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Role of Basic Education Community School (BECS) in Developing Numerical Literacy Skills among Non-Formal Learners

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Abstract

The purpose of this study was to investigate Role of Basic Education Community School (BECS) in developing Numerical Literacy Skills among Non-formal Learners. The researcher used quantitative research design. The population comprised 232 Basic Education Community School (BECS) from Islamabad out of which 5thgraders (42) were purposively selected. The researcher adopted a purposive random sampling technique and collected data by using a self-developed achievement test. Findings indicated that the Basic Education Community School (BECS) played a significant positive role in development of numerical literacy skills among non-formal students. The study recommended that the pattern of education and training provided by BECS may be promoted to other non-formal education providers for the enhancement of unified patterned literacy skills of students.

Keywords: *Basic Education Community Schools (BECS), Numerical skills, Non-formal Learners, Non-formal Education*

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Introduction

Literacy means being able to read, write, and express oneself in a reasonably understandable language. Numerical literacy makes up the key aspects of academic learning (Mihai, Ţiţan, & Manea, 2015). Literacy is the skill to understand information and knowledge about a given situation, and literacy is also the skill to use previous knowledge in a way that helps an individual understand instructions. Non-formal education plays key role in enhancement of numerical skills. Numerical skills are the ability of a child or student to write numerals and make addition and subtraction in numbers. Numerical skills include addition, subtraction, multiplication, and division. When we have to differentiate between literacy skills and numerical skills, an easy way to do so is to highlight that literacy skills may be an umbrella term that also includes numerical skills, but specifically, literacy skills include reading, writing, and speaking in a specific language. On the other hand, numerical skills encompass the skills that are associated with math. According to national conditions, it includes courses that teach basic education for out-of-school children, adult literacy, life skills courses, job skills courses, and general culture. Non-formal school education programs often do not essentially follow traditional accomplishment procedures and may not have the same durations. In most cases, certificates are not a problem after academic performance (Globale, 2020).

Numerical skills are fundamentally important, just as the skills to read, write, and speak. These are necessary for both academic performance and practical life as well. Recently there have been many large-scale attempts to build models for education about the most vital skills in mathematics (Tabor, Dibley, Hackenberg, & Norton, 2020). According to Most definitions of numerical have emphasized the use of mathematics in real-life situations and the notion that these may be used or addressed by a person in a goal-oriented way, dependent on their needs and interests within some contexts (home, community, workplace, etc.), as well as on their beliefs and attitudes. It is clear from these definitions that numerical does not refer only to operating with numbers as the word might suggest, but to a much wider range of skills (Aunio, & Räsänen, 2016). Another definition of numerical skills through non-formal education is that non-formal school education teaches structured educational programs outside the formal organization. In general, non-formal schooling is an adult literacy and continuing education program that also aims to develop numerical skills in learners (Bolton, 2017). Numerical skills such as addition, subtraction, division, and multiplication, are an integral part of the overall literacy skill of learners.

Numerical skills are not limited only to academic performance or some specific and limited number of tasks in professional life. The knowledge of basic arithmetic principles refers to an understanding of additive composition, commutatively, associatively, and inversion, which all reflect an understanding of the relationships between the variables in mathematical problem-solving tasks (Hellstrand, Korhonen, Räsänen, Linnanmäki, & Aunio, 2020). Numerical skills are significant for all of us daily. Surely, numerical skills are among the most profound for progress for individuals and nations. In a communal school, non-formal education, broadly speaking, can be defined as all education outside the formal school system that has no time or space parameters. The reason is that numerical skills empower individuals, communities, and nations to improve their intellectual, personal, social, financial, and collective ways of living.

Academic achievement would remain incomplete without the achievement of numerical skills at any academic level, especially at the junior school level, which includes the 5thgrade level. Numerical skills can rightly be considered one of the most practical academic skills due to their practical use in the day- to -day lives of everyone. This is the reason why it is highly significant to make sure that learners at the junior school level do learn the basic and advanced numerical skills as well as the rest of the academic skills, for example, reading, writing, and speaking in a particular language (Farooq, Feroze, & Kai, 2017).

According to Abdullah et al. (2022) numerical skills at the 5thgrade level pave the way for arithmetic skills at the later and more advanced stages of academic learning. A learner who has been able to learn well enough and master numerical skills at the 5th- grade level is bound to feel more confident in learning advanced-level concepts in math during the senior classes. The 5th grade could well be considered one of the key stages of learning because, after the 5thgrade, learners are supposed to enter the senior section of school, where academic learning may take on a whole new level of advanced concepts in math. At the same time, the 5th grade can also be rightly considered the stage of learning which reflects the background learning of numerical skills from the junior level of academic learning up to the 5thgrade.

