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Implementation Barriers in Literacy and Numeracy Drive (LND) in NFBEIs: Teachers' Perspective

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Abstract

Technological revolutions demand that educational institutions change towards technology-oriented teaching and assessment. NFBEIs are designed to improve the literacy rate. These educational institutes help to develop social, cognitive, cultural and higher-order skills in individuals using various learner-centered approaches while teaching and learning. Literacy and Numeracy Drive is an innovative initiative to impart education and skills through technology. Present research investigated "Implementation Barriers in Literacy and Numeracy Drive (LND) in NFBEIs: Teachers' Perspective". The population comprised of 100 schools from non-formal basic Education Institutes (NFBEIs) of Tehsil Chakwal. A randomly selected sample of 21 schools was part of this study. A self-developed closed-ended questionnaire was developed to collect data from teachers of 21 schools on a 5-point Likert scale. Data were collected through personal contact by obtaining informed consent from teachers and school authorities. Descriptive (mean and percentage) and one-sample independent t-test were used for data analysis. The findings revealed that teachers faced many technological challenges while implementing LND, which included a lack of technological devices, availability of internet connection, technological awareness among parents, and more technological issues in rural areas. This study recommends that the availability of digital devices, internet connection, LND applications, teacher training, and community involvement is essential for the effective implementation of LND in NFBEIs.

Keywords: *Literacy and Numeracy Drive, Non-formal Basic Education Institutes, Technological Challenges*

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Introduction

Basic literacy and numeracy skills are the skills that enable an individual to be educated. The world is moving towards 2030, and the United Nations Organization (UNO) is focusing on the achievement of its Sustainable Development Goals (SDGs). Education is one of the most prominent aspects of SDGs. John Dewey defined education as the capacity development of individuals to enable them to perform their responsibilities and control the environment (Pham, 2024). Education is the complete process of acquiring certain knowledge, skills, values, and beliefs, whereas literacy is the ability to read, write and understand the given information effectively. Literacy also enables a person to communicate effectively and apply the acquired knowledge and skills appropriately (Robinson, 2023).

Literacy skills are those fundamental skills which enable an individual to read, write, listen, speak, recognize, comprehend, identify, and think. Mastering reading and numeracy throughout the initial school years increases one's prospects of advancing to a higher level of education (Harun & Manaf, 2021). Literacy and numeracy skills act as the foundation for higher levels of education (Haider et al., 2021). Literacy and numeracy are foundational skills that form the basis for all future learning. In the context of Non-Formal Basic Education Institutes (NFBEIs), these skills are crucial in providing marginalized and out-of-school children with equitable opportunities to acquire essential competencies.

The Literacy and Numeracy Drive (LND), initiated by various educational departments, particularly in countries like Pakistan, has aimed to improve learning outcomes in public and non-formal schools by focusing on basic literacy and numeracy indicators. Existing research and theoretical perspectives on literacy and numeracy development, the role of LND, and the impact of non-formal education settings in fostering these competencies were explored through an extensive literature review. The school system of urban and rural areas in Pakistan has a lot of differences. The literacy rate in urban regions is much higher than in rural areas (Qadeer et al., 2022). All across the globe, the literacy rate is 86%, but according to the Global Alliance for Literacy report, in Pakistan, the adult literacy rate is 58%, which is very low (Shahzad et al., 2024; UNESCO, GAL Country Profile (Pakistan), 2022). This shows that Pakistan still needs to work more to improve the literacy rate of its population. This provided the base for the urgent need for efficient educational

interventions in Pakistan (Ministry of Federal Education and Professional Training, 2021).

Non-formal education (NFE) has become an important aspect in closing the literacy gaps in schooling in rural areas of Pakistan. For children, adolescents, and adults who are not enrolled in school yet are unable to attend formal education institutions because of different socioeconomic constraints, NFE provides flexible learning possibilities. As Pakistan is still struggling to improve its literacy rate, the Literacy and Non-Formal Education Department Punjab is facilitating young and enthusiastic individuals to start Non-Formal Basic Education Institutions (NFBEIs) (Zulfiani et al., 2021). NFBEIs are essential to closing the educational gaps that still exist in Pakistan, especially in the rural sector. The NFBEIs follow the National Educational Policy and work accordingly. It is stated in Education Policy 2009 that Pakistan must elevate its literacy rate to 90% by 2025 and 100% by 2030 (Haider et al., 2021, p. 170). In Punjab, Pakistan, the Literacy and Numeracy Drive (LND) was launched in 2015, and it was added to the Education Policy 2017 to improve the quality of basic education. Then LND was expanded to the NFBEIs in 2019 (Bilal et al., 2021, p. 3441).

