

Investigating The Impact Of Literacy & Numeracy Drive (LND) For The Enhancement Of Reading Comprehension Skills: Pakistani ELT Perspective

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ABSTRACT

A country's ability to flourish depends on a number of elements, the most important of which is the educated populace that supports and contributes to the growth and prosperity of the country. Students in Grade 03 are now being taught reading and numeracy on a mobile tablet through the use of a mobile application called reading and Numeracy Drive (LND). This study examines the association between fourth-grade students' English reading comprehension skills in Lahore's public schools and the Android mobile application Literacy & Numeracy Drive (LND). The Punjab province of Pakistan's public primary schools all use this Android application. 350 government elementary schools in Lahore were the target population; of these, 21 male and 14 female schools were selected. The students achievement test (SAT) for fourth-graders and the literacy and numeracy drive (LND) android mobile application were the two research instruments employed to achieve this. The same instructors were asked to complete an extra questionnaire to learn more about their qualifications, topic knowledge, pedagogical skills in use, opportunities for in-service training, and usage of teaching resources in the classroom. The study used a quantitative methodology and was descriptive in nature.

Keywords Literacy and Numeracy Drive (LND), Students Achievement Test (SAT), Monitoring and Evaluation Assistant (MEA), Correlational Research.

1.1 Introduction

In Pakistan, the language of English has gained official status and it now have a position of a second language in education after national language. English and Urdu are our pedagogical and official languages. Education is the cornerstone of a country's development, and people's well-being as well as higher living standards depend on it. According to Behraam, Ul-Hassan, Perveen, & Nadeem (2015), 11 percent of Pakistanis speak English making Pakistan Asia's third largest country. Students in the government schools come from a socio-cultural context in which English is not spoken because it is not their local language. Punjabi is the everyday language in rural areas of Punjab province, while national language Urdu is spoken around the country, whereas teachers teach English language in the schools.

Outdated methods of large-scale evaluation for students in early classes of school education are costly, inconsistent, and complex. The Department of School Education together with PITB implemented a low-cost mobile application called "Literacy and Numeracy Drive" (LND) for promoting literacy in the subjects of English and Urdu while numeracy in the subject of Mathematics across the Punjab. The application includes a large set of questions with titles for each question and the corresponding student learning outcomes. For better performance in literacy and numeracy, this android application is being used to assess the learning outcomes of grade three children on a regular basis. The teachers teach the students in this manner in these three fundamental subjects via a mobile application, namely English, Urdu, and Mathematics.

1.2 The Significance of LND

In 2015, the Punjab government, in partnership with the Punjab Information Technology Board, launched a literacy and numeracy campaign for the students of grade III. This project was initiated for all public schools of Punjab. The purpose was to analyze school performance as well as third-grade kids' English, Urdu, and math abilities. This time, innovation was brought to the table by combining cell phone technology and education. LND was introduced and uploaded on the Google Play Store so that it could be easily accessed and used. This remarkable application deals in three subjects (English, Urdu and Math). The involvement of technology has assisted schools in achieving educational goals and its use cannot be ignored (Raja & Nagasubramani, 2018). MEAs (Monitoring & Evaluation Assistants) were appointed by then Punjab Chief Minister in 2004 to report school performance on monthly

basis to Punjab Information Technology Board (PITB). These MEAs are not employees of the education department but they assess and report school performance as third party evaluation. The features of schools that MEAs assess are referred to as indicators, and LND is one of the school performance indicators.

1.3 Reading Comprehension Paradigm

The people who can speak more than one language in their everyday life are multilingual (Cruz-Ferreira, 2010). Comprehension means that the reader used his previous knowledge to get understanding of material which he or she is reading (Hudson, 2007). Reading comprehension becomes a matter of interest for linguists where L1 of student is different from L2 of the subject being taught at schools. Irrespective of first language skills, second language reading comprehension helps us in evaluating the contents that are designed to develop the ability of reading comprehension in English. The topics for LND are selected with the aim to promote reading comprehension among students of grade-III, so the students may interpret and comprehend unseen simple passages of English on their own using the practice and knowledge of wide variety of SLOs of LND application. Although, comprehension is one of the parts of LND contents, no study has yet been conducted to investigate the relationship of LND contents to that of reading comprehension ability of multilingual students of grade-III. It is relevant to mention that the topics in LND android mobile applications have been taken from grade-II & grade-III text books. Based on this report, low performer school teachers are called for the explanation by the district education authorities which suggest training or fine for the delinquent teachers.

