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**RESEARCH ARTICLE**

# Students Academic Performance in Physics Correlates the Experience of Teachers in Higher Secondary Schools of Jammu and Kashmir State

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**ABSTRACT**

At the heart of the success of any school improvement process is teachers' willingness to change and improve their knowledge, attitudes and practices.The role of school leadership is crutial in combining professional and accountability measures for effective collaboration of teachers in this regard. To guide the study, four research questions were raised. The multi-stage sampling technique was used to collect data from tree hundred teachers as respondents. A validated questionnaire titled: Students Academic perfomance in physics correlates the qulity of teachers with the used of simple frequency counts and percentage for analysis. From the data analysis it was revealed that: the role of professionally qualified/trained teachers is an important teacher quality which enhances students' academic achievement in physics, teaching methods adopted by the teachers significantly influence achievement of the behavior objectives. Several schools in the population of the study lacked modern instructional materials without which effective teaching and learning cannot be utilized and teachers' experience significantly influence students academic performance; capacity building programes a major aspect of teachers' experience that is yet to be given adequate attention. Its importance cannot be over emphasized in view of senior secondary school student's poor performance in both internal and external examinations. Based on these findings, appropriate recommendations were made.



## INTRODUCTION

Physics is very interesting and one of the best science in the world. There is no gain saying about the fact that physics occupies a very sensitive position in physical science and related discipline. This informs several efforts geared toward studying physics at higher secondary level of education. Hence, it is one of the science subjects one must pass so as to qualify to offer some science courses at tertiary level of education. It is however, very disheartening and heartbreaking that despite the key role and much emphasis, being laid on physics, students at higher secondary school level of education are still performing woefully in this subject has being an issue of great concern to stake holders in education, most especially those in the field of science. This has been attributed to myriad of factors such as poor parenting, poor attitude of students towards their studies [1]. Bassey [2] opinedthat several problems are associated with conventional method of teaching. This, indirectly result to poor performance of students. Bassey [2] attributed this syndrome in educational sector to lack of perceived competence among the learners. However Adegbite [3] and Olaleye [4] views on the causes of poor performance differs. They posited very strongly that wrong location of market place, highway, airport, industrial areas constitute an academic unfriendly environment for learners. Agusibo [5] asserted that, many schools lack the necessary facilities for teaching generally. She however, opines that theoretical aspect of teaching alone will not make learners know the rudimentary fact of most science subjects' biology inclusive. She therefore made a clarion call to all the key players, international organization like United State Agency for International Development, World Health Organization, United Nation Education Scientific and Cultural Organization, United Nation International Children Education Fund, WORLD Bank and non-governmental organization to render in valuable services by rescuing most schools by making available supportive services for teaching of physics and other science subjects that, theory alone will do more harm than good to effective learning in physics.

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### Concept of physics and its importance

Physics is that branch of science which deals with the study of nature and phenomena. Medical advancement shows the importance of physics in our daily lives.Physics have a great role in electronics and communication system. Physics has a great role in film technology. Manufactoring of integrated circuts(IC) and other electronic devices are due to physics. The above use and importance have made physics a course or subject of impact in the life of individuals and the nation world as a whole; thereby prompts the learned to make it a compulsory course of study in every level of education primary, secondary, and higher secondary institutions.

### Teacher's Qualification

Ferguson [6] concluded from his research in Ghana that "Good teachers have distinguishable impacts on students examination score". Sanders [7] and Wenglinsky [8] found that the simple largest factor affecting academic growth of population of students is differences in effectiveness of individual classroom teachers. He further propounded that the higher a teacher is qualified, the higher his or her level education in the teaching profession.

