



REVOLUTIONIZING ELEMENTARY EDUCATION: THE TRANSFORMATIVE POWER OF ENHANCED INFRASTRUCTURE ON STUDENT LEARNING

¹SAIMA , ² DR. MUSARRAT HABIB*

1. Ph. D Scholar, Department of Education, The University of Lahore, Lahore, Punjab, Pakistan.

<https://orcid.org/0009-0008-9044-3521>

2. Assistant Professor, Department of Education, The University of Lahore, Lahore, Punjab, Pakistan *Corresponding Author <https://orcid.org/0009-0009-7016-3837>

Abstract

Present study aimed to investigate the effect of improvement of infrastructure on students' learning at elementary level. A qualitative approach was employed and phenomenology research design was used to conduct the study. All the head teachers and Assistant Education Officers (AEOs) from Lahore, Kasur, Nankana Shaib, and Sheikhpura in Lahore division were the population of the study. Sample of the study was comprised of 10 head teachers and 10 Assistant Education Officers from Lahore division. An interview protocol was developed by the research. Data were collected personally by the research. A qualitative data analysis was done through thematic analysis. Interviews were taken by elementary school head teachers and Assistant Education Officers (AEOs) to investigate the effect of improvement of infrastructure on students' learning in Punjab. Interviews were recorded and interpret by the researcher. Data were analysed by thematic analysis. Themes were emerged from the data to answer the questions. Findings of the study revealed that school infrastructure plays a significant role in enhancing students' learning at elementary level. The provision of physical, academic, administrative facilities, teachers' methods of teaching and assessment system of school enhance quality of education at elementary level. Physical infrastructure like buildings, grounds, sufficient number of class rooms, computer labs, transport, school boundary wall, first aid facilities, furniture and apparatus along with essential equipment for education provides safe and conducive learning environment to the students. The academic facilities like provision of text books, planning co-curricular activities, technology support, guidance and counseling, sufficient funds also important for smooth functioning of the elementary school level. Moreover, quality education depends on the teachers' use of A.V. aids, students' character building, teaching methods, teaching experience and effective school monitoring and assessment system. Schools should provide such environment that not only assures effective learning but also pays proper attention to the physical and mental growth of the students. It is recommended that school should provide basic physical facilities, academic facilities, administrative facilities, innovative teaching methods and effective monitoring & assessment system for provision of quality education at elementary level.

Keywords: Physical facilities, Academic facilities, Administrative facilities, Assessment & monitoring system

INTRODUCTION

Elementary education is very crucial and important for the development of mental, emotional, cultural and physical skills of a child according to their best abilities (Durlak et al., 2011). The age of a child at this level is called teenage and is considered very important era of a child which enables him to face the challenges of upcoming life. It is very important to provide such environment at this level which is friendly, safe, healthy, protective and motivated for a child. The environment is considered as the third teacher for learning process (Shmisdiego et al., 2019). Modern teaching methods and good infrastructure is very necessary for a child at this level because a child grows physically and mentally very rapidly. He needs proper attention, sports facilities and good



infrastructure for his growth. Physical facilities and infrastructure is very helpful for the social and sociological development of a child (Naz et al., 2013).

School infrastructure and facilities are very compulsory for effective learning and students' achievements. Government of Pakistan is very keen to improve school infrastructure because it is a key factor for effective learning and quality of education. The government should provide all the educational facilities for teaching learning process (Lawanson & Gede, 2011). School as an educational institution is established for learning and teaching process (Akihiero, 2011).

Infrastructure is a term for the simple physical systems of a nation or a business. Dodson (2006) defines that infrastructure is consisted of communication, transportation, water, electric, and sewage systems etc. These systems are very vital for the modern economic development (Stewart, 2010). These projects of infrastructure improvements may be funded privately, publicly or through public private coordination and partnership. Investment in infrastructure is an important element for the national growth of developing countries (Gurara et al., 2017).

Infrastructure is consisting of private and public physical improvements like water supply, sewers, tunnels, bridges, roads and telecommunications (Steven, 2006). Infrastructure is a term which is used to describe such facilities which are very necessary and helpful for modern life. The activities carried out by the community are the sources of infrastructure facilities (Stevens, 2006). Infrastructure is considered very important factor for the progress, economic growth, quality of life and security of a country (Baldwin & Dixon, 2008). Modern and developed countries of the world have strong infrastructure. Citizens of these developed countries use these facilities to contribute their part in the progress of their country. The infrastructure of third world countries is very poor. The main reason of these countries remain left behind is poor infrastructure and illiteracy. The standard of life and education can be improved by up grading poor infrastructure of schools in some Asian countries (UNICEF, 2018).

REVIEW OF RELATED LITERATURE

A good infrastructure indicates a good school. Suitable atmosphere, buildings, grounds, furniture, drinking water, toilets, electricity, boundary wall, ventilation, light, canteen, first aid kit, computer facilities and are the basic essentials of school infrastructure. The basic purpose of a school is to provide quality education. The goal of infrastructure system in schools is to increase students' attendance, staff motivation and to improve learning and achievements of students (Kabwe, 2018).

The proper infrastructure in the school is very necessary to conduct such programs and activities successfully which help learners to develop their physical and mental growth. A study done in different schools in India shows that the attendance, academic performance and learning process was much better in high quality infrastructure schools as compared with poor infrastructure schools (OECD, 2011). Jamil, Mustafa, and Ilyas (2018) are of the view that inadequate school facilities cause drop in achievement. School infrastructure includes the physical facilities like buildings, grounds, furniture and apparatus along with essential equipment for education.

