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Performance of Public and PEF School Students in Literacy and Numeracy Drive (LND): A Comparative Analysis

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ABSTRACT

The role of literacy and numeracy for any society is remarkable. Therefore, the core purpose of the present study was to compare the achievement of public as well as PEF schools on the basis of literacy and numeracy drive (LND). LND has been introduced in the province of Punjab for the purpose of evaluating schools' performance through Monitoring and Evaluation Assistants (MEAs). The test consists of seven multiple choice questions related to Urdu, English and Mathematics. The objective of the study was to conduct a relative comparative survey in between public and Punjab Education Foundation (PEF) schools of district Muzaffargarh. The study was delimited to only district Muzaffargarh. Stratified random sampling technique was used to select sample. The statistics from chosen schools was acquired by total 317 students including male, female, rural and urban. The analyzer adopted the Government specialists prepared test of literacy and numeracy drive. By contentment of pilot testing and confirmation by supervisor, test was conducted by the researcher. Data were evaluated by mean, standard deviation and z-test. Value of z-test between the performances of Public and PEF Schools is 4.91. Findings of this study showed that there was a noteworthy difference in the achievement of public and PEF schools. Public schools were better in their performance as compared to PEF schools. The study concludes that LND should be continued in Punjab and across Pakistan at more broader level.

KEYWORDS

Literacy, Numeracy, LND (Literacy and Numeracy Drive), Public, PEF, schools, performance, comparison

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INTRODUCTION

Literacy is the ability to read and write, exemplified by understanding a short simple statement on everyday life (Murry, 2021).Adult literacy is the percentage of the population aged fifteen years and over who can both read and write with understanding of short simple statement (Zua, 2021). There is strong relationship between literacy and numeracy. The concept of numeracy has been broadened to increase competencies such as ability to communicate, interpret, employ and evaluate mathematical information in situations related to social and world life, education and reflection citizenship (Nortvedt & Wiese, 2020).Numeracy was defined as knowledge, behavior, attitude and skills of those students who can use mathematics in different situations in their daily life in a competent manner (Khalid et.al, 2019).

Literacy and Numeracy knowledge is important for managing our daily life by students to survive in socially engaged environment, compatible visiting of supermarkets and to discriminate several cost of things (Luterbach & Morris, 2018). Uplift decline of economy in all over the world is due to deteriorated abilities in different subjects (STEM) science, technology, engineering and mathematics (Jain & Rogers, 2019). For making productive and successful life and its implementation has been mobilized by literacy in different ways (Zua, 2021). Informative and explanatory phenomenon are the basic part of literacy and numeracy for organizing different matters (Umer, et al., 2018). Numeracy advancements relied on the students that exhibit attitude towards solving analytical and numeracy problems. It is applying figure, shapes and signs by students according to their potentialities for community. Numeracy education is explained as in which graphs are prepared and table are portrayed. It is commended by skilled numeracy of students (Michaels, 2021).

Literacy and numeracy knowledge is important to learn at early childhood education or preschool level consisting kindergarten and nursery classes to lay the foundation of the core subjects. Therefore, in Pakistan Literacy & Numeracy Drive was given the first priority in forming educational objectives. To assist children for making strong baseline it was necessary to develop relational, mutual and communal proficiencies (Akram & Butt, 2021). In Pakistani context, Punjab is the province with highest literacy rate of 59%. Primary classes are the essential segment of teaching and schooling (I-SAPS, 2010; Amjad & Macleod, 2015). At this time, there are 37710 junior kindergarten and Madrassah schools systems running under the ministry of education (SEDP, 2019).Therefore, in daily life routine the practical usage of numerical thinking, digit information, volume and area by the students is properly applicable is ensured by the teachers (Ahmad, 2019).

An institution often suggest three measures of literacy exercises those are adapting level, maturing level and tutoring level. Drill of reading and studying books created by habit for reading refers to adapting level. Conversation and combined learning activities are the main focus of maturing level. Teaching learning conditions are limited to only tutoring level (Rakhmawati & Mustadi, 2021). For evaluating the students' achievement of such schools, according to CM road map directions LND (literacy and numeracy drive) was launched that was an instrument administered all over the Punjab. Chief Minister Road Map (CM Road Map) is program given by the chief minister of Punjab province consists of different indicators and LND is one of them. In Pakistan, literacy and numeracy drive was started in March 2015.