LND is an educational program that aims to enhance the basic literacy and numeracy skills of individuals at the primary level (Bilal et al., 2021, p.3442). It is a program launched by the School Education Department Punjab to assess the literacy and numeracy skills of primary-level students according to given SLOs. The LND program is designed to improve spelling, vocabulary, basic grammar, comprehension, sentence completion, and the concept of singular and plural in English and Urdu. In numeracy, the focus is on the improvement of addition, subtraction, multiplication, division, fractions, time and measurement. Monitoring and Evaluation Assistants (MEAs) are there to take LND tests using Android tablets in formal and non-formal institutes of Punjab. LND has improved the basic English reading and comprehension skills in students at public schools (Ajmal et al., 2023, p. 708). It is also claimed that Android devices help to improve the reading abilities of students at the primary level (Zulfiani et al., 2021, p. 735). This is why the researcher is interested in digging into the challenges faced by teachers while implementing LND in NFBEIs as it is claimed that LND has improved the literacy and numeracy skills of the primary students of the public sector in Punjab (Aziz, 2024, p. 29). There are different factors which limit the effectiveness of LND. These factors are the cause of different challenges for teachers. Hence, the researcher aimed to find out what sorts of technological challenges are faced by teachers while implementing the LND program. There are more

than 13000 NFBEIs in the province, where more than 400,000 students are enrolled, according to the official website of the Literacy and Non-formal Education Department. According to the Non-Formal Education Management Information System Pakistan, there are more than 4000 teachers in NFBEIs. The NFBEIs have the same syllabus as public schools and follow the rules and regulations of the Government of Punjab. The primary objective of this study is to examine the technology-based implementation barriers related to literacy and numeracy drives in NFBEIs, as perceived by the teachers of NFBEIs.

Theoretical and Conceptual Framework

This study aims to investigate the technology-based implementation barriers in the Literacy and Numeracy Drive (LND) in NFBEIs, considering teachers' perspectives. Digital Literacy Theory provides theoretical base for examining teachers' ability to engage with technology-based components of the Literacy and Numeracy Drive. Digital Literacy Theory explains how teachers' skills, confidence, and familiarity with digital tools shape their teaching practices and influence the effectiveness of program implementation. When digital assessment mechanisms are introduced, teachers' digital competence becomes a key determinant of successful adoption. This theory therefore helps identify technology-related barriers that limit teachers' participation in LND activities and highlights areas where capacity building is required. By connecting research objectives and constructs of the research, the following is the conceptual framework of the study:

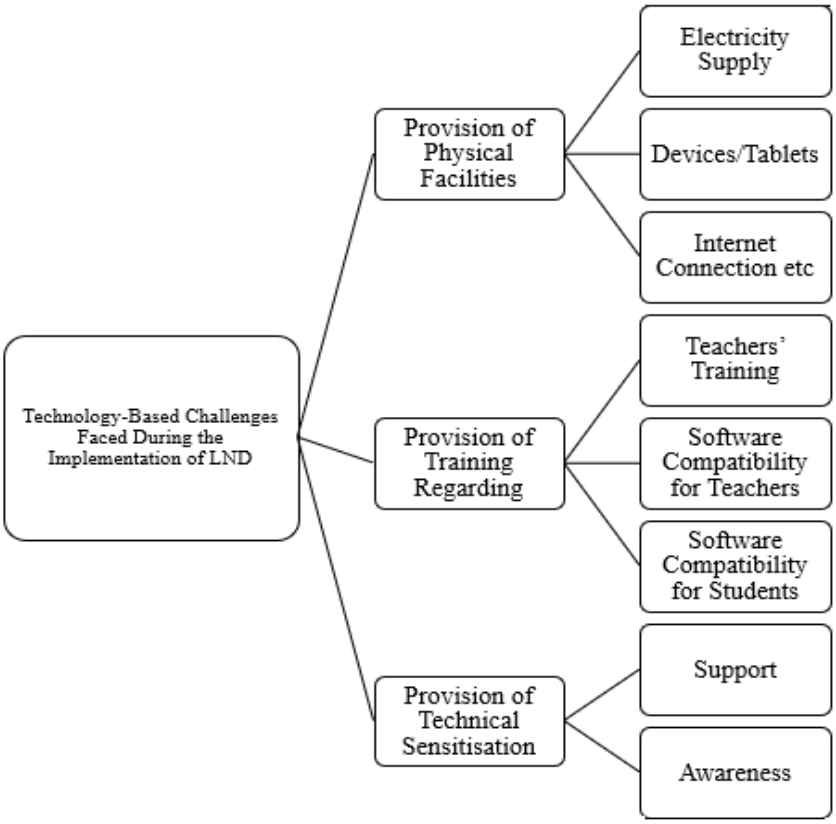
Rationale of the Study

Punjab is the most populous province of Pakistan which has both rural and urban areas. There is a lot of difference in the literacy rate of rural and urban areas of Punjab. The literacy rate of rural Punjab is 58.8% while 78.5% in urban areas (Pakistan Economic Survey, 2023, p. 175). This depicts that there is a need for improvement in the rural areas of Punjab. For this, the Government of Pakistan brought NFE forward to enhance the literacy rate in rural areas of Punjab. The Literacy and Non-formal Education Department of Punjab has launched a program to establish NFBEIs in the province, which is known as Literacy and Numeracy Drive (LND). The LND program was designed to improve basic literacy and numeracy skills of students with the help to technological integration as it was a tablet-based test. The LND program was selected for this study due to its structured focus on foundational literacy and numeracy skills among

primary-level students in public and non-formal schools (Nasreen et al., 2024). Given the lack of empirical research on barriers encountered by teachers in non-formal education contexts, such as NFBEIs, this study aims to investigate the technology-based implementation barriers faced by teachers of NFBEIs regarding LND.

Figure 1

Conceptual Framework



Statement of the Problem

Pakistan is a developing country, and the educational needs of its population are being satisfied through formal as well as nonformal educational means. In this regard, Nonformal basic education institutes play a significant role in imparting education around the country, especially in under-resourced areas. Since the implementation of basic literacy initiatives in NFBEIs, several innovative strategies have also been

implemented to enhance the quality of education further. In this regard, Literacy and Numeracy Drive (LND) is a technology-based initiative through which students not only learn on tablets, but they are also assessed on LND. However, no such study has yet been conducted to unleash the technology-based challenges faced by teachers during implementing LND. This may affect the quality of teaching and learning a large scale. So, this was the research gap which was intended by the researcher to investigate teachers' perspectives on implementation barriers in Literacy and Numeracy Drive (LND) in NFBEIs. As nonformal education is the way to improve the basic literacy skills of marginalized groups, this study intends to investigate technology-related implementation barriers of LND in nonformal education institutions. This research will provide an in-depth understanding of the current situation of LND in NFBEIs regarding technology. The challenges investigated will help teachers of NFBEIs to improve their teaching practices. New dimensions for teacher training will be open. This study will be a positive addition to the previous research.

Objectives of the study

1. To investigate the technology-based challenges faced during the implementation of LND in Non-Formal Basic Education Institutes' (NFBEIs) students.

Research Questions/Hypotheses

- What are technology-based challenges in terms of provision of physical facilities, i.e. electricity supply, devices/tablets and internet connection etc.?
- What are technology-based challenges in terms of provision of teachers' training, software compatibility for teachers and students?
- What are technology-based challenges in terms of technical support and technological awareness related to demographic characteristics?

Methodology

Following are details of the research methodology followed by the researcher in this study:

Research Design

This was quantitative survey research which intended to investigate the challenges faced by teachers while implementing LND in NFBEIs. The

study was delimited to Tehsil Chakwal only. Only teachers and students of NFBEIs were part of this research.

Participants

The population comprised of 100 Literacy and Non-Formal Basic Education Institutes according to the Literacy and Non-Formal Basic Education Institutes Information System District Chakwal. It is stated that sample is a smaller group of a population which is manageable to work on for research. A sample helps a researcher to collect data for research purposes, with the characteristics of the population. It is suggested that for survey research where population is 1500 to 5000, 10% to 20% of the population (Gay et al., 2012, p.139). The exact number of teachers was not known so 21 schools were randomly selected which constituted 21% of the population.

