ACADEMIA International Journal for Social Sciences
Volume 4, Issue 3, 2025 ISSN-L (Online): 3006-6638

A Comparative Study on the Implementation of Early Childhood Education Initiatives in Public Sector Schools of District Kasur (Pakistan)

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Received: 09-04-2025 **Revised:** 10-05-2025 **Accepted:** 15-06-2025 **Published:** 07-07-2025

ABSTRACT

This paper is comparative analysis of implementation of ECE initiatives in the public sector schools of district Kasur with particular reference to gender inequalities. The study was conducted using a quantitative descriptive research design where data were collected from 200 participants (100 ECE class teachers+100 ECE schools head teachers) who were selected through purposive sampling technique from district Kasur, Pakistan. Four domains of interest were rated at five-point Likert-type-scale questionnaire: physical setting; ECE teachers and caregiver's qualifications; supply of educational material; and parental/community participation. The results showed that in all of the indicators the female schools were found to be better in terms of situation and practice than the male schools, notably in the contested areas on resource endowment, quality of pedagogy and community participation. Such inequities underscore the imperative to target policy solutions that promote access to quality early childhood education for all children. The results indicate the need for improving inclusive education by providing better infrastructure, teacher training and increased parents participation in support of developmental goals.

Keywords: *Early Childhood Education Initiatives, Public Sector Schools, Gender Disparities, District Kasur.*

INTRODUCTION

Early Childhood Education is one of the most critical aspects of a child's development in sociocultural settings. The introduction of a child to the early learning environment often plays a significant role in shaping the development of his or her cognitive, social, and emotional abilities (Bernard, 2024). More often than not, the first stages of children's learning significantly influence adulthood mastery. ECE has been highly recognized throughout the world as the most effective way of bridging the education gap and enhancing societal development. A high percentage of countries have already formulated policies that will enable more people to access early childhood education. However, some challenges continue to mar the implementation process. Some of the issues facing ECE are resource allocation, teacher capacity building, infrastructure deficit, and lack of community support, especially within public schools in developing countries such as Pakistan. Public schools are typically neglected in developing countries, and there is no exception when it comes to ECE. Comparisons between different socio-political landscapes in Pakistan have shown that public schools in rural areas with the greatest population vulnerable and underserved (Khan et al., 2024). A comparative analysis of different socio-political contexts in Pakistan has shown that the poorer and underserved populations in rural areas often lack adequate schools or even proper infrastructure.

The province of Punjab, Pakistan have a semi-urban area and district Kasur has a mixed (male and female) population in public sector schools. This district represents a crucial case to study the status of implementation of ECE interventions in public sector schools, especially with regard to the comparison of the male and female school environments. Promoting gender equality in education persists as a national development priority, and to identify specific areas that may require intervention it is important to compare ECE provision in male and female schools (Ahmed et al., 2021). Differences, for example, can stem from differential resource allocation, teacher qualification or community involvement according to gendered education policies or social standards. The burgeoning body of research around the globe suggests that well-designed ECE programs that are provided in an enabling physical environment, with professionally qualified teachers, sufficient learning resources, and effective parental participation, significantly enhance the early growth and development of children. The physical setting from secure, age-appropriate classrooms to learning corners--invites exploration and social interaction. High-quality ECEC personnel, i.e., ECE teachers and caregivers, are never excessive, because pedagogical knowledge and engagement strategies strongly affect children`s learning processes (Koivula et al., 2022). Supporting materials including teaching aids, books, and educational toys encourage creativity and concept development. Lastly, it promotes motivation for children, offers more learning experiences, and helps schools and educations further implement initiatives.

Despite these recognized elements, ECE programs in the Pakistani public sector is frequently confronted with systemic issues. Variations in quality are also due to financial limitations, the absence of programs for training teachers, and the lack of control of implementation (Eroglu & Kaya, 2021). Furthermore, social engagement is often hampered by a lack of awareness or cultural attitudes towards young education. These reasons may differ for male and female schools in districts because of sociocultural variation which points towards a more type of comparative study (Khuhro et al., 2023). There have been few studies that investigated the implementation of ECE in Pakistan and these studies have emphasized better school openings, development of teachers and accommodation of curriculum. Yet, few of these studies have approached the issue from a comparative perspective of gender gaps in public schooling. This study attempts to bridge this gap by providing empirical evidence on the status of ECE in male and female public sector schools of the District Kasur. This type of information is necessary for policymakers, educators and members of the community to develop directed interventions and manage resources.