Different countries focus on the role of NFE to promote numerical skills among nonformal learners. As far as developed countries are concerned, the situation there is quite satisfactory in terms of numerical skills among the masses, especially in the case of native citizens in these countries. When it comes to developed countries like the USA, the UK, Canada, etc. One may easily find a great deal of evidence that focuses on how formal and non-formal education systems are impacting the

numerical skills of the citizens in a positive and constructive way. At the same time, regarding developed countries, there is a great deal of data available that proves that developed countries specifically focus on the academic skills of young learners, for example, the learners at the 5th grade level. These academic skills are related to reading, writing, and arithmetic skills (Farooq, Feroze, & Kai, 2017).

Pakistan is a developing country. Understandably, the literacy rate in this country is far lower than the literacy rate in developed countries. Even though there have been efforts and research on how to improve the lower levels of numerical skills, such as addition, subtraction, division, and multiplication, both in the Public and private sectors of education, the literacy rate is one of the challenges for today's Pakistan. Though several reforms have been carried out to improve in-service teacher training, pre-service teacher preparation courses, and teacher recruitment, these reforms have had little effect on improving student learning, especially in the category of numerical skills. The variation in the quality and skills of teachers in three types of schooling (Public, Private, and Madrasa) are the main causes of the dissimilarities in the performance levels of children in Pakistan (Halai & Durrani, 2020). An encouraging fact about Pakistan is that both formal and non-formal education systems are working in tandem to uplift the lower numerical skill levels among the less privileged sections of society.

Statement of the Problem

The quality and nature of numerical skills in developing countries, especially in Pakistan, may not be very encouraging when it comes to the role of non-formal education systems regarding the numerical skills of young learners. As far as the school systems in the private sector are concerned, in Pakistan, one can argue, and rightly so, that the quality and nature of education are both good and up to date. On the contrary, when it comes to the public sector, both the quality and the nature of education may not be up to the mark. Even worse, the standard of non-formal education systems from the perspective of numerical skills on the part of learners may need a lot more attention (Farooq, Feroze, & Kai, 2017). Keeping in view this scenario, this study was focused on exploring numeracy skills developed by BECS.

Objectives of the study

The objective and research questions are as following:

1. To investigate the development of distance students' numerical literacy skills.

RQ1: What is the level of attainment of numerical skills of 5th grade students of BECS?
RQ2: What are the possible measures for the improvement of numerical skills of 5thgrade students of BECS?

Research Methodology
This study used survey, and it was descriptive in nature.

Research Design
Quantitative research design was used by using survey method.

Population, Sample and Sampling Technique
The population of the study was 232 BECS schools and out of these schools 42 5th graders of BECS from Islamabad were taken by using purposive technique as the students were from non-formal setup and study was focused only on out of school children.

Research Instrument
The researcher developed an achievement test which was based upon the numerical skills' measurement. This scale was based upon the objective of the study which was designed after detailed search from the literature and books used in BECS for 5th graders. It had four parts addition, subtraction, multiplication, and division. It was validated by content validation from 5 educational experts in numeracy then it was piloted on randomly selected sample of 20 students which indicated high alpha reliability coefficient.

Data Collection and Analysis
Data was collected personally through face-to-face contact. The data was arranged, tabulated, and analyzed by applying descriptive statistics i.e., mean, standard deviation.

RESULTS

Following section describes the results of this project:

Table 1

Demographic information of the students of BECS

Gender	Frequency	Percentage
Male	18	42%
Female	24	58%

The demographic information of the students is shown in Table 1. It represents the students' data about the institute, gender and other demographic factors. The data was collected from 5th grade students of four non-formal educational institutions (BECS) through a questionnaire.

Table 2

Numerical skills of 5th grade students of BECS, N=42

	Items	Mean	SD
Overall Numerical Skill	50	38.97	7.07
Addition Skill	12	10.21	1.76
Subtraction Skill	13	9.69	1.95
Multiplication Skill	12	9.33	1.81
Division Skill	13	9.73	2.03

The above table shows the overall results of the numerical skills of the students. It indicates that overall numeracy skills were developed satisfactorily. Among all four areas of numerical skills, students got more on addition skills (mean=10.21). Students had low mean in subtraction skills (m=9.69). However, it indicated that they secured satisfactory levels in all four areas of numeracy. This table indicates that BECS play a positive role in enhancement of mathematical literacy skills among non-formal students.

Findings and Discussions

The study mainly focused on the performance of the learners of BECS in the categories of numerical skills which included addition, subtraction, multiplication, and division. In Basic Education Community Schools, multigrade teaching is used for enhancement of math skills under the paradigm of non-formal education for out of school children. Usually, one room school is provided by the local community members of that society in which 4years to 16 years children are enrolled. Formal school curriculum of math is taught by single teacher in these schools. Teaching-learning materials and teachers' salaries are paid by the government. Students are assessed at the end of the program by formal sector which qualifies students for grade six in mainstream schools. The results showed

that there is a significant role of BECS in developing math skills among students. In all four skills of addition, subtraction, multiplication, and division, the students of BECS achieved much higher mean scores. The result analysis of overall numerical skills showed that the BECS learners scored a mean value 38.9762 and SD= 7.0796. So, BECS learner's overall numerical skills are quite better. Results showed that the mean value of the addition skill of BECS learners is 10.21 and S. D=1.7605. So, BECS students in addition skills have quite better performance as shown in Table 2. The mean value of subtraction skills of BECS learners is 9.690 and S. D=1.9567. Hence, BECS learners have better performance in subtraction skills also. Analysis showed that the mean value of multiplication skills of BECS learners is 9.333 and S. D=1.8168. So, BECS learner's multiplication skills are quite better and the mean value of division skills of BECS learners is 9.738 and S. D= 2.0369. So, BECS students have quite a better performance in division skills as shown in Table 2.