Pakistan considered both of the world usage of smart phone and keeping in view the importance of literacy and numeracy, latest trends were launched under the program of literacy and numeracy drive (LND) by Punjab Education Department to make sure both of these potentialities. Literacy and numeracy drive helped Pakistan to attain 90% competency rate which will be hold out 100% till 2030 for reading and writing proficiencies (Khalid, et.al, 2019). Army officials strictly put forward process of judgment for contrasting and facilitating educational achievements. These army officials are called monitoring evaluation assistants (MEAs) who visit the public schools and schools running under Punjab Education Foundation (PEF).PEF is government of Punjab organization that is running schools under public-private partnership. Army officials conduct the LND test of students of class three on monthly basis in each school through tablets or mobile (M-Learning) (Aleem & Irshad, 2021).

M-.Learning is mobile based learning in which students are learnt by using smart cells and tablets. In preceding years it is in fashion to educate students by using these technologies (Ishaq, et al., 2020). Smart phones are efficient, operative, potent, immediate and tiny in size so that readily available for majority of people anytime and anywhere. These smart phones were used by 1.2 billion of people in 2013 but in 2017 4.4 million with miraculous gain in ratio (Sonmez, et.al, 2018). In all over the world, numeracy and literacy was initiated for all the students through M-Learning (Hussain & Awan, 2018).

Various social issues and community based difficulties have been settled by literacy and numeracy education (Rakhmawati & Mustadi, 2021). Progress and victory have been achieved by literacy and numeracy knowledge (Zua, 2021).The leading purpose of mathematics reasoning is to prepare pupils to analyze critically and elaborate mathematical obstacles (SEDP, 2019). The assemble facts beyond these realities which is assisted by numerical thinking ability of applying education with understanding are the characteristics of LND (Ariza, et al., 2021). Literacy and numeracy are important for all the classes. In 2019, Tasmania University developed a latest approach of critical thinking in numeracy to boost aptitude of students towards numerical abilities in which students with power of critical thinking resolved calculations, phrase mistakes, estimation, geometry, figures, idiom mistakes and calculus (Jain & Roger, 2019).

Reflective thinking is stimulated by thinking abilities of students which is polished by literacy training who exhibit self-reliance, self-searching and self-reflection (Dogruer & Akyuz, 2020; Rakhmawati & Mustadi, 2021). Academic numeracy unit is motivational force by which individuals enable themselves to apply mathematical commands for critical analysis, reviewing, judgments of real situations (Watson, 2009; Jain & Roger, 2019). Foundational literacy and numeracy are the most recent approaches of consolidation of literacy and numeracy in which three concepts emerged that were exchange of information in grammar realization. Problem solving was the second concept which aids how to summarize numbers and digit relationship, third concept was different strategies that develop judgments about any events (Evans & Hares, 2021).

Previous review of literature puts forward that in USA and Australia, the literacy and numeracy performance of private schools were higher than that of public schools (Braun, et al., 2006; Cobbold, 2015). Schools with basic good facilities had very good results in their achievements (Limon, 2016; Olufemi & Olayinka, 2017).Developed as well as under developed countries both are trying their best for using information technology and its transformation in teaching learning process as these expand students' cognitive abilities. Developed countries achieved such a great innovation however, under developing countries like Pakistan has recently started such strategy in form of LND (Ishaq, 2019).

In Pakistani context, literature suggested that private primary schools performed well as compared to public schools (Rubab & Awan, 2020; Kanwal & Amjad, 2015;Shabbir, et.al. 2014; Awan & Zia, 2015).Some other proponents believed that now a days, public schools had the facilities of ECE rooms, LED and availability of tablets for drill. It is a remarkable change that high performance of students of public schools as compared to private schools was reflected (Hussain & Awan, 2018; Arshad et.al., 2020). Public secondary schools performed well over private schools because of experienced staff, advanced laboratories and democratic leadership (Rubab & Awan, 2020).

Review of the related literature further suggested that an achievement of students of PEF schools was better than public schools (Anwar, et.al, 2018). Some researchers and experts believed that there was no significant difference. Agreement of hand over schools to PEF was inaccurate (Ansari & Islam, 2017) because of unskilled and inexperienced teaching staff that affects students' performance (Javed, et.al, 2012). Proponents also suggested that there was no valid and uniform criterion for judgment of both categories of schools (I-SAPS, 2010; Amjad& Macleod, 2015). LND test was found very effective in Punjab (Kumar &Mohite, 2016; Ishaq, et.al. 2019; Khalid et.al. 2019; Ishaq, e.al. 2020).

In view of the above discussion, it is clear that there was no reported research on comparison of performance on LND in Pakistan that shows the research gap. This study was primarily attempted to determine the actual difference in LND

performances of public and PEF students by using valid literacy and numeracy drive test. The findings may be valuable for policy makers to find out actual current status of both Public and PEF schools. The findings of this research may also be helpful for making further decisions about schools to hand over PEF or administered by Govt. in future.

