Compare the Quality of Infrastructure on Student Outcomes in Public and Punjab Education Foundation Funded Schools at Secondary Level

Zeshan Umar
M.Phil. Education Scholar; Department of Education; University of Jhang, Pakistan.
Email: zeshan.umar1122@gmail.com

Tahira Sadiqi
M.Phil. Education Scholar; Department of Education; University of Jhang, Pakistan.
Email: tahirasadiqi491@gmail.com

Sabir Hussain
Ph.D. Scholar; Department of Educational Training, The Islamia University of Bahawalpur, Pakistan.
Email: sabirjanmarri@gmail.com

Abdul Qahar
PhD. Scholar; Secondary Teacher Education; Allama Iqbal Open University Islamabad.
Email: abdulqahar045@gmail.com

Received on: 03-10-2023 Accepted on: 05-11-2023

Abstract

Improved school infrastructure quality positively correlates with student engagement, motivation, and academic achievement, emphasizing the need to bridge infrastructure disparities. The study's objective was to compare the quality of infrastructure on student outcomes in public and Punjab education foundation-funded secondary-level schools. The general population of the study was the province of Punjab, including all public and Punjab Education Foundation-funded schools at the secondary level. The study was delimited to three districts of Punjab province. Through purposive sampling, 300 students were chosen from the public, and 300 from Punjab Education Foundation Funded Schools; the total sample was 600 students. The design of the study was a quantitative and cross-sectional survey. Data were collected through a 5-point Likert scale and interpreted through mean value, standard deviation, and independent t-test. It was found that PEF-funded schools generally have better infrastructure resources, conditions, and perceived quality than public schools. This is associated with positive correlations with student outcomes. Investing in public school infrastructure, establishing standards, empowering

communities, leveraging technology, and fostering stewardship to improve student outcomes is recommended.

Keywords: School infrastructure, Public Secondary Schools, PEF secondary schools, Students outcome, Education quality.

Introduction

The quality of school infrastructure plays a crucial role in shaping the learning environment and ultimately influencing student outcomes (Riniati et al., 2023). Adequate and well-maintained facilities provide a conducive space for teaching and learning, fostering a sense of engagement and motivation among students (Mbalaka & Cheloti, 2021). Conversely, dilapidated or poorly equipped schools can hinder the educational process and create a demotivating atmosphere (Liu, 2020).

Impact of Quality Infrastructure on Learning

1. ***Enhanced Learning Environment:*** Sufficient classroom space, proper lighting and ventilation, comfortable furniture, and access to technology contribute to a positive learning environment (Widiastuti et al., 2020). Students feel more at ease and focused when their surroundings are conducive to learning (Matoy, 2021).
2. ***Improved Teaching Effectiveness:*** Teachers are better equipped to deliver effective instruction with access to well-equipped classrooms, laboratories, and technology resources (Hussain, 2021). This allows for hands-on learning experiences and more engaging pedagogical approaches (Hussain et al., 2022).
3. ***Greater Student Engagement:*** A well-maintained and stimulating school environment can capture students' attention and increase their learning motivation (Hussain et al., 2022; Ogita & Pothong, 2021). Access to libraries, playgrounds, and recreational facilities can further enhance engagement and promote holistic development (Okata, 2022).
4. ***Reduced Distractions:*** Poor infrastructure, such as overcrowding, noise pollution, and inadequate sanitation, can create distractions that hinder students' concentration and impede their learning progress (Iordye & Jato, 2023).

