THE IMPACT OF LITERACY AND NUMERACY DRIVE ON WRITING SKILLS OF PRIMARY GRADE STUDENTS' OF PUNJAB, PAKISTAN

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ABSTRACT

The study explores impact of the assessment programme (LND) on grades II to IV students' writing skills. The study purpose was to check the quality of LND pogramme that implemented Punjab Board of Technology and Information with the collaboration of Department of School Education Board to check the effectiveness of their evaluation and monitoring procedure and also investigate that at what extent students' writing skills improve. Sample size was consisted of 400 students of grade II to IV students' of Lahore and Faisalabad districts. Writing test was developed to assess students' writing competency and test consisted of three section of English, Urdu and Math' writing competency skills. Test was analyzed in the light of item analysis theory. Data were analyzed by using statistics of t-test and ANOVA. Findings revealed that II, III and IV grades differentiate significantly on the basis of sentence making, writing punctuation, rewriting text in English, Urdu and Math's languages.

KEYWORDS

Literacy and Numeracy Drive Project, Writing skills, Primary grade students, English and Urdu writing skills, Math's writing skills.

INTRODUCTION

The base of educational structure of every country relies on primary schooling and due to this shifts economy of the country is improving (Ashraf & Ismat, 2016). Literacy and numeracy are two important elements that contribute to the success of primary schooling (Ali, Rajpoot, Rajpoot, & Azam, 2012). Many organizations; UNICEF and UNESCO work internationally for literacy that contributes to the welfare of people around the world. Literacy is always the leading factor in the aim of education of UNESCO. International organizations support the idea of reading and writing (literacy) as a fundamental right of human being (Patrick, 2018).

Achieving Life long skills along with literacy become the common aim of UNESCO

and UNICEF. EFA emphasizes on primary level literacy and free education in its goal II. IV goal focus on half percent literacy rate of adult. Millennium focus on universalized primary schooling in goal II. Sustainable Development talks much about quality and not the quantity of education through reading and writing (SDGs, 2015).

All related countries designed their policies of education and programmes to effectively meet the goals of SDG. Due to in relation with these international organizations, Pakistan also framed his policies, and designed many monitoring and evaluation programmes to promote quality level of literacy in the country. Among those literacy programms: Post literacy, Adult literacy and Universal Primary Education programme are the most prominent programmes in Pakistan that are contributed to promote literacy in country (UNESCO, 2000).

International organization developed complete process to monitor literacy programmes to check that how much these programmes contribute to improve literacy; among them STEP, LAMP, PIAAC is the most famous monitoring and evaluation programmes (GMR, 2015). Pakistan also developed its monitoring process and give this process a proper shape through PEC and TCF evaluation programme, Pakistan extends its monitoring and evaluation programme and launched a new programme by the name of LND in Year 2014 who evaluate the III grade students' literacy (Javed & Naveed, 2018).

In Pakistani context, idea of literacy and numeracy is defined as: An Individual who not only capable of writing and reading an easy sentence but also competent to comprehend what he is reading and what he is writing and calculate a simple number so that he can stand in a society (Curriculum Wing Islamabad, 2007). UNESCO developed programmes for the promotion of literacy and numeracy; some of them are discussed below:

Experimental World Literacy programme initiated by UNESCO in the year of 1966 and the function of this programme checks functional literacy effectiveness through experiment (EFA report, 2006). Another literacy and numeracy promotion programme that is Primary Literacy programme developed by Indonesian government and the main tent to develop this programme an increment of literacy competencies by using techniques of teaching (Elley, 2001).

To meet the standard goals of UNESCO; Pakistan also initiated its National Literacy Programme so that to provide the opportunity to literate young and women (UNESCO, 2012). UNESCO realized the need of monitoring and evaluation process when EFA and MDG become failed so it was decided to completely evaluate all the system of education,so it was totally ensured that for the achievement of SDG's or to achieve the

goals within time of frame all the aspects of education is closely monitored and evaluate. Case study conducted by UNESCO to compare different countries system or procedure of monitoring and evaluation. The main purpose to conduct this case study is to determine the progress of Sustainable Development Goals by investigation he process of monitoring and evaluation. In year of 2003, UNESCO introduced assessment programme that is programme of literacy assessment and monitoring. Purpose of LAMP programme is to assess literacy and numeracy skills of young and adult. Objectives of LAMP are as follow:

Regarding literacy skills of adult and young, reliable information is to be provided. Provided quality data that is based on literacy to those participated countries in UNESCO who are initiated and implement literacy and monitoring programme in their countries. For the betterment of evaluation and monitoring of literacy and numeracy standards should be developed (Ercikan, Arim, Oliveri, & Sandilands, 2008).