School infrastructure is very important for the growth and development of students (Mojela, 2013). They need a safe environment promoting their growth and boosting their confidence. School infrastructure provides effective environment for students learning (Kamau et al., 2020). It plays a key role in producing a healthy and satisfactory environment for a child's development. Schools should provide such environment that not only assures effective learning but also pays proper consideration to the physical and mental growth of the children. learners feel much comfortable, excitement in effective learning environment (Lawanson & Gede, 2011). Class rooms, libraries, playgrounds, science labs, IT labs, and attractive school buildings are the most important aspect of school infrastructure. Facilities and infrastructure include teaching aids, computers, books, laboratory equipment (Herwan, Aswandi, & Chair, 2018). Spacious buildings, well equipped labs, playgrounds, libraries, clean drinking water, general cleanliness and proper sanitation facilities are some essentials that every school should provide to its students ((Mokaya, 2013).



The role of infrastructure and facilities is very important as a school attraction in the eyes of people (Alkadri et al., 2017). School facilities play a vital and key role in learning and teaching process (Lawanson & Gede, 2011). School facilities should be used to deliver quality education. A good school infrastructure provides a good environment for teaching learning process (Mehmood & Gondal, 2017), (Omae, Siocha, Onderi, & Benard, 2017). Infrastructure facilities are one of the elements that effects learning and results of an education (Mojela, 2013). School infrastructure helps to improve the attendance and interest of students in learning. Major school facilities for effective learning and quality education are Infrastructure facilities, technological facilities and support facilities.

The school infrastructure plays a very vital part in providing quality education. Science laboratories, IT labs, play grounds, size and shape of class rooms and basic facilities like clean and fresh water, boundary wall, electricity and toilets are the basic needs of a school that work indirectly to support the teaching learning process (Herwan et al., 2018; Lillian, 2017).

School infrastructure is a very crucial element for learning environment in schools. Infrastructure and facilities affect the ability of learners in the learning process greatly (Herwan et al., 2018). High quality infrastructure facilities and better instructions improve student outcomes and reduce dropout rates. Infrastructure and complete school facilities are helpful to determine the quantity of students (Vincent, 2012). The research of Fisher (2006) shows that achievements of students improve with improved building conditions, air quality, class room size and lighting levels. The impact of school is very vast and plays an important role in the physical and mental growth of a child. In a study of the factors affecting students' performance in Canadian schools, Mark (2014) argued that excellent academic performance from children cannot be expected in areas with subpar and poorly situated school facilities. Researcher stressed that carefully thought-out frameworks, a tidy, peaceful, secure, cozy, and healthy environment are crucial elements of effective educational experiences.

According to Josephat (2019) Good school infrastructure with updated premises ensures that students are motivated and attracted to come to school, which improves attendance and performance. Therefore, investing in and building school infrastructure plays a key role in ensuring student access to the school system and improving outcomes. Good school infrastructure conditions should meet at least the following parameters: - Comfort for students, teachers and administrators; A place with air, light, water, electricity and internet facilities for teachers and students as well as sanitary and adequate sewage (Assoumpta & Andala, 2020). There are some facilities which can help to improve the quality of school and learning.

Improvement in Elementary School Infrastructure and Students' Achievements

Elementary education is the first stage of formal education after preschool and before secondary school starting from the age of 5 to 7 years (Schneider, 2013). According to UNESCO (2004), it is the basic right of a child to get elementary education without any discrimination. The National Education Policy (1998-2010) describes that state should provide free elementary education to every child. Elementary education takes place in middle schools or elementary schools. It is considered very important stage in the life of a child. Government of Punjab is trying to provide more facilities and better infrastructure in schools at elementary level for quality education.

The elementary school infrastructure has been improved due to education reforms in Punjab (2013-2018). Missing facilities like electricity, boundary wall, drinking water and toilets are almost 100% available in all elementary schools of the province. School infrastructure has been improved over the last five years. 70.9% schools have the facility of electricity in 2013 while 89.9% schools have electricity in 2017. The percentage of public schools having at least one toilet facility has risen from 71.8% to 97.3%. The schools with boundary wall increased from 86.3% to 89.9% in the same period. Education reforms in the province of Punjab were the fastest in the country (Malhan, 2017).

Enrollment has been increased in Punjab during the past two decades. Middle school enrollment has been increased from 2.11 million to 2.16 million over the last five years. Due to improvement in infrastructure, student's attendance has also been increased in Punjab from 87.2% to 92.7% from 2013 to 2017. PEC result at elementary level has also been improved due to better school infrastructure during 2014 to 2018. Percentage of PEC (2014) result was 76.83% whereas PEC (2018)



result has been increased to 86.62%. Infrastructure is very helpful for motivation, learning, and academic performance of students (Ayaji, 2007).

STATEMENT OF THE PROBLEM

School infrastructure in Pakistan is not adequate because Pakistan is still a developing country and has very limited resources. It is a big hurdle for quality education and effective learning. Despite many concerning programs/activities initiated by the government in place, learners' performances have continued to be a challenge, thus requiring scholarly attention; hence the urgency of this study Arshad (2019). Large school buildings are not buildings that can be maintained at their best through routine maintenance, regular inspections, and other well-executed preventative maintenance. Instead, school buildings should create environments conducive to academic success, based on research that has a direct impact on student learning (Yangambi, 2023). Therefore, the researcher designed present study to investigate the effect of improvement in infrastructure of schools on students' learning at elementary level in Punjab.