RESEARCH OBJECTIVES AND HYPOTHESIS

The objectives of the study were:

1. To find out the performance of students of class-3 on LND test of Public schools.
2. To study the performance of students of class-3 on LND test of PEF private schools.
3. To compare the performance of students of class-3 on LND test of Public and PEF private schools

To meet the objective of the study, following hypothesis was formulated:

Ho = There was no significant difference between the performance of public and PEF schools

H1= There was a significant difference between the performances of public and PEF school

Table1: Tehsil wise Demographic information of Sample of the study

Sr. NO	Category	Tehsil	Sample	Percentage
1	Public Schools	M. Garh	40	25.97%
		Kot-addu	37	22.07%
		Ali Pur	40	25.97%
		Jatoi	40	25.97%
2	PEF Schools	M. Garh	40	25%
		Kot-addu	40	25%
		Ali Pur	40	25%
		Jatoi	40	25%

Table 1 shows tehsil wise detail of sample. Table shows sample of public schools as well as PEF schools. The percentage of tehsil wise sample of public schools comprises 25.97 % except tehsil Kot- addu which comprises 22.07 % while the percentage of PEF schools of each tehsil comprises 25 % of public and PEF school.

TOOL DEVELOPMENT AND ADMINISTRATION

The researcher borrowed latest test of Literacy and Numeracy Drive (LND) administered in March 2019 by Monitoring Evaluation Assistant in public and PEF schools. Valid and reliable, LND test, consists of MCQs of three sections i.e. English, Urdu and Mathematics. Test was strictly administered by the researcher for both categories of selected students enrolled in class three. After completion of permission process from higher educational authorities of district Muzaffargarh test was administered by the researcher in selected students' tehsil. Total 317 tests were distributed tehsil wise. After collection of tests, marks were assigned properly. The data were checked and cleaned again and again for accurate and unbiased results.

DATA ANALYSIS

Microsoft Excel was used for analysis of scores by comparing mean and variances of scores. According to research hypothesis the researcher applied independent z-test for comparing the achievements of both type of students. The researcher used descriptive statistics Mean and SD, average and inferential technique (Z-test) for data interpretation. Differential analysis gives following detail of data.

Table 2 shows the overall performance of public and PEF schools. The students of public schools got marks and average 8264, 52.63 respectively while the students of PEF schools got marks and average 7746, 48.41 accordingly. Table 2 also shows the tehsil wise detail of marks of students. Marks of public schools of tehsil M. Garh, Kot-addu, Ali Pur and Jatoi are 2109, 1927, 2121 and 2107 respectively while marks of PEF schools of M. Garh, Kot-addu, Ali Pur and Jatoi are 1896, 1803, 2007 and 2040 respectively. Table 2 furthermore shows tehsil wise detail of max and min marks in test by M.Garh (61, 16), KotAdu (61, 44), Ali Pur (61, 34) and Jatoi (60, 33).

Table2: Overall comparisons of performance of public and PEF schools of district M.Garh

Total marks= 62

Sr. NO	Category	Tehsil	Student marks	Max marks	Min marks	Total marks	Average
1	Public schools	M. Garh	2,109	61	16	8,264	52.63
		Kot-addu	1,927	61	44		
		Ali Pur	2,121	61	34		
		Jatoi	2,107	60	33		
2	PEF schools	M. Garh	1,896	58	23	7,746	48.41
		Kot-addu	1,803	60	21		
		Ali Pur	2,007	62	30		
		Jatoi	2,040	61	35		

Table 3: Overall tehsil wise Comparison of performance of Public and PEF students (z- T

Tehsil		**N**	**Mean**	**S. D.**	**z-Test Score**
M. Garh	Public schools	40	52.72	5.66	3.16
	PEF schools	40	47.40	8.98	
Kot-aadu	Public schools	37	52.08	4.01	3.82
	PEF schools	40	45.08	10.80	
Ali Pur	Public schools	40	53.02	6.37	1.80
	PEF schools	40	50.18	7.70	
Jatoi	Public schools	40	52.68	5.62	1.27
	PEF schools	40	51.00	6.10	

