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# Impact Of Teacher Education Infrastructure On Student Academic Achievements: A Case Study On Jharkhand

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**Abstract**

The present study's field has a knowledge gap after reviewing related literature. Any course or training program aims to develop and advance the institution and society, but ignoring standard concerns would make it ineffective. Since B.Ed. prepares instructors for school education, improved training output is the goal. Thus, standard must be considered. Every teacher educational institution needs basic infrastructure to provide trainees with comfort, convenience, and resources to maximise their skill and competency as teachers. National Assessment and Accreditation Council (NAAC) for institutional grading should inspect and observe classroom infrastructure, laboratory facilities, library updates with modern study materials and resources, widespread recreational facilities for fitness and health, and teacher educational training institution environment and surroundings. In addition to human resources, institutions must fulfill these essential infrastructures in accordance with the number of students. The course content has lately changed, so the infrastructure should have changed too. Quality educational training, like B.Ed. programs, is still regarded to be the most important aspect in societal and national development. This evaluation shows a knowledge gap, hence research of the impact of basic infrastructure standard on teacher education in Jharkhand is needed.

**Keywords:** Teacher education, infrastructure, student academic achievements, Jharkhand.

## Introduction

Infrastructure serves as the fundamental basis for both institutions and educational programs. Training provides trainees with the necessary skills and knowledge to be practical rather than theoretical. Construction is the initial prerequisite for accepting trainees. However, mere construction is insufficient; it must encompass various areas such as classrooms, laboratories, libraries, recreational spaces, sports fields, and playgrounds. The National Council for Teacher Education (NCTE) mandates that Teacher Education Institutions (TEIs) must meet the minimum infrastructural requirements outlined in its rules and regulations. Failure to comply with these requirements will result in the TEI being prohibited from offering teacher education courses, such as the Bachelor of Education (B.Ed.).

Prior to the academic year 2013-14, there was a requirement for a separate building for the B.Ed. course. However, some colleges in Jharkhand did not have a separate building for the B.Ed. program, leading to the withdrawal of their recognition. Subsequently, these colleges were allowed to continue running the B.Ed. course after a reconsideration. The condition for this allowance was that if a college offered courses in various subjects such as social science, science, mathematics, languages, and commerce, and if it was a constituent body of a state government university, then it could run the B.Ed. course by considering the department of education as a part of the college. The existing library, science laboratories, playground, and classrooms would also be considered as integral components of the B.Ed. course. Since then and up until now, all the constituent colleges of the State University in Jharkhand have been offering B.Ed. courses. Nevertheless, the condition, status, and standard of infrastructure remain subjects of ongoing scrutiny and enhancement to enhance the teacher education program's standard. Mere adherence to formalities and meeting minimum requirements is insufficient to produce high-standard teaching, learning, and training.

While the course contents, period, and activities have undergone various revisions, the infrastructure has remained mostly intact. The standard of teaching, along with learning, training, and academic achievement of trainees, as well as the excellence of teachers in the B.Ed. program, are influenced by the standard of basic infrastructure. Therefore, investigating infrastructure standard in Teacher Education Institutions (TEIs) in various educational contexts such as classrooms, libraries, laboratories, recreational facilities, staff offices, and health and

sanitation facilities is vital. These aspects are crucial indicators and criteria for achieving the desired level of standard in teacher education programs and maximizing the effectiveness of educational training. Therefore, this study focuses on the influence of fundamental infrastructure standard on many facets of teacher education in the state of Jharkhand.