1.4 Objectives

This research is focused:

1. To demonstrate the relationship between LND mobile application and English reading comprehension.
2. To exhibit degree of Grade-IV students' ability to attempt the unseen reading comprehensions from their text books with confidence.
3. To determine the effectiveness of LND application English SLOs in developing reading comprehension ability of multilingual students.

1.5 Rationale

English is a passport for better employment and economic opportunity in today global world. This study practically contributes to government public schools of Sheikhpura in general and of whole Punjab in particular that how English language reading comprehension level can be increased. The current world is a global village where international communication demands understanding of international language like English. This study sufficiently throws light on those steps that Punjab Government is taking to promote English learning at Primary schools level and whether these steps can be modified for reading comprehension of English.

1.6 Research Questions

1. What type of relationship exist between LND mobile application and reading comprehension ability of multilingual students of govt. primary schools of Lahore?
2. What degree of understanding the students of Grade-IV have to interpret the meanings of English comprehension of their text book?
3. How much useful are the contents of LND mobile application to promote reading comprehension?

1.7 Research Gap

No study has yet been taken to investigate the effect of mobile-based LND application on English reading comprehension. The understanding of relationship between these two variables will highlight the usefulness of LND and its association with English reading comprehension. This study on multilingual students is also key to judge direct method approach in English language teaching. For our current study, only English subject will be considered.

Literature Review

2.1 Multilingualism

Lyons (1981) defines multilingualism as the coexistence of multiple languages within a culture. Additionally, the capacity a person's ability to use or communicate in three or more languages. A multilingual speaker may speak exclusively or in varying degrees of code-mixing in various contexts and conditions. Competence in each language varies depending on the factors such as register, occupation and education (Kemp, 2009). Multilingualism is a sociological phenomenon that deals with the existence of languages in a society. A civilization is said to be multilingual if it has a variety of languages. A multilingual

person is someone who is fluent in several languages. The concept of language interaction transcends dialectal boundaries. It is a problem that affects two or more district and autonomous languages. It is obvious that language contact refers to a situation in which two or more languages coexist in a specific community.

2.1.1 Pakistan Language Policy

Baker (2011) in his research article expresses that since 1947, Urdu has been promoted as a main language and a mark of nationalism as well as cohesiveness by the state. Since the origin of Pakistan the promotion of the languages was felt, rather than just as a source of cultural evolution, but as a tool for education. Simultaneously, something required to be changed to bring these diverse cultures and languages together, and Urdu was selected as the language that may serve as a symbol of unity. However, there have been several difficulties in carrying out this plan, the most significant of which is "English." It was the British-established medium of teaching for upper strata of the society. After the division of sub-continent, this trend could not be changed. In spite of successive administrations' attempts over the last sixty years to remove English and replace it with Urdu, English has prospered and is now Pakistan's second official language.

2.1.2 National Education Policy: 2009

2009 National Education Policy, Section 5.4 acknowledges the importance of education and quasi trainings but makes no mention of the language or writing system in which individuals are to be assisted in becoming literate or the duties that literacy is supposed to perform. However and perhaps most significantly, the same Policy of national education offers the development of a solid policy of school language in collaboration with provinces and local union councils, as well as other sponsors. Additionally, it states that the establishment of a thorough plan of working for implementing the policy regarding language teaching must be done in a short time, with a specific emphasis on unprivileged parts and portions, in association with regional and local education administrations, professional organizations and the broader population. Additionally, opportunities for youngsters 'from poor socioeconomic strata' to study English are to be provided.