OBJECTIVE OF THE STUDY

The objective of the study was to;

1. What extent the improvement of infrastructure effects on students' learning at elementary school level.

Research Questions of the Study

The research question of the present study as following.

1. How improvement of infrastructure effects on students' learning at elementary school level in Punjab?

Delimitation of the Study

Present study was delimited to the elementary school head teachers and Assistant Education Officers (AEOs) from Lahore district.

Significance of the Study

This study may be helpful in providing the quality of teaching and learning process. It may open new horizons of knowledge, both for students and teachers. It would provide a guideline for further research in this area of research. It will also help to understand how infrastructure facilities and educational resources should be taken into account and offered at the school level. The present study would also seek to explore stumbling blocks in the way of achieving targets set by the Government and their solution. It would also be very helpful in designing possible strategies for the improvement of administration and management of a school to change the school infrastructure; therefore, it would be helpful for planners and administrators of the school education department. The finding of the study will be helpful to understand, how the school infrastructure impacts on improving teaching, learning activities, quality education, retention, student's health, healthy and safe environment etc. The findings of this study will also be very helpful for future planning because acquiring new information about the present situation can guide to formulate policies in a better way. The recommendations of the study will most importantly, provide new knowledge or tools to help develop appropriate capacity and strengthen education through national policy and practice.

METHODOLOGY

Present study aimed to investigate the effect of improvement of infrastructure on students' learning at elementary level. A qualitative approach was employed and phenomenology research design was used to conduct the study. All the head teachers and Assistant Education Officers (AEOs) from Lahore, Kasur, Nankana Shaib, and Shakupura in Lahore division were the population of the study. Convenient sampling technique was used to draw sample of the study. Sample of the study was comprised of 10 Head Teachers and 10 Assistant Education Officers from Lahore division. An interview protocol was developed by the research. The instrument was validated by the experts' opinion. Data were



collected personally by the research by conducting interviews from the respondents. A qualitative data analysis was done through thematic analysis. Interviews were taken by elementary school head teachers and Assistant Education Officers (AEOs) to investigate the effect of improvement of infrastructure on students' learning in Punjab. Interviews were recorded and interpreted by the researcher. Data were analysed by thematic analysis. Themes were emerged from the data to answer the questions.

Results

Head teachers' perceptions about effect of elementary school infrastructure on students' learning.

Question 1: What do you think that the physical, human and financial resources are appropriate for elementary school students?

Main Theme: Physical, Human and Financial Resources

Physical, human and financial resources play an important role in students' learning at elementary level. In this regard researcher asked questions from the respondents where R1, R4, R5, R7, R8 and R9 were of the view that at elementary level, all the schools did not have equal provision of the physical, human and financial resources. Let's have the example of physical infrastructure including classrooms, as well as playground not all the schools are having these facilities. Most of these schools have very old buildings which are not sufficient as per enrolment and the number of classes in the schools. Similarly in most of the remote area schools, the human resources like teaching and non-teaching staff is not enough. Most of the teachers did not prefer to join remote area elementary schools and due to non-availability of local teachers such schools suffer with the human resources for many years. During new recruitment the new teachers join such schools but after some time they got transferred to their home town. Similarly, the financial resources are also not provided to the schools on the criteria of need based rather it is provided as per enrolment of students in the schools. Those schools having big covered land area and small strength of students are provided with less financial support annually. One of the respondent R7 argued that *"there is a huge gap between the model and modern schools and backward schools of remote areas regarding to physical, human and financial resources in elementary schools"*. On the other hand R8 also said *"the physical resources like classrooms, toilets, libraries, science labs, IT labs and playgrounds are available in all elementary schools. The human resources like teaching and non-teaching staff are not available according to the requirement of the schools. Financial resources like NSB and FT funds are sufficient for school needs."* In this regard R2 argued that as per actual needs of each elementary school, the physical, human and financial resources are insufficient there. There is deficiency of classrooms, less teaching staff and lack of funds to run the schools smoothly. Moreover R2 responded that as per policy all the elementary school students should be provided equal facilities. Since all schools face different challenges and problems, therefore these physical, human and financial resources are not appropriate for elementary school students as per their requirements. R6 replied "Yes", these resources are appropriate and enough in all most all schools but there is shortage of teaching and non-teaching staff in rural area schools. In some schools, classrooms are less than the required demand according to the enrolment of students. A respondent R10 said that *"according to my opinion there is a discrimination regarding to all resources in the schools of big cities and the schools of villages. Physical facilities like building, classrooms, toilets, IT labs are well maintained in urban area schools. Facilities of human resources and financial resources are also much better in urban schools than the rural schools"*.

Question 2: Are the administrative and academic facilities (funds, libraries, books and technology) being available for all the elementary schools?