### Teacher's use of teaching method

The method employed by the teachers in an attempt to impact knowledge on the learners is referred to as methodology. Omotosho

[12] sees teaching method as the strategy or plan that outlines the approach that teachers intend to take in order to achieve the desirable objectives. It involves the ways teachers organized and use techniques of subject matter, teaching tools and teaching materials to meet teaching objectives. Fafunwa [13] said most untrained teachers point accusing fingers at students rather than on themselves when the students are unable to carry out the expected behaviour at the end of the lesson or examinations. Therefore teachers' plan should include:

1. Choice of appropriate teaching method.
2. Choice of appropriate teaching materials.
3. Intensive research on the topic to be taught.
4. Determination of the objectives for the lesson.

Ferguson [6] and Koffinan [14] carried out a study on the effect on instructional methodology and students' performance. These instructional methods he referred to as technical skills of teaching. At the end of the study, they found out that only effective method(s) of teaching can bring about effective learning, hence teachers creative and dynamic in this regard to ensure that there is an increase in average students' performance in their subject areas.

**Teachers Experience and Students' Performance**

Murnana and Kile [15] defined teaching experience all activities undertaken by the teachers in this pre and post teacher training exercise; it also includes participation in professional development activities geared towards equipping the teacher for better service delivery. This aspect of teacher quality has not been given adequate attention because it is a general belief that any one that can talk convincingly will do well as a teacher, not minding if he or she has experience in pedagogy. Soelein [16] and Fafunwa [17] found a positive correlation between teachers experience and students' outcomes-some studies out by them reveled that this teachers with years of experience in the profession, especially in science subjects turned out students with higher academic performance. This is due to the teachers experience in instructional technology and pedagogy. Imogie [18] identified some areas of teachers experience to include:

1. Pedagogical studies
2. Content studies
3. Instructional technology
4. Post teaching training, amongst others

On pedagogical studies, he opined that teachers are able to harmonize the minds and emotions of their students in class and his produces students with higher academic achievement he defines instructional technology as the use of various media such as electronic, print and improvised materials in transmitting vital information to students. Recent students revealed that teacher with both content knowledge and instructional ability achieves a higher percentage of students' outcome then teachers without such experience. He is of the opinion that teachers post-teacher training is aimed at acquisition special skills and experience that will enhance quality service delivery which in turn has a direct impact on the students' achievement.

**Statement of Problem**

The progressive decline in higher secondary school students' academic performance has raised a lot of questions as regards Indian educational system, of which qualities of teachers are a key factor. Agusibo [5] however, observing that the absence of qualified teachers to teach physics do contribute significantly to the poor performance of students in physics. It is an obvious and glaring fact that in most of the higher secondary schools in, some teachers teaching this subject are not professionally qualified. The professional qualifications required of any teacher in Jammu and Kashmir are, B.Sc M.sc B.Ed or M.Ed. In cases where teachers are not professionally qualified. On general note, teachers without educational background have been found to be ineffective teachers in terms of instructional delivery competence. It is against this background this study was carried out to ascertain teacher quality as a correlate to students' performance in physics of higher senior secondary schools in Jammu and Kashmir state.

**Objective of the Study**

The broad objective of this study is to investigate the roles which the teachers' quality plays on students' academic performance in physics of higher senior secondary schools in Jammu and Kashmir state,India. It specifically sought to:

(i) Establish the difference between students' taught by professionally trained teacher and those that are taught by non-professionally trained teachers,
(ii) Ascertain whether teachers' experience enhance better performance of students in physics and
(iii) Examine whether teachers' use of instructional material improves students' academic performance.

**Significance of the Study**

The findings of the study will broaden student's knowledge, steer up their interest in physics and improve the teaching skills of teachers in various higher senior secondary schools in the study area and India at large. It is hope that findings of this study will build a proper link between students' academic performance in physics in jammu and Kashmir State and the quality needed for teacher's effectiveness in handling this subject across the state.

**Scope of the study**

This study will be limited to the student's academic performance in physics correlates the quality of Teachers' in higher secondary schools in Jammu and Kashmir state. It will also investigate the impact of instructional materials and methodology used by teachers as its aid students' academic performance and achievement. It will be conducted in Jammu and Kashmir State' higher secondary schools. The State is located in the North of India. It is the State with the highest emphases on formal education.

