

Effectiveness Of Literacy And Numeracy Drive On The Quality Of Primary Education

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Abstract

Literacy and Numeracy Drive (LND) is an application that is designed to boost and enhance the literacy and numeracy skills of primary level students. With reference to LND application, it consists of seven objective type questions of English, Urdu and Mathematics for class three. This study aims at identifying the purpose, use, effectiveness, benefits, role and positive impact of LND on the quality of primary education that is used by students, guided by their teachers and Assistant Education Officers (AEOs) to acquire basic literacy and numeracy skills. The target population was teachers teaching to class three students studying at public sector primary, elementary and secondary schools and AEOs of Tehsil Bahawalpur, Pakistan. Two hundred and two (202) primary school teachers and thirty five (35) AEOs from Bahawalpur City and Saddar were selected through convenient sampling. A questionnaire consisting of the items related to the use, effectiveness, benefits and impact of using LND application was developed by the researchers to collect data. The data were analyzed through descriptive statistics to determine the frequency, ANOVA and T- Test. The findings based on the quantitative analysis of data, revealed that LND is an effective application to enhance literacy and numeracy skills of primary students as it promotes conceptual learning. The results also indicate that the students enjoy learning. The students face difficulty mostly in the subject of English particularly in reading comprehension. There are still some issues regarding the use and the fear of poor results of teachers and AEOs. Therefore, the researchers suggest that more attention should be paid on English subject. Special LND classes should be arranged on daily basis in order to improve the students' learning. It will also be helpful to reduce the fear of teachers and AEOs regarding students' results.

Keywords Effectiveness, Literacy, Numeracy, Drive, Primary Education, Quality Education.

INTRODUCTION

We are living in a digital age. Because of this quality, the world has become a global village. Every country needs education to create a solid foundation. It is vital for the development and prosperity of a country. "Education is the most powerful tool which we can use to change the world"(Mandela, 2003).

The initial level of formal education is called primary education. It offers educational and learning activities that are usually created to give pupils a foundational understanding of reading, writing, and mathematics (literacy and numeracy). It builds a solid basis for education, information acquisition, and emphasizes on moral and personal growth (Ariza et al., 2021).

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One of the most important factors that increase productivity when executed appropriately is quality. A high-quality education is not only something that every citizen should have access to, but it should also be the norm. ICTs are utilized in all aspects of daily life. Currently, educators are utilizing contemporary technology to enhance their pedagogical approaches. They plan lessons such that pupils can acquire concepts logically (Hussain et al., 2010). Literacy and Numeracy Drive (LND) was launched by Punjab Government to enhance the quality of education in schools. This program was initiated on September 15, 2015 under the leadership of Chief Minister Punjab, Pakistan. Its principal goal was to raise the standard of instruction in public schools throughout Punjab, particularly at the primary level. The effectiveness of government schools is predicted by quality indicators. Seventeen quality indicators are included in total. Among these is the outcome of the LND test. Additional metrics for assessing quality encompass core indicators that include student attendance, teacher presence, retention indicators, infrastructure, management and monitoring metrics etc. (Khuhro et al., 2016; Merchant & Ahmed, 2021).

LND is a collaborative project of the Punjab Information and Technology Board (PITB) and Government of Punjab.

The primary goal of LND initiative is to assess the students of class three, either they are achieving targeted Students Learning Objectives (SLOs) or not. LND is basically an installed application on tablets (Aleem & Irshad, 2021). This application is test-based. It comprises of Multiple Choice Questions (MCQs) of Urdu, Mathematics and English subjects. Students of class three take this test. This tablet based test is conducted by Monitoring and Evaluating Assistants (MEAs) (Khattak, 2012). They choose the pupils at random to prevent bias and produce unique outcomes. LND serves as a tablet-based tool for student assessments that is connected to a large question bank. Government teachers also known as 'Educators', they conduct extra special LND classes to accomplish the prioritized LND (SLOs). Instructors use "LND Kitabcha," and avail it as a guideline to direct students appropriately. Monitoring and Evaluating Assistants (MEAs) conduct LND test every month on tablet. Class in charges also conduct LND test every month in written form as well (Jamil & Nadeem, 2016). Assistant Education Officers (AEOs) also conduct LND written assessment after every six months. Both test written records are retained in the student record at school (Aleem & Irshad, 2021).

Teachers utilize these written test results as evidence to demonstrate to MEAs that students are paying attention in class. Additionally, the performance of each school is predicted and compared using these test records. Report cards are prepared after the LND test administered by MEAs. These report cards are designed to evaluate the learning and comprehension of public schools comprising primary classes are learning, this is assessed by evaluating their output. At various levels, these reports are produced. It consists of reports at the District, Tehsil, and Markaz level. Every district's performance is covered in the district level report. The general performance of a Tehsil and a Markaz is covered in reports that are created according to the same format.

It provides a thorough overview of the educational progress that has been made. A variety of metrics have been developed to show both good and poor outcomes. Education Officers meet to discuss exam results after they are administered. At the District, Tehsil, and Markaz levels, they assess the outcomes (Ishaq et al., 2020). If the results are poor, then the concerned teachers are advised to improve their performance. Education administrators can access the data through an online dashboard and receive SMS alerts. The Punjab Monitoring and Implementation Unit (PMIU) collaborate with the Department of School Education. The information in reports enables PMIU to advise district governments on areas that require administrative action (Ishaq et al., 2019).

The LND project instills confidence in students by providing them with a platform where they can learn in an interactive environment (Chishti et al., 2011). In order to enhance the teaching

and learning standards, the strategy of LND implemented by government in public schools is functioning effectively. It follows the necessary steps, established high goals and highlight the problems faced in literacy and numeracy (Khalid et al., 2019).