Main Theme: Administrative and Academic Facilities

The provision of administrative and academic facilities is very important at elementary school level. In this regard researcher asked from the heads of elementary school about the provision of administrative and academic facilities the respondent R1 who has qualification MPhil Chemistry, M. Ed and MBA replied that *"most of the elementary level schools are still deprived with the computer*



laboratories and the computer teachers. However, a large number of elementary schools are now having computer labs and teachers' facilities since a decade. The status of the library provision in the middle schools is the same as mentioned for the IT facilities in these schools". R2, R3, R4, R5, R6 was of the similar view that there is a headmaster to run the administrative matters of elementary schools. The academic facilities like funds, libraries, books and IT lab are also present in these schools. But, some schools have not these facilities functional due to lack of financial resources. Furthermore all schools are provided administrative facilities like the headmaster or in charge headmaster to look the day to day affairs of the school. Facilities like funds, libraries, books and technology are not equally given in all the schools. One of the respondents R7 answered "Yes", head teacher is available for administration in every school but there is no clerical staff is available in elementary schools to maintain school record. Funds, books, libraries and technology are available in all elementary schools. R8, R9 and R10 also have the same opinion about the administrative and academic facilities in elementary schools.

Question 3: What do you think the teachers' training is conducted by the institution at elementary school level?

Main Theme: Teachers' Training

The researcher asked about provision of teachers' training at elementary level. The respondent R1 replied that *"the primary section in the elementary level schools is provided regular CPD training for the teachers by the Assistant Education Officers and the Quaid-e-Azam Academic Educational Department (QAED), however the elementary level teachers are not provided with the training and refresher courses for the primary school teachers"*. R2 has similar views *"the primary school teachers in the elementary schools is provided regular training by the Assistant Education Officers (AEOs) and the QAED. On the other hand, there is no proper system of training for the teachers of elementary level"*. R3 answered "Yes", the teachers' training conducted at elementary school level but it is not at regularly interval. It occurs as per funds availability to government by foreign countries. R4 and R5 replied "No", there is no any proper and regular continuous profession development (CPD) training system in the elementary schools. R6, R7, R8, R9 and R10 argued that government of Punjab has arranged teachers training program with the help of QAED for elementary teachers early. Subject based training, workshops and seminars are arranged by education department for the capacity building and in-service training for elementary school teachers.

Question 4: Are the teachers use different methods of teaching to improve students' learning at elementary level?

Main Theme: Methods of Teaching

Teachers at elementary level used different teaching methods to improve students' learning therefore, R1, R2, R3, R4 replied "Yes", mostly teachers at elementary level use different methods of teaching to improve the learning of the students. They use role play, lecture method, inquire method and group work. The teachers are highly qualifying as compare to the private school's teachers. They are more professional and competent. They use lesson plan and different methods of teaching for effective learning at elementary level. All teachers are supposed to complete profession teaching degree like B.Ed and M.Ed after their recruitment. They explore different methods of teachings as well. One of the respondent R4 answered "Yes", *"most of the teachers are very dedicated and worked professionally and used different methods of teaching to improve students' learning. However, many teachers are not versatile with the teaching skills and no proper training system is available in the schools"*. All teachers have profession teaching degree like B.Ed. and M.Ed. along with academic qualification and they use their knowledge to make lesson plan and different teaching methods for better learning and quality education. R5, R6, R7, R8, R9, and R10 answered "Yes", mostly teachers prepare lesson plan and use different teaching methods to make learning attractive, effective and interesting for learners. Trained and qualified staff use different teaching methods like activity based teaching, group work, role play, demonstration method to make learning easy and effective. Moreover, majority of teachers adopt modern methods of teaching for quality education and better performance but some teachers still use old traditional and orthodox methods



of teaching. Teachers used many teaching methods for teaching like use of mobile and tablets, practical work and group work etc.

Question 5: Is there any proper monitoring and evaluation system available for elementary schools?

Main Theme: Monitoring and Evaluation System

Monitoring and evaluation system gives feedback of student-teacher performance. Therefore there should be available a proper monitoring and evaluation system at elementary level. In this regard all the respondents having same point of views regarding monitoring and evaluation system at elementary school level. They were of the view that there exist a proper monitoring and evaluation system and this is only for monitoring of the provision of basic facilities in the schools like drinking water, electricity, boundary wall, toilets etc. The teaching evaluation of elementary level teachers is only conducted by the elementary school headmaster and no nay external team is being deputed to check the teaching capabilities of these teachers. A proper monitoring and evaluation system exist but it is not fully functional since two years due to lack of MEAs as per requirements of each districts in the Punjab. But they do not evaluate the teaching skills of teachers for elementary schools. AEOs, MEAs, Health Officers and some other officers and deputed for the purpose of monitoring and evaluation of students and teachers in elementary schools. During the visits, these officials monitor the teacher's performance and help them to resolve the school issues.

Question 6: How improvement in infrastructure of schools plays a significant role on students' learning at elementary level?

The provision of proper and promptly need based infrastructure plays a pivotal role in the overall peaceful learning environment for the students. However, the competency of teaching staff plays much big role in the motivation and enhancing the learning capabilities of the students. All the respondents explained that the improvement in infrastructure of schools plays a significant role in improving students' learning at elementary level as it ensures a safe and comfortable learning atmosphere for the students. Since, most of the government schools are using multi-grade teaching due to lack of classrooms. Two or three classes are sitting in the same room and teacher is teaching two or three classes at the same time. As students feel safe themselves from severe winter or summer weather changes and continue their learning in safe and comfortable environment. School infrastructure is a key factor for provision of quality education. Improvement in infrastructure is very helpful to motivate students towards learning. Attractive, comfortable and friendly environment make the learning process more easy and interesting. It is fact that improvement in school infrastructure makes a very strong change in the development and learning ability of the students. Attractive building, decorated classrooms, and other physical facilities are very helpful for learning. Improvement in infrastructure is like a catalyst for learning process and quality education. Improvement in infrastructure also improves the interest of students towards learning. Attendance and enrolment of students also improve due to improvement in infrastructure. It changes the behaviour and interest of students. Students go to school happily and take much interest in learning if the building is attractive; staff is friendly and caring.