2.1.3 School Education and Multilingualism

At the moment, English and Urdu are promoted in Pakistan's education system, and children are educated in both of these

languages. The complete circle of education is conducted in English in elite institutions, whereas local regional national language is adopted in government schools. In a country where the residents are free to speak their regional languages such as Pakistan, students belong to a variety of societies and ethnic groups who do not speak English or Urdu as their first language. These children receive education at primary level and elementary level in second or third language. The use of multiple languages appears to increase overall brain function, which is a compelling reason for multilingual education (Rogers, 2014).

2.2 English Teaching and Learning in Primary School

In Pakistan the language of English is perceived a language of foreigners and is considered a second language. Officially, it is a language for communication, which is considered at the second place after national language, and from culture point of view, it is perceived a language, which was brought here after British rule. As a result, in the prevailing system of education, these two terms are in work to teach/learn English. The majority of Pakistan's population chooses government schools for their children's primary education in cities as well as in villages. Pakistan has four provinces and the province of Punjab is most abundant in population, total 44255 primary schools having strength of 156714 PSTs are operating in this populous province (Punjab EMIS Centre, 2019).

2.2.1 Duration of English Period

Because primary schools have classes ranging from kindergarten to fifth grade, each teacher is assigned to a class and is responsible for teaching all those subjects which are given to him in the time table. Every week, for English instruction on the average each school allocates three hundred minutes. The initial period is the only exception because it occupies a few minutes to deliver ethics, after which teaching of the subject gets started. This demonstrates that the perception of teaching this second language has utterly altered, as evidenced by the fact that it has the largest share of teaching time when compared to the other subjects. In addition to these arrangements, there are certain important aspects like methodology, teaching and supervision of teaching which are evaluated with internal as well as external examinations in order to make sure that educational objectives are met.

2.2.2 Primary English Teachers' Qualifications and Pedagogical Skills

Punjab province in Pakistan does not hire English language teachers based on specialization, but rather based on meeting the government's eligibility criteria. On the job, teachers are trained to improve their pedagogical skills and competencies through in-service teacher training programs. It is mandatory for all students from grade nursery to post-graduation to take English as a compulsory subject across all schools of Pakistan, even if they do not understand and speak it as their native language. Educators also learn English, which is taught to them like a second language throughout the system of education, from school admission to higher education. The teachers, who have a graduation degree with a minimum of a B.Ed. as a professional qualification, are asked to teach English subject to the students as they are the only option to carry out these tasks in public schools. In contrast to the perception that persisted in the society that the schools with title of "grammar schools" or "public schools", this hiring criterion is the exact opposite of that perception (Protherough & Atkinson, 1991).

2.2.3 Teacher Eligibility in Punjab's Government Primary Schools

The quality of an English language teacher is crucial for the implementation of English language teaching to students (Alderman, Orazem, & Paterno, 2001). Primary school teachers used to need a PTC (Primary Teaching Certificate) after their Matric (SSC) in the past, but now they need at least graduation with B.Ed. Teachers with graduation and B.Ed. are currently teaching in primary schools, where they can improve their academic and professional qualifications while on the service. Simultaneously the staff teachers receive training during the course of their service to polish the skills of pedagogy at apex level. In the province of Punjab, the teaching of English language is given utmost attention, but when it comes the question of hiring staff teachers what is most pathetic is that a mere B.Ed. degree of one year is deemed sufficient.

2.3 Reading Comprehension

Reading comprehension is the capacity to perceive and comprehend a written text. Comprehension is the evident fact in reading ability. If you want to learn a language, you need to be able to read and write (Liu, Chen & Chang, 2010). It is highly valued by teachers and learners alike since it facilitates language acquisition and teaches kids to read for a variety of purposes. The most successful readers employ cognitive

methods to increase their comprehension of the material (Behjat, Bagheri, & Yamini, 2012). Reading comprehension requirements increase as the students' progress through the grades, because students are supposed to understand increasingly complicated things that frequently necessitate improved reasoning abilities as well as the capacity to apply suitable background information in a number of scenarios. Regrettably, traditional and text-centered schools do not give training in the fundamental skills and tactics for pupils to develop the ability to interpret text (Tivnan & Hemphill, 2005).