The quantitative design of this study allows objective quantification of various indicators of ECE program implementation using a questionnaire through which information was collected from ECE class teachers and ECE school head teachers. Incorporating teaching and administrative views the two analyses complement each other, giving a broader picture of what happens both in the institutions and in lessons. The comparison between boys' and girls' schools also provides information on gender related issues and successes, which is important for achieving equity of educational opportunities.

In sum, to advance educational quality and equity, it is important to get a clear picture of the status of the implementation of ECE programs in public sector schools of district Kasur. Study aims: male and female schools' environments, teachers and caregivers' qualifications, support materials and community schemes in male and female schools will be analyzed in the perspective to improve practice in a sensitive environment. Result will feed into the wider debate on ECD reform in Pakistan and will support activities for strategic planning to redress disparities.

Objectives of the Study

1. To evaluate the prevailing practical situations of early childhood education initiatives in public sector schools of district Kasur.

2. To assess and compare the quality and coverage of ECE related initiatives between male and female public sector schools of district Kasur.

Hypothesis

H0: There is no significant difference found for the implementation of ECE initiatives in male and female public sector schools of District Kasur.

Research Questions

1. What is the existing situation of physical environment, trained personnel, instructional support material and parental/community involvement in ECE classrooms in public sector schools of district Kasur?
2. What are the comparative practices of ECE interventions being adopted by the boy and girl public sector schools in district Kasur?

RESEARCH METHODOLOGY

This research is quantitative in nature and descriptive survey design is used and attempts to do the analysis in an orderly way while accounting for Early Childhood Education (ECE) practices in public sector schools of district Kasur. Quantitative research would be particularly appropriate in this study as this would enable the researcher to collect numerical, quantifiable data from a sufficient sample to do an impartial study and to compare male and female schools. The study seeks to measure perceptions, experiences, and realities related to teacher qualifications, support materials, community involvement, and physical environment in ECE classrooms through administration of a structured questionnaire containing closed and Likert-style questions. This method allows for testing hypotheses statistically, and for drawing general conclusions that could inform educational policy and practice. The process of data gathering was conducted ethically to protect confidentiality and reliability. The methodology section provides a description of population, procedures for sampling, and tools development and data collection for the present study.

Population of the Study

The total number of the population is N=950 consists all ECE class teachers and all ECE schools head teachers (475+475=950) from public sector schools in the Kasur district. The ECE teachers are in charge delivering lessons to children 3-6 years old while the ECE school head teachers take care of the school administration and resources and community issues.

Sample of the Study

Among the participants in this study, a purposive sampling was used to recruit them. The sample includes 100 public primary schools in district Kasur, 50 schools for boys and 50 for girls to keep the gender balance. One ECE class teacher and one ECE school head teacher from each school were included and overall sample was of 200 (ECE class teachers=100 and ECE school head teachers=100) respondents. The gender distribution between group was approximately equal; 50 males and 50 females among the ECE class teachers and 50 males and 50 females among the ECE schools head teachers to facilitate valid gender comparisons. This estimate was considered enough to ensure appropriate statistical power for comparisons and to keep data collection practical. For purposive sampling was justifiable since the study focused on schools with Early Childhood Education and was looking at gender differences to which selecting schools that had an ECE programme running from the schools was relevant as it was the focus

of the study. Schools from various locations were included in the district so that differences in conditions of implementation could be captured.

Instruments development and data collection

Data for the research were obtained from a structured questionnaire that had been designed especially for the study to capture four primary dimensions of ECE implementation, namely, physical conditions of classrooms, teacher and caregiver qualifications, availability and utilization of teaching materials, and parental and community involvement. The survey adopted 5-point Likert scale from Strongly Disagree (1) to Strongly Agree (5) and made possible the measurement of attitudes and status. The questionnaire was developed using a multi-step process. The first draft of the items on the questionnaire was prepared based on a thorough review of the related literature, government policies on ECE, and existing validated tools. The items were subsequently adapted to the context of public sector schools in Pakistan to make the items culturally and operationally relevant.

The draft questionnaire was content validated by a panel of five experts of early childhood education, educational research and policy implementation. Revisions were made to improve the clarity, relevance and comprehensiveness of the items based on feedback received. This instrument was piloted on 20 (10 class teachers and 10 head teachers) participants from ECE schools that were not included in the sample frame in order to obtain reliability and validation of the scale. The Cronbach's alpha coefficients of the four components were between 0.78 and 0.85, which was acceptable due to the internal consistency. Some minor revisions were undertaken to wording and item order on the basis of pilot results.