REVIEW OF LITERATURE

Literacy

The ability to read the text fluently and the capability to write clearly are the qualities of educated, literate person of society. He or she has the capability to identify and differentiate the words appropriately (Keefe & Copeland, 2011).

Numeracy

The knowledge, conduct, attitude, and abilities of pupils who can competently use mathematics in a variety of everyday contexts is known as numeracy (Khalid et al., 2019). Therefore teachers make sure that pupils apply numerical reasoning, digit information, volume, and area in a practical way in their everyday lives (Ahmad, 2019). Early childhood education, or preschool, which consists of kindergarten and nursery classes, is crucial for teaching literacy and numeracy skills since they build the groundwork for core subjects. Literacy and Numeracy skills are directly related to quality education. These skills must be achieved in the initial stages of the foundational education. A successful examination of a person's literacy and numeracy proficiency level provides an insight about quality education (Akram & Butt, 2021).

The Punjab Education Department launched the latest trends under the program of Literacy and Numeracy Drive (LND) to ensure both of these abilities. Pakistan took into consideration the global usage of ICTs and the importance of literacy and numeracy. Pakistan's commitment for literacy and numeracy allowed them to achieve a 90% proficiency rate in reading and writing, which will remain at 100% until 2030 (Khalid et al., 2019).

Basic numeracy and reading abilities are a challenge for students. The Punjab government launched the Literacy and Numeracy Drive, a quality improvement initiative, to raise primary school standards by requiring students to grasp fundamental literacy skills (Khuhro et al., 2016). Quality and education always go hand in hand. The quality is what gives educational outputs meaning for both people and society as a whole. Education molds a person's conduct, and quality refines and perfects that behavior. In order to enhance skills, values, and attitudes toward the solutions of these concerns, countries grappling with economic, social, and cultural challenges desperately require high-quality education (Zulfiani et al., 2021). ICTs are now used widely in education as they assist in educational activities. Students use tablets, smart phones to search and to make assignments etc. (Hussain & Awan, 2018).

Information and Communication Technology (ICTs)

Information Technology (IT) is also known as Information and Communication Technologies (ICTs). This includes devices such as PCs, tablets, I Pads, multimedia systems, and so on. Users can store, create, edit, correct, and share knowledge more easily due to the excessive technological tools. (Sheikh, 2013). Teachers can create more beneficial learning activities for their students' assignments by utilizing technology in the classroom (Cicchino & Mirliss, 2004). In order to support students' engagement in educational activities, various technologies are used (Hubber et al., 2016). With the use of these educational tools, institutions are able to preserve past performance, student progress reports, and portfolios, and evaluation has become truly meaningful (Enriquez, 2010).

Quality Improvement through ICTs

Improving the quality of instruction and learning is an urgent requirement for our nation. ICT enhances education in a number of ways by engaging pupils and encouraging them with fundamental skills. ICT has the power to alter the learning environment for the student. ICT is beneficial for teacher training as well (Sheikh, 2013).

Quality Education

Quality education is defined as education that is meaningful, relevant and responsive to the needs of the society. As the concept of quality in education is multi-faceted and dynamic, it is difficult to agree on single definition (Venkataiah, 2001). The desired standards of quality suggest that the aim of education is to appreciate and motivate learners to take leading role in assuring the quality of their own education (Harvey, 2006).

The approach to high-quality education is the most important factor affecting the future of the nation and its youth. The primary factors that would enable Pakistan to achieve significant social and economic progress are the availability and caliber of education (Saultz & Saultz, 2017). High-quality education fosters creativity in the community and creates chances for socially and economically marginalized groups in society. Education places a strong emphasis on learning progression, which includes passing down life experiences, information, beliefs, and skills to the next generation through research, development, teaching, and training that advances the nation's socioeconomic standing (Hanushek, 2002). A study conducted by Shaheen et al. (2020) examines the standard of education in a nurturing environment. They found that successful learning requires a comfortable classroom setting. Moreover, excellent instruction required genuine and cooperative methods. They concluded that both the teacher and the learning process benefited from the classroom environment.

Primary Education

For children under the age of ten, primary education is regarded as full-time instruction. They need to get all the help and attention that they need. Primary education is of utmost importance in the modern educational system, especially in light of globalization. The current trend in education is student-centered learning. The teaching approach in the classroom has shifted from passive to active learning. The most recent approach now consists of project work, assignments, presentations, and self-study. Now school teachers prefer to deliver lessons through storytelling and activity-based learning to spark younger students' enthusiasm in learning. Strong pre-primary, primary, and secondary educational foundations are necessary for basic education. Additionally, the quality of education has a big impact on it (Nigel, 1990).

In the entire educational system, primary education is crucial. While educationists view this stage as an effective tool for social reforms, educationists see it as the cornerstone of the entire educational system. One may say that the formative and initiative stages of society are intimately linked to primary education (Zulfiani et al., 2021).

The use of Tablets in primary schools

Numerous studies have been done on tablets, devices, and the usage of computers in the classroom. The majority of results demonstrated successful outcomes and efforts that deserve attention at all levels. Research conducted on tablet-based teaching at the primary school level shows that the use of these devices by instructors is entirely dependent upon them. Since kids are unable to use these technologies on their own, it is the duty of their teachers to guide their younger students in learning how to use, understand, and benefit from these devices. When it comes to class activities, teachers have complete control. It implies that they are in complete control of how these tools are used in the classroom (Atkinson, 2000).

According to data from Oslo University ICT Centre, using these electronic devices in class had positive effects on students' confidence. They work along with their classmates. It produces fresh opportunities for education and gaining the necessary amount of information (Parnell & Bartlett, 2012).

