IMPLEMENTATION OF 3R'S PLAN FOR THE CONTINUATION OF EDUCATION DURING THE PANDEMIC SITUATION FOR GOVERNMENT PRIMARY SCHOOL STUDENTS OF KARACHI

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ABSTRACT
COVID-19 was the pandemic that has shaken the whole world in every aspect of their lives. The education sector is severely affected by COVID-19, not only that the schools closed and the educational activities discontinued for a long period but also after COVID-19 there was a drastic increase in the dropout rate of the students especially the early graders and primary students. This study aims to enlighten the fact that schools are the place where education can take place. The essence of formal learning cannot be achieved at home along with the other chores. This study is an experimental study where the dropout students from the Government schools of Karachi were analyzed for their reading, writing, and arithmetic abilities before and after the training of one month. For this study, Early Grade Reading Ability and Early Grade Mathematical Ability tools were used. The results showed that the reading, writing, and arithmetic skills of the students were extremely poor but, after giving them training the results improved. Therefore, it was concluded that students particularly at the primary level need the proper place and a teacher to conduct their educational activities and retain their learning.

KEYWORDS
Pandemic COVID-19, Early Grade Reading Ability, Early Grade Mathematics Ability and Formal Education

INTRODUCTION

According to UNICEF and WHO (2019) when any of the pandemic conditions such as earthquake, hurricane, medical problems etc. strike suddenly the first and the most who suffers are the children. These situations not only lead to loss of life, destruction of homes and communities but also effects the economic, social and educational condition of the country. These threatening conditions cause the scarcity of food, shelter, and social support as well as the learning abilities of the children. The risk of malnutrition rises and the devastated infrastructure make them lose their access to proper sanitation and hygiene facilities which become the cause of spread of waterborne diseases affecting the children most once again. The destruction and closure of schools deprived them access their education leading to the risk of losing their future. Not only during the pandemic condition but also after that the dropout rate of the students is high and their psychological condition also get disturbed which make them lose their interest in studies.

According to World Bank, UNICEF, UNESCO and OECD (2022) it was found that 95% of the world's student's population had been effected by COVID-19. It is estimated that 1.6 billion learners were affected by the closure of the schools all over the world due to COVID-19 as 188 countries closed down their schools worldwide. According to Piret and Boivin (2021) as result of COVID-19 most of the countries closed their schools and Pakistan was one of the first countries in the world who declare the school closure for the safety of the students. Particularly, in Sindh province the closure of schools was started from 27th of February 2020 while for rest of the schools of the country it occurred from 14th of March 2020. Reopening of the schools was on sequential basis first classes 9 to 12 reopened on 12 September 2020 then the classes from 6 to 8 reopened on 23 September 2020 and then the early grades and primary classes were reopened on 30 September 2020. After the reopening of the educational institutes the country was again hit by the third wave of the pandemic from April to May 2021. During this time period students were shifted to hybrid mode of learning were they were to attend the school on alternate days and the remaining days they were on online learning mode. This was followed for the students of private as well as the government school students.

According to Pokhrel and Chhetri (2021) it is said that for effective learning it is required that the child has to be in school. According to the research on teaching and learning in government schools in rural areas of Pakistan it is been estimated that after a whole year of regular schooling 10% of learning is gained for the children in grade 3,4 and 5. These gains were also reduced due to the pandemic situation of COVID-19. According to ASER (2021) the pre-pandemic situation of education in Pakistan was also reported not to be encouraging as it was estimated that the early grade student's ability to read in the local language was not sufficient as only 40 to 50% students in

grade 1 were able to read letters. Whereas in the province of Punjab the condition was comparatively better as 68% students were able to read story in their local language in higher grades. While only 40% of the students of Sindh were able to do the same. The case was even worse for English and Arithmetic's. It was also estimated that the COVID-19 has effected the learning abilities of the students at every level and grade while the early and primary grade students were most affected. The loss of the students varies according to gender as well as the availability of the resources. Girls were more effected as compared to boys similarly the students who had good facilities to access online learning were less effected than those who didn't had those facilities.