Assessment of curriculum authority in Australia who gain an authority of independence; developed programme of national assessment of literacy and numeracy. NAPLAN assess language, writing, reading and numeracy skills of grade III, V, VII and IX students. Research data of NAPLAN provide useful insights to stakeholders such as educators, parents, teachers and educational administrators (Rogers, Barblett, & Robinson, 2016). Word ASER originates from language of Urdu and it mean to effect on someone. Programme of ASER provides report at the end of the year about Pakistan educational status. Programme basic objective is removal of gaps of learning of Grade II and Grade III students and also provide their learning status. Another purpose of ASER report is to provide valid data about childs' learning conditions. Contribution of ASER is to investigate students' literacy and numeracy skills (Idara-e-Taleem-o-Aagahi, 2019).

World Bank initiated program of large scale assessment that is LEAP in year 2003. Purpose of this programme is to determine SLO's in Math, English and Urdu of Punjab government and private school students of grade III (Andrabi, Das, Khwaja, Vishwanath, & Zajonc, 2007). Programme of literacy and numeracy is quality improvement programme in Pakistan education developed by PITB with School Education department. Programme developed to assess Urdu, English and Math learning outcomes of III grade students' (Punjab Information Technology Board, 2018).

RESEARCH OBJECTIVE
1. To measure the level of writing skills of II to IV graders.
2. To find out the impact of LND on writing skills of II to IV graders.
3. Compare the writing skills based on districts and gender.

RESEARCH QUESTION
1. What is the writing skill level of II to IV graders?
2. What is the impact of LND on writing skills of II to IV graders?
3. What is the difference between district and gender on the basis of writing skills?

RESEARCH METHODOLOGY
With respect to study research problem that is "impact of literacy and numeracy drive project on writing skills of primary grade students of Punjab, Pakistan", nature of study; quantitative with preferred causal comparative design preferred instead of experimental research design because it was impossible to control the project of LND for 2 months, so with this respect we determine impact of LND by comparing the difference between II, III and IV grade students writing skills.

Population
Primary grade students (II to IV) of Pakistan government schools was the study population.. Approximately 1 lakh students were in Lahore primary schools and 2 lakh students were in Faisalabad primary schools.

Sample
Four hundred students (188 boys and 212 girls) were selected from 4 schools. Schools were selected by convenience sampling. All students were selected from one section. Details of sample size are given below.

Table 1: *Sample of the students from four selected schools*

Districts	2nd Grade		3rd Grade		4th Grade		Student's Total		Total Sum of Students
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
Students of District Lahore	27	30	24	28	24	29	75	87	162
Students of District Faisalabad	41	45	37	42	35	38	113	125	238
Sum Total	68	75	61	70	59	67	188	212	400

Table 1 shows students' sample size selection from schools of districts Lahore and Faisalabad. In district Lahore 162 students were selected from 2nd , 3rd and 4th grades. Among them, 57 (Boys=27, Girls=30) students were selected randomly through random table sampling technique from 2nd grade, 52 (Boys=24, Girls=28) students were selected from 3rd grade, 53 (Boys=24, Girls=29) students were selected from 4th grade. Similarly from district Faisalabad; 238 students were selected. Among them, 86 (Boys=41, Girls=45) students were selected randomly through random table sampling technique from 2nd grade, 79 (Boys=37, Girls=42) students were selected from 3rd grade and 73 (Boys=35, Girls=38) students were selected from 4th grade.

Instruments

To measure students' writing skills; Achievement test of writing was developed. Achievement test of writing was used for assessing the writing skills in Math, English and Urdu for primary grade students. The test consisted of three parts, i.e. rewriting text, sentence making and writing punctuation. Test was prepared according to the indicators of writing skills. Test was prepared in four stages: 1) Planning of test 2) Administration of test 3) Measurement of test 4) Evaluation of test.

In a first stage that is planning of test; target audience were selected that is 2nd, 3rd and 4th grades students and then aim of the test was defined that is to measure writing skills of primary grade students. After that, objectives were defined according to the primary grade curriculum of Pakistan and then table of specification was developed in which 48 test items were developed according to the instructional objectives, cognitive domains and content. In which 7 items included in English and Urdu Text rewriting, 14 items included in English and Urdu sentence making, 7 items included in English and Urdu punctuation writing and remaining 20 items were included in math writing skills. Selected and supply type item format was used for the test. Test scoring was defined in the from of 0 and 1. After that content validity ensured in the light of reviews of experts.