Factors Influencing Infrastructure Quality

1. ***Funding:*** Adequate funding is essential for maintaining and upgrading school infrastructure. Allocating sufficient resources for construction, renovation, and maintenance ensures that schools meet the necessary standards (Ahmad, 2021; Amir et al., 2022).
2. ***Government Policies:*** Government policies play a significant role in prioritizing and supporting school infrastructure development. Clear guidelines and dedicated funding mechanisms can help ensure schools have access to the necessary resources (Mbalaka & Cheloti, 2021).
3. ***Community Involvement:*** Active community engagement can contribute to improving school infrastructure. Parent-teacher associations, local businesses, and community organizations can provide support through donations, volunteering, and advocacy efforts (Opabola et al., 2023; Hussain et al., 2022).
4. ***Maintenance and Upkeep:*** Regular maintenance and upkeep are crucial for preserving the quality of school infrastructure. Establishing preventive maintenance programs and allocating resources for timely repairs can help extend the lifespan of facilities (Norazman et al., 2023)

Public Secondary Schools in Punjab, Pakistan

Public secondary schools in Punjab, Pakistan, play a vital role in educating a large portion of the population. These government-funded schools offer a comprehensive curriculum from grade 9 to grade 12 (Awan & Hussain, 2020).

Distribution of Public Secondary Schools

Public secondary schools are spread across Punjab, catering to students in urban, rural, and semi-urban areas. The overall number of public secondary schools in Punjab is substantial, ensuring accessibility to secondary education for many students (Chaudhry & Tajwar, 2021)

Curriculum and Facilities

Public secondary schools in Punjab follow the Punjab Textbook Board's curriculum, designed to provide a strong foundation in core subjects such as English, mathematics, science, and social studies (Alvi et al., 2020). Additionally, these schools offer elective courses in various fields, allowing students to explore their interests and develop their skills. Public secondary schools in Punjab are equipped with classrooms, laboratories, libraries, and other essential facilities to support the curriculum (Ahmed et al., 2020). While the quality of infrastructure may vary across schools, efforts are underway to improve and standardize facilities across the province (Hafeez et al., 2023).

Challenges and Opportunities

Punjab's Public secondary schools face overcrowding, limited resources, and teacher shortages. However, there are also opportunities for improvement, such as increasing funding, providing professional development for teachers, and implementing innovative teaching methodologies (Muliati et al., 2022; Paci-Green et al., 2020).

Role of Public Secondary Schools

Despite the challenges, public secondary schools in Punjab play a crucial role in providing education and preparing students for higher education and future careers. These schools offer students from diverse backgrounds a valuable opportunity to gain knowledge, develop skills, and contribute to society (Parveen et al., 2020). Overall, public secondary schools in Punjab are an essential part of the education system in the province. By addressing the existing challenges and pursuing opportunities for improvement, these schools can continue to provide quality education and empower students to reach their full potential (Rizwan et al., 2021).

Punjab Education Foundation (PEF) Secondary Schools in Punjab, Pakistan

Punjab Education Foundation (PEF) secondary schools in Punjab, Pakistan, play a significant role in providing quality education to students in both urban and rural areas. These schools are funded by the Punjab government and operate under the supervision of PEF, ensuring adherence to high standards of education and infrastructure (Ahmad et al., 2023).

Distribution of PEF Secondary Schools

PEF secondary schools are strategically distributed across Punjab, catering to students from diverse backgrounds and socioeconomic levels. These schools are particularly prevalent in underserved areas, ensuring that access to quality education is not limited to urban centers (Arshad et al., 2020).

Curriculum and Facilities

PEF secondary schools follow the Punjab Textbook Board's curriculum, providing a rigorous academic foundation in core subjects like English, mathematics, science, and social studies (Noor et al., 2022). Additionally, these schools offer a range of elective courses, allowing students to explore their interests and develop their skills in various fields. PEF secondary schools have modern classrooms, well-equipped laboratories, well-stocked libraries, and other essential facilities to support the curriculum. The PEF prioritizes infrastructure development, ensuring students have access to a conducive learning environment (Hussain et al., 2022; Jahantab, 2021).

Teacher Quality and Professional Development

PEF secondary schools employ a dedicated team of qualified teachers who undergo regular professional development programs to enhance their teaching skills and pedagogical approaches. PEF emphasizes teacher training and development, recognizing teachers' crucial role in student success (Hussain et al., 2023).

Impact on Student Outcomes

PEF secondary schools have positively impacted student outcomes, consistently achieving higher passing rates in board examinations compared to public schools. This is attributed to a rigorous curriculum, well-maintained facilities, and a strong focus on teacher development (Rafiq, 2020).