Pupils engage with the material they are learning, and instructors inspire them to achieve better results (Reboli, 2007). Students find ICTs enjoyable when learning novel topics through interactive methods and are able to effectively regulate their learning speed. When these technologies are integrated in educational institutions, it enhanced possibilities and a conceptual learning environment emerge which was not possible in the past (Henderson & Yeow, 2012).

Statement of the Problem

The problem statement comprises of 'Reflection Regarding the Effectiveness of Literacy and Numeracy Drive on the Quality of Primary Education'. The purpose of this study is to analyze the use, effectiveness of LND program and its impact on the quality of primary education. The importance of ICTs in education is highlighted and explores the effect of LND application. The performance of students, teachers and AEOs is analyzed. It gives an insight about their performance.

Significance of Study

Understanding the impact of LND on the performance of students, teachers and AEOs in Government Primary schools is a significant goal of this research. This study will assist to obtain knowledge regarding the after effects of LND on students' learning and achievement. Future educators will find this study valuable to comprehend the significance of emerging technologies in the educational setting. This will help educators to create interactive classroom environment where students will enhance their skills. AEOs administer the performance of educators. Their duty is to visit the schools which lie in their Markaz. They provide guidance to teachers. The outcomes of LND are among the quality indicators that reveal the performance of public primary schools. The responsibility of school performance is the duty of AEOs. This study will be beneficial to gain an insight about the real situations of public primary schools. It provides a reflection of educators and AEOs about LND program. Their issues, difficulties will be highlighted. It will also serve as a source of information for new teachers and AEOs.

Objectives of the Study

Following are the objectives of the study to

1. identify the purpose of LND program
2. investigate the effectiveness of LND
3. analyze role of LND program in enhancing quality of primary education
4. determine the benefits of ICTs in teaching learning process
5. recognize the use of LND in public schools
6. evaluate the impact of LND program in public schools

METHODOLOGY OF RESEARCH

The research work comprises cross sectional method. It is descriptive research. This study is quantitative in nature. The data was collected from respondents through a questionnaire consisting 31 items. A five point Likert scale questionnaire was used to gather data from the respondents.

Population of the Study

All the Government schools in Tehsil Bahawalpur, situated in Punjab province, Pakistan were taken as a population of the study. Two Tehsils of Bahawalpur are taken as population; Bahawalpur City and Bahawalpur Saddar.

Sample

83 public schools were randomly selected as a sample from Tehsil Bahawalpur; Bahawalpur City and Bahawalpur Saddar. 35 AEOs and 202 school teachers were taken as a sample. Researchers adopted the technique of convenient sampling.

Validation of the research tool

The researchers took expert guidance and review the tool. Validity was tested. Researchers conduct pilot testing and after this process, the final questionnaire was prepared.

Table 1 Reliability Index

Reliability Statistics Sr. NO	Number of Items	Cronbach’s Alpha
1.	31	0.741

Table 1 depicts reliability index. The tool was reliable and appropriate. Research ethics were followed by the researchers while collecting the data from respondents.

Analysis of data

Firstly, the data were collected and inserted in SPSS software by the researchers, and then the data were analyzed.

Application of Different tests in SPSS software

Mean score, T Tests, ANOVA were applied.

Results and Discussion

Due to quantitative nature of the study, researchers used five point Likert scale.

Table 2 Level of responses

Description	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Scores	5	4	3	2	1

Table 2 shows the level of responses used in questionnaire.

ANOVA -Test

Table 3 Multiple Analysis of Academic level variables ANOVA- Test, on the Use of LND Program

Sr. No.	Statement	Academic qualification	Agree	Disagree	Undecided	F value	P Value
1.	Students actively participate in class activities	Graduation Masters M. Phil	3% 70% 20.3%	0% 2.5% 0%	0% 4.0% 0%	1.94 0	.002
2.	LND application is properly utilized by students	Graduation Masters M. Phil	2.5% 48% 13.4%	0% 19.3% 3.5%	0.5% 9.4% 3.5%	.693	.004
3.	Instructors feel excessive burden due to arranging practice sessions on tablets	Graduation Masters M. Phil	2% 52% 11.4%	0.5% 15.9% 6%	0.5% 8.9% 3.0%	1.63 8	.010
4.	English test is difficult for students	Graduation Masters M. Phil	2.0% 62.4% 16.8%	0.5% 7.4% 1.5%	0.5% 6.9% 2.0%	1.70 2	.004
5.	Teachers are worried about the outcomes of LND	Graduation Masters M. Phil	2% 65.3% 18.3%	1% 7% 1%	0% 4.5% 1.0%	1.78 2	.003
6.	Students experience nervousness while taking LND exam	Graduation Masters M. Phil	1% 50% 14.4%	1% 15.8% 4%	1.0% 10.9% 2.0%	.438	.004
7.	Teachers viewed LND program as only extra burden upon them	Graduation Masters M. Phil	2.5% 43.6% 12.4%	0.5% 18.3% 5.5%	0% 14.9% 2.5%	1.28 9	.020
8.	Teachers encounter various issues while applying new LND routines	Graduation Masters M. Phil	2.5% 52% 11.9%	0.5% 13.4% 6%	0% 11.4% 2.5%	1.13 2	.024
9.	Students feel hesitation while MEAs take LND test from them	Graduation Masters	2.5% 31.6%	0% 23.6%	0.5% 21.3%	4.09 9	.003

		M. Phil	13.4 %	5%	2%		
10.	Monthly LND results creates stress among teachers	Graduation	2% 56.5	0.5% 13.3	0.5% 6.9%	1.40 8	.008
		Masters	%	%			
		M. Phil	17.8 %	1%	1.5%		
11.	LND program should be continued in future	Graduation	2% 22.8	1% 38.2	0% 15.8	1.14 6	.005
		Masters	%	%	%		
		M. Phil	5.9% %	10.4	4%		

The results have been presented in Table 3. The table shows the results of ANOVA-Test, the calculated value of F by applying mentioned test are found statistically significant and it also depicts P value (< 0.05 levels). The obtain outcome reveal satisfaction of respondents regarding the use of LND application.