Table 3 shows the performance of public and PEF students of all tehsils including M. Garh**,** kot-aadu, Ali Pur and Jatoi. The no of students of both variables were equal that was 40 for tehsil M. Garh. The mean and standard deviation values of public schools are 52.72 and 5.66 respectively and PEF schools exhibit mean and standard deviation values 47.4 and 8.98 respectively. The value of Z- calculation is 3.16 and table value is 1.96 (H1of hypothesis 1 is accepted) which means that there is a significant difference between the performance of students of public and PEF schools of tehsil M. Garh. Table also shows the performance of public and PEF schools of tehsil Kot-addu**.** The no of students of public schools was 37 and PEF students were 40. The average of public schools and PEF schools is 52.08 and 45.08 respectively. The standard deviation value of both public and PEF schools was 4.01 and 10.80 respectively. The value of Z- calculation is 3.82 and table value is 1.96 (H1of hypothesis 1 is accepted) which means there is a significant difference in performance of both types of students. The Mean values of public and PEF schools were 53.02 and 50.178 respectively. The standard deviation of both types of schools was 6.37 and 7.70 accordingly. The value of Z- calculation is 1.8 and table value is 1.96 (H0 of hypothesis 1 is accepted) which means that there is no significant difference between the performance of students of public and PEF. Table further shows the performance of public and PEF schools of tehsil Jatoi**.** The mean and standard deviation values of public students are 52.68 and 5.62 respectively while PEF students mean and standard deviation are 51 and 6.70 respectively. The value of Z- calculation is 1.27 and table value is 1.96 (H0 of hypothesis 1 is accepted) which means that there is no significant difference in both type of students performances of tehsil Jatoi.

The table 4 shows the overall comparison of performance of Public and PEF schools. The Mean and standard deviation values of public students of district was (52.63, 6.29 respectively) The Mean and standard deviation values of PEF students were (48.41, 8.80 respectively).The value of Z- calculation is 4.91 and the table value is 1.96. (H5 of the hypothesis 5 is accepted) which means that overall there is a significant difference between the performances of students of both type of schools.

Table 4: Comparison of performances of Public and PEF Schools of district M.Garh

Factor	N	Mean	S.D	Z
Public schools	157	52.63	6.29	4.91
PEF schools	160	48.41	8.80	

DISCUSSION

This study was designed to compare performance of public and Punjab education foundation (PEF) students. One research hypothesis was developed to test the main purpose of the study. This study also acknowledged the research gap exists between public and PEF schools regarding their performance in literacy and numeracy drive (LND). The results of this type of research were astonished of better performance of public schools because of highly qualified staff, experienced head teacher and teachers, availability of large screens in computer labs, availability of tablets in schools and organized way of preparation of students for literacy and numeracy drive (LND) test.These results were consistent with other proponents (Hussain & Awan, 2018; Arshad, et.al., 2020).

As the result of this study showed that there is a significant difference in the performances of students of two tehsils out of four that are tehsil M. Garh and tehsil Kot-addu.Public students of both these tehsils performed well than that of PEF students because of higher Mean values and z calculation accordingly which was higher than table value. The students of public schools of tehsil Ali Pur and Jatoi performed better than that of PEF schools their Mean of values were 53.025, 52.675 respectively but show no significant difference in performances because of lower z- calculation than table value. These results were remained parallel to the study of (Ansari & Aslam, 2017).

The current study used a uniform valid and reliable parameter of assessment for both categories of schools that were the research gap of (I-SAPS, 2010; Amjad & Macleod, 2015) and fulfilled by present study. In Pakistani context, LND test was found very effective in Province of Punjab (Ishaq, et.al. 2019; Khalid et.al. 2019). Some proponents also worked on usability and problems of usability in LND test (Ishaq, e.al. 2020; Kumar & Mohite, 2016).

CONCLUSION AND RECOMMENDATIONS

The findings of this study led to the conclusions that public schools of district M.Garh performed better as compared to PEF schools. LND test administered in Punjab has the significant and effective results on the performances of students as well as schools. Literature revealed that in many researches of comparison of performances between public and private schools, the performances of private schools were better as compared to public schools but by administering LND tests in all over the Punjab the level of achievement of students was improved. So, as per results of present research in comparison of performance between public and PEF schools the results have encouraging findings in Pakistani setting; public schools were better in their performance as compared to PEF schools. In view of the above discussion it was highly recommended that literacy and numeracy drive (LND) should be continued in future for not only grade-3 but also be extended for other grade classes. Because of fruitful results of literacy and numeracy drive (LND) test should also be administered in other provinces of Pakistan. This study was delimited to one district it is highly recommended to carry out in other districts or all over the Punjab.

CREDIT AUTHOR STATEMENT

Dr.Muhammad Aqeel Raza: Conceptualization, Data collection, Writing-Original draft **Mahwish Hameed Malik:** Data collection and Related work, .**Farah Deeba:** Methodology, Revision

COMPLIANCE WITH ETHICAL STANDARDS:

It is declare that all authors don't have any conflict of interest. Furthermore, informed consent was obtained from all individual participants included in the study.

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