Research Tool

A research tool was developed by the researcher for the collection of data from teachers of NFBEIs. It had two sections. Section A comprised demographic information (age, gender, experience, region, teaching grade, and qualification). Section B comprised items to investigate the technology-based barriers faced by teachers during the implementation of LND. The language of the questionnaire was English. It contained 10 items. The response categories were a 5-point Likert scale (Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5)}. The total score of an individual on the scale was 50, and the minimum score was 10. Whereas scores above average (25) indicated positive responses and vice versa. Following are the details of the construct and sub-constructs of the tool:

LND implementation Barriers	Availability of Technological Devices, Availability of Power Connection Availability of Internet, LND Software, Compatibility for Teachers and Students, Availability of Technological Support, Technological Awareness Among Community

The tool was validated by seeking opinions of 6 experts and revealed S-CVI/Ave .95*. A pilot test was done on 10% of the participants who were not included in the actual participants of this study which revealed alpha reliability coefficient .89*. so, it indicated that tool was ok for final data collection.

Key Concepts and Variables

The following are the key concepts and research variables which provided the foundation of the conceptual framework of this research.

Non-Formal Basic Education Institutes. Institutes where out-of-school children take part in educational activities are called NFBEIs. These institutes are run by local educated personnel who joined hands with the Literacy and Non-Formal Basic Education Department to provide educational facilities to the marginalized groups of their locality.

Literacy and Numeracy Drive. An educational program launched by School Education Department Punjab to assess the literacy and numeracy skills of primary-level students according to given SLOs.

Data Collection Procedure

Data was collected through personal contact by obtaining informed consent from teachers and school authorities. No mental or physical harm was done to the respondents of the research. No details of respondents were disclosed in this research. The data was collected after being informed by the respondents. The researcher elaborated on the purpose of the research, the procedure of the research and any possible dangers a respondent can encounter during the research. There was no fabrication/falsification of the data. After data collection, results were analyzed using one-sample t-test.

RESULTS

Table 1

Technology-Based Challenges Faced by Teachers while Implementing LND in terms of Physical Facilities (One Sample t-test, N=21)

Item	Mean	SD	Range		t-value	p-value
			Min	Max		
LND is affected by power failure	3.57	.870	.18	.97	3.009	.007
Lack of devices	4.05	1.161	.52	1.58	4.136	.001
Interrupted internet connection	4.00	.548	.75	1.25	8.367	.000

Table 1 shows the technology-based challenges faced by NFBEI teachers while implementing LND in their institutes. The cut value for this data set was 3, which is the neutral point. The analysis is done under three key technology-related factors, which are analyzed by mean scores, standard deviation, and one one-sample t-test. One-sample t-test was applied to determine whether the mean score for each technology-related challenge is significantly different from the cut point of the Likert scale.

LND is affected by power failure: The data depict that (Mean = 3.57, p = .007), power failure is a big challenge for teachers of NFBEIs. Most teachers agreed that it is challenging for them to implement LND due to power failure. This leads to challenges such as on/off devices, charging devices, and the availability of internet connection.

Lack of devices: It was found that (Mean = 4.05, p = .001) the majority of the teachers agreed that the devices are not available for them to teach students. It was observed that teachers were using their personal devices to teach and practice LND in the class.

Interrupted internet connection: The provision of internet connection is a major concern. The data reflected (Mean = 4.00, p = .000) that availability of weak or no internet connection affects the implementation of LND in NFBEIs. Without a stable internet connection, it is difficult to access and download LND related content for students.

Table 2

Technology-Based Challenges Faced by Teachers while Implementing LND in Terms of Training (One Sample t-test, N=21)

Item	Mean	SD	Range		t-value	p-value
			Min	Max		
Training of LND	3.52	.814	.15	.89	2.950	.008
Software compatibility	3.67	1.197	.12	1.21	2.552	.019
Easy LND software for students	3.24	1.044	-.24	.71	1.045	.309
Easy LND software for teachers	2.95	.973	-.49	.40	-.224	.825

Table 2 shows the technology-based challenges faced by NFBEI teachers while implementing LND in their institutes in terms of teachers' training and software compatibility.

Training of LND: This data reflects that (Mean = 3.52, p = .008), most teachers were not trained to enforce LND in their institutions. Without adequate training, it is challenging to overcome issues which arise while implementing LND.

Software compatibility: It was found that (Mean = 3.67, p = .019) software compatibility issues were affecting the performance of LND on different devices. Teachers reported that the LND app often failed to function smoothly across available tablets and phones, causing delays and frustration.

Easy LND software for students: It is evident that (Mean = 3.24, p = .309), the software is user-friendly, and most teachers agreed that LND software is easy to use for students.