Table 4 Effectiveness of LND Program

Sr. no.	Statement	Academic qualification	Agree	Disagree	Undecided	F value	P Value
12.	Recently introduced LND routine 'Story telling' assist students to develop conceptual understanding of topics	Graduation Masters M. Phil	1.5% 43.5 %	0.5% 17.4 %	1.0% 15.8 %	3.65 6	.003
13.	Learners are motivated to learn new concepts due to interactive instruction	Graduation Masters M. Phil	1.5% 59% 17.3 %	0% 3.5% 0.5% %	1.5% 14.4 2.5% %	2.09 2	.126
14.	Learners perform better due to practice on tablets	Graduation Masters M. Phil	2% 52.5 %	0% 10.4 %	1.0% 13.9 3%	2.88 8	.004
15.	With the addition of the LND routine "Show and Tell," students can now connect their studies to real-world experiences.	Graduation Masters M. Phil	2% 46% 14.4 %	0.5% 17.3 3% %	0.5% 12.9 3% %	1.08 2	.008
16.	The idea of individual as well as group learning assists in new LND routines	Graduation Masters M. Phil	3% 51.5 %	0% 7.9% 0.5% %	0% 17.3 4% 1%	4.18 1	.014
			1.5% %	0.5% %	1% %		.121

17	Instructor choose LND tablet test over paper pencil test	Graduation Masters M. Phil	21.8 8.9% 11.4 %	16.8 3% 6.5% %	38.2 8.5% 2.5% 0%	2.13 1	
18	Listening skills are enhanced among students	Graduation Masters M. Phil	2.5% 46% 11.4 %	0.5% 12.9 6.5% 2.5% %	0% 17.8 %	1.47 5	.010
19	Learners became confident as they give brief presentations in class	Graduation Masters M. Phil	2% 52.4 13.9 %	0.5% 7.9% 4% %	0.5% 16.3 2.5% %	.054	.003
20	Students complete their class work with interest due to newly introduced LND routines	Graduation Masters M. Phil	1.0% 38.6 10.9 %	1.5% 22.3 4% %	0.5% 15.8 5.4% %	.585	.004

The results of table 4 depicts the calculated values found statistically significant.

Table 5 Role of LND program in Improving the Quality of Primary Education.

Sr no.	Statement	Academic qualification	Agr ee	Disa gree	Un decid ed	F val ue	P Valu e
21	The quality of primary level education is enhanced due to LND initiative	Graduation Masters M. Phil	0.5 42.6 11.4 %	1.5% 23.7 6% %	1.0% 10.4 3.0% %	1.8 76	.002
22	Positive steps are taken by Punjab government to improve the standard of primary education	Graduation Masters M. Phil	0.5 35.4 8.9 %	1.5% 24.2 6.5% %	1.0% 17.3 5.0% %	.30 22	.023
23	LND program serves as a powerful tool to enhance quality education quality education	Graduation Masters M. Phil	2% 35.6 11.9 %	0.5% 24.8 6.5% %	0.5% 16.3 2.0% %	1.1 32	.004

The data presented in Table 5 shows satisfactory results about the role of LND program. The obtained values are statistically significant.

Table 6 Impact of LND program

Sr. no.	Statement	Academic qualification	Agree	Disagree	Undecided	F value	P value
24	Teachers understand the value of advanced, contemporary teaching methods that are adopted during LND practice sessions.	Graduation Masters M. Phil	0.5% 43.1% 13.4%	0% 18.4% 3.5%	2.5% 15.3% 3.5%	1.138	.004
25	Instructors are doing constructive efforts to achieve desired outcomes of LND	Graduation Masters M. Phil	2% 58.4% 17.4%	1% 9.4% 2%	0% 8.9% 1%	.186	.011
26	Teachers appreciate students on their good results	Graduation Masters M. Phil	2% 59.4% 18.8%	0% 5.9% 0.5%	1% 11.4% 1%	2.813	.003
27	Instructors motivate shy learners to take participation in class discussion	Graduation Masters M. Phil	2.5% 57.4% 11.9%	0% 7.4% 2.5%	0.5% 11.9% 5.9%	1.064	.002
28	Cramming is reduced	Graduation Masters M. Phil	2% 43.6% 11.9%	1% 16.3% 2%	0% 16.8% 6.4%	.467	.004
29	Learners' intellectual and cognitive abilities are enhanced improved	Graduation Masters M. Phil	2% 48.1% 13.9%	0.5% 11.9% 3.5%	0.5% 16.8% 3%	.164	.003

The data presented in table 6 indicate the positive impact of LND program, the obtained values are statistically significant.

Table 7 Usefulness of ICTs.

Sr. no.	Statement	Academic qualification	Agree	Disagree	Undecided	F value	P Value
30	Instructors support the use of modern technologies in teaching learning process	Graduation Masters M. Phil	1% 48.5% 12.9%	1% 14.4% 6%	1% 13.9% 1.5%	1.003	.369

31	LND program helps to enhance the process of teaching and learning	Graduation Masters M. Phil	1.5 44.5 11.9 %	1% 19.3 5.5% %	0.5% 12.9 3.0% %	.249	.780
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The data presented in table 7 depicts the Academic variables of ANOVA- Test shows the calculated P value found statistically insignificant.