Stated by UNICEF Pakistan (2021) in context of Pakistan's education system that the education system of the country has severely been effected after COVID-19 as the schools were closed for more than a year and the shift of mode of education from face to face to online teaching learning process was also not very effective. It was not able to grip or engage the students in educational activities as effectively as they were in face to face setup. Although the response from the government was quick to start different digital programs, but, apart from all these efforts a large group of students were disconnected from the education. Therefore the distant learning programs launched were not found to be beneficial or had less impact on the learning. After that different surveys were done to measure the learning loss of the students and also to determine the effectiveness of the technology. This all showed the incompetency of the teachers, students, administration and also pointed towards the pedagogical weakness (Annual Status of Education Report, 2021). The purpose of this study is to estimate that how much schools and a teacher is important in order to conduct the formal educational activities. A formal place and specific time is necessary to enhance the learning of the students. It is not possible of the students to get proper formal education at their homes where they also have other household chores. They also need someone to supervise their learning and enable them to retain it, for this the teacher can serve best as they have this task assigned while the other person helping at home may have other responsibilities also. This study is the experimental study with the dropout students of Karachi, Pakistan which will measure the losses that has been encountered in these areas and will ensure that their fundamental skills of language and numeracy increase. As the students will be motivated they may enroll once again in the schools and continue their education which is required for the lifelong progress. The main aim of the study is to deal with the primary level students as they were the most effected children during COVID-19.

This paper has been extracted from the project which was conducted under the supervision of ORIC (Office of Research, Innovation and Commercialization) University of Karachi to access the 3R's abilities of the students in English and Urdu. This paper cater the reading and writing abilities of the students of grade 4 in English,

and arithmetic subject. For the conduction of the project a grant of one lac was given by the University of Karachi.

LITERATURE REVIEW

Scenario of COVID-19 in Pakistan

Bajwa (2020) state that it was COVID-19 that threatened the whole world in the first quarter of 2020, it was the pandemic that proved to be the 'black swan' event. It was 31st December 2019 when the first case was reported in the Wuhan city of China. Then the case was reported in Thailand on 13th January 2021. In Pakistan the first case of COVID-19 was reported on 26th July 2020. Till June 2020 76,398 cases were reported in different cities of Pakistan with 1,621 deaths. It was considered to be the first wave of COVID-19 where least cases were reported on 30th August 2020. Then Pakistan experienced the second wave of COVID-19 which started in second week of October 2020, where maximum cases reported were 3,795, on 6th of December 2020. Then the cases started to decline and reached their minimum limit of 1000 cases per day till February 2021. It was not the end of the pandemic and Pakistan then experienced the third wave which started in second week of March 2021. Total official cases reported during this wave were more than 600 thousand. It is the only estimated loss of the lives that has been lost due to this pandemic apart from other losses.

Impact of COVID-19 on education system of Pakistan

According to Ministry of Federal Education and Professional Training (2020) a lot of studies has been done to measure the impact of COVID-19 on the education sector, it was found that the pre-pandemic setup of education was face to face. Which was focusing on classroom centered approach in which both teacher and the students were present physically. After the outburst of pandemic, it was required to continue the learning process as the shutdown was prolonged and the education cannot survive such loss. So, the design of education was shifted to online mode of leaning due to halt of physical contacts. The government of all the provinces of Pakistan responded promptly to address the issue. The School Education Department of Punjab started Taleem Ghar on 1st of April which was launched through cable channel across the Punjab to continue the learning of students from their home. Initially it was started with three subjects (mathematics, science and general knowledge) for grades 1 to 8 but immediately after that various departments of the government came forward to ensure its successful intervention.

According to Adnan and Anwar (2020) due to the lack of resources and training this shift to the virtual learning was not a success and the continuation of learning was disrupted. It was not a threat as it was discontinuing the transfer of knowledge but retaining the knowledge was also in danger. Student's engagement, interest and motivation in educational activities was declining. One of the reasons of this was that

the students were confined to their household space where they were more engaged in their household chores, doing some odd jobs. Such an environment was not considered to be suitable for the effective learning. Thus, it was concluded that closure of schools was a loss of learning as a confined space and time is required for learning. As the situation of COVID-19 pandemic created an economical disrupt in the country also it resulted in high dropout rates and less enrolment after pandemic. The priorities of the families were shifted from the education to their survival which make them engage their children in odd jobs to earn for the family.

According to Mukhtar, Javed, Arooj and Sethi (2020) it was also found that the learning rate of the students of the government school was lower than the private school students during this school closure period. This decline of learning was found to be acute for the lower grade students such as the students of class 1 to 3. Parental education and household wealth were also a source for the difference in learning of students. Those who have educated parent were having more rate of learning as their parents were tutoring them at home by themselves. Family wealth was a source to afford the resourced required for the virtual learning such as gadgets, internet connection etc.