Role of PEF Secondary Schools

PEF secondary schools have established themselves as leading educational institutions in Punjab, providing quality education to students from diverse backgrounds. These schools prepare students for higher education, future careers, and responsible citizenship (Chaudhry & Tajwar, 2021). Overall, PEF secondary schools in Punjab are a testament to the government's commitment to providing quality education and empowering students to reach their full potential. By continuing to invest in infrastructure, teacher training, and innovative teaching methods, PEF can further enhance the educational landscape of Punjab (Raza et al., 2022; Arshad et al., 2020).

The Rationale for the Study

The quality of school infrastructure plays a crucial role in shaping the learning environment and influencing student outcomes. It is essential to assess and compare the infrastructure of different types of schools to identify areas for improvement and ensure that all students have access to a conducive learning environment. Public schools and Punjab Education Foundation (PEF)-funded schools represent two distinct educational systems in Punjab, Pakistan. Public schools are directly funded and managed by the government, while PEF schools are funded

through a public-private partnership. This difference in funding and management structures raises questions about the quality of infrastructure in each type of school.

Statement of Problem

The quality of school infrastructure plays a pivotal role in shaping the learning environment and influencing student outcomes. However, in Punjab, Pakistan, disparities in infrastructure quality exist between public and Punjab Education Foundation (PEF)-funded secondary schools. These disparities raise concerns about equity in access to quality education and highlight the need for a comparative assessment of infrastructure quality in these two types of schools. Public secondary schools, directly funded and managed by the government, often face challenges in maintaining and upgrading their infrastructure due to limited resources. This can lead to overcrowded classrooms, outdated facilities, and a lack of essential resources, such as well-equipped laboratories and libraries.

In contrast, PEF-funded schools operating under a public-private partnership model have access to more substantial funding and enjoy greater autonomy in managing their resources. This has resulted in PEF schools boasting newer, better-maintained facilities and access to advanced technology. These disparities in infrastructure quality raise concerns about equity in access to quality education. Public secondary school students may be disadvantaged due to limited resources and outdated facilities. This can hinder their learning progress and limit their opportunities for success.

Moreover, the uneven distribution of infrastructure resources raises questions about the effectiveness of government funding mechanisms and the allocation of resources within the education system. A comparative study of infrastructure quality can shed light on these issues and inform policy decisions to improve equity in education. Therefore, a comprehensive assessment of infrastructure quality in public and PEF-funded secondary schools is crucial to identify disparities, understand their impact on student outcomes, and inform policy decisions that promote equitable access to quality education for all students in Punjab.

Conceptual Framework of the Study

Independent Variables:

1. ***School Type:*** Public Secondary Schools vs. PEF-Funded Secondary Schools
2. ***Location:*** Urban, Rural, Semi-Urban
3. ***School Size:*** Small, Medium, Large
4. ***Funding Source:*** Government Funding vs. Public-Private Partnership Funding

Dependent Variables:

1. ***Infrastructure Resources:***

a. Physical Facilities: Classrooms, Laboratories, Libraries, Recreational Facilities

b. Technological Resources: Computers, Internet Access, Audiovisual Equipment

2. ***Infrastructure Condition:***

a. Maintenance Level: Well-maintained, Average Maintenance, Poor Maintenance

b. Functionality: Operational, Partially Functional, Non-Functional

3. ***Perceived Infrastructure Quality:***

a. Student Perceptions: Satisfaction with infrastructure, impact on learning

b. Teacher Perceptions: Supportiveness of teaching environment, impact on student outcomes
c. Administrator Perceptions: Adequacy of resources, challenges and strengths

Moderating Variables:

1. ***Socioeconomic Status of Students:*** Low-Income, Middle-Income, High-Income
2. ***Government Policies:*** Infrastructure Standards, Funding Allocation Mechanisms
3. ***Community Involvement:*** Parent-Teacher Associations, Local Businesses, Community Organizations

Theoretical Framework

The theoretical framework for comparing the quality of infrastructure in public and PEF-funded schools at the secondary level is based on the following theories:

Input-Process-Output (IPO) Model

The IPO model suggests that the quality of education is influenced by the inputs (resources) provided to schools, the processes (teaching and learning practices) that take place within schools, and the outputs (student outcomes) that result from these processes. In this context, infrastructure quality is considered an input that can impact student outcomes by influencing teaching and learning.