Easy LND software for teachers: The LND software (Mean = 2.95, p = .825) was considered difficult by some teachers, especially those with limited digital skills. This result, though statistically insignificant, highlights the importance of user-friendly design and basic digital training.

Table 3

Technology-Based Challenges Faced by Teachers while Implementing LND in terms of Technical Support (One Sample t-test, N=21)

Item	Mean	SD	Range		t-value	p-value
			Min	Max		
Adequate technical support	3.67	1.065	.18	1.15	2.870	.009
Lack of technological awareness in parents	4.05	1.244	.48	1.61	3.859	.001
Rural areas have more technological issues	3.95	1.284	.37	1.54	3.400	.003

Table 3 shows the technology-based challenges faced by NFBEI teachers while implementing LND in their institutes in terms of technical support.

Adequate technical support: The data reflects that (Mean = 3.67, p = .009), teachers want to have technical support when needed. It is difficult for teachers to resolve daily issues related to device handling, updates, and

troubleshooting. Lack of timely assistance affects teaching flow and learning outcomes.

Lack of technological awareness in parents: The results revealed that (Mean = 4.05, p = .001), many parents lacked basic awareness of technology, which limited their ability to support their children in using LND tools at home. Teachers emphasized the need for community orientation and awareness sessions.

Rural areas have more technological issues: The availability of technological support (Mean = 3.95, p = .003) in rural areas is very limited. Teachers working in rural NFBEIs reported more technical issues, including poor connectivity, lack of electricity, and minimal support compared to urban areas. These challenges make digital learning less effective in rural areas.

The data depict that the majority of the teachers (M = 4.05, SD = 1.161, t = 4.136) agreed that the lack of technological devices is a challenge while implementing LND in NFBEIs. Most of the teachers (M = 2.95, SD = 0.973, t = -0.224) disagreed that LND software is easy for teachers. The data revealed (p-value) that technology-based challenges are prevailing in NFBEIs while implementing LND by teachers.

Findings and Discussion

Following are the findings regarding challenges faced by teachers while implementing LND in NFBEIs:

One sample t-test revealed the technology-based challenges faced by teachers while implementing LND in NFBEIs.

Blundell (2021) and Bilal et al. (2021) emphasized that technology-based challenges are the most prominent hindrance regarding the implementation of LND. The study highlights key implementation challenges in terms of Technology, such as a lack of devices and low digital literacy among teachers hinder LND's effective use. It was found that lack of technological devices (M=4.05), availability of internet connection (M=4.00), technological awareness among parents (M=4.05), and more technological issues in rural areas (M=3.95) are prevailing technological challenges while implementing LND in NFBEIs. It is concluded that the primary barriers to potentially implementing LND by teachers are lack of access and infrastructure, including internet issues, fewer provision of devices, power failures, etc. Parents are not aware of the use of LND software, which hinders its use outside the classroom. There is less training available for teachers and instructors of LND, which results in inadequate technical support. The LND software is not compatible and ease of use. There are area-specific challenges, as

technology-related challenges are more prevalent in rural areas, which affects the effectiveness of LND implementation. Haider et al. (2021) and Deda et al. (2023) emphasized that social and cultural challenges are more prevalent challenges for the teachers while implementing LND in public schools. This study confirmed that social challenges, especially low parental education, also impact LND delivery in non-formal settings.

Conclusions and Recommendations

Based on descriptive statistics, it is concluded that there are some technical challenges faced by teachers while implementing LND in NFBEIs. The most significant challenge among all challenges is the availability of an internet connection. Followed by the availability of devices and technological awareness among parents. This is evident that the availability of technological aid is a very impactful factor while implementing LND in NFBEIs. Following is concluded:

- The primary barriers to potentially implementing LND by teachers are lack of access and infrastructure, including internet issues, less provision of devices, power failures, etc.
- Parents are not aware of the use of LND software, which hinders its use outside the classroom.
- There is less training available for teachers and instructors of LND which results in inadequate technical support.
- The LND software is not compatible and ease of use.
- There are area-specific challenges, as technology-related challenges are more prevalent in rural areas, which affects the effectiveness of LND implementation.

It is recommended that both teachers and parents may be provided with digital literacy training to improve technology use in the learning process while implementing LND. To ensure access to digital devices, electricity, and internet in NFBEIs to support the use of LND tools effectively. To promote community literacy and positive attitudes toward technology to enhance the implementation of LND in non-formal settings. Experimental research may be conducted to find the effect of use of digital devices while implementing LND. Due to limitation of resources, it is difficult for teachers of NFBEI to implement LND in true spirit.