## METHODOLOGY

**Population of the Study**

The population comprises of ten (10) local governments area in Jammu and Kashmir south senatorial district and four schools were selected from each local government areas together with random selection of forty (40) students per school making four hundred (400) students as respondent for this study.

**Sample and Sampling Technique**

The multi-stage sampling technique was used to collected data from 400 respondents. First stage involves purposive selection of Jammu and Kashmir south senatorial district based on accessibility to the respondents. Second stage also involve the purposive selection of ten (10) local government based on number of schools in the area. The third stage involves the simple random selection of four (4) schools per local government. In the fourth and final stage, simple random selection of forty(40) students per school making a total of four hundred (400) students as respondents were selected for data collection of this study.

**Table 1a. Representation of respondents by class**

| PPP T | PPP TT | PPP TTT | Total no. of respondents |
|---|---|---|---|
| 80 | 140 | 180 | 400 |

**Table 1b. Students responses to teachers professionalism**

| S.No. | Items | Responses | | TotalNo. of Questioaries | % of responses | | Total |
|---|---|---|---|---|---|---|---|
| | | Yes | No | | Yes | No | |
| 1 | Does your teacher control/mange class well? | 240 | 160 | 400 | 60 | 40 | 100 |
| 2 | Does your teacher give assignment regularly? | 170 | 230 | 400 | 47.5 | 52.5 | 100 |
| 3 | Do you understand lesson note given by your teacher? | 300 | 100 | 400 | 75 | 25 | 100 |
| 4 | Does your teacher encourage you to study physics? | 220 | 180 | 400 | 55 | 45 | 100 |
| 5 | Is your physics lesson boring? | 250 | 150 | 400 | 62.5 | 37.5 | 100 |
| | Mean (x) of the percentage (%) | | | | 60.6% | 39.4% | 100% |

**Questionnaire Administration**

The questionnaire was administered to randomly select sampled higher secondary school students which was distributed and collected at the spot to ensure its reliability in the study area in order to achieve various responses.

## RESULTS

Table 1a analyses the total number of research population according to their class e.g PPPI, PPPII, PPPIII. It shows that PPPI class had eighty respondents making a total of four hundred respondents.

**Research Question 1**

Do students perform better when taught by a professionally trained teacher?

From the analysis in Table 1b (items 1-5), 60% of the respondents agreed that their class is well managed by their teacher during lesson while 40% disagreed. In item 2, 47.5% of the respondents agreed that they are given assignment regularly while 52.5% disagreed. In item 3, seventy-five percentage (75%) of the respondents agreed that they understand the lesson note given by their teacher while 25% disagreed. In item 4, 55% of the respondents agreed that their teacher encourage them to study physics while 45% disagreed. Finally, in item 5, 62.5% of respondents agreed that their physics lessons are boring while 37.5% of the respondents disagreed. Therefore, from the analysis above, the mean (x) percentage of response "Yes" is 60.6% while response "No" is 39.4%. Hence, this analysis shows that teaching methodology of the teacher enhances students' performance in physics.

her identified students' problem when teaching while 60% disagreed. In item 20, 25% of respondents agreed that their teacher attitude will encourage them to become future teacher while 75% agreed. Therefore, the above analysis says that teacher's experience enhance better performance of students in physics.

## DISCUSSION OF FINDING

From the result of the analysis, the following findings were made;

**Research question 1**

From the analysis in Table 1, majority of the respondents believe that students perform better when taught by professionally trained teachers. It agreed with [5] who stated that a trained teacher is one who can translate school curriculum into vivid reality; and that only trained teachers can't transmit vital information which positively impart on students' academic achievement.

**Research Question 2**

An analysis of Table 2 showed that teachers experience enhances better academic performance of students. It agrees with Ogunmiyi [20] that teacher's experience come to bear on students achievement at the end of lesson, and more importantly at the end of the term/session when results are published; the Promotional Examination results of selected Higher Secondary Schools in the study area supports this view.