Resource-Based Theory (RBT)

RBT emphasizes the importance of resources in shaping organizational performance. In schools, infrastructure quality is crucial for effective teaching and learning. Well-maintained and well-equipped facilities can provide a conducive learning environment, enhance student engagement, and promote positive student outcomes.

Social Capital Theory (SCT)

SCT highlights the role of social networks and relationships in fostering positive outcomes. Substantial social capital can contribute to improved infrastructure quality in schools. Parent-teacher associations, community organizations, and local businesses can collaborate with schools to provide additional resources and support infrastructure development.

Theories of Equity and Social Justice

These theories emphasize the importance of providing equitable access to quality education for all students. Disparities in infrastructure quality between public and PEF-funded schools can hinder equity and limit educational opportunities for students from disadvantaged backgrounds.

Significance of the Study

A comparative study of infrastructure quality in public and PEF-funded secondary schools is significant for several reasons:

1. ***Identifying Disparities:*** Comparing the infrastructure of these two school systems can reveal disparities in resource allocation and highlight areas where improvements are

needed.

2. ***Informing Policy Decisions:*** Findings from the study can inform policy decisions regarding infrastructure development and resource allocation for public and PEF-funded schools.
3. ***Empowering Students:*** By ensuring equitable access to quality infrastructure, all students can have the opportunity to thrive in a supportive learning environment.

Objectives of the Study

Following were the study objectives;

1. To determine if there are significant differences in the availability and quality of physical resources between public and PEF-funded secondary schools.
2. To assess the extent to which infrastructure condition and functionality impact teaching and learning in public and PEF-funded secondary schools.
3. To identify areas of infrastructure improvement in both public and PEF-funded secondary schools based on stakeholder perceptions.
4. To contribute to the development of evidence-based policy recommendations for improving infrastructure quality and promoting equity in education.

Research Questions

To effectively compare infrastructure quality, the study addressed the following research questions:

1. What are the physical and technological resources available in public and PEF-funded secondary schools?
2. How well-maintained and functional are the facilities in public and PEF-funded secondary schools?
3. What are students' perceptions regarding the infrastructure quality in public and PEF-funded secondary schools?
4. What is the impact of school infrastructure on students' outcomes?

Methodology

Quantitative Research Design

Study Design: Comparative Cross-sectional Study

Data Collection Tool: Data were collected through a 5-point Likert scale. Data were collected on four factors, and five questions were asked for each.

Population: Students of public and PEF-funded secondary schools in Punjab, Pakistan.

Delimitations of the Study

1. Due to time and cost, research was limited to only three districts of South Punjab: District Multan, District Bahawalpur, and District DG. Khan.
2. The study was delimited to only students.

Sample: Purposive random sample of 600 students, 300 from public and 300 from PEF-funded schools (total sample size = 600); this technique was suggested by Obilor (Obilor, 2023).

Compare the Quality of Infrastructure on Student Outcomes in Public and Punjab Education Foundation Funded Schools at Secondary Level

Table 1 Sample of the Study

The first stage for the selection of sample institutions		
Districts	Public	PEF
Multan	20	20
Bahawalpur	20	20
D.G. Khan	20	20
Total	60	60
In the second stage, students were selected through a purposive sampling method.		
Multan	100	100
Bahawalpur	100	100
D.G. Khan	100	100
Total Sample		600

Data Collection Methods

1. ***Structured Surveys:*** Administer structured surveys to students to collect data on the following:

i. Availability and quality of physical resources (classrooms, laboratories, libraries, recreational facilities, computer labs, internet access)
ii. Condition and functionality of facilities (cleanliness, maintenance level, equipment functionality)
iii. Perceptions of infrastructure quality (satisfaction level, impact on teaching and learning)

Data Analysis Methods:

1. Descriptive Statistics: Calculate descriptive statistics (mean, standard deviation) to summarize the distribution of variables across school types.
2. Inferential Statistics: Conduct t-tests to compare the mean scores of variables between public and PEF-funded schools.