In the second stage test was administered to 150 students for piloting. In the third stage, piloting test was measured through item analysis (Difficulty index, Discrimination index, Effectiveness of distractor). Changes were done according to the light of item analysis. Poor items (item number 4, 5, 14, 21, 37, 40 and 42) whose discrimination index is in the range of (0.20-029) is revised. Reliability of the test was analyzed through Cronbach Alpha coefficient and reliability of the pilot test was 0.787.

In the 4th stage test was evaluated in the light of item analysis and reliability of instrument and after that revision of items were done and test was developed and administered to 400 students. After data analysis, reliability of the instrument was 0.920.

Data Collection

For data collection, list of schools were obtained from Punjab Information System website. Four schools were selected by convenience sampling. Two days were spent in three classes. Total eight working days were spent to collect data from the four schools.

400 students were selected from primary grades and then test administered. Achievement test of writing was in the form of paper and pencil test on the other hand achievement test of reading was recorded and the instrument was administered personally by the researcher. Test was explained briefly to the student and also explained the significance of taking the test.

Data Analysis

After data collection, answer sheets were arranged and coded. Data were entered to SPSS grid sheet. Descriptive an inferential statistics were applied. To determine and compare writing skills of primary grade students', different parametric tests were applied. To find the difference statistically significant among students in writing skills regarding district and gender Independent sample t-test was applied. For different grades writing skills of students was measured through One-way ANOVA.

DATA ANALYSIS AND RESULTS

Table 2: *Writing levels of 2nd , 3rd and 4th Grades*

Levels	Q1 (Low)	Median (Middle)	Q3 (High)
English Text Rewriting			
2nd Grade	22%	41%	37%
3rd Grade	28%	29%	43%
4th Grade	27%	27%	46%
English Sentence Writing			
2nd Grade	9%	78%	13%
3rd Grade	12%	62%	26%
4th Grade	3%	63%	34%
English Punctuation writing			
2nd Grade	48%	43%	9%
3rd Grade	14%	59%	27%
4th Grade	24%	48%	28%
Urdu Text rewriting			
2nd Grade	45%	46%	9%
3rd Grade	23%	50%	27%
4th Grade	25%	46%	29%
Urdu Sentence Writing			
2nd Grade	18%	49%	37%

3rd Grade	7%	26%	67%
4th Grade	3%	19%	78%
Urdu Punctuation writing			
2nd Grade	23%	66%	11%
3rd Grade	9%	65%	26%
4th Grade	7%	17%	76%
Math writing			
2nd Grade	28%	60%	12%
3rd Grade	9%	55%	36%
4th Grade	6%	47%	47%

Table 2 shows the writing level of primary grade students'. If we compare II to IV grades on the basis of English rewriting text: 37% of II grade, 43% of III grade and 46% of IV grade students are at the highest level in English Rewriting text. On the basis of English Sentence making: 13% of II Grade, 26% of III Grade and 43% of IV Grade students are at the highest level of English Sentence making. On the basis of English writing Punctuation: 9% of II Grade, 27% of III Grade and 28% of IV Grade students are at the highest level of English writing Punctuation. On the basis of Urdu rewriting text: 9% of II Grade, 27% of III Grade and 29% of IV Grade students are at the highest level of Urdu rewriting text. On the basis of Urdu Sentence making: 37% of II Grade, 67% of III Grade and 78% of IV Grade students are at the highest level of Urdu Sentence making. On the basis of Urdu writing Punctuation: 11% of II Grade, 26% of III Grade and 76% of IV Grade students are at the highest level of Urdu writing Punctuation. On the basis of Maths' Writing: 12% of II Grade, 36% of III Grade and 47% of IV Grade students are at the highest level of Math's Writing.

