for Social Science (SPSS).

Results and Discussion

The data was tabulated, analyzed, and interpreted in the light of the study objectives. Conclusions and recommendations were obtained on the bases of research outcomes. The whole process is explained as under:

Table 1. Percentage Responses of Science Teachers about Physics Teacher

S. N	Statement	Yes	No
1	Physics teacher is not available.	45.0	55.0
2	Physics teacher has no proper qualifications.	50.0	50.0
3	Physics teacher does not use A.V. Aids during instructions.	60.0	40.0
4	Physics teacher is overloaded in terms of work.	65.0	35.0
5	Physics teacher is with inadequate experience.	65.0	35.0
6	Physics teacher has less understanding of the Physics course.	65.0	35.0
7	Physics Teacher mostly uses chalk and talk method of teaching.	60.0	40.0
Mean		58.57	41.43

About 45% of teachers responded that Physics teacher is not available, while 55% responded that teachers are available. Almost 50% of teachers were in favor of the statement “Physics teacher has no proper qualifications” while 50% were against it. Majority (60%) of the teachers were of the views that they do not utilize A.V. Aids in their classrooms, while 40% were against the statement “Physics teacher does not use A.V. Aids during instructions.” Majority (65%) of the teachers responded in favor of the statement “Physics teacher is overloaded in terms of work” while 35% were against the statement. Majority (65%) of the teachers responded that most teachers were inexperienced, while 35% said that the teachers were having more experience. Sixty-five (65%) percent teachers responded that most teachers do not understand the physics courses, while fewer (35%) responded that they understand the subject matter. About 60% teachers’ utilized chalk and talk method of teaching, while 40% were against the statement.

Table 2. Percentage Responses of Science Teachers about Physics Classroom

S. N	Statement	Yes	No
1	Physics classroom is overcrowded.	55.0	45.0
2	Physics classroom is not suitable for teaching learning process.	30.0	70.0
3	The Physics classroom is not properly arranged.	45.0	55.0
4	There is unavailability of Physics classrooms in the school.	60.0	40.0
5	There is no proper writing board in the Physics classroom.	30.0	70.0

Mean	44	56
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Table shows the percentage of views of the teachers' responses about the physics classroom. Mostly (55%) teachers responded that physics classroom is overcrowded, while 45% responded against it. Majority of teachers responded that physics classroom is suitable for learning, while less number (30%) responded against it. Majority (55%) of teachers responded that physics classroom is properly arranged, while less numbers (45%) against it. About (60%) teachers were of the views that physics classroom is not available in the school, while 40% teachers were against it. About 70% teachers responded that writing board is available in the physics classroom, while 30% teachers were against it.

Table 3. Percentage Responses of Science Teachers about Physics laboratory

S. No	Statement	Yes	No
13	There is no independent Physics laboratory.	70	30
14	Physics laboratory lacks in basic facilities.	40	60
15	The equipment in Physics laboratory are mostly outdated and rusted.	40	60
16	The Physics equipment is not enough for more than a single student's groups.	60	40
17	Laboratory attendant is not available	50	50
Mean		52	48

Table 3 indicates the responses of the science teachers relating physics laboratory. About 70% of teachers were of the views that there is no independent physics laboratory, while 30% of the teachers were against it. About 60% teachers say that physics lab fully equipped with basic facilities, while 40% were against it. Less number (40%) of teachers say that laboratory is full of outdated and rusted equipment, while majorities (60%) of the teachers were against it. About 60% of teachers say that lab equipment is not enough for a single group of students, while 40% of teachers says that the lab is full of all types of equipment in greater number. However, 50% of the teachers responded that lab attendant is available, while 50% of teachers were of the opinions that lab attended is not available in the school.

Table 4. Percentage Responses of Physics Teachers about Working Environment

S. No	Statement	Yes	No
18	Student absenteeism is a common issue in the school.	45	55
19	Lack of will to acquire science related resources on the part of administration is found.	45	55
20	Working environment is not favorable for teaching Physics.	50	50
21	Principals do not cooperate in conducting Physics experiments and practical work.	25	75
22	Medium of instruction is a hurdle in the subject of physics.	50	50
23	There is no alternate to overcome load shedding (cut off power).	50	50
24	Furniture available is not sufficient for the flexible seating arrangement of the students.	60	40
25	Physics related books and literature are not available in the library.	65	35
Mean		48.75	51.25