T Test (applied on sample of teachers)

Table 8 Use of LND Program

Independent sample T test was applied on the sample of teachers. Total male teachers were 110 and female teachers were 92. In following tables 'n' denotes the total no. of teachers.

Sr no.	Statement	Gender	N	Mean	Standard deviation	T value	Sig.
1.	Students actively participate in class activities	Male	110	4.16	.711	-.107	.004
		Female	92	4.17	.640		
2.	LND application is properly utilized by students	Male	110	3.37	1.203	-.108	.503
		Female	92	3.46	1.152		
3.	Instructors feel excessive burden due to arranging practice sessions on tablets	Male	110	3.60	1.236	-.505	.812
		Female	92	3.74	1.185		
4.	English test is difficult for students	Male	110	4.05	.861	-1.664	.035
		Female	92	3.84	.917		
5.	Teachers are worried about the outcomes of LND	Male	110	4.19	.914	1.654	.003
		Female	92	4.05	1.093		
6.	Students experience nervousness while taking LND exam	Male	110	3.36	1.209	.952	.009
		Female	92	3.61	1.005		
7.	Instructors viewed LND program as only extra burden upon them	Male	110	3.52	1.123	-1.573	.004
		Female	92	3.28	1.377		
8.		Male	110	3.62	.908	1.315	.026

	Teachers encounter various issues while applying new LND routines	Female	92	3.50	1.000	.879	
9.	Students feel hesitation while MEAs take LND test from them	Male	110	3.38	1.014	.872	.004
		Female	92	3.14	1.044	1.657	
10.	Monthly LND results creates stress among teachers	Male	110	3.90	1.092	1.653	.005
		Female	92	3.80	1.197	.593	
11.	LND program should be continued in future	Male	110	2.78	1.168	.588	.003
		Female	92	2.52	1.253	1.524	

The results of T test have been presented in Table 8. The data presented in the above table depict the use of LND program. Both male and female teachers' responses were calculated by applying T test. Mean scores and standard deviation are calculated. Results are statistically significant (< 0.05 level). This depicts that there is significant mean difference between opinion of both groups (male and female).

Table 9 Effectiveness of LND Program

Sr. no.	Statement	Gender	N	Mean	Standard deviation	T value	Sig.
12.	Recently introduced LND routine 'Story telling' assist students to develop conceptual understanding of topics	Male	110	3.40	1.024	-.763	.003
		Female	92	3.51	1.032		
13.	Learners are motivated to learn new concepts due to interactive instruction	Male	110	4.01	.784	1.699	.006
		Female	92	3.83	.735	1.709	
14.	Learners perform better due to practice on tablets	Male	110	3.69	.810	1.101	.005
		Female	92	3.55	.953	1.085	
15.	With the addition of the LND routine "Show and Tell," students can now connect their studies to real-world experiences.	Male	110	3.50	1.098	.780	.024
		Female	92	3.38	1.067	.782	
16.	The idea of individual as well as group learning assists in new LND routines	Male	110	3.69	.763	.154	.004
		Female	92	3.67	.800	.154	
17.	Instructor choose LND tablet test over paper pencil test	Male	110	2.82	1.213	1.277	.003

		Female	92	2.60	1.232	1.275	
18	Listening skills are enhanced among students	Male	110	3.45	1.081	.413	.004
		Female	92	3.39	1.089	.412	
19	Learners became confident as they give brief presentations in class	Male	110	3.66	.838	.277	.005
		Female	92	3.63	.861		
20	Students complete their class work with interest due to newly introduced LND routines	Male	110	3.24	1.091	.276	.043
		Female	92	3.07	1.137	1.089	

The results of T test have been presented in Table 9. The data of this table depict the effectiveness of LND program. Both male and female teachers' responses were calculated by applying T test. Results are statistically significant (< 0.05 level). This depicts that there is significant mean difference between opinion of both groups (male and female).

Table 10 Role of LND program in improving the Quality of Primary Education

Sr. no.	Statement	Gender	N	Mean	Standard deviation	T value	Sig.
21	The quality of primary level education is enhanced due to LND initiative	Male	110	3.25	1.198	-2.81	.006
		Female	92	3.29	1.227		
22	Positive steps are taken by Punjab government to improve the standard of primary education	Male	110	3.05	1.270	-2.80	.004
		Female	92	3.05	1.103	.001	
23	LND program serves as a powerful tool to enhance quality education	Male	110	3.22	1.192	.001	.005
		Female	92	3.02	1.301	1.119	

The results of T test have been presented in Table 10. The data of this table depict the role of LND program in improving quality education. Both male and female teachers' responses were calculated by applying T test. Results are statistically significant (< 0.05 level). This depicts that there is significant mean difference between opinion of both groups (male and female).

Table 11 Impact of LND program

Sr. no.	Statement	Gender	N	Mean	Standard deviation	T value	Sig.
24	Teachers understand the value of advanced, contemporary teaching methods that are adopted during LND practice sessions	Male	110	3.54	.789	2.826	.024
		Female	92	3.15	1.128		

25	Instructors are doing constructive efforts to achieve desired outcomes of LND	Male	110	3.89	.961	2.74	.00
		Female	92	3.78	1.046	.766	4
26	Teachers appreciate students on their good results of LND	Male	110	3.76	.729	.760	.02
		Female	92	3.93	.676	-1.718	6
27	Instructors motivate shy learners to take participation in class discussion	Male	110	3.66	.781	1.729	.00
		Female	92	3.73	.800	-.579	5
28	Cramming is reduced	Male	110	3.37	1.021	.578	.02
		Female	92	3.27	1.110	.673	7
29	Learners' intellectual and cognitive abilities are enhanced improved	Male	110	3.60	.848	.668	.03
		Female	92	3.46	.942	1.138	4

The results of T test have been presented in Table 11. The data of this table depict the positive impact of LND program. Both male and female teachers' responses were calculated by applying T test. Results are statistically significant (< 0.05 level). This depicts that there is significant mean difference between opinion of both groups (male and female). Results show that there is positive impact of LND.