Table 2 Data Interpretation of Students' Data

Factors	school type	Mean	Std. Deviation	Std. Error Mean	t	Sig. (2-tailed), α=0.05
Infrastructure Resources	PEF Schools	3.8786	.61452	.05194	15.040	.000
	Government Schools	2.7095	.68423	.05783		
Infrastructure Condition	PEF Schools	3.6952	.96831	.08184	6.300	.000
	Government Schools	2.9071	1.11960	.09462		
Perceived Infrastructure Quality	PEF Schools	3.7929	.84674	.07156	2.463	.014
	Government Schools	3.5833	.54403	.04598		
Correlations with Student	PEF Schools	3.8500	.80499	.06803	11.708	.000

Outcomes	Government Schools	2.7524	.76324	.06451

The findings of Table 2 are as follows: the value of $p<0.05$ in all four factors;

Infrastructure Resources

The study found that PEF-funded schools generally have better infrastructure resources than public schools. This is evident in the availability of well-equipped classrooms, laboratories, libraries, recreational facilities, computer labs, and internet access. PEF-funded schools also tend to have newer and better-maintained facilities than public schools.

Infrastructure Condition

The study found that PEF-funded schools have better infrastructure conditions than public schools. This is reflected in the overall cleanliness, maintenance level, and equipment functionality in PEF-funded schools. Students and teachers in PEF-funded schools reported fewer infrastructure issues that affected their learning or teaching effectiveness.

Perceived Infrastructure Quality

Students, teachers, and administrators in PEF-funded schools generally had a more positive perception of infrastructure quality than those in public schools. PEF-funded schools were perceived to provide a more conducive learning environment that supported student engagement, motivation, and overall learning experiences.

Correlations with Student Outcomes

The study found positive correlations between infrastructure quality and student outcomes. Students in schools with better infrastructure tended to have higher engagement, motivation, and academic achievement. This suggests that improved infrastructure can contribute to enhanced student learning.

Moderating Factors

The study found that students' socioeconomic status, government policies, and community involvement can moderate the relationship between school type and infrastructure quality. Schools in underserved areas with limited resources may face challenges in maintaining and upgrading infrastructure. Government policies prioritizing infrastructure development and resource allocation can help address these disparities. Community involvement can also improve infrastructure by providing additional resources and support.

Feature	PEF-funded Schools	Public Schools
Infrastructure Resources	Well-equipped classrooms, laboratories, libraries, recreational facilities, computer labs, and internet access. Newer and better-maintained facilities.	Less-equipped classrooms, laboratories, libraries, recreational facilities, computer labs, and internet access. Older and less-maintained facilities.
Infrastructure Condition	Cleaner, better-maintained facilities, fewer infrastructure issues.	There are fewer clean and well-maintained facilities and more infrastructure issues.

Perceived Infrastructure Quality	A more conducive learning environment supports student engagement and motivation.	Less conducive learning environment, less supportive of student engagement and motivation.
Correlations with Student Outcomes	Positive correlations with student engagement, motivation, and academic achievement.	Weaker correlations with student engagement, motivation, and academic achievement.
Moderating Factors	Socioeconomic status of students, government policies, and community involvement.	Socioeconomic status of students, government policies, and community involvement.

The study found that PEF-funded schools have better infrastructure resources, infrastructure conditions, and perceived infrastructure quality than public schools. These factors were also found to be positively correlated with student outcomes. The study also found that the relationship between school type and infrastructure quality can be moderated by factors such as students' socioeconomic status, government policies, and community involvement.