Table 4 shows the percentage responses of the teachers about the working environment for the subject Physics. Most (55%) teachers says that student absenteeism is not the common issue in the school, while 45% were in favor of the statement. About 45% of the teachers were in favor of the statement "lack of will to acquire science related resources on the part of administration is found" while (55%) were against it. Almost equal opinions (50%) of the teachers were found in favor and against the statement "working environment is not favorable for teaching Physics." Majority (75%) of the teachers were against the statement "Principals do not cooperate in conducting Physics experiments and practical work" while 25% of the teachers were in favor of it. Almost equal opinions (50%) of the teachers were found in favor and against the statement "Medium of instruction is a hurdle in the subject of Physics." Similarly, equal responses (50%) of opinions were found in favor

and against the statement: there is no substitute to control over load-shedding or power failure. Further, majority (60%) teachers responded in favor of the statement “furniture available is not adequate for the flexible seating arrangement of the learners” while 40% responded against it. Lastly, about (65%) teachers were of the opinion that Physics related books and literature are not available in the library, while 35% of the teachers responded in favor of the availability of these things.

Table 5. Mean Percentages of Undermining Factors

Factors	Percentage responses	
	Yes	No
Physics teacher	59	41
Physics classroom	44	56
Physics laboratory	52	48
Working environment	49	51
Mean	51	49

From table 5 the percentage mean score values concerning physics teacher, physics classroom, physics laboratory, and working environment revealed that majority (59%) of the science teachers were of the opinions that physics teacher related matters generate an undermining factor, while less number (41%) of teachers responded that physics teacher related matters do not create hurdle in the teaching learning process. Further, majority (56%) of the science teachers responded that physics classroom related matters do not create problem in teaching, while fewer (44%) respondents consider it a big constraint. Moreover, majority (52%) of teachers responded that matters relating physics laboratory is a big hurdle, while (48%) teachers responded against the view. Furthermore, majority (51%) of teachers responded that there is good working environment in school to promote teaching, while 49% of the respondents were against it. The overall mean (51%) of teachers were in favor of these undermining factors in Physics teaching, while (49%) teachers were against it. The overall situation about all the four undermining factors is depicted in the below figure:

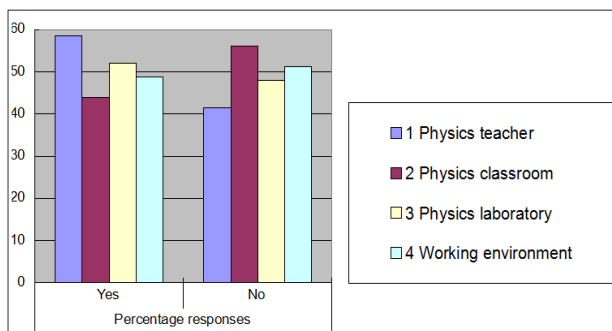


Table 6. Gender differences over the Undermining Factors in the Subject of Physics

Undermining factors	Gender	N	M	SD	SEM	t	P Sig. (2-tailed)
Physics Teacher	Male	100	4.40	1.287	0.128	2.256	0.025
	Female	100	3.80	2.326	0.232		
Physics Class	Male	100	1.60	1.206	0.120	-6.675	0.000
	Female	100	2.80	1.333	0.133		
Physics Lab	Male	100	2.40	1.864	0.186	-1.856	0.065
	Female	100	2.80	1.082	0.108		
Working Environment	Male	100	4.50	1.696	0.169	5.416	0.000
	Female	100	3.30	1.424	0.142		

Table 6 shows the comparison of male and female school teachers over undermining factors. The mean values of male and female schools Physics teachers over undermining factors (Physics Teacher, Physics Class, Physics Laboratory, and working Environment) are ($M_m=4.40$, $M_f= 3.80$ and $P<0.05$), ($M_m=1.60$, $M_f= 2.80$ and $P<0.05$), ($M_m=2.40$, $M_f= 2.80$ and $P>0.05$), and ($M_m=4.50$, $M_f= 3.30$ and $P<0.05$) correspondingly. The entire table reveals that there is statistically substantial difference for all factors except Physics laboratory. So, the hypothesis No 2 is partially rejected. The male school teachers have faced greater hurdles in terms of physics teachers, and working environment. However, they have fewer problems than female school teachers for the factor of physics class. Further, physics laboratory related hurdles are same for both male and female school physics teachers. The hypothesis No. 2 is therefore, accepted.