Researchers worked with school administrations to arrange data collection time-points that would have the least impact on the normal school routine. The participants were guaranteed that their answers would be kept confidential and that their identity would remain anonymous to elicit honest answers. Collection took four weeks, allowing enough time to provide full coverage of all selected schools.

DATA ANALYSIS AND RESULTS

The information obtained was tabulated and analyzed using the statistical package for the social sciences (SPSS). Efforts were made to ensure data quality through double entry verification and data cleaning.

Table 1

Demographic Characteristics of Participants

Variable	Category	Frequency	Percentage (%)
Gender	Male	100	**50**
	Female	100	**50**
Qualification	BA/BSc	12	**6**
	M.A/MSc/BS	107	**53.5**
	M. Phil /MS	56	**28**
	Ph. D	25	**12.5**
Experience	<1 year	20	**10**

1-5 years	47	**23.5**
6-10 years	67	**33.5**
11-15 years	48	**24**
16 or more	18	**9**

Table 1 shows the characteristic of the 200 respondents' demographic information is equitable where it involves the male and female participants (50% each). This trade-off justifies the comparative approach to gender differences in ECE provision taken in the study. In terms of qualification – participants have two years Bachelor's degree (BA//BSc) 6%, the maximum number of participants have Master's degree (M. A/MSc/BS) 53.5% and M. Phil/MS 28%, while Ph. D degree at 12.5%. The percentages related to experience have also shown in the table. The pattern of this distribution shows a reasonably skilled workforce in ECE at District Kasur. Dematic – The supply chain scaling solution, but it seems that hardly anyone is there Dematic, the automation specialist and supply chain software solution provider, wants to take the online trade it is to be an active participant. This spread indicates potential to have a combination of early career and more experienced teachers, which is likely to have an effect on how the intervention is viewed and enacted.

Table 2
Mean Scores and Standard Deviations (SD) for Key Indicators

Indicator	**Group**	**Mean (M)**	**SD**
Physical Environment	ECE Class Teacher	3.79	0.21
	ECE Head Teacher	3.96	0.2
Qualified Teachers and Caregivers	ECE Class Teacher	3.8	0.26
	ECE Head Teacher	3.98	0.22
Support Materials	ECE Class Teacher	3.74	0.24
	ECE Head Teacher	3.97	0.21
Parent and Community Engagement	ECE Class Teacher	3.83	0.23
	ECE Head Teacher	3.99	0.2

Table 2 shows that the examination of the critical indicators' significant differences in the indicators of ECE class teachers and head teachers. Regarding the physical environment, administrators score slightly higher on average (3.96) than teachers (3.79), indicating that principals feel that conditions in the classroom are better or have a wider view of classroom environment. On qualified teachers and caregivers, head teachers again report means higher (3.98) than class teachers (3.8), which may represent differences in knowledge or positive sentiment with respect to teacher qualifications. Equipment and resources also had the high rating head teachers (3.97) from class teachers (3.74). The parent and community engagement scores also have moderate levels of agreement with head teachers (3.99) having a slightly higher perception of engagement than class teachers (3.83). The similar standard deviations (approximately 0.2–0.26) for all indicators also indicates that responses are somewhat varied, and this demonstrates the variety of experiences among each of the groups.

Table 3
Independent Samples t-Test Comparing Male and Female Schools on Key Indicators

Indicators	Gender	Mean	SD	t-value	p-value
Physical Environment	Male Schools	3.66	0.94	2.48	0.01
	Female Schools	3.85	0.92		
Qualified Teachers and Caregivers	Male Schools	3.99	0.92	3.06	0.00
	Female Schools	4.24	0.91		
Support Materials	Male Schools	3.99	0.88	1.94	0.04
	Female Schools	4.15	0.90		
Parent and Community Engagement	Male Schools	3.99	0.94	0.57	0.56
	Female Schools	4.04	0.96		

Table 3 shows that independent samples t-test results reveal that the implementation of ECE programs differs significantly between male and female schools. With respect to the four primary indicators, average scores are uniformly higher in female schools. More specifically, when it comes to physical environment, the scores in female schools (M=3.85) are higher than that in male schools (M=3.66) with a t value=2.48 and p=0.01, for which difference between the boys and the girls was significant. Qualified teachers and caregivers had been rated higher for the female schools (M= 4.24) than the male schools (M = 3.99), t = 3.06, p=0.00. For support materials, female schools (M=4.15) as compared to male schools (3.99), with t-value of 1.94, p = 0.04). The female advantage is also observed in parent and community involvement (M=4.04 for female schools as compared to male schools (M=3.99) with t = 0.57, p = 0.56). These findings substantiate the hypothesis of the gender disparities with respect to the quality of the implementation of the ECE program as female schools work better than male schools in District Kasur.