School Type	Infrastructure Resources	Infrastructure Condition	Perceived Infrastructure Quality	Correlations with Student Outcomes	Moderating Factors
PEF-funded Schools	Better	Better	More positive perception	Positive correlations	Moderated by socioeconomic status, government policies, and community involvement
Public Schools	Less-equipped	Less clean, less well-maintained facilities, more infrastructure issues	Less positive perception	Weaker correlations	Moderated by socioeconomic status, government policies, and community involvement

PEF-funded schools generally have better infrastructure resources, conditions, and perceived quality than public schools. This is associated with positive correlations with student outcomes.

Discussion

The physical environment in which students learn plays a crucial role in shaping their educational experiences and academic success. The quality of school infrastructure, encompassing factors such as classroom facilities, technology access, and overall maintenance, has been the subject of extensive research, consistently demonstrating its significant impact on student outcomes.

Infrastructure Resources and Conditions

The study's findings highlight the stark contrast in infrastructure resources and conditions between PEF-funded and public schools. PEF-funded schools generally boast well-equipped classrooms, modern facilities, and reliable technology access, while public schools often struggle with outdated facilities, limited resources, and inadequate technology infrastructure. These disparities in infrastructure resources can create unequal learning environments, disadvantaging students in public schools.

Perceived Infrastructure Quality and Student Engagement

The study also delves into the perceived quality of infrastructure, revealing a more positive perception among students, teachers, and administrators in PEF-funded schools. The enhanced infrastructure in these schools is perceived to foster a more conducive learning environment, promoting student engagement, motivation, and overall learning experiences. This positive perception aligns with research suggesting that a well-maintained and supportive learning environment can positively impact student attitudes and behaviors.

Correlations with Student Outcomes

The study further underscores the positive correlations between infrastructure quality and student outcomes. Students in schools with better infrastructure consistently demonstrated higher levels of engagement, motivation, and academic achievement. This suggests that improved infrastructure can enhance student learning and academic performance.

Moderating Factors: Socioeconomic Status, Government Policies, and Community Involvement

The study recognizes that students' socioeconomic status, government policies, and community involvement can moderate the relationship between school type and infrastructure quality. Schools in underserved areas with limited resources may face challenges in maintaining and upgrading infrastructure, perpetuating educational inequalities. Government policies prioritizing infrastructure development and resource allocation can help address these disparities, ensuring equitable access to quality infrastructure for all students. Community involvement can also play a vital role in infrastructure improvement by providing additional resources and support, fostering a sense of ownership and responsibility for the school's infrastructure.

Conclusion

The study's findings provide compelling evidence that infrastructure quality plays a significant role in shaping student outcomes. PEF-funded schools, with their superior infrastructure resources, condition, and perceived quality, consistently outperformed public schools in terms of student engagement, motivation, and academic achievement. These findings underscore the importance of addressing infrastructure disparities between PEF-funded and public schools. Government policies and strong community engagement can play a crucial role in bridging the gap and ensuring all students have access to quality infrastructure supporting their learning and success.

Recommendations

There are some recommendations based on the study's findings on the impact of infrastructure quality on student outcomes:

1. Prioritize Infrastructure Investments in Public Schools:

i. Allocate dedicated funding streams for infrastructure upgrades and maintenance in public schools.
ii. Implement targeted infrastructure improvement programs for underserved areas with limited resources.
iii. Encourage public-private partnerships to leverage private sector expertise and resources for infrastructure development.

2. Establish Infrastructure Standards and Guidelines:

i. Develop comprehensive infrastructure standards encompassing all aspects of school facilities, including classrooms, laboratories, libraries, recreational facilities, and technology infrastructure.
ii. Implement regular infrastructure assessments to identify and prioritize areas for improvement.
iii. Establish clear guidelines for infrastructure maintenance and upkeep to ensure optimal facility conditions.

3. Empower School Communities to Advocate for Infrastructure Needs:

i. Encourage school communities to participate actively in infrastructure planning and decision-making processes.
ii. Provide training and resources to school leadership teams on effective infrastructure advocacy strategies.
iii. Foster partnerships between schools, community organizations, and local businesses to secure additional support for infrastructure improvements.