Table 3: *Mean Scores of students in writing skills for different grades (N= 400)*

Grade	2nd Grade (*n*=118)		3rd Grade (*n*=128)		4th Grade (*n*=154)		ANOVA	
	M	Std D	M	Std D	M	Std D	Value of f	Value of p
English Rewriting text	46.61	31.68	49.02	37.57	50	36.04	0.32	0.729
English Sentence making	51.69	24.35	62.61	28.24	67.81	22.19	14.23	<.001
English writing Punctuation	22.03	26.99	46.88	31.84	46.92	36.19	24.64	<.001

Urdu rewriting text	31.36	33.84	53.13	37.28	54.55	38.27	15.75	<.001
Urdu Sentence making	58.84	34.09	79.52	29.16	85.89	23.27	31.41	<.001
Urdu writing Punctuation	42.37	31.32	64.32	44.50	72.73	31.99	24.12	<.001
Math's Writing	41.19	24.47	60.99	27.02	67.27	23.38	38.34	<.001

Table 3 shows differences in II, III and IV grades regarding Urdu, English and Math's writing. The results of One-way ANOVA indicate no difference significantly among II, III and IV grades regarding English rewriting text (p>0.05), there is a statistically difference among II, III and IV grades regarding English Sentence making (*f value*=14.23, *p value*<.001), English writing Punctuation (*f value*=24.64, *p value*<.001), Urdu rewriting text (*f value*=15.75, *p value*<.001), Urdu Sentence making (*f value*=31.41, *p value*<.001), Urdu writing Punctuation (*f value*=24.12, *p value*<.001) and Math's writing (*f value*=38.34, *p value*<.001).

Table 4: *Mean scores in writing skills for girls' and boys' students (N= 400)*

Writing Skills	Boys (*n*=114)		Girls (*n*=286)		t- test		Effect Size
	M	Std D	M	Std D	Value of t	Value of p	η2
English Rewriting Text	46.2	32.79	49.65	36.21	-.86	.116	0.00
English Sentence making	55.01	26.89	63.88	24.83	-3.15	.632	0.02
English Writing Punctuation	29.16	31.36	43.70	34.40	-3.91	.150	0.03
Urdu Rewriting Text	38.59	35.35	50.69	38.55	-2.90**	.016	0.02
Urdu Sentence making	63.40	32.70	80.02	28.30	-5.06**	.001	0.06
Urdu Writing Punctuation	53.21	32.19	64.21	40.14	-2.61	.775	0.01
Math's Writing	51.79	27.59	59.82	26.66	-2.69	.441	0.01

Table 4 shows difference in writing skills of II to IV grades girls and boys. t-test statistical results shows that differences are not exist in boys and girls scores regarding English Rewriting text (*p*= .116), English Sentence making (*p*= .632), English writing Punctuation (p= .150), Urdu writing Punctuation (*p*= .775) and Math's writing (*p*= .441), but there was significant difference among scores of boys and girls regarding Urdu Rewriting text (*p*=.016) as the Girls mean scores (*Mean*=50.69, *S.D*=38.55) is greater than the Boys mean scores (*Mean*=38.59, *S.D*=35.35). There was significant difference in boys and girls scores regarding Urdu Sentence making (*p*=.001) as the Girls mean scores (*Mean* =80.02, *S.D*=28.30) greater than the Boys mean value scores (*Mean*=63.40, *S.D*=32.70).

English, Urdu and Math effect size value differ from .002 to .061. Standardized values of Cohen's *d* are weak at 0.2, medium at 0.5, large at 0.8. English rewriting text, English Sentence making, English writing Punctuation, Urdu rewriting text, Urdu Sentence making, Urdu writing Punctuation and Math writing score refer to weak effect size.

Table 5: *Mean scores in writing skills for district Lahore and Faisalabad (N= 400)*

Writing Skills	Lahore (*n*=225)		Faisalabad (*n*=175)		t-test		Effect Size
	M	Std D	M	Std D	Value of t	Value of p	Value of η2
English Rewriting Text	63.33	28.34	29.85	34.39	10.66	<.001	0.22
English Sentence making	67.87	21.68	52.97	28.03	5.99	.013	0.08
English Writing Punctuation	48.11	34.38	28.57	30.64	5.91	.014	0.08
Urdu Rewriting Text	61.03	34.61	29.52	34.80	9.01	.613	0.16
Urdu Sentence making	87.36	19.90	59.75	34.55	10.03	<.001	0.20
Urdu Writing Punctuation	66.51	39.65	54.09	35.47	3.25	.010	0.02
Math's Writing	66.51	23.16	46	27.58	8.07	.005	0.14

Table 5 shows difference in writing skills among Lahore and Faisalabad. Independent sample t-test results shows no difference among Faisalabad and Lahore regarding Urdu rewriting text (p>0.05), but there was significant difference in Faisalabad and Lahore scores regarding English rewriting text (*p*<.001) as the Lahore mean scores (*Mean Score*=63.33, *S.D*=28.34) greater than Faisalabad mean value scores (*Mean*=29.85,