Assistant education officers' (AEO) perceptions about effect of elementary school infrastructure on students' learning.

Question 1: What do you think that the physical, human and financial resources are appropriate for elementary school students?

Main Theme: Physical, Human and Financial Resources

Physical, human and financial resources play an important role in improvement of infrastructure in elementary schools. In this regard researcher asked to the respondents about the appropriateness of resources for elementary school students. Therefore, the R1 replied that *physical resources like school furniture, text books, school land, school building, facilities and other assets of school are up to the mark and appropriate as far as district Kasur is concerned. There is only issue of provision of classrooms and number of teachers according to the strength of students. For financial resources, NSB grant is released after every three months to fulfil the needs of the students. There is need to*



*appoint new staff because no new staff has been appointed for five years. There is only signal teacher on 100 plus students at elementary level in many schools. R2 said “Yes”, the physical, human and financial resources are appropriate for students in most elementary schools but there is lack of facilities in some schools like teaching staff, classrooms, furniture and drinking water. In some schools, there is a shortage of staff as enrolment of students is above as compare to present staff of the school. In the same way, overcrowded and insufficient classrooms are also a big problem in some schools. In this regard R3 responded that the availability of physical, human and financial resources in elementary schools can vary. Some well-established schools are equipped with all resources like classrooms, desk, chairs, libraries, science laboratories, play grounds etc. On the other hand, some schools of rural areas are deprived of these physical facilities. In the same way most of the schools have trained and qualified teachers and sufficient financial support (NSB). Moreover R4 answered that in most of the elementary schools, physical, human and financial resources are not appropriate. Classrooms are not available for all students. Due to shortage of human resources one teacher has to handle more than one classes at a time. In the same way, financial resources are too short to meet physical requirements of students and staff. R5 in this regard opined that the physical, human and financial resources are not appropriate and sufficient. Teachers are short in elementary schools and there is also shortage of classrooms in many schools because classrooms are less according to the strength of students. Funds are available in schools in the shape of NSB grant but in some schools these funds used properly. On the other hand R6 and R7 replied “Yes”, these resources are appropriate for elementary school students. Funds are available according to the needs of schools. There is no proper use of NSB in some schools and in some schools there is a shortage of staff and classrooms. However R8 and R9 replied “No”, the physical resources and funds are not appropriate for elementary school students. Number of staff is not according to the enrolment of students. Classrooms are also not sufficient for students. Financial resources are also not enough to meet all the needs of students at elementary level. No, all the elementary schools have not all resources. Some schools have lack of buildings, classrooms, washrooms and libraries. Some schools have shortage of teaching and non-teaching staff. In some schools, classrooms are overcrowded and corridors are flooded with students. Insufficient teachers lead to a situation of despair and low standard of education. Financial resources are not appropriate and up to mark. R10 said “Yes”, *the physical, human and financial resources are appropriate almost for elementary school students but in some schools there is a shortage of teaching staff and there is no proper use of financial resources.**

Question 2: Are the administrative and academic facilities (funds, libraries, books and technology) are available for all the elementary schools?

Main Theme: Administrative and Academic Facilities

Administrative facilities are based on funds, libraries, books and technology which plays very a significant role at elementary school level. In this regard researcher asked about the provision of administrative facilities in elementary schools. When researcher asked about the administrative facilities R1 replied “Yes”, *for administrative facilities, AEOs have been appointed to help students and teacher to resolve their problems. For academic facilities, libraries and computer labs have been established for students to aware new kind of knowledge at elementary level.* R2 was opined that funds and books are available for all elementary schools but libraries and technology are not available in all schools at elementary level. NSB fund is provided to the schools to meet their physical needs and free text books are provided by Government of Punjab in all schools. R3 answered “Yes”, *the administrative and academic facilities like funds, libraries, free text books and technology are available in elementary schools. However, there are some schools where library is not functioning proper and have no spread room for library. Sufficient funds (NSB, FT) are available to provide basic needs like drinking water, furniture, electricity, computers etc.* R4 also said that *administrative and academic facilities like funds, libraries, and technology are not 100 percent available for all elementary schools. Most of the schools in rural areas have no proper rooms for library and computer labs. In some schools there are no proper arrangements for library and computer labs and internet facilities.* On the other hand R5 replied “Yes”, the administrative and academic facilities are



available in elementary schools but not in all schools. Computer lab and proper library is not established in all schools. Moreover, clerk is not available to maintain office work and administrative work. However R6 said that the administrative facilities are available at elementary schools to some extent funds, free text books, libraries are present in all schools but computer lab and specific room for library is no available in some schools. Moreover, R7 was of the view that funds and books are available in all elementary schools but technology and libraries are not available in all schools. R8 replied “Yes”, academic and administrative facilities are available for all the elementary schools for some extent. Funds and books are available in almost in all schools but in some schools use of funds is not well managed. On the other hand, library and technology is not available in most of the rural schools. However R9 answered that “No”, *all the schools have not enough administrative and academic facilities. Only the model schools and the schools which are situated in big cities have all facilities but the schools which are situated in remote and rural areas have lack of these facilities. There are no proper libraries for students to study. There are no digital libraries, no computer and inter net facilities are not available to make studies more comfortable for students. If government provides more financial resources, then these schools would also be improved.* R10 answered “Yes”, funds, books and libraries are available for all elementary schools but technology is not available in all schools especially, schools situated in rural and backward areas are deprived of modern technology.