Discussions

The mean percentage of teacher's responses is 51% (table 5) concerning the undermining elements. The below elements are confirmed as emasculating aspects since these elements acquired mean percentage greater than equivalent to fifty one percent (51%): physics instructors do not utilize audio-visual aids while teaching; physics instructor is overloaded; physics instructor having insufficient experience; the physics instructor has a smaller amount of comprehension about the course; the instructor frequently utilizes chalk and talk method of teaching; physics classrooms are overloaded; unavailability of physics separate lab; inadequate physics instruments only support a sole group of pupils; lack of proper physics schoolrooms; the existing furniture is not enough to support pupils flexible seats arrangement; and school library is not equipped with physics related books and literatures. These outcomes corroborate completely with the results of the researchers including Thair and Treagust, (1999), Millar (2004), Halai (2008), Ranade (2008), Asikainen and Hirvonen (2010), Nivalainen et al (2010), Banu (2011). Further, these researches moderately support the hypothesis No. 01. Likewise, CLEAPSS (2006-13) discussed nearly a few of these outcomes. Moreover, these outcomes also concordat with the results of the researches (Chisman, 1984; Woolnough, 1991; Rehman, 2003; Sadiq, 2003; Memon, 2007; Mehmood, 2007; Ishak & Mohamed, 2008; Kasanda, 2008; Rajib, 2013; Ibeh et al., 2013; Cuseo, n.d). The male school teachers have faced greater hurdles in terms of physics teachers, and working environment. These may be due to the reasons that female students are more peaceful because they are more restriction on them from home and family sides as compared to male students. Further, female science teachers' availability in the school may be due to the reason that they are always employed at their nearest school station and not frequently transfer to remote areas.

Conclusions

The non-utilization of audio visual aids during instruction; physics teachers heavy workload; physics teachers' inadequate experience; physics teachers less understanding of physics course; utilization of chalk and talk teaching method during instruction, lack of physics classrooms, overcrowded physics classrooms, unavailability of independent physics labs, insufficient physics apparatuses, insufficient furniture for pupil flexible seats management, and unavailability of Physics related literatures and books in the library were decided as the undermining factors that create hurdles during the instructional process in the physics course of 9th grade at secondary school stage. Male science instructors face great hurdles as compared to female instructors in terms of physics teachers, and working environment. Conversely, they have fewer problems than female school teachers for the factor of physics class.

Recommendations

The following recommendations were made in the light of the conclusions to overcome these undermining factors. Firstly, the teacher might utilize audio-visual aids or teaching aids in their daily instruction in order to make the teaching learning process more exciting. To observe its daily utilization, the principals and educational authorities may visit the class regularly. To overcome the shortage of teaching aids/material, the school science instructors with the collaboration of school establishments and pupils can develop these aids and spare a multipurpose resource room where a store of such aids can be maintained, and it may be modernized and updated

according to the demand of the science/physics subject with the passage of time. Secondly, additional science teachers might be employed to overcome and decrease the workload problems of science teachers and to have complete focus and devotion to their subjects. If possible, zero funds may be utilized to employ the fresh science graduates as a science teacher. Thirdly, the department of education in the universities might prepare the basic science subjects (chemistry, biology, and physics) as the compulsory component of their pre-service training program to equip the teachers to have adequate understanding to join the new teaching career. Fourthly, taxonomy of instructional strategies may be embedded in all courses of the specialized degree programs of teachers including B.Ed (1.5), B.ED (2 years), BED (Hons) and M.Ed in order to weaken the conventional teaching systems of instructions. Fifthly, the educational authorities, local Administration and PTA/PTC can participate to build additional schoolrooms to control the overloaded physics classrooms problems and supply enough furniture so that every pupil might have enough space for sitting, seating, and moment management in the class. Sixthly, separate Physics lab is the requirement of the subject and pupils as well. Therefore, the management/ leaders of the schools are needed to build labs specific for Physics subject where all materials regarding Physics subject might exist. In addition, the lab must accomplish the requirements of each pupil along with of the groups of pupils to have equivalent chance to use the equipment with thorough attention. Likewise, low cost but standard resources might be created on indigenous level or school level to control the lack of the equipment in the labs specific for physics subject. Seventhly, the government and N.G. O might play their part in the up-gradation of the school library by offering modern Physics related literature, magazines, and books relevant to the intellectual level of the pupils. Lastly, the establishments may fill the gender gaps by providing equal opportunities to the secondary schools in terms of the availability of science/physics instructors, conducive working atmosphere and building additional physics schoolrooms.

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