4. Utilize Technology to Enhance Infrastructure Management:

i. Implement asset management systems to track and monitor infrastructure assets, facilitating efficient maintenance and replacement.
ii. Adopt predictive maintenance technologies to anticipate potential infrastructure issues and prevent disruptions.
iii. Leverage data analytics to identify trends and patterns in infrastructure usage and optimize resource allocation.

5. Promote a Culture of Infrastructure Stewardship:

i. Educate students and staff about the importance of infrastructure and its impact on their learning environment.
ii. Encourage a sense of ownership and responsibility for school facilities by involving students and staff in maintenance and improvement projects.
iii. Recognize and reward individuals and teams who contribute to maintaining and enhancing

school infrastructure.

By implementing these recommendations, policymakers, educators, and community members can work together to address infrastructure disparities and ensure that all students have access to quality infrastructure that supports their learning and success. Investing in infrastructure is an investment in the future of our students and communities.

References

1. Ahmad, M. (2021). Management of Facilities and Infrastructure in Schools. *Akademika: Jurnal Teknologi Pendidikan*, *10*(01), 93-112.
2. Ahmad, Z., Noreen, S., & Munawar, U. (2023). Examining the quality of education between public & PEF schools at elementary level in Southern Punjab. *Journal of Social Research Development*, *4*(3), 622-631.
3. Ahmed, G., Tayyub, M., & Ismail, R. (2020). Effects of classroom environment for improving students' learning at secondary level in Punjab Province, Pakistan. *Science Academique*, *1*(1), 1-14.
4. Alvi, S. T., Khanam, A., & Kalsoom, T. (2020). Document Analysis of Secondary School Curriculum Regarding Ethical and Moral Education in Punjab. *Global Regional Review*, *1*, 191-206.
5. Amir, M., Hussain, S., & Muhammad, S. (2022). Identification of the Need for Teacher Training at The Primary School Level. *International Research Journal of Education and Innovation*, *3*(1), 165-176.
6. Arshad, M., Haq, M. N. U., & Khan, M. G. (2020). Status of Physical Facilities and Students Achievement at Public and.
7. Awan, A. G., & Hussain, S. F. (2020). The Role of Quality Education in sustainable development of Pakistan. *Global Journal of Management, Social Sciences and Humanities*, *6*(2), 293-319.
8. Chaudhry, R., & Tajwar, A. W. (2021). The Punjab Schools Reform Roadmap: A Medium-Term Evaluation. *Implementing Deeper Learning and 21st Century Education Reforms: Building an Education Renaissance After a Global Pandemic*, 109-128.
9. Hafeez, A., Hussain, S., Muhammad, S., & Hussain, S. (2023). Effect of PEC Exams on Quality Education in Public and Punjab Education Foundation Funded Secondary Schools. *International Research Journal of Management and Social Sciences*, *4*(3), 358-374.
10. Hussain, S. (2021). Quality of Education in Public and Daanish Schools at Secondary Level. *International Research Journal of Education and Innovation*, *2*(2), 160-169.
11. Hussain, S., Abbas, Q., & Ahmad, A. (2022). Comparative Analyses of Environmental Risk Management at Secondary Schools Level in Punjab and its Effect on Students' Academic Achievement. *International Research Journal of Education and Innovation*, *3*(4), 36-49.
12. Hussain, S., Ahmad, M. S., & Hussain, S. (2022). Relationship of Teacher-Student Interaction, Learning Commitment and Student Learning Comfort at Secondary Level. *International Research Journal of Education and Innovation*, *3*(2), 156-169.
13. Hussain, S., Ahmad, M., Altaf, H. S., & Ahmad, M. F. (2022). Quality of Education in Public and Punjab Education Foundation Funded Schools at Secondary Level. *Journal of Research & Reflections in Education (JRRE)*, *16*(2).
14. Hussain, S., Masood Ahmad, Fakhar Ul Zaman, & Altaf Ahmad. (2023). Comparative Study of Administrators' Supervisory Skills and Teachers' Pedagogical Skills Towards Quality Education in Public and Punjab Education Foundation Funded Schools at Secondary Level. *Journal of Education and Educational Development*, *10*(2), 329-347.
15. Iordye, P., & Jato, T. (2023). Physical School Environment and Students' Achievement: Lessons for Nigeria. *Rivers State University Journal of Education*, *26*(1), 56-66.
16. Jahantab, Z. (2021). Role of education in national development. *Pakistan Journal of Applied Social Sciences*, *12*(1), 87-108.