**Summary of Findings**

A summary of findings arising from the research project is as follows:

**Table 2. Do students perform better when taught by a professionally trained teacher?**

| S.No. | Items | Responses | | Total No. of Questioaries | % of responses | | Total |
|---|---|---|---|---|---|---|---|
| | | Yes | No | | Yes | No | |
| 6 | Does your teacher refer to the simple related topic when introducing new topic? | 324 | 76 | 400 | 81% | 19% | 100 % |
| 7 | Does your give adequate explanation while teaching? | 210 | 190 | 400 | 52.5 % | 47.5 % | 100 % |
| 8 | Is your teacher friendly while teaching? | 250 | 150 | 400 | 62.5 % | 37.5 % | 100 % |
| 9 | Does your teacher identify student's problem while teaching? | 160 | 240 | 400 | 40% | 60% | 100 % |
| 10 | Will your teacher attitude to teaching inspire you to become a teacher in future? | 100 | 300 | 400 | 25% | 75 % | 100 % |
| | Mean (x) of the percentage (%) | | | 52.5% 47.5% 100% | | | |

**Research Question 2:** Does teacher's experience enhance better performance of students physics?

An analysis of the table 2 shows that in item 6, 81% of the respondents agreed that their teacher uses entry behaviour when introducing now topic while 19% disagreed. In item 7, 52.5% of respondents agreed that their teacher gave adequate explanation when teaching while 47.5% disagreed. In item 5, 62.5% of respondents agreed that their teacher is friendly when teaching while 37.5% disagreed. In item 19, 40% of the respondents agreed that their

- Teaching methods of several teachers especially in practical based science courses like Physics Biology, and Chemistry etc have become largely monotonous. There is need to review teaching method of such courses towards modern practical teaching method "guided enquiry".
- Teachers experience contributes maximally to students' academic performance. Findings revealed that teachers with cognate teaching experience turn out students with relatively higher academic achievement
- Teachers' use of instructional materials in teaching is paramount to students' improvement in academic

performance. Findings reveal that a good number of sampled schools lacked basic instructional aid, where available they are too few to go round and often in bad shape.

**Conclusion**

From the above analysis of the data presented in this study, the researcher has revealed a number of factors as regards teacher's quality in relation to students' academic performance. The result of the analysis of data presented in this study also confirm that the teacher as a person is not the sole determinant of students' academic outcome because other factors such as socio-economic status, parental education, school environment, related factors etc have significant effects in the academic performance of higher secondary school students. The results of this study also indicate that when teaching method are effectively utilized, students academic performance will increase tremendously and that teachers experience is an added advantage in preparing students for both internal and external examination. It was also established that the quality of teachers to a large extent determine students achievement because a professional teacher will make the best of every unpleasant situation; however, an enabling environment must be created in terms of instructional aid amongst other variables for the teachers' potentials to be utilized maximally.

**Sugessions**

For teaching and learning of physics as a subject in higher secondary schools, following sugessions have been nade, That there is need to review the teacher education and certification programme to enable it meet with international educational standards at various levels of the educational process. The need to update teacher's knowledge on ways of teaching physics and acquaint them with other new innovations is also to be emphasized. This could be made possible by frequently organizing seminars, workshops and in-service training for physics teachers. The teachers should make use of different instructional materials as long as they are relevant to their lesson content. There is also need for the teachers to be resourceful in materials selection and planning; this is to reduce cost of production and maintenance of standard instructional materials. Local production and improvisation have always been a positive step towards the realization of this objective. Policy-makers in the higher secondary school should raise fund so as to procure materials necessary for improvisation in physics and purchase of textbooks that will facilitate the effective teaching of the course. Government should make efforts at improving the attitude of students to academic work by providing laboratories for science practical's, libraries etc, so that the learning experiences of the students can become more meaningful and at same time interesting. Parents should be encouraged to buy recommended physics text books for their wards to supplements teachers notes. The All Indian Council Of Technical Education and the National Council Of education research and Training (NCERT) should establish and make functional centers for this purpose.

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