The current study holds significance within the realm of educational training. It pertains to the ideal standards mandated by prestigious educational governing agencies such as the NCTE and other educational policies, such as the new education policy-2019, established under the Ministry of Human Resource Development (MHRD) of India. The NAAC conducts assessments to assign institutional grades based on seven criteria. These criteria comprise curricular aspects, along with teaching-learning with evaluation, along with research, along with consultancy with extension, along with infrastructure with learning resources, along with student support with progression, along with governance with leadership, along with innovative practices. The study's findings will be advantageous for enhancing and maintaining the standard of facilities in teacher education institutions across various private and constituent colleges under different universities in the state of Jharkhand. By engaging in such research, public universities will take the lead in ensuring the standard and ongoing maintenance of teacher professional training in education. It will demonstrate its usefulness in assessing the standard of other teacher education institutions in different states of India, particularly in terms of teacher excellence, student academic achievement, institutional grading, and basic infrastructure standard. Consequently, it will contribute to enhancing the standard of educational training programs like the B.Ed. program across the country. Therefore, this study holds great importance and relevance for the progress of education, specifically in enhancing the standard of teaching, along with learning, training, and infrastructure in teacher education institutions (TEIs).

**Literature Review**

Abel (2005) in the report discusses the aspects based from 21 institutions, like executive leadership with support; along with faculty with academic leadership commitment; along with student services, along with technology infrastructure; along with course/instructional standard. Banerjee (2006) states that developing country governments have actively promoted

private sector investment to address the increasing need for infrastructure.

As per Law, et al. (2008), a strong institutional environment has a beneficial impact on financial development, and certain institutional aspects are more significant than others. Dilshad (2010) emphasises that the standard of school education is mostly determined by the standard of instructors who are trained at teacher education institutions. Zineldin (2011) identifies several key elements that influence students' opinion of overall satisfaction with higher education institutions. These categories encompass technical aspects, functional aspects, infrastructure, along with interaction, and environment.

Ryan-Collins and Spratt (2012) show the Executive Summary Infrastructure to be the vital foundation for all forms of development. Ravindran (2012) conducted an evaluation of the expectations, perceptions, and satisfaction levels of management education students regarding services and standard aspects of the institution. This assessment was done through a structured questionnaire that covered six dimensions: location, along with academics, along with infrastructure, along with image, along with cost, along with personnel. The overall satisfaction of the students was also measured.

Herrington & Summers (2014) analyse the Asia Pacific Education Review (APER)'s function in addressing these concerns, influencing research priorities, and producing research of excellent standard. They also investigate the consequences of these burdens and the transformations in the educational infrastructure. Crosling (2015) provides a systematic framework for studying the aspects of a country's creative learning ecosystem (CLE), which concern to infrastructure, or info-structure (physical along with digital infrastructure), along with intellectual capital, along with interaction, along with integrity systems, along with incentives, along with institutions.

Palei, T. (2015) examines the degree of the influence of infrastructure on national competitiveness. The study conducted by Slesman, et al. (2015) investigates the correlation between the calibre of several aspects of institutional infrastructure and the rate of economic boost in a group of 39 member nations. According to Yirdaw (2016), the standard of higher education is a crucial aspect in ensuring long-term

economic along with social development at both the national along with regional levels of an economy.

**Objectives**

1. To study the impact of Basic Infrastructure Quality of Teacher Education Institutions (TEIs) on Student Academic Achievement.

2. To study the relationship of the Basic Infrastructure Quality with Student Academic Achievement of Teacher Education Institutions (TEIs).

**Methodology**

The current study used a descriptive survey research methodology. The study encompasses both qualitative and quantitative data, which will be collected as primary data through cross-sectional methods. Additionally, secondary data will be gathered from students and institutions. The committee will include all individuals and organizations involved in the field of teacher education, including those responsible for running 2-year B.Ed. programs in Jharkhand state.

The sample size comprised 946 B.Ed. students who were selected from a total of 25 distinct constituent and private teacher education institutes, including 8 TEIs of Binod Bihari Mahto Koyalanchal University (BBMKU), Dhanbad; 9 TEIs of Ranchi University (RU), Ranchi; and 8 TEIs of Vinoba Bhave University (VBU), Hazaribag. The sampling will be conducted using the stratified random sampling technique. The study will utilize self-developed and standardized tools, namely the "B.Ed. Infrastructure Quality Observation Schedule (BIQOS)". The data analysis will be conducted using SPSS, employing suitable statistical techniques such as inferential statistics, including Linear Regression, t-test or z-test, and ANOVA.
For the study of first objective two variables were considered which were higher infrastructure and lower infrastructure, while for the study of second objective single variable was studied that is basic infrastructure standard.