2.3.2 Reading comprehension and LND

When you have good readers, the word recognition process goes smoothly and quickly. This conclusion implies that having a good vocabulary is necessary for good reading comprehension. Reading comprehension necessitates the use of skills and methods. While the use of skills is automatic, the employment of strategies is under the reader's conscious control (Afflerbach, Pearson, & Paris, 2008). Although much of the research on foreign or second language learning has focused on reading skills, there has been little research on the effects of LND when reading academic text. Although some studies on reading comprehension have been undertaken in other countries, the relationship between LND and reading performance of public sector learners has not been thoroughly investigated. Furthermore, the role of gender in English learners' reading comprehension has not been well characterized. Many studies (Chamot, 2005; Zhang, 2008) have focused on the significance of knowing the types of reading strategies employed by competent readers.

2.3.3 Reading Comprehension Stages

The initial stage is one of complete incomprehension. It's gotten to the point where even pattern recognition is difficult. Unless accompanied by a teacher, when a beginner hears or reads a new vocabulary, he or she seems unable to understand it. In this case, the teacher is solely responsible for the learner's encouragement. Pattern recognition is the first level for this type of learner. He identifies all alphabets in written form, differentiates between capital and small letters, and gets a keen understanding of phonetics, handwriting, and so on. Then he makes a link between interactions with the syntax letter system in speech and writing.

2.3.4 Reading on School Tablet

As it is already stated that each public school has its own android tablet and the students are offered extensive practice on android application named 'Literacy and Numeracy Drive' LND that can be downloaded from play store and can be used offline. The contents and material of LND application is updated monthly and the teachers update the application from play store each month. This application facilitates greater practice at no cost as the students are to use notebooks in traditional learning and the teachers then assess their written work on their notebooks, but, here on tablet the grey areas are highlighted automatically after completion of test. By focusing their attention on the device's touch screen, the application assists children in concentrating and remaining focused, avoiding distractions. A result that demonstrates the importance of technology in today's educational methods.

2.3.5 Reading Activities in the Class

The aspect that needs to be focused is that when teaching youngsters to read, the teacher should begin with content that the learners are able to understand or that the children have practiced while they are doing listening and speaking exercises. Premised on storylines, action sequences, and conversations, among other things, the selected text not only improves the growth of reading process, but also enables you to read the relevant material you are recommended (Prowse, 2002). Offering a varied menu of reading activities is one way to increase reading time. Children require time to browse contents and decide; they might like to read entire novels or portions of books, write and read reviews, and seek comments from peers (Wray & Medwell, 2013, p.107).

2.3.6 Primary School Students Reading Model

Certain reading models assume that the process begins with the recognition and decoding of letters, clusters of letters, and words, and then progresses to the processing of larger units of print, such as sentences, paragraphs, pages, and finally the entire text. Bottom-up reading models are what they're called. They are familiar with the titles "outside-in" systems because they

suppose that reading is not an act but a step wise process that starts well outside reader, whose responsibility is to imbue his mind with the idea represented by the writer as graphic

symbol into his consciousness. The following diagram can be used to represent this model (Wray & Medwell, 2013).