Table 12 Usefulness of ICTs

Sr. no.	Statement	Gender	N	Mean	Standard deviation	T value	Sig.
30	Instructors support the use of modern technologies in teaching learning process	Male	110	3.45	1.055	1.31	.035
		Female	92	3.43	1.082		
31	LND program helps to enhance the process of teaching and learning	Male	110	3.38	1.249	1.31	.055
		Female	92	3.17	1.210		

The results of T test have been presented in Table 12. The data of this table depict the usefulness of ICTs. Both male and female teachers' responses were calculated by applying T test. Results are statistically significant (< 0.05 level). This depicts that there is significant mean difference between opinion of both groups (male and female).

T Test (applied on sample of AEOs)

Independent sample T test was applied on the sample of AEOs. Total male AEOs were 22 and female AEOs were 13. In following tables 'n' denotes the total no. of AEOs.

Table 13 Use of LND Program

Sr. no.	Statement	Gender	N	Mean	Standard deviation	T value	Sig.
1.	Learners actively take part in class activities	Male	22	4.00	.617	1.91	.001
		Female	13	3.46	1.050	9	
2.	LND application is properly utilized by students	Male	22	3.50	1.185	1.68	.048
		Female	13	3.54	.967	-.099	
3.	Instructors feel excessive burden due to arranging practice sessions on tablets	Male	22	3.05	1.133	-.104	.054
		Female	13	4.00	.913	-2.579	
4.	English test is difficult for students	Male	22	3.68	1.492	-2.728	.059
		Female	13	4.08	1.115	-8.26	
5.	Teachers are worried about the outcomes of LND	Male	22	3.95	1.253	-8.90	.045
		Female	13	4.69	.480	-2.027	
6.	Students experience nervousness while taking LND exam	Male	22	3.82	.501	-2.472	.045
		Female	13	3.69	1.182	.440	
7.	Teachers encounter various issues while applying new LND routines	Male	22	3.27	1.032	.365	.044
		Female	13	3.54	.967	-.753	
8.	Students feel hesitation while MEAs take LND test from them	Male	22	3.36	1.293	-.766	.035
		Female	13	2.92	1.188	1.003	
9.	Monthly LND results creates stress among teachers	Male	22	3.64	1.177	1.026	.045
		Female	13	4.23	1.166	-.1449	
10.	LND program should be continued in future	Male	22	3.64	1.364	-1.452	.055
		Female	13	2.92	1.553	1.420	

The obtained results in Table 13 depict the use of LND program. Both male and female AEOs responses were calculated by applying T test. Results are statistically significant (< 0.05 level). This depicts that there is significant mean difference between opinion of both groups (male and female).

Table 14 Effectiveness of LND Program

Sr. no.	Statement	Gender	N	Mean	Standard deviation	T value	Sig.
11.	Recently introduced LND routine 'Story telling' assist students to develop conceptual understanding of topics	Male	22	3.86	1.037	.632	.055
		Female	13	3.62	1.261		
12.	Learners are motivated to learn new concepts due to interactive instruction	Male	22	4.32	.716	.600	.038
		Female	13	3.62	.650		
13.	Learners perform better due to practice on tablets	Male	22	3.59	1.008	2.974	.058
		Female	13	3.77	.832		
14.	With the addition of the LND routine "Show and Tell," students can now connect their studies to real-world experiences	Male	22	3.50	1.012	-5.66	.046
		Female	13	3.15	.899		
15.	The idea of individual as well as group learning assists in new LND routines	Male	22	3.86	1.125	1.050	.045
		Female	13	3.38	1.261		
16.	Instructor choose LND tablet test over paper pencil test	Male	22	2.82	1.424	1.130	.043
		Female	13	2.38	.961		
17.	Listening skills are enhanced among students	Male	22	3.09	1.019	1.186	.046
		Female	13	3.00	1.000		
18.	Learners became confident as they give brief presentations in class	Male	22	3.36	1.002	.258	.033
		Female	13	3.62	.506		
19.	Students work easily in new LND routines	Male	22	3.05	1.174	.985	.042
		Female	13	3.00	.913		

The data of table 14 depicts the effectiveness of LND program. Both male and female AEOs responses were calculated by applying T test. Results are statistically significant (< 0.05 level). This depicts that there is significant mean difference between opinion of both groups (male and female).

Table 15 Role of LND program in improving the Quality of Primary Education

Sr. no.	Statement	Gender	N	Mean	Standard deviation	T value	Sig.
20.	The quality of primary level education is enhanced due to LND initiative	Male	22	3.86	1.082	1.455	.055
		Female	13	3.31	1.109		
21.		Male	22	3.64	.790	1.446	.039

22.	Positive steps are taken by Punjab government to improve the standard of primary education	Female	13	3.00	1.354	1.764	.046
	LND program serves as a powerful tool to enhance quality education	Male	22	3.36	1.217	1.546	
		Female	13	2.69	1.548	1.425	

The data of table 15 depicts the role of LND program in improving quality education. Both male and female AEOs responses were calculated by applying T test. Results are statistically significant. This depicts that there is significant mean difference between opinion of both groups (male and female).