**Table 1: Student Sample of the Study**

| S. No. | **College Name** | **College Type** | **University** | **Intake** | **Student Responses** |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 1. | Bokaro Steel City College, Bokaro | Constituent | BBMKU | 100 | 33 |
| 2. | Dr. S. Radhakrishnan College of Education, Bokaro | Private | BBMKU | 100 | 33 |
| 3. | K.K. Teacher's Training College, Dhanbad | Private | BBMKU | 100 | 36 |
| 4. | Kumar B.Ed. College, Dhanbad | Private | BBMKU | 100 | 35 |
| 5. | R.S.P. College, Dhanbad | Constituent | BBMKU | 100 | 35 |
| 6. | S.S.L.N.T. Mahila Mahavidyalaya, Dhanbad | Constituent | BBMKU | 100 | 53 |
| 7. | Taiyab Memorial Teacher's Training Institute, Dhanbad | Private | BBMKU | 100 | 48 |
| 8. | Tathagat Teacher's Training College, Dhanbad | Private | BBMKU | 100 | 35 |
| 9. | Aditya Prakash Jalan Teacher's Training College, Ranchi | Private | RU | 100 | 35 |

| | | | | | |
|---|---|---|---|---|---|
| 10. | Doranda College, Doranda, Ranchi | Constituent | RU | 100 | 41 |
| 11. | Fatma Teacher's Training College, Ranchi | Private | RU | 100 | 43 |
| 12. | R.T.C. B.Ed. College, Ranchi | Private | RU | 100 | 34 |
| 13. | Ranchi Women's College, Ranchi | Constituent | RU | 100 | 46 |
| 14. | Shaheed Sheikh Bhikhari College of Education, Ranchi | Private | RU | 100 | 33 |
| 15. | Shaswat Institute of Teacher's Education, Ranchi | Private | RU | 100 | 33 |
| 16. | Sri Ram Teacher's Training College, Ranchi | Private | RU | 50 | 17 |
| 17. | Uday Memorial B.Ed. College, Ranchi | Private | RU | 100 | 43 |
| 18. | Baijnath Prasad Snehi College of Education, Domchanch, Koderma | Private | VBU | 50 | 18 |

| | | | | | |
|---|---|---|---|---|---|
| 19. | Chatra College, Chatra | Constituent | VBU | 100 | 35 |
| 20. | Giridih College, Giridih | Constituent | VBU | 100 | 41 |
| 21. | Grizzly College of Education, Jhumritelaiya, Koderma | Private | VBU | 100 | 42 |
| 22. | J.J. College, Jhumritelaiya, Koderma | Constituent | VBU | 100 | 54 |
| 23. | Maa Vindhyavashini College of Education, Hazaribag | Private | VBU | 100 | 33 |
| 24. | R.K.V. College of Education, Bagodar, Giridih | Private | VBU | 100 | 51 |
| 25. | Subhash Teacher's Training College, Giridih | Private | VBU | 100 | 39 |
| Total | | | 3 | 2400 | 946 |

**Result and analysis**

**Objective 1**

The primary aim was to examine the influence of the standard of basic infrastructure in Teacher Education Institutions (TEIs) on the academic showing of students. The first aim was tested using linear regression analysis using the enter-method, based on the normalcy test's outcomes. The acquired findings are displayed in Table 2.

**Table 2: Model Summary[b]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .514[a] | .265 | .228 | 1.715 |
| a. Predictors: (Constant), Basic Infrastructure Quality | | | | |
| b. Dependent Variable: Student Academic Achievement | | | | |

On the basis of Table 2, it is possible to observe that the R Square value is 0.265, which shows that there exists a contribution of 26.5% of the Basic Infrastructure Quality on the Academic Achievement of Students.