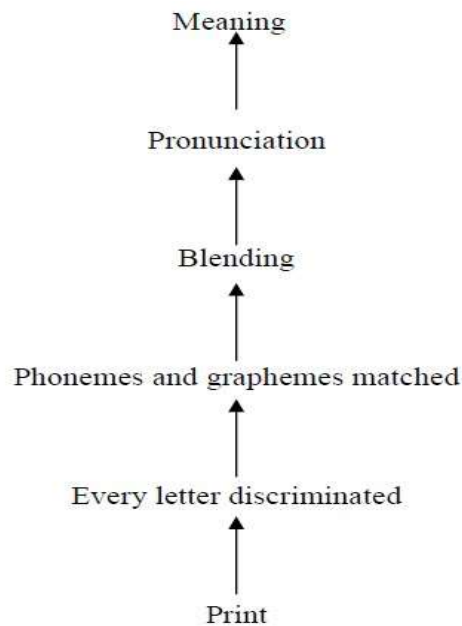


Figure 1. Bottom up Model

Top Down Models

The reading process, according to these approaches, commences in the mind of the reader, where he ponders the content of the print being studied. The learner next looks for facts to justify or contradict these claims in the text. Reading, on the other hand, does not necessitate

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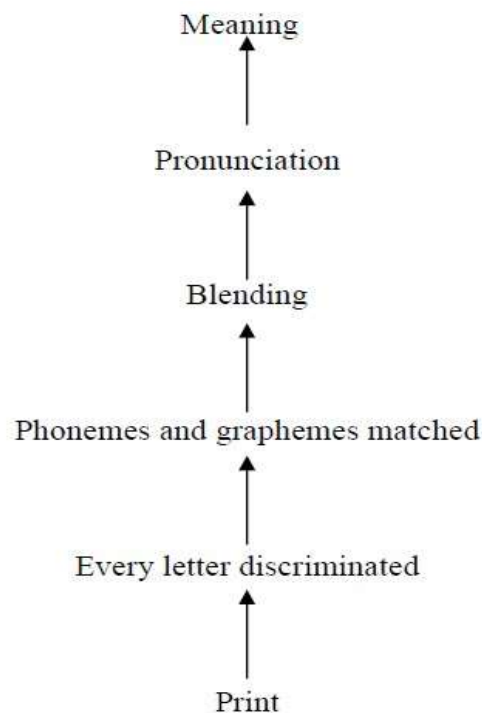


Figure 2. Top Down Model

2.9 Tablet Assisted 'LND'

It is the information age, and countries all over the world are encouraging teachers to use digital resources in language learning because it connects teachers and students, because in traditional classrooms, teachers and students only communicate in the classroom, whereas the availability of variety of portable gadgets of different brands makes the progress easy and comfortable.

A correlational study's sample is chosen using an appropriate sampling procedure, and a sample size of at least 30 individuals is generally considered acceptable. Low values of validity and reliability show that sample must envisage large number of population, as measurement errors may obscure an actual relationship. The correlational study design is straightforward: Each member of the sample is assigned a score for two (or more) variables of interest, and the paired scores are then correlated.

Correlation Coefficient 'r' Interpretation

Coefficient 'r'	Relations between variables
Between +0.37 and -0.37	Mild or no
Between +0.37 and +0.67 or between -0.37 and -0.67	Medium
Between +0.67 and 1.00 or between -1.00 and -0.67	Powerful

Table 1. Correlation Coefficient 'r' values

These are rough estimates and cannot be trusted on naively; frequently, the intended purpose of a coefficient of correlation determines its usefulness.

2.14 Statistical Significance

As previously stated, the interpretation of a correlation coefficient is context-dependent. In other words, the usefulness of a given value is determined by the reason for which it was computed. The correlation coefficient's importance in supporting correct predictions is critical in a prediction study. The coefficient is assessed on the basis of statistical values in a study for investigation of any relationship.

Methodology

When a problem has been selected, a methodology is used to get results. The correlational method was utilized in this study to achieve the study's goal. According to Gay (2009), correlational research entails gathering data in order to discover whether and to what extent two or more variables are related. The reading comprehension and literacy and numeracy drive (LND) mobile application are the variables in this study because the goal is to discover a link between students' reading comprehension and their LND score. The correlation coefficient's value reveals the strength of the link between two variables.

3.1 Population and Sample

As mentioned earlier that only tehsil Sheikhpura is selected for the study. This tehsil has 211 male and 139 female schools. The sample population for the study consists of 350 participants of grade-IV students who were selected randomly. Using stratified random sampling total thirty five male and female schools were selected for the

study, therefore, 350 students of grade-IV were participants who were randomly chosen.