Therefore, students who were able to afford them were able to continue their education. According to Smith (2017) it is said that the foundation of learning is laid by the teacher and schools are the best place to achieve formal learning. It is the teacher who design academic task for the students so it is required by the teacher to be fully aware of the characteristics and the abilities of the students. Reading and writing task designed by teachers on similar topics for the students help them to understand, recognize and memorize the words with in the text with accuracy and adequate speed. It also helps the students to get broader coverage of conceptual learning and thorough and integrated understanding. Writing also helps to understand the arithmetic skills in a better way as it deepens the learning of the student and also help them to explore new perspectives (Braten et. al., 2013). According to National Institute for Learning (2007) proper practice and instructions are required to gain the writing skills properly. The organization of the internal thoughts can be enhance in arithmetic problems by gaining proper writing skills. It is concluded that writing skills is essential to teach the arithmetic skills as it provide evidence of logical conclusion, utilizing facts to explain students' thinking and justifying different processes and answers. There exist an strong association and integration between the language and mathematical skills therefore reading and writing of the context support mathematical reasoning (Knowles et al., 2012).

Overview of EGRA (Early Grade Reading Ability)

Gough and Tunmer (1986) found that reading and writing are the basis skills that are

required by the early grade students otherwise there is a high change of losing their interest or have week academic performance in their high grades. It was examined that in many countries students enrolled in early grade classes are not able to read or understand simple text. It becomes difficult for these students to acquire literacy as they grow older. Particularly if the students do not gain these basis skills of reading then they are supposed to repeat the grade and eventually drop out. A framework was propose that says that reading comprehension depends upon the decoding of words and language comprehension. When a child starts to read then they must learn and understand letters of the alphabets, sound associated with each letter should be learned and this knowledge should be used to decode the words. In addition students must learn to recognize the spellings. Till the end of the last phase student develop sufficient speed and accuracy in word recognition skill which enables them to read it with fluency. EGRA instrument consist of number of sub tasks such as: phonological awareness, decoding, fluency, reading, comprehension and learning comprehension. This understanding helps the learner to develop sufficient vocabulary that help them to enhance their writing skills also (Geva & Yaghoub Zadeh, 2006).

Overview of EGMA

It is found that for the better understanding of the mathematical skills in early grades foundation of mathematics should be strong. Mathematical skill is the most in demand as most of the jobs require these skills. Problems solving skills, critical thinking, mental agility and flexibility are the skills that can be developed through mathematics are transferred to other areas of not only work but also in day to day life. The basic skill of mathematics that an early grade student should possess include: knowing and using number names, understanding the value of numbers, knowing basic symbols, ordering and comparing sets of objectives. These understandings will prove to be the key progression towards the ability to solve more advance problems. Identification of the missing numbers or completing the sequence, addition, subtraction, multiplication, division are some of the task for the EGMA instrument. Another sub task is the performance of all the previous sub task trough word problems. This tool is directly related to EGRA as the better understanding of the students of the language make them understand the mathematical skills in better way. (Baroody et al., 2006; Clements & Samara, 2007).

RESEARCH OBJECTIVES

1. To improve the reading skills of the government primary school students of Karachi in English during the closure of schools
2. To improve the writing skills of the government primary school students of Karachi in English during the closure of schools.
3. To improve the arithmetic skills of the government primary school students of Karachi during the closure of schools.

RESEARCH QUESTIONS

1. What is the level of reading of government primary schools students of grade 4 in English before and after the implementation of project?
2. What is the level of writing skills of government primary schools students of grade 4 in English before and after the implementation of project?
3. What is the level of arithmetic skills of government primary schools students of grade 4 before and after the implementation of project?

RESEARCH HYPOTHESIS

1. The level of English reading skills of government primary school students have declined due to the pandemic condition.
2. The level of English reading skills of government primary school students will improve after the regular learning of 1 months.
3. The level of English writing skills of government primary school students have declined due to the pandemic condition.
4. The level of English writing skills of government primary school students will improve after the regular learning of 1 months.
5. The level of Arithmetic skills of government primary school students have declined due to the pandemic condition.
6. The level of arithmetic skills of government primary school students will improve after the regular learning of 1 months.

RESEARCH METHODOLOGY

This is an experimental research where the students have been examined for their 3R's ability i.e. reading, writing and arithmetic. Then the learning was conducted for the students for 1 month and were tested again. The test was same before and after the training.

Population

The data was collected after the pandemic of COVID-19 and the targeted population were the students of class 4 of government schools who had dropped out of the schools after pandemic due to low academic grades, financial instability or due to any other reason.