Question 3: What do you think the teachers’ training is conducted by the institution at elementary school level?

Main Theme: Teachers’ Training

In order to develop teachers’ teaching skills teachers’ training plays a significant role. In order to plan instructions for students, assessment, delivering lectures etc. under the guidance of senior supervisors teachers develop innovative skills through training. When a researcher asked about the opportunities of training for teachers one of the respondent R1, R2, R3, R5, R7, R8, R9 and R10 said “Yes”, trainings are being conducted by Quaid-e-Azam Academic Educational department (QAED). SNC training was held last year to aware teachers about Single National Curriculum for all the students. Now a day on line training is going on for teachers. Teacher’s trainings are being conducted at elementary level to enhance their capacity building and improve their teaching skills and teaching methods about different subjects. The purpose of this training is to increase the professional and teaching skills of teachers during the service. On the other hand R4 and R6 answered that teachers’ training is conducted at elementary school level but only for primary school teachers (PSTs). There is no proper mechanism of training for elementary school teachers (ESTs) and secondary school teachers (SSTs).

Question 4: Are the teachers use different methods of teaching to improve students’ learning at elementary level?

Main Theme: Methods of Teaching

Teaching methods are those techniques that teachers use to facilitate the teaching process and help students to engage through interesting material. In the respond to this question R1, R2, R3, R4, R5, R7, R8 and R10 answered “Yes”, teachers use different methods according to subject and topic at elementary level. Group discussion and activity based learning is used for this purpose. Teachers use different methods and strategy to engage the students and by these techniques they improve the students’ learning at elementary level. Activity based learning, hands-on activity and student’s participation by practical work is a useful method to improve students learning at elementary level. Moreover R6 argued that the teachers use different methods of teaching. Teachers are trying their best to use low cost but most effective methods of teaching according to the need of hour. Flash card, charts and models made by raw materials are used for this purpose. One of the respondent R9 further describes that teachers also use different modern teaching tools like tablets, mobile phones, audio and visual aid etc.



Question 5: Is there any proper monitoring and evaluation system available for elementary schools?

Main Theme: Monitoring and Evaluation System

Monitoring and evaluation system (M&E) is a process of checking progress, collecting data and assessing students' results at any level. R1, R2, R3, R4, R5, R6, R7, R8, R9, R10 in this regard replied "Yes", there is a proper monitoring and evaluation system by the visits of AEOs, Deputy District Education Officers and District Education Officers and MEAs. Two visits in one month by AEOs to take classroom observation of teachers to see the performance of teachers during teaching. MEAs visits are also done for monitoring purpose in a month. AEOs monitor and evaluate the elementary school system for the performance of school teachers. In the same way, MEAs visit the school monthly for the purpose of monitoring and evaluation. Moreover, visits of different officials of education department like CEO, DEO, Deputy DEO and District Monitoring Officer (DMO) are also part of proper monitoring and evaluation system for elementary schools. Government has developed a proper monitoring and evaluation system for elementary schools to ensure quality education. School inspections by AEOs, MEAs, DMOs, Deputy DEOs, DEOs and CEO are a part of elementary school monitoring system.

Question 6: How improvement in infrastructure of schools plays a significant role on students' learning at elementary level?

Investing on school infrastructure improves the quality of education such a way to motivate students and teachers, high quality of infrastructure reduces dropout rates, improve students' outcomes and to facilitate better instruction. One of the respondent having qualification BS (Hons) answered that school infrastructure is the basic need and right of every student. If we give best and comfortable environment to students, they would learn better. Environment of a school plays important role for the growing of students. Physical, mental and educational development can be achieved by giving better facilities to the students in a school. Moreover R2 argued that infrastructure is very necessary and basic need of students at elementary level. If a student has not proper sitting, he will not be interested in study. Lack of basic facilities affect the learning of students. Books, furniture, drinking water, toilets etc. are the basic needs to enhance the students learning. R3 answered that improvement in infrastructure of schools plays a significant role in students learning at the elementary level because well-equipped learning environment can have several positive effectives on students learning and outcomes. R4, R5, R6 and R7 argued that improvement in infrastructure plays a vital role on students learning at elementary level as availability of appropriate funds, comfortable classrooms, proper library, technology, computer lab and science labs create opportunity for better learning and friendly atmosphere in elementary schools. Furthermore R8, R9 and R10 were agreed that improvement in infrastructure is very important factor for students learning and quality education at elementary level. Decorated classrooms, proper furniture, comfortable sitting arrangement, proper arrangement of light and air, clean drinking water, toilets and washrooms, playground, library, science lab and swings for enjoyment of students have very positive impact and attract the students.

DISCUSSION

The present study aimed to investigate the effect of improvement in infrastructure of schools on students' learning at elementary level in Punjab. Elementary school head teachers and Assistant Education Officers (AEOs) were the study sample from Punjab. Findings of the study revealed that majority of the elementary school head teachers and AEOs were opined that improvement in infrastructure improves the quality of education at elementary school level. Every state is trying to educate and provide quality education to its citizens for human development and skilled man power (Nabi, Farooq, & Nazir, 2019). No nation can achieve its aims without quality education and quality education depends upon the quality of teachers and school infrastructure (Nepal, 2016). For quality education and to improve education productivity, well equipped learning institutions with sufficient facilities are much needed (Okoli, 2015). The success of any work depends upon infrastructure.