References

Ajmal, D. A., Bhatti, D. Z., & Sarwar, M. (2023). Investigating the impact of literacy & numeracy drive (LND) for the enhancement of reading comprehension skills: Pakistani ELT perspective. *Journal of Namibian Studies, 33*, 688-711

Aziz, F. (2024). Teacher's perspectives about the impact of literacy and numeracy drive on the writing skills of EFL beginners: a study of public primary schools Multan. *Southern Journal of Social Sciences, 2*(02), 24-35.

Bilal, M. Q., Qamar, A. M., Nadeem, H. A., Kanwal, W., & Naseer, N. (2021). Students' Achievement under Literacy and Numeracy Drive (LND) Program: A Case study of Faisalabad District. *Webology (ISSN: 1735-188X)*, *18*(6)

Blundell, C. N. (2021). Teacher use of digital technologies for school-based assessment: A scoping review. *Assessment in Education: Principles, Policy & Practice*, *28*(3), 279-300, https:// doi.org/10.1080/0969594X.2021.1929828

Deda, Y. N., Disnawati, H., & Daniel, O. (2023). How important of students' literacy and numeracy skills in facing 21st-century challenges: a systematic literature review. *Indonesian Journal of Educational Research and Review, 6*(3), 8-9, https://doi.org/10.23887/ijerr.v6i3.62206

Gay, L. R., Mills, G. E., & Airasian, P. W. (2012). *Educational research: Competencies for Analysis and Applications* (10th ed.). Prentice Hall.

Haider, S. Z., Munawar, U., & Rehman, M. S. (2021). Investigating the ground realities of literacy and numeracy drive assessment system in government sector schools. *Pakistan Journal of Humanities and Social Sciences Research*, *4*(2), 241-255, https:// doi. org/10.37605/pjhssr.v4i2.278

Harun., Kartowagiran, B., & Manaf, A. (2021). Student attitude and mathematics learning success: a meta-analysis. *International Journal of Instruction, 14*(4), 209-222. https://doi. org/ 10. 29333/iji.2021.14413a

Ministry of Federal Education and Professional Training. (2021). *Ministry of Federal Education and Professional Training*, https:// mofept. gov.pk/ProjectDetail/NjQ4ZTg2NjItOWM2NC00Y2IxLTkzMDgtMjU2OTFhMjA4NzNh

Nasreen, S., Hasan, S., & Gul, R. (2024). Role of Literacy & Non-Formal Education in Building a Sustainable and Peaceful Society in Punjab, Pakistan. *Research Journal of Social Sciences and Economics Review*, *5*(1), 16-24, https://doi.org/10.36902/rjsser-vol5-iss1-2024(16-24)

Pakistan Economic Survey 2023-24. (2024). Government of Pakistan, Finance Division https://www.finance. gov.pk/ survey/ chapter 24/10_education.pdf

Pham, K. T. (2024). John Dewey's Educational Philosophy and Experience for Current Vietnamese Education. *Contemporary Pragmatism*, *21*(4), 399-415, https://doi.org/10.1163/18758185-bja10097

Qadeer, Dr. M. Z., Taj, T., Kakli, M. B., Piracha, Z. F., Zia, M. A., & Javed, M. I. (2022). *Pakistan Education Statistics (2020-21)*. https://pie.gov.pk/SiteImage/Publication/PES%202020-21.pdf

Robinson, C. (2023). Literacy. In: Maggino, F. (eds) Encyclopedia of Quality of Life and Well-Being Research. Springer, Cham. https://doi.org/10.1007/978-3-031-17299-1_1662

Shahzad, M. A., Akram, R. M. W., Idrees, M., Rubab, M., Raza, M., & Zehra, A. (2024). Socio-economic Determinants of Low Literacy Rate in Rural Areas of Punjab Pakistan. *Bulletin of Business and Economics (BBE)*, *13*(1). https://doi.org/10.61506/01.00198

UNESCO. (2022). GAL Country Profile (Pakistan). https:// www. uil. unesco. org https://www. uil.unesco. org/sites/ default/ files/ medias/ files/ 2022/11/gal_country_profiles_pakistan.pdf

Zulfiani, Z., Suwarna, I. P., & Miranto, S. (2021). Improving students' academic achievement using the ScEd-ALS Android-Based. *International Journal of Instruction, 14*(2), 735–756. https://doi.org/10.29333/iji.2021.14241a

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