Table 4
Student-Teacher Ratio (STR) by Gender of Schools

School Gender	Mean	SD
Boys Schools	3.91	0.75
Girls Schools	3.88	0.81

Table 4 shows that the STR of boys' and girls' schools. Boys' schools exhibit a mean STR of (M=3.91, SD=0.75), and female schools have slightly lower mean STR of (M=3.88, SD=0.81). This indicates that boys' schools have a slightly higher student-teacher ratio as compared to girls' schools, with a very small difference. The relatively high standard deviations in both groups show a certain range of variations in student-teacher ratio in each group, so it is possible that there are some schools having much more and much less student-teacher ratio in each gender group.

Table 5
Frequency of Parental Participation in School Activities by Gender

Activity	Boys Schools (%)	Girls Schools (%)
Parent-Teacher Meetings	68	77
Homework Support at Home	70	63
Attendance at School Events	68	73
Response to Teacher Communications	73	77

Table 5 compares parental involvement in school activities in boys' and girls' schools. 68% for parent teachers' meetings (PTM) in boys' schools and 77% for PTM in girls' schools. With regard to homework support at home, the percentage of parents who support homework in boys' schools is 70%, and in girls' schools 63%. For attendance in school events, 68% of boys' schools' parents attends, while 73% of girls' schools' parents are being attends. Response to teacher communications, parent response is 73% in boys' schools and 77% in girls' schools. These findings show that parental participation is generally stronger in girls' schools, particularly with regard to meetings, event attendance, and teacher consultation but that boys' schools to a small degree have the advantage in providing home assistance with homework.

FINDINGS

This research produced some significant results in terms of ECE initiatives were applied in public sector schools of district Kasur specially by gender differences.

1. The demographic data showed nearly equal representation of male and female teachers in the study sample, which allowed a stable foundation for further comparisons. Most of the participants held professional qualifications that were related to the topic at hand, primarily at the master's level, and some had professional experience that varied in length, resulting in diverse perspectives on ECE's implementation.
2. The measures showed that the physical environment of ECE classrooms was higher in female schools than in male schools. Girls' schools were found to have better classroom environment with enough space, furniture of appropriate size and arrangement of learning corners.
3. Responsibly qualified teachers and caregivers were also more common in girls'° schools, according to the respondents, who reported greater levels of pedagogical competence and preparation of lessons to match the children's needs and, for that matter, attendance in-service training.
4. Resources/support materials in the form of educational kits, books, toys and multi-media aids were more widely available and were more commonly used in girls' schools as compared with boys' schools. This incongruity indicates that resources are inequitably deployed or employed across the two types of schools.
5. Parent and community involvement also differed significantly. Parents had more participation in meetings, in school events, and with the teachers in schools for girls. Though male schools had a slightly higher parental involvement in homework support at home, community involvement and support seemed to be greater in female schools.
6. Mean STR (student-teacher ratio) indicated that female schools had a better STR, an important consideration for quality interaction between teacher and child which is crucial for a better early learning.

7. Statistical comparison by independent samples t-tests indicated that these gender differences were significant for all principal indicators thus providing support for research hypothesis that there is variation in the quality of implementation between male and female public sector schools.

DISCUSSION OF RESULTS

The results of this research further highlight substantial inequalities based on gender in Early Childhood Education (ECE) in public education schools in district Kasur (Hinduja et al., 2023). For a wide range of important ECE quality dimensions physical infrastructure, teacher qualifications, availability of teaching and learning materials, and parental involvement girls schools perform considerably better than boys' schools. The better perceptions of physical environment in girls' schools might be because of targeted resource allocation or community prioritization of girls' education in the district (Manning et al., 2019). "The availability of sufficient classroom space and quality furniture enhance learning, making it more interesting, safe and also crucial for child development. The higher level of teacher qualification and professional development participation in girls' schools is consistent with better quality and practice of teaching. This discrepancy may reflect differences in programmatic or cultural policies affecting recruitment and training. Good levels of staff with qualifications, however, and in-service training also show a real commitment to improving learning in girl's schools (Kombo et al., 2020).