Sample Size

For this reason, one of the largest slum areas of Karachi was selected and ten government primary schools were selected randomly. The data of those students of class 4 was collected who had dropped out of the school after COVID-19. The students were then contacted and asked to participate in the study. 20 students were randomly selected from the total data obtained. Having equal contribution of both the genders. Those students were selected who willingly agreed to participate.

Data Collection

For the study EGRA and EGMA tools were used. The EGRA and EGMA tools were constructed from the context of Sindh text board books for class 4 according to the syllabus of 2018. The EGRA tool was constructed for English subject and the EGMA tool was also constructed in English language.

EGRA tool

EGRA (Early Grade Reading Ability) was developed to determine the initial reading and comprehension skills of the students. There were the following sub tasks; the sub task 1 i.e. reading words consist of 30 words. The sub task 2 consist of reading sentences consisting of 10 items. Sub task 3 consist of reading comprehension consisting of a passage to read and 5 questions to be answered after reading. Sub task 4 was the listening comprehension consisting of a passage and 5 questions. From sub task 5 to 7 were designed to determine the writing skills of the students. Sub task 5 is dictation of 15 words. Sub task 6 was the dictation of 5. Sub task 7 is the dictation of the paragraph. This sub task was to identify the punctuation skills of the students along with their writing skills.

EGMA Tool

EGMA tool is used to determine the arithmetic skills of students. The following are the sub task: The sub task 1 is number discrimination practice consisting of 10 items. The sub task 2 is the missing number task consisting of 10 items. The sub task 3 is addition and sub task 4 is subtraction question each comprises of 5 items. The sub task 5 is multiplication and sub task 6 is division having 5 items each. The sub task 7 is word problems consisting of 5 items. First item is for addition, second is for subtraction, third is for multiplication, fourth is for division and fifth is for addition of fractions. The time allotted for the complete task is from 30 to 35 minutes for each student.

Data Collection Technique

The data was first collected on 16th of January 2023 for the 3R's ability of the students. Then the students were taught for one month by the volunteer teachers in prescribed place. Then the students were again tested for their 3R'S ability on 17th of February 2023. The data collected was then checked by the teachers and the marking was assigned for each task to each of the students. The data was checked manually by the teachers by giving them marks for each task.

DATA ANALYSIS

Initial Analysis of the Students for EGRA

EGRA is the instrument to test early grade reading abilities of the students. The results showed that the performance of the students for English was disappointing. The

students are not encouraged to speak English as the teachers themselves are week in this area. Many of the students were unable to respond a single correct answer. This is the initial analysis which is done before conducting any training. The following is the chart which shows the detail analysis of the results.

Table 1: ***Performance on EGRA (English)***

S#	Sub task	Total items	Average correct answer	Average attempted answers	% response
1	Reading words	30	2.45	2.48	8.16
2	Reading sentences	10	1.00	7.33	10.0
3	Reading comprehension	42	4.25	7.91	10.1
		5	0.00	2.00	0.00
4	Listening comprehension	5	0.00	2.50	0.00
5	Dictation words	15	0.25	4.15	1.66
6	Dictation sentences	5	0.20	2.0	4.00
7	Dictation paragraph	32	2.90	6.15	9.06

The above chart is showing results for the initial test for EGRA (English) for the students of class 4. The average correct answers of each task for 20 students is: task 1 is 2.45, task 2 is 1.00 for first part of task 3 is 4.25, for second part of task 3 is 0.00, for task 4 is 0.00, for task 5 is 0.25, for task 6 is 0.20 and for task 7 is 2.90. The percent response for sub task 1 and 2 are 8.16% and 10.0 % respectively. The percent response for sub task 3 reading part is 10.1 and for answering questions part is 0%. The percent response for sub task 4 is again 0%, for sub task 5 it is 1.66, for sub task 6 is 4.00 and for sub task 7 it is 9.06%.

Initial Analysis of the Students for EGMA

EGMA is the instrument to test early grade mathematical abilities of the students. This instrument was designed in English only. The results in EGMA were also not very encouraging as the students were not able to decipher the meaning of the questions as they were in English. Also they were lacking the basic skills of the arithmetic. Many of the students were unable to respond a single correct answer. This is the initial analysis which is done before conducting any training. The following is the chart which shows the detail analysis of the results.