The purpose of the study was to investigate the role of current non-formal education systems at BECS in suburbs of Islamabad Capital Territory (ICT) and to explore the potential options for improvement and uplifting the standard of the education system. Since these schools are situated in the rural areas of the federal capital Islamabad and they have meager resources for use in the teaching-learning process and, they get students admitted from lower classes of society. However, the role of BECS needed to be explored in terms of development of desired literacy skills among learners. The results of the study pointed out that the learners of BECS have reasonable numerical skills. The results in the four numerical skills have shown that the learners at BECS are far better equipped with numerical skills. Similarly, Piper, Zuilkowski, and Mugenda (2014) stated in their research findings that through repetition, non-formal students have shown improvements in reading skills. This means both groups of learners may even further improve their performance at numerical skills through repetition of these skills in the form of weekly, fortnightly, or monthly test series.so, the findings of this study lead towards the conclusion that BECS plays significant positive role in literacy skills development. Results of this study are discussed by Abdullah et al. (2020). They explored promotion of literacy by nonformal basic education schools (NFBES) in Rajanpur district of Pakistan from 241 literacy centres. The study concluded that NFBES play a significant role in quality promotion of literacy activities in NFE.

Conclusions and Recommendations

The numerical skills of BECS students are significantly high in the categories of addition, subtraction, multiplication, and division. However, among all four categories of numerical skills, students got more on addition skills. So, it is concluded that BECS learners are quite better in overall numerical skills, and BECS is playing good role as desired. By keeping in view, the findings and conclusions of the study, the learning process of BECS students may be acknowledged in relation to all skills i.e. at BECS, the numerical skills of the learners may be enhanced more using education technology. BECS may use educational apps and online resources to reinforce numerical skills. BECS may arrange workshops and teachers training programs of other institutions of NFE providers to train them according to their level of expertise as master trainer.

References

Abdullah, M., Bhuttah, T. M. A., Hassan, M. K., Khalid, M. F., & Zaffar, A. (2022). Role of non-formal basic education in promoting literacy in district Rajanpur. *Webology, 19*(2), 5847 https://www.webology.org/data-cms/articles/20220315044256pmwebology%2019%20(2)%20-%20426%20pdf.pdfFalagas, M. E., & Zarkadoulia, E. (2008) Factors associated with suboptimal compliance to vaccinations in children in developed countries: a systematic review. *Current Medical Research and Opinion, 24*(6), 1719-1741. DOI: 10.1185/03007990802085692

Aunio, P., & Räsänen, P. (2016). Core numerical skills for learning mathematics in children aged five to eight years–a working model for educators. *European Early Childhood Education Research Journal, 24*(5), 684-704.

Farooq, M. S. (2018). Millennium development goals (MDGs) and quality education situation in Pakistan at primary level. *International Online Journal of Primary Education, 7*(1), 1-23.

Farooq, M. S., Feroze, N., & Kai, Y. T. (2017). Public vs. private quality education at primary level. *International Online Journal of Primary Education, 6*(2), https://files.eric.ed.gov/fulltext/EJ1243624.pdf

Gal, I., Grotlüschen, A., Tout, D., & Kaiser, G. (2020). Numeracy, adult education, and vulnerable adults: a critical view of a neglected field. *ZDM Mathematics Education 52*, 377–394 https://doi.org/10.1007/s11858-020-01155-9

Globale, N. (2020). Types of education: formal, informal and non-formal https://ecoleglobale101.Medium.Com/types-of-education-formal-informal-and-nonformal-aee0495004a9

Hellstrand, H., Korhonen, J., Räsänen, P., Linnanmäki, K., & Aunio, P. (2020). Reliability and validity evidence of the early numeracy test for identifying children at risk for mathematical learning difficulties. *International Journal of Educational Research, 102*, 101580. https://doi.org/10.1016/j.ijer.2020.101580

Mihai, M., Ţiţan, E., & Manea, D. (2015). Education and poverty. *Procedia Economics and Finance, 32*, 855-860. https://doi.org/10.1016/S2212-5671(15)01532-4

Piper, B., Zuilkwoski, S., & Mugenda, A. (2014). Improving reading outcomes in Kenya: First-year effects of the PRIMR Initiative. *International Journal of Educational Development 37*, 11-21. https://doi.org/10.1016/j.ijedudev.2014.02.006

Tabor, P. D., Dibley, D., Hackenberg, A. J., & Norton, A. (2020). Numeracy for All Learners: Teaching Mathematics to Students with Special Needs. Sage.

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