SD=34.39). There was significant difference in Faisalabad and Lahore scores regarding English Sentence making (*p*=.013) as the Lahore mean scores (*Mean Score*=67.87, *S.D*=21.68) greater than Faisalabad mean value scores (*Mean*=52.97, *SD*=28.03). Similarly, significant difference in Faisalabad and Lahore scores regarding English writing Punctuation (*p*=.014) as the Lahore mean scores (*Mean*=48.11, *SD*=34.38) is greater than Faisalabad mean value scores (*Mean*=28.57, *SD*=30.64). There was significant difference in Faisalabad and Lahore scores regarding Urdu Sentence making (*p*<.001) the Lahore mean scores (*Mean*=87.36, *SD*=19.90) is greater than Faisalabad mean value scores (*Mean*=59.75, *SD*=34.5). Significant difference in Faisalabad and Lahore scores regarding Urdu writing Punctuation (*p*=.010) as the Lahore mean scores (*Mean Score*=66.51, *S.D*=39.65) greater than Faisalabad mean value scores (*Mean*=54.09, *SD*=35.47). There was significant difference in Lahore and Faisalabad scores regarding Math's writing (*p*=.005) as the Lahore mean scores (*Mean Score*=66.51, *S.D*=23.16) greater than the Faisalabad mean value scores (*Mean*=46, *SD*=27.58).

Urdu, Math and English writing effect size value scores differ from .026 to .222. Standardized values of Cohen's *d* are weak at 0.2, medium at 0.5, large at 0.8. English rewriting text, English Sentence making, English writing Punctuation, Urdu rewriting text, Urdu Sentence making, Urdu writing Punctuation and Math's writing scores refer to weak effect size.

FINDINGS AND DISCUSSION
Study explored significant impact of LND on writing skills of II, III and IV grade students'. Given a short overlook of findings and their comparison with previous researches. By applying Quartile deviation to find out writing level of grade II, III and IV students'. Results highlighted that grade IV students' writing skills level is higher than grade II and III students'. Results was supported by the study of Rietdijk, Janseen, Weijen, & Bergh (21017) that through comprehensive writing program; upper grades of primary level students have more higher level of writing than lower grades. Probably the reason behind is that according to Piaget cognitive theory the mental development of students increase with the passage of time as they pass through a specific age and that's why writing level of higher grade students of primary level is more than lower level.

One study objective is to find difference between primary grade students' on the basis of writing skills. Results showed that writing skills differ from higher to lower grades at primary level. Grade IV students writing skills are greater or higher than grade II and III students' except English rewriting text factor, at this factor grade II, III and IV students' does not differ from each other. Results are quite similar to the study of Woods (2016) that grade IV students have higher writing skills than II and III grade.

The reason according to Robinson is that grade IV curriculum and writing programmes are more organized and systematic which enhance students writing skills.

Comparison results of writing skills of grade II, III and IV students on the basis of gender displayed that no significant difference between girls and boys writing skills as their mean difference is same except urdu rewriting text and urdu sentence making factors in which girls have more improved urdu text rewriting and sentence making skills than boys. Findings are quite relatable to the study of Philomina (2015). Her study also support that no difference between male and female on the basis of writing skills. Study of Alkhrisheh, Aziez, & Alkhrisheh (2019) also consistent with the findings that gender group have no possible difference with respect to writing skills as both male and female possess similar writing process.

Comparison results of writing skills of grade II, III and IV students on the basis of districts Lahore and Faisalabad highlighted that district Lahore students have more improved writing skills than district Faisalabd as the mean scores of district Lahore students is higher than district Faisalabd students. Study conduced by Khalid, Bashir & Amin (2019) on LND programme highlighted that LND scores of district Lahore in year 2018 is approximately 85% and score of LND of district Faisalabad is 70%.

Study outcomes highlighted that majority of grade IV students have writing skills at high level than grade III and grade II; and grade III have high level writing skills than grade II but less than grade IV which means that grade IV have more improved writing skills w.r.t. other grades. Moreover, study results also highlighted that writing skills of boys and girls are same and w.r.t. districts; district Lahore students have more improved writing skills than district Faisalabad. So at the end it is concluded that LND contributes to improve writing skills of primary grade students.

RECOMMENDATIONS
1. Built proper Monitoring and Evaluation (M&E) procedure so it act as a strategy for social reforms because without this UNESCO sustainable goals achievement at the end of year 2030 is nearly impossible to achieve.
2. Punjab Information Technology Board (PITB) should monitor and assess science literacy of grade III students.

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