Performance on EGMA sub task

S#	Sub task	Total items	Average correct answer	Average attempted answers	% response
1	Number	10	3.45	5.75	34.5

	discrimination				
2	Missing numbers	10	4.10	7.30	41.0
3	Addition	5	1.25	3.90	25.0
4	Subtraction	5	1.00	2.50	20.0
5	Multiplication	5	0.35	1.5	7.00
6	Division	5	0.20	2.0	4.00
7	Word problem	5	0.00	0.00	0.00

The above chart is showing results for the initial test for EGMA for the students of class 4. The EGMA test consist of 7 sub tasks. The results of each task have been shown in the above chart. The average correct answers of each task for 20 students is: task 1 is 3.45, task 2 is 4.10 for task 3 is 1.25, for task 4 is 1.00, for task 5 is 0.35, for task 6 is 0.20 and for task 7 is 0.00. The percent response for sub task 1 and 2 are 34.5% and 41.0 % respectively. The percent response for sub task 3 is 25.0. The percent response for sub task 4 is 20.0%, for sub task 5 it is 7.00, for sub task 6 is 4.00 and for sub task 7 it is 0.00%.

Final Analysis of the Students for EGRA

A training session was provided to each student for one month in which students were taught by volunteer teachers. After the session students were again tested for their progress through EGRA tools for their reading and writing skills in English. The test was same before and after the training session. The procedure and format of conduction of the test was same. The following is the chart which shows the detail analysis of the results.

Performance on EGRA Tool

S#	Sub task	Total items	Average correct answer	Average attempted answers	% response
1	Reading words	30	16.30	17.10	54.33
2	Reading sentences	10	4.95	7.15	49.5
3	Reading	42	15.8	23.25	37.6
	comprehension	5	2.45	3.60	49.0
4	Listening comprehension	5	2.80	4.45	56.0
5	Dictation words	15	6.40	7.60	42.6
6	Dictation sentences	5	2.95	3.80	59.0
7	Dictation paragraph	32	17.50	24.0	54.68

The above chart is showing results for the initial test for EGRA for the students of class 4. The results of each task have been shown in the above chart. The average correct answers of each task for 20 students is: task 1 is 16.30, task 2 is 4.95 for first part of task 3 is 15.8, for second part of task 3 is 2.45, for task 4 is 2.80, for task 5 is

6.40, for task 6 is 2.95 and for task 7 is 17.50. The percent response for sub task 1 and 2 are 54.33% and 49.0 % respectively. The percent response for sub task 3 reading part is 37.6 and for answering questions part is 49.0%. The percent response for sub task 4 is again 56%, for sub task 5 it is 42.6, for sub task 6 is 59.0 and for sub task 7 it is 54.68%.

Final Analysis of the Students for EGMA

The results in EGMA after the training session were very encouraging as the students were able to decipher the meaning of the questions. After the session the students were got familiar with the basic arithmetic skills. The following is the chart which shows the detail analysis of the results.

Performance on EGMA Sub task

S#	Sub task	Total items	Average correct answer	Average attempted answers	% response
1	Number discrimination	10	8.75	9.90	87.5
2	Missing numbers	10	8.10	9.65	81.0
3	Addition	5	3.00	4.10	60.0
4	Subtraction	5	2.95	3.35	59.0
5	Multiplication	5	2.90	3.00	58.0
6	Division	5	2.25	2.75	45.0
7	Word problem	5	1.45	2.65	29.0

The above chart is showing results for the initial test for EGMA for the students of class 4 after the training session. The EGMA test consist of 7 sub tasks. The results of each task have been shown in the above chart. The average correct answers of each task for 20 students is: task 1 is 8.75, task 2 is 8.10 for task 3 is 3.00, for task 4 is 2.95, for task 5 is 2.90, for task 6 is 2.25 and for task 7 is 1.45. The percent response for sub task 1 and 2 are 87.5% and 81.0 % respectively. The percent response for sub task 3 is 60.0. The percent response for sub task 4 is 59.0%, for sub task 5 it is 58.00, for sub task 6 is 45.0 and for sub task 7 it is 29.0%.

The 3R's abilities i.e. reading, writing and arithmetic skills of the students already enrolled in school was below average. However, after COVID-19 a lot of students discontinued their studies and were busy with other household activities or were helping their parents in earning. The EGRA and EGMA tools were used to test the 3R's ability of the students. The results of EGRA English was extremely disappointed before the session as the students were not paying attention to their studies at home and there was also no one to help them in their studies. The average values were calculated which showed that after the training session of 1 moth the students result in

their reading and writing of English was improved. The arithmetic skills of the students were also very disappointing as they were not able to solve the basic operations. The students were also not able to understand the word problems as their reading skills were also weak and therefore they were not able to solve the arithmetic problems. After the training session there was not the drastic change but there was a slight improvement in arithmetic skills of the students and their confidence was also improved due to continuous learning for a month.