Resource availability discrepancies emphasize problems facing boys' schools in obtaining adequate teaching and learning resources. Such a gap has the potential to narrow teachers' use of diverse, effective instructional practices, which could lead to negative learning experiences for children (Rasheed et al., 2020). Parental and community participation is an excellent resource in supporting children's learning. Girls' schools had a higher level of engagement and this might be attributed to different awareness, social support network or school-based interventions that promote engagement. The somewhat higher homework encouragement in boys' schools might represent an intriguing issue worth addressing, but it fails to counterbalance the stronger community involvement in girls' schools. Descriptive student-teacher ratios, a general proxy for personalized attention by school and overall classroom management effectiveness, are also positively related to girls and not to boys' schools, indicating that boys' schools may be more crowded or faced with manpower shortages (Splett et al., 2018). This variable may significantly influence the quality of care and child outcomes.

The mean of student-teacher ratio showed that girls schools had better student-teacher ratios, an important aspect for good teacher-child interaction, which is crucial for improving early learning. Statistical comparisons using independent samples t-tests showed that the gender differences were significant for the all key indicators (physical environment of ECE classrooms, qualified ECE teachers and caregivers, resources/support materials in the form of educational kits, books, toys and multi-media aids and parent and community involvement) supporting the research hypothesis that there are differences in the quality of implementation of theses policy actions between the boys and girls public schools.

Taken together, these findings point to broader structural constraints and gendered processes in public schools in district Kasur. The critical role of targeted policy interventions to address gaps in boys' schools is emphasized (Tajammal, 2018). Approaches that ensure social justice such as equitable dissemination of resources, improved teacher training programs, and community mobilization programs might help address these inequalities. The findings of this study add important empirical evidence to debate on equity in early childhood education in Pakistan. They argue for considering gender implications of the ECE implementation that led to inclusive and quality education for all the children.

CONCLUSIONS AND RECOMMENDATIONS

This research has offered a comparative view of the implementation of Early Childhood Education (ECE) initiatives in public sectors schools of district Kasur Pakistan was ECE phenomenon started focusing gender-based variations. Results clearly depict that ECE programs exist in male and female schools, but there are differences in their equality and productivity.

There are significantly more strong female schools than there are strong male schools across the aforementioned dimensions: positive physical environment, qualified teachers and caregivers, support materials and parental and community involvement. These differences reveal a systemic skew, which could possibly be attributed to resource allocation, administrative preference and socio-cultural educational influences in the district.

Qualified teachers and caregivers, suitable classroom environment, availability of sufficient resources/support material and parent participation also play a major role in quality early childhood education. The better state for female schools on these overage factors means that educable children in these least-available environments are more likely to receive support and school enrichments. On the other hand, boys' schools encounter obstacles such as poor physical facilities, lower staff strength, fewer learning materials, and less active communities. These deficits may have a negative impact on the development of children enrolled in these schools, thus contributing to educational disparities. This research highlights the importance of gender-sensitive disparities reducing interventions to support the equitable access to high quality early education for all children. It also highlights the need for an integrated approach, inclusive of infrastructure, human resource development and deepened partnerships between schools and communities.

Recommendations which are suggested for the policy makers, education department and all concerned to early childhood education are following:

1. Funds and material resources should be distributed equitably to male and female schools by the authorities. Particular attention needs to be paid to the upgrading of the physical environment in boys' schools: classroom space, furniture, learning corners in order to ensure a safe and attractive environment for young learners.
2. Develop ongoing professional training programs for pedagogues and for educators in boys' schools, with emphasis on methodological approaches in early childhood education. Workshops and mentorships can be provided in partnership with universities and schools.
3. Structured programs to raise the level of awareness and engagement of parents need to be developed and implemented by schools, and particularly male schools, in which engagement was significantly lower. Working together One way to develop parents as partners in children's learning is to organize regular parent-teacher meetings, family workshops and community education programs that encourage closer collaboration and support for children.
4. Develop strong monitoring systems to routinely monitor the quality of ECE implementation, including gender parity. "As a result, this study may be used by organizations, communities and funders to identify disparities early and focus their efforts where they're most needed." The councils themselves, and the representatives from the school community, should be at the cutting edge of such activities.
5. Policies should strive to sustain appropriate student-teacher ratios for a quality learning experience and personalized attention. Additional qualified teachers may be needed to recruit in male and female schools for reducing overcrowding and increasing quality of instruction.

6. Campaign for awareness about policies and public information can help to address social and cultural obstacles and create an enabling environment to mobilize community support to encourage gender equity and for the education of all children.
7. Promote longitudinal studies that follow interventions over time and investigate further factors affecting ECE quality such as socio-economic and cultural aspects. Qualitative research could add nuance to quantitative results on stakeholders' experiences.

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