17. Liu, C. (2020). Motivators for Demotivators Affecting EFL Learners in Chinese Secondary Vocational School. *English Language Teaching*, *13*(4), 41-51.
18. Matoy, T. J. (2021). Classroom environment and academic achievement. *International Journal of Novel Research in Humanity and Social Sciences*, *8*(3), 21-29.
19. Mbalaka, P. M., & Cheloti, S. K. (2021). Implementing free and compulsory education policy; assessing the role of school infrastructure in public day secondary schools in Kitui county-Kenya.
20. Muliati, A., Sihotang, W., & Octaviany, R. A. (2022). Effectiveness of school resources management in improving the quality of education. *East Asian Journal of Multidisciplinary Research*, *1*(6), 901-916.
21. Noor, N., Yousaf, A., Hassan, S., & Gull, M. (2022). Curriculum Development and Teachers' Training: A Study of Governance of Primary Education in Punjab. *Turkish Online Journal of Qualitative Inquiry*, *13*(1).
22. Norazman, N., Salleh, N. M., Mohd Nashruddin, S. N. A., & Wan Ismail, W. N. (2023). Strategic planning of sustainable maintenance in heritage school buildings: Malaysia perspectives. *International Journal of Building Pathology and Adaptation*.
23. Obilor, E. I. (2023). Convenience and purposive sampling techniques: Are they the same. *International Journal of Innovative Social & Science Education Research*, *11*(1), 1-7.
24. Ogita, C., & Pothong, A. (2021). The Effects of Wall Color on Students' Attention Levels: An International School's Perspective. *Journal of Student Research*, *10*(2).
25. Okata, Y. M. (2022). I*nfluence of School Environment on Academic Performance of Students in Secondary Schools: a Case of Huruma Ward, Nairobi County, Kenya* (Doctoral dissertation, University of Nairobi).
26. Opabola, E. A., Galasso, C., Rossetto, T., Meilianda, E., Idris, Y., & Nurdin, S. (2023). Investing in disaster preparedness and effective recovery of school physical infrastructure. *International Journal of Disaster Risk Reduction*, *90*, 103623.
27. Paci-Green, R., Varchetta, A., McFarlane, K., Iyer, P., & Goyeneche, M. (2020). Comprehensive school safety policy: A global baseline survey. *International journal of disaster risk reduction*, *44*, 101399.
28. Parveen, K., Shah, N. H., & Mahmood, Z. (2020). Evaluation of Enrollment Trends in Technological Subjects at Secondary Level in Punjab. *Global Social Sciences Review*, *538*, 50.
29. Rafiq, M. (2020). Student's Learning at Secondary Level in Private Schools of The Punjab. *International Journal of Human and Society*, *2*(1), 29-41.
30. Raza, M. A., Malik, M. H., & Deeba, F. (2022). Performance of Public and PEF School Students in Literacy and Numeracy Drive (LND): A Comparative Analysis.
31. Riniati, W. O., Rais, R., Putri, R. S. W., Al Haddar, G., & Azis, F. (2023). Role Of School Facilities and Infrastructure on Performance of Senior High School Teacher. *Journal on Education*, *5*(3), 5805-5814.
32. Rizwan, S., Huma, A., & Rafiq, R. (2021). Technical Vocational Curriculum at Mainstream Secondary Schools. *Ilkogretim Online*, *20*(4).
33. Widiastuti, K., Susilo, M. J., & Nurfinaputri, H. S. (2020). How Classroom Design Impacts for Student Learning Comfort: Architect Perspective on Designing Classrooms. *International Journal of Evaluation and Research in Education*, *9*(3), 469-477.