Table 16 Impact of LND program

Sr. no.	Statement	Gender	N	Mean	Standard deviation	T value	Sig.
23.	Teachers understand the value of advanced, contemporary teaching methods that are adopted during LND practice sessions	Male	22	3.18	1.097	2.86	.036
		Female	13	3.08	.954		
24.	Instructors are doing constructive efforts to achieve desired outcomes of LND	Male	22	3.86	.889	2.97	.048
		Female	13	3.85	.801		
25.	Teachers appreciate students on their good results of LND	Male	22	3.64	1.093	.060	.056
		Female	13	3.85	.801		
26.	Instructors motivate shy learners to take participation in class discussion	Male	22	3.68	.894	-6.52	.032
		Female	13	3.54	.776		
27.	Cramming is reduced	Male	22	3.18	1.220	-4.99	.030
		Female	13	2.62	1.502		
28.	Learners' intellectual and cognitive abilities are enhanced improved	Male	22	3.77	.922	1.15	.054
		Female	13	3.15	.899		

The data of table 16 depicts the positive impact of LND program. Both male and female AEOs responses were calculated by applying T test. Results are statistically significant. This depicts that there is significant mean difference between opinion of both groups (male and female).

Table 17 Usefulness of ICTs

Sr. no.	Statement	Gender	N	Mean	Standard deviation	T value	Sig.
29.		Male	22	2.91	.971	-0.42	.048

30	Instructors support the use of modern technologies in teaching learning process	Fem	13	2.92	.954		
	LND program helps to enhance the process of teaching and learning	Mal	22	3.86	1.082	1.64	.05
		Fem	13	3.15	1.463		

The data of table 17 depicts the usefulness of ICTs. Both male and female AEOs responses were calculated by applying T test. Results are statistically significant. It reveals that there is significant mean difference between opinion of both groups (male and female).

Open Ended Questions

Three open ended questions were taken by respondents, their views are recorded and also presented in graph form in following figures

1. Positive outcomes of LND in students

Figure 1 describes the positive outcomes of LND in students. The respondents stated the confidence level is enhanced among students. Basic knowledge was inculcated by teachers in classroom. Respondents also highlighted that the LND application helps to clarify the concepts of students. Now they take more interest towards their studies. Analytical, communicative skills are enhanced. Respondents highlight the advantages of LND that it assists students to take active participation in lessons.

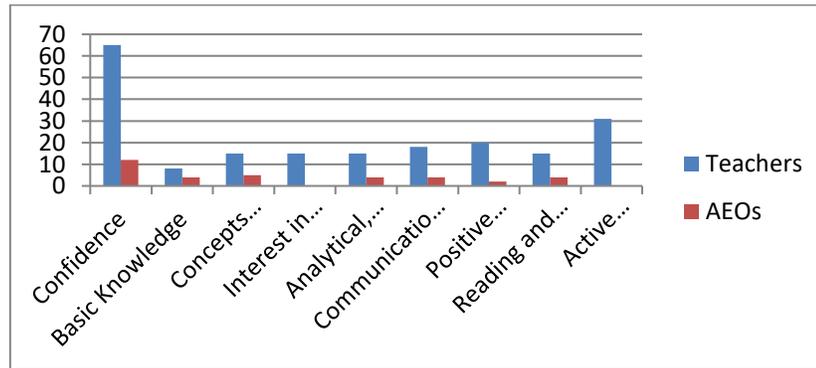


Figure 1. Positive outcomes of LND in students

2. Advantages of adopting latest and innovative techniques in LND

Figure 2 depicts the views of respondents. Different views were taken by them. They stated that the LND practice sessions in classrooms assist students to learn new concepts easily. Respondents point out the innovative teaching methodology is now used in Public schools of Punjab. LND application helps to foster difficult concepts in classroom easily. Respondents also highlighted another benefit of LND that it creates an environment of interaction between students and teachers in classroom which aids conceptual learning among students. The opinions of respondents depicts positive behavior of educators towards government schools, it shows the positive impact of LND initiative.

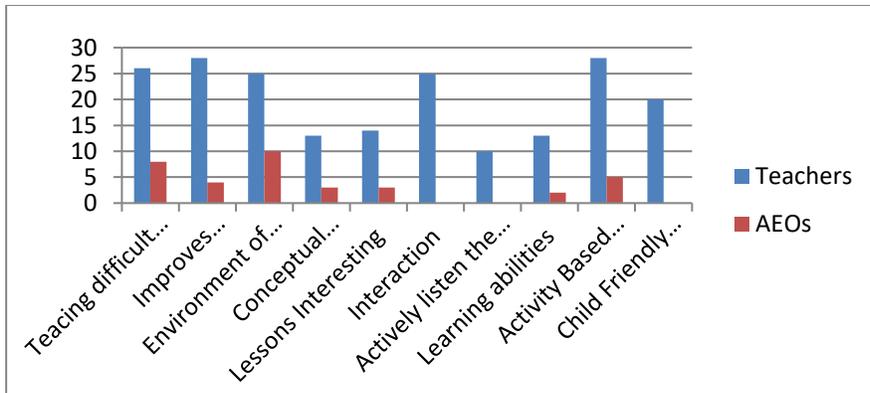


Figure 2. Advantages of acquiring latest techniques in LND

3. Perception regarding the enhancement on Quality of Primary Education due to LND program

Figure 3 indicates the perceptions of respondents regarding the enhancement on Quality of Primary due to LND initiative. Various opinions were taken by respondents. Many respondents identified that LND program is beneficial, it increases the quality of Primary education. Technology infused lessons boost the performance of students. They take more interest towards their studies. Various respondents said that there is a positive impact of LND. But some respondents shared their concern about results that they have fear of poor results. Because it may depends on the performance of students. Sometimes students can't perform well. Some respondents considered it a mere burden on them as they conduct LND classes so other subjects are ignored. Some teachers point out the problems of students' hand writing develops, due to excessive practice on tablets and use of LND application. So that teachers can't pay attention towards the hand writing of students.