**Table 3: Anova[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 21.165 | 1 | 21.165 | 7.199 | .014[b] |
| | Residual | 58.800 | 20 | 2.940 | | |
| | Total | 79.966 | 21 | | | |
| a. Dependent Variables: Student Academic Achievement | | | | | | |
| b. Predictors: (Constant), Basic Infrastructure Quality | | | | | | |

According to Table 3, the F-value is 7.199, indicating statistical noteworthiness at a 0.05 level (p=0.014). Thus, the claim that the Basic Infrastructure Quality of TEIs has no substantial impact on Student Academic Achievement is refuted. It indicates that Basic Infrastructure Quality has a substantial impact on Student Academic Achievement. It was discovered that the standard of basic infrastructure in educational institutions had a notable effect on students' academic showing.

**Table 4: Independent Sample t-test and Group Statistics.**

| Infrastructure Level | | N | Mean | Std. Deviation | Std. Error Mean | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|
| Student Academi | Higher | 11 | 74.517 | 1.345 | 0.406 | 2.324 | 20 | .031 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| c Achievement | Infra | | | | | | | |
| | Lower Infra | 11 | 72.759 | 2.118 | 0.639 | | | |

According to the information provided in Table 4, the t-value is 2.324, indicating statistical noteworthiness at a significance level of 0.05 (p=0.031). Thus, the hypothesis that there is no substantial disparity in the infrastructure standard of TEIs, in relation to student academic achievement, was disproven. The average Student Academic Achievement for higher Infrastructure Quality was 74.517, which is significantly higher than the average Student Academic Achievement for lower Infrastructure Quality, which is 72.759.

The study revealed a substantial correlation between the standard of basic infrastructure in educational institutions and the academic showing of students. This study demonstrates that the standard of basic infrastructure in educational institutions has a substantial influence on the academic showing of students.

Therefore, the results designate that there is a noteworthy correlation across the standard of basic infrastructure in teacher education institutions (TEIs) and the academic achievement of students in Jharkhand.

**Objective 2**

The objective is to inspect the correlation across the standard of basic infrastructure and the academic showing of students at Teacher Education Institutions (TEIs). The data were analyzed utilising the Karl Pearson Product Moment Correlation. The outcome acquired is presented in Table 5.

**Table 5: Correlation coefficient between the Basic Infrastructure Quality and the Student Academic Achievement of teacher education institutions (TEIs)**

| **Variable** | R | N | **Sig (2-tailed)** | **Remark** |
|---|---|---|---|---|
| Basic Infrastructure Quality | 0.514 | 22 | 0.014 | p<0.05 |

| | | | | |
|---|---|---|---|---|
| Student Academic Achievement | | | | |

Table 5 shows a correlation coefficient (r) of 0.514, which is statistically noteworthy at a 0.05 significance level. The sample size (N) is 22 and the degree of freedom (df) are 20. There is a strong correlation between the standard of basic infrastructure and the academic achievement of students in Teacher Education Institutions (TEIs). Thus, the null hypothesis that there is a no substantial association between Basic Infrastructure Quality and Student Academic Achievement of TEIs is disproven. The correlation between Basic Infrastructure Quality and Student Academic Achievement is 26.419%, indicating a rather low level of association. Therefore, it can be established that a considerable positive correlation exists across the standard of basic infrastructure and the academic achievement of students in TEIs.

**Conclusion**

The current study has demonstrated that the Basic Infrastructure Quality of Teacher Education Institutions (TEIs) in Jharkhand has a substantial influence on the academic achievement of students. There is a discernible correlation between the standard of basic infrastructure and the academic showing of students in Teacher Education Institutions (TEIs).
Therefore, it can be inferred that there is a substantial positive correlation across the standard of basic infrastructure and the academic achievement of students at teacher education institutions (TEIs). Regarding the findings on student academic achievements, it can be stated that students strive for academic excellence on their own, but the standard of the basic infrastructure of teacher education institutions can definitely have negative or positive impact on the same.

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