Infrastructure affects the economic development of a country in many ways (Josephat, 2019). In this regard elementary head teachers and AEOs perceived about physical facilities in which the provision of missing facilities resulting a remarkable increase in the enrollment of government elementary schools, for example school boundary wall met the need of security measures, due to better infrastructure dropout rate also decreases, maintenance of buildings, first aid facilities, benches, sufficient number of classrooms etc. On the other hands elementary school teachers were perceived that there is lack of laboratories, lack of lab equipment, computer facilities, transport facilities and fire-fighting facilities are not up to the mark. Education takes place in a physical setting that includes buildings and other resources that are used for teaching and learning, not in a vacuum. The laws and policies that control the province's educational system lay forth the requirements for the creation, administration, and material resources of public schools. The goals of school infrastructure systems are to increase student participation, increase staff motivation, and improve student academic performance (Alimi, 2004). Quality education depends on the quality of teachers and school infrastructure. School infrastructure like buildings, equipment, furniture and the site contribute very much to a learning environment and quality education (Ayeni & Adelabu 2012).

However, majority of elementary school head teachers and AEOs perceived about academic facilities also plays a significant role in students' learning. Therefore, majority of the teachers were agreed that NSB funds are available in all elementary schools, provision of free textbooks are also useful, technology support is also available, and co-curricular activities are also plays a vital role in improving students' learning at elementary level. On the other hands majority of elementary school head teachers and AEOs were also agreed that there is no library facilities available in elementary schools and books are also not available. The learners of elementary levels are teen agers and very keen and curious to explore everything. Their intrinsic to know about anything can be developed by providing facilities like science lab, IT lab and library. They can be also motivated by using activity-based learning (Nabi, Farooq, & Nazir, 2019). Administrative facilities are also very important in improving students' learning. In this regard elementary school head teachers and AEOs perceived that proper guidance and counseling facilities are available in all elementary schools to guide the students about their academics and career. Strict merit policy at the time of admission is also followed and effective monitoring is done properly. Majority of the teachers use instructional material for students' better learning, they also take interest in students' character building, teachers are expert in the subjects they were taught and teachers also have relevant teaching experience. The concept of teaching through the use of physical presence of teachers supported by videos, audios, animations, simulations, presentations and Multimedia was not commonly used in the past but it is attaining attractions and popularity in the present even for training of teachers and in service teachers so that they may be able to improve the cognitive skills of learners of 21st century who are being affected and attracted by social media in the global village (Dresser & Rocio, 2013). About assessment and evaluation system proper weightage is given to theory and practical subjects, annual system of examination is useful for students' assessment, and institution periodically evaluates students to guide their learning experiences.

Recommendations

Following recommendations were formed from present study.

1. Physical, human and financial resources play an important role in improvement of infrastructure in elementary schools. Therefore, it is recommended that physical, human and financial resources should be appropriate in all elementary schools of Punjab.
2. The provision of classrooms and number of teachers according to the strength of students in elementary schools are highly recommended.
3. It is recommended to ensure the availability of facilities in some schools like teaching staff, classrooms, furniture, labs, libraries, transport, first aid facilities and drinking water.
4. Some schools of rural areas are deprived of these physical, human and financial facilities, so that it is recommended to provide the basic facilities in rural areas school.



5. Insufficient teachers lead to a situation of despair and low standard of education, therefore it is recommended to hire new staff to enhance students' learning at elementary level.
6. It is recommended to establish libraries and computer labs for students to aware new kind of knowledge at elementary level.
7. There is lack of technology support in most of the elementary schools, therefore, it is recommended to provide technology support for smooth functioning of elementary schools.
8. Teachers' training opportunities may be provided by the government to acquire new knowledge for elementary school teachers.