3.2 Pre-Testing

Pre-testing is a useful tool for discovering and resolving issues with research instrument administration. Sequencing and scheduling data points or queries are common examples. The need to eliminate or include some questions or observation points can be highlighted here. The exercise of experimenting with a data collection instruments prior to conducting actual research is called pretesting. We conduct a pre-test on some respondents that must be small in number, but the participants should have characteristics that are similar to those who will be included in the final study.

The researcher performed the following measures to prepare for pre-testing:

3.2.2 Questionnaire for Teaching Staff on Teaching Skills and Qualifications

The questionnaire was distributed by the research scholar to eight teachers for pre-testing. Based on the results of the pre-testing, certain changes were made. Some of the questions were unanswerable. The questions were designed keeping in view the fact so that they can also be used in real research. Many questions appeared to be asked repeatedly. These questions were not included in the survey. The research scholar added some extra questions. The order of some question was changed to make it more coherent and thorough, in order to meet the observational points of the checklist.

3.2.3 Data Collection Tools and Data Management Procedures

During the data collection phase, an LND test was first scheduled for selected children from each sample school. Test was taken on android application and the results were recorded quantitatively. Then, a hard copy test was taken from the same students. For data collection, following research tools were used.

3.2.4 LND Test for Grade-IV Students

For grade 4 students, an online LND test has been given when their academic year has ended, after annual examination in their schools. The following is the technique for administering an LND test:

To determine the level of language competence of grade 4 learners after the introduction of English subject in LND application in grade 3.

Language abilities that are closely related to the spectrum of SLOs for which learners will need the language they have studied will be assessed. Allocation of time and details of marks is given below

Sr.	Skill	Overall Length	Number of Items	Marks
1	LND English SLOs	15 minutes	7	7

Table 2. Details of conducted LND test

3.2.5 Achievement Test for Grade-IV Students

Test syllabus for the test was grade-IV English text book published by Punjab Text Book Board, Lahore. There are ten questions that must be completed in approximately thirty minutes. The reading comprehension test contains ten questions in three sections. The first section requires students to demonstrate their comprehension of individual sentences by answering direction questions. These questions simply ask test takers to identify the part of passage that contains relevant information. The second section questions ask the students to make a very small logical conclusion based on information in the passage. Finally, in the final reading comprehension section, students are expected to attempt five questions after reading a long passage whose questions require students to answer both type of questions.

3.2.6 Questionnaire for Teachers

Finally, after administering the achievement test and LND test, the researcher administered a questionnaire to the same teachers of grade-IV students in order to learn about their qualifications, instructional abilities in English teaching, topic expertise, and opportunities for training, and the delivery method they use to teach English and classroom interaction. The researcher has to spend nearly one and a half months collecting all data. The researcher conducted the study on his own without external fund-support, and the researcher has made certain that sufficient funds are available to him to cover the costs of all materials required for the purpose.

3.3 Delimitations

Due to time and financial constraints, thirty five primary schools are chosen at random among the tehsil's 350 schools. The current study will confine itself to multilingual students of

District Lahore Govt. Primary schools. The subject of English is chosen and reading comprehension relationship with literacy and numeracy drive (LND) android application is determined.

3.4 Limitations

Due to limited resources, the study cannot be extended to other districts of Punjab. The number of hours that students spend on LND application at their homes could not be considered. **Data Analysis**

Table 3. Questionnaire for Teachers

A questionnaire was designed for teachers and response was taken from them.

Teachers Qualification				
Sr.	B.Ed.	PTC	CT	M.Ed.
1	80	11	6	3

Table 3. Questionnaire for Teachers

The Students' Gender		
Gender	Frequency	Percent
Male	211	60
Female	139	40
Total	350	100

Table 14. Gender of Students selected for the studies

Table 14. shows the results. Male students accounted for 211 of the 350 responders, or 60 percent, and female students accounted for 139, or 40 percent, for a total of 100 percent.