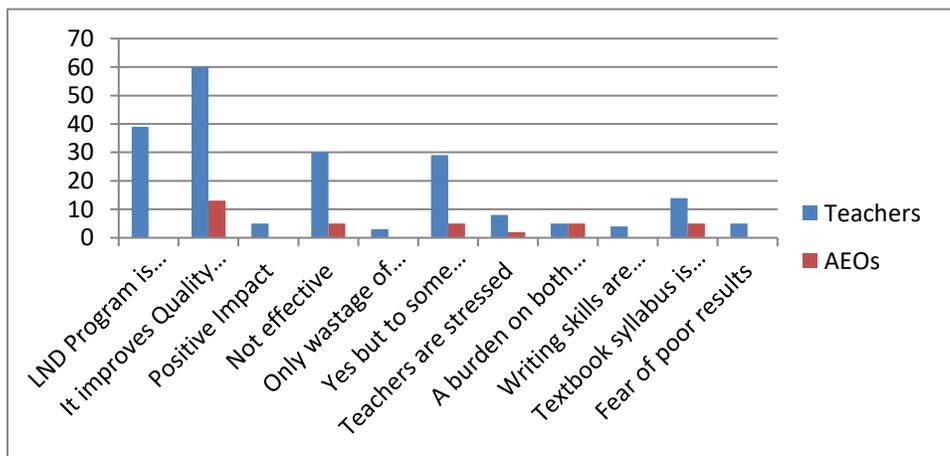


Figure 3. Views concerning the enhancement on Quality of primary education

Discussion

Nowadays technological innovation is an essential component of the educational system. We are living in digital world as digital natives. Innovations in technology have completely transformed the landscape of education. In educational institutions of Pakistan, gradually tablets will replace note books, the way in developed countries, smart boards have replaced

white boards. Pakistan is a developing country and it is on the way of struggle in education. The educational environment and academic culture has transformed by these fast and innovative innovations that have not only altered lifestyles but also education.

The modern advancement in the field of education transforms the classrooms as well as the entire academic culture of schools. Students are no longer restricted to the classroom and are not confined to learn only from textbooks. Today learning is not only limited to the boundaries of classroom. Because of vast advancements in education, students became global learners. The role of educator is now transformed into a facilitator and mentor. Conceptual learning is the current trend, and the misconception of outstanding grades is the only thing that count is drastically diminished. To some extent, rote learning is decreased, and idea clarification is considered appropriate. Modern classrooms are equipped with multimedia, tablets, and other technological tools. Throughout an academic year, power point lectures and internet-based instruction are useful. However, Pakistan is still progressing at slow pace in this regard. We observe that public schools of Pakistan are still facing problems. However, Punjab Government made significant efforts in the past few years to improve the quality of education. The findings of this study are consistent with the study of Khuhro et al. (2016), Hussain and Awan (2018). In Pakistani context, LND test was found effective in Province of Punjab (Ishaq et al., 2019; Khalid et al., 2019). The findings of this study are consistent with the findings of the study conducted by Ishaq et al. (2020) who worked on usability and problems in LND test. The findings are also in line with the results of Faiza, Ahmed & Arain (2020) who concluded that high-quality education, requires educators who are dedicated to their work and possess a strong educational background. Being a teacher is an art, and excellent instruction depends on teachers being passionate, committed, and devoted to their students. Moreover, the results of the study are in line with Habib et al. (2021) who concluded that SLO based language teaching and technological infused lessons in LND improves the performance of students and raise the standards of teaching.

Still there are weak points which should be addressed for bright future. The Literacy and Numeracy Drive (LND) is one of the notable initiatives of the Government of Punjab. It is one of the quality indicators that are implemented at the primary level (class three) in public schools of Punjab, in order to improve the method of instruction and learning. Improving the quality of primary education is a successful goal of the LND program.

Conclusion

We are in the 21st century. It is the responsibility of educators to prepare their students to operate and take benefit from latest technologies. The proper use of these innovative tools assists in both teaching and learning process. In this study, effectiveness, role and impact of LND initiative on the quality of primary education is examined. The Government of Punjab launched LND as an initiative to improve basic education standards. It is among the quality measures that demonstrate performance of public schools. This program works well to raise the standard of primary education, that is, the quality of both teaching and learning. Students gain more confidence and understand topics clearly. The prospect of practicing on tablets excites them. Students can now identify, recognize the topics clearly and conceptual learning take place. The positive outcomes of LND enhance the quality of primary education.

Recommendations

LND assist to create interest and aids in learning effectively. Therefore there is still a need for more projects like LND that will help to inculcate technology in lessons. Hence, the researchers would like to recommend that primary teachers should upgrade themselves with up to date technologies. They should use modern technologies while teaching in classrooms. Extra focus should be prioritized on English subject. As English is our second language, so our students

face more difficulties while doing English comprehension. Teachers should arrange extra classes for students, so they will do more practice of LND application on tablets. Latest and innovative teaching methods along with technology usage should be implemented in classrooms. Punjab Government should arrange continuous training sessions to upgrade teachers' knowledge and skills related to technology. The performance of teachers decline due to fear of inquiry. It should be minimized by Government and there should be a setup to appreciate and motivate hardworking educators. AEOs need to give their teachers explicit instructions on how to operate and use LND application appropriately. Hence, the researchers recommended that quality of primary education will be improved and enhanced by following above constructive suggestions.

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