REFERENCES

- [1] Alimi, O. S. (2004). Appraisal of the adequacy of available school plant for primary education in ayedaade local government area of Osun State. *Educational Thought*, 1, 64-69.
- [2] Ayeni, A. J., & Adelabu, M. A. (2012). Improving learning infrastructure and environment for sustainable quality assurance practice in secondary schools in Ondo State, South-West, Nigeria. *International Journal of Research Studies in Education*, 1(1), 61-68.
- [3] Akhihero, E. T. (2011). Effect of inadequate infrastructural facilities on academic performance of students of Oredo Local Government Area of Edo State. Paper presented at the Nigerian Academic Forum. *Nigerian Academic Forum*, 20(1), 1-6.
- [4] Alkadri, H., Ningrum, T. A., Santoso, Y., & Afriansyah, H. (2017). *Essentiality of management of facilities and infrastructure toward a number of students of early years institution*. Paper presented at the International Conference of Early Childhood Education (ICECE 2017).
- [5] Assoumpta, U. I., & Andala H., O. (2020). Relationship between school infrastructure and students' academic performance in twelve years basic education in Rwanda. *Journal of Education*, 1, 60-75.
- [6] Baldwin, J. R., Dixon, J. (2008), Infrastructure Capital: What is it? Where is it? How much of it is there? *Canadian Productivity Review*. No 16. Ottawa: Statistics Canada.
- [7] Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta- analysis of school-based universal interventions. *Child Development*, 82(1), 405-432.
- [8] Dresser, H., & Rocio, G. (2013). Paradigm shift in education: Weaving social-emotional learning into language and literacy instruction. *Inquiry in Education*, 4(1), 1-20.
- [9] Etor, C. R., Mbon, U. F., & Ekanem, E. E. (2013). Primary education as a foundation for qualitative higher education in Nigeria. *Journal of Education and Learning*, 2(2), 155-164.
- [10] Fisher, K. (2006). *Building better outcomes: The impacts of school infrastructure on student outcomes and behaviour*. Canberra: Schooling Issues Digest. Department of Education, Training and Youth Affairs.
- [11] Gurara, D., Klyuev, M. V., Mwase, M., Presbitero, A., Xu, X. C., & Bannister, M. G. J. (2017). *Trends and Challenges in Infrastructure Investment in Low-Income Developing Countries*. International Monetary Fund.
- [12] Herwan, H., Aswandi, A., & Chiar, M. (2018). The role of school committee in supporting the fulfilment of education facilities and infrastructure. *Journal of Education, Teaching and Learning*, 3(2), 282-287.
- [13] Jamil, M., Mustafa, G., & Ilyas, M. (2018). Impact of school infrastructure and pedagogical materials on its academic performance: Evidence from Khyber Pakhtunkhwa. *FWU Journal of Social Sciences*, 12(1), 42-55.
- [14] Josephat, M. M. (2019). *Assessment of the effect of educational infrastructure to students' academic performance in secondary schools in Tanzania: A case of Bukoba Municipality, Kagera Region* (Master Thesis). University of Tanzania.



- [15] Kabwe, J. M. (2018). *Exploration of strategies used and challenges encountered by administrators in the maintenance of conditions of infrastructure and equipment in public primary schools in Lusaka District, Zambia* (Master Thesis). The University of Zambia, Lusaka.
- [16] Nabi, M., Farooq, M., & Nazir, H. (2019). The role of school facilities in academic performance of students: Evidences from District Malakand, Pakistan. *Pakistan Journal of Social Research*, 1, 25-34.
- [17] Naz, A., & et.al. (2013). Assessing the consequential role of infrastructural facilities in academic performance of students in Pakistan. *International Journal of Social Science & Education*. 3(2).
- [18] Lawanson, O. A., & Gede, N. T. (2011). Provision and Management of School Facilities for the Implementation of UBE Programme. *Journal of Educational and Social Research*, 1(4), 48-50.
- [19] Lillian, M. (2017). The impact of the free education policy on the infrastructure and learning materials at primary school level: A case of selected schools of Solwezi district. Master thesis, THE University of Zambia, Lusaka.
- [20] Mark, M. (2014). An exploration of gender participation patterns in science competitions *Journal of Research in science Teaching* 32(7), 735-748.
- [21] Mokaya Z. M. (2013). *Influence of school infrastructure on students' performance in public secondary schools in Kajiado*. University of Nairobi.
- [22] Mojela, T.W. (2013). Assessment of the effectiveness of public schools' infrastructure maintenance system in the Gauteng province (Master Thesis). University of Johannesburg.
- [23] Mahmood, T., & Gondal, M. B. (2017). Effect of school environment on students achievement: Cross comparison of Urdu and English medium classes in Punjab province. *Pakistan Journal of Education*, 34(1).
- [24] Malhan, P. N. (2017). *Communication media: Yesterday today and tomorrow*. Publications Division Ministry of Information & Broadcasting.
- [25] Nepal, B. (2016). Relationship among School's Infrastructure Facilities, Learning Environment and Student's Outcome. *International Journal for Research in Social science and Humanities Research*. Vol. 2 Issue 5 May 2016. <https://www.researchgate.net/publication/326539338>
- [26] Okoli. (2015). Quality of learning and learning Environment: Challenges for teaching and learning Kenya's public university. *Quality Assurance in Education*, 19(3), 208-223.
- [27] Omae., Siocha, N., Onderi, H., & Benard, M. (2017). Quality implications of learning infrastructure on performance in secondary education: A small scale study of a county in Kenya. *European Journal of Education Studies*, 3(4), 97-123
- [28] Schneider, S. L. (2013). The International Standard Classification of Education 2011. In *Class and Stratification Analysis*, 30, 365-379.
- [29] Stevens, B. (2006). *Infrastructure to 2030*. OECD Publishing.
- [30] Shmisdiego, T., Ambasz, D., & Ustinova, M. (2019). *Learning environment as third teacher? Evidence on the impact of school infrastructure*. Retrieved from
- [31] [Learning environment as third teacher? Evidence on the impact of school infrastructure \(worldbank.org\)](http://learningenvironmentasthirdteacher.org)
- [32] OECD. (2011). *Improving the standard of teaching and learning of practicals in our Secondary schools*. Emphasis on BIO/CHEM Practical. Federal College of Education.
- [33] UNESCO. (2004). *World Declaration on Education for All*. Paris: France. (Jomtien). *United Nations Educational Scientific and Cultural Organization, (2004)*. Education for All Global Mentoring Report 2005.
- [34] Vincent, J. M. (2012). *California's K-12 educational infrastructure investments: Leveraging the state's role for quality school facilities in sustainable communities*. Retrieved from <http://citiesandschools.berkeley.edu/reports/CCS2012CAK12facilities.pdf>