Age of the Students		
Age (Years)	Frequency	Percent
5-7	21	6
8-10	238	68
11-13	89	25.4
Above 13	2	0.6

Total	350	100
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Table 15. Age frequency of the sample

According to Table 15, only 21 (06 percent) students were in the age range of 05-07, whereas 238 (68 percent) students were in the age group of 08-10. Only 02 participant (0.6 percent) belonged to the above 13 age group, while 89 respondents (25.4 percent) belonged to the 11-13 age group.

Local Dialect

Local Dialect	Frequency	Percent
Urdu	190	54
Punjabi	160	46
Total	350	100

Table 16. Local Dialect of the students

According to table 16, it has become clear that 54 percent of respondents spoke Punjabi at home, whereas just 46 percent spoke Urdu at home with their family members.

Mobile Facility

Mobile Facility	Frequency	Percent
Yes	226	65
No	124	35
Total	350	100

Table 17. Availability of mobile phones

In the Table 17, it is crystal clear that 226 (65 percent) students indicated that they have access to cellphones at home, while 124 (35 percent) students did not have this facility at their homes.

Parents' Qualification

Parents' Qualification	Frequency	Percent
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Illiterate	34	10
Primary	134	38
Middle	104	30
Matric	33	9
Intermediate	35	10
Graduation	10	3
Parents' Qualification	Frequency	Percent
Total	350	100

Table 18. Qualification of the parents

This table reveals that only 34 students (10%) belong to such families as their parents are not literate, while 134 (38%) students' parents have primary level education and 104 (30%) students' parents are educated up to elementary level, whereas 33 (9%) students' parents have secondary school certificate, 35 (10%) parents' qualification is intermediate and only 10 (3%) students' parents are graduation qualified.

Parents Profession

Parents' Profession	Frequency	Percent
Unemployed	21	6
Agriculture	185	53
Laborer	62	18
Service Provider	41	12
Shopkeeper	41	12
Total	350	100

Table 19. Profession of the parents of the students

This table demonstrates that only 21 students (6%) come from such families where their parents are unemployed, while 185 (53%) students' parents work on agriculture land and 62 (18%) students' parents work as laborer in industries or shops,

4.1 Mobile Facility vs. Literacy and Numeracy Drive (LND) Score t-test

Mobile Facility	N	Mean Score	SD	Mean Difference	t-value	Sig. (P-Value)
No	124	4.95	0.970	-1.221	-12.942	0.043*
Yes	226	6.17	0.767			

Table 20. *The mean difference is significant at the 0.05 level.

Table 20 demonstrates that the LND mean score of students having mobile facility was higher than that of mean score of students not having mobile facility at their homes, based on the results of an independent sample t-test. Students who have facility of android cell phones at their homes had an average LND score of 6.17,

4.1.1 Gender vs. LND Score t-test

Gender	N	Mean Score	SD	Mean Difference	t-value	Sig. (P-Value)
Male	240	5.78	1.006	-0.111	-0.943	0.405*
Female	110	5.66	1.069			

Table 21 *The mean difference is significant at the 0.05 level. Based on the findings of an independent sample t-test, table 21 shows that male students' LND mean score was higher than female students' LND mean score. The average LND score for female students was 5.66, while the average LND score for male students was 5.78. This sufficiently throws light that male gender performance is better than the performance of girls in public sector schools.

Local Dialect	N	Mean Score	SD	Mean Difference	t-value	Sig. (P-Value)
Punjabi	190	5.50	1.121	-0.525	-4.926	0.000*
Urdu	160	6.03	0.816			

4.1.2 Local Dialect vs. LND Score t-test

Table 22 * At the 0.05 level, the mean difference is significant.

Urdu speaking students' LND mean score was greater than Punjabi speaking students'

LND mean score, based on the results of an independent sample t-test as revealed in table 22. Students speaking Urdu at their homes had an average LND score of 6.03, while students who speak Punjabi language at their homes had an average LND score of 5.50.

4.2 Parents Qualification vs. LND Score ANOVA

The data was studied to see if the credentials of parents had an effect on the LND scores of fourth-graders. Table 23 delves deeper into the descriptive data.

Academic Qualification	N	Mean Score	SD
Illiterate	34	5.71	1.194
Primary	134	5.69	.905
Middle	104	5.61	1.101
Matric	33	5.76	1.173
Intermediate	35	6.11	.867
Graduation	10	6.60	.516
Total	350	5.74	1.026

Table 23. LND mean score of students vs. parents' academic qualification

The data explored that the students taught by qualified parents have obtained high LND scores in comparison to pupils taught by parents who are less qualified. For this analysis "There is no significant difference in LND scores of students across parents' academic qualification groups", One-way ANOVA was applied to explore the difference in LND scores of students taught by.

Pearson Correlation Coefficient Formula

$$r = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{[N\sum x^2 - (\sum x)^2][N\sum y^2 - (\sum y)^2]}}$$

Where:

N = the number of pairs of scores

$\sum xy$ = the sum of the products of paired scores

$\sum x$ = the sum of x scores

$\sum y$ = the sum of y scores

$\sum x^2$ = the sum of squared x scores

$\sum y^2$ = the sum of squared y scores

Parameters		Mean Score	SD	N	r-value	Sig. (P-Value)
Pearson Correlation	LND	5.74	1.026	350	0.67	*0.090
	SAT	6.72	1.616			

Table 34. Correlation coefficient 'r' value between LND and SAT

*Correlation is significant at 0.01 level

The value of 'r' is obtained using statistical computer program SPSS. Checking the table, we find that the value $r = 0.67$, indicating a strong positive correlation between literacy and numeracy drive (LND) score and students achievement test (SAT) score.

5. Conclusions and Recommendations

The purpose of the study was to assess the nature of relationship between literacy and numeracy drive (LND) mobile application & reading comprehension ability of the students at the primary level in tehsil Sheikhpura, Pakistan, following the province government's step to initiate mobile application usage for literacy beginning in grade 3 in 2005. Because grade 4 was the most senior class at the time of the survey, it was chosen, which does huge practice during whole academic year prior to promotion to grade four. This chapter offers a discussion of the data that was analyzed, as well as a conclusion and many suggestions.

The study's key goals were as described in the following:

1. To exhibit some relationship between LND mobile application and English reading comprehension.
2. To exhibit degree of Grade-IV students' ability to attempt the unseen reading comprehension with confidence.
3. To determine the quality of LND application in developing reading comprehension ability of multilingual students.

5.1 Conclusion

The goal of this research was to discover the link between literacy and numeracy drive (LND) android mobile application and reading comprehension abilities, as well as to discover whether there are any differences in reading comprehension ability and LND score by demographic factors. According to the findings of this study, there is a statistically significant association between LND android application English contents and reading comprehension ability. Additionally, there are minor distinctions between parents' profession and gender. Participants who are high achievers on LND android application test, students who indulged themselves in robust practice of LND contents or SLOs earn greater grades in their students achievement test (SAT) than those who are averse to LND android application. As Gay, Mills, & Airasian, (2009) remarked, relationship studies assist researchers in identifying related variables that may be examined further in experimental studies.

5.2 Recommendations

Broad scope of current research was to discover the association between LND mobile application and reading comprehension ability of the students of public sector schools of Sheikhpura. The research might be considered a routine

endeavor and addition to previous research in that it attempted to portray a realistic picture of the reading comprehension ability of the students in association with literacy and numeracy drive (LND) of grade 4 pupils of public schools. The following recommendations are provided in light of the findings for various stakeholders of education.

1. The existing mobile application LND may be updated and accompanied with the text book exercises.
2. The schools that are short of staff teachers must be considered for immediate hiring so that the students can get sufficient attention as well as supervision of the teacher.
3. As LND test is monthly taken by the third party named monitoring and evaluation assistant 'MEA', similarly, an achievement test based on taught material must be conducted weekly, fortnightly or monthly.

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