DISCUSSION

This study was conducted to determine whether a specific place, time and person is required to conduct teaching learning process effectively or not. The study emphasizes the importance of schools, timetable and teacher to boost the learning abilities of the students. The results were very poor in the beginning as the students were not aware with the phonic sounds, identification of words and also had no fluency. Where the comprehensive abilities of the students were also extremely bad as they were not able to retain any of the knowledge that they have read or listened. The writing abilities of the students were also below average and were at threatening stage which proved that students who had discontinued their education at schools were not able to study effectively at home. The English was not the first language of the students rather it was mostly the third language for then as they had different mother tongues and used to speak those languages at their home. They even had problems in understanding and speaking Urdu properly. The results for the mathematical skills were also very poor as the students were not able to solve those tasks which were designed from low grade syllabus. The performance of the students for word problems were below all other sub tasks as the students were not able to understand the meaning of the questions. Then the students were taught for 1 month by teachers at specific place. The students were given 1-hour class for English and arithmetic and were again tested by the same tools. The results improved showing that students have to give proper time to their studies which is not possible at their homes as they have to help their parents at homes. Additionally, the students have no one to help them when they encounter any problem in educational activities. They also had very less time and weak foundation in education therefore they find it more difficult to study at their own. Similarly, at homes their first priority is not education as they do not have any proper place to study and have lot of other disturbance also. Due to these factors their motivation to study or to go to school has also deceased. When these students were again brought back to the light of education and were taught to boost their confidence. Their interest, engagement and motivation increases and their desire to continue their education was also increased.

This study was highly beneficial to motivate the dropout students to go back to schools and continue their studies. However it was only conducted to the 20 students

due to the lack of resources, also a very few of the schools were targeted. The training was also limited to 1 month. If there could have been more resources so the study should have been conducted in each and every district of Karachi or also in the other areas of Pakistan. Students of all the classes should have been targeted and training session should also be increases to have better results.

RECOMMENDATIONS

The aim of this research was to determine the importance of school and teacher for the acquisition of knowledge particularly at early grades. Therefore, through this study it is highly recommended:

To make sure that the dropout rate of the students is not high so that they should at least come to the school which is very essential to make them learn properly.

To make sure that students learn under the supervision of trained teachers as they might find it difficult to study on their own, plus the parents at home might not be that much educated to cater their educational activities.

To make sure that students come to the school for specific time and study there as the students may have other household chores to handle.

Government should make policies which bound the parents to send their children to schools on daily basis.

Parents and students should be motivated through their sense of achievement.

Proper attention should be given to 3R's abilities of the students.

REFERENCES

Adnan, M. & Anwar, K., (2020). "Online Learning amid the COVID-19 Pandemic: Students' Perspectives." 2(1): 45-51.

Annual Status of Education Report (2021). 'Measuring the impact of COVID-19 on Education In Pakistan'Idara-e-Taleem-o-Aagahi. Retrieved from: http://aserpakistan.org/report

Annual Status of Education Report. (2019). https://aserpakistan.org/document/aser/2019/reports/national/ASER_National_2019.pdf

Bajwa, W. H. (2020). Covid-19 Pandemic: Preventing an Emerging Educational Crisis in Pakistan by. Retrieved from NORRAG: https://www.norrag.org/covid19-pandemic-preventing-an-emerging-educational-crisis-in-Pakistan

Baroody, A.J., Lai, M. L., & Mix. K.S., (2006). The development of number and operation sense in early childhood. 187–221.

Bråten, I., Ferguson, L. E., Anmarkrud, Ø, and Strømsø, H. I. (2013). Prediction of learning and comprehension when adolescents read multiple texts: The roles of word-level processing, strategic approach, and reading motivation. *Journal of Reading and Writing. (26)*, 321–348. doi: 10.1007/s11145-012-9371-x

Clement, R. & Samara, W., (2007). The Psychology Of The Language Learner Revisited.

Milton Park: Routledge. doi: 10.4324/9781315779553

Geva, E., & Yaghoub, Z. (2006). Reading efficiency in native English-speaking and English-as-a-second-language children: The role of oral proficiency and underlying cognitive-linguistic processes. *Scientific Studies of Reading. (10),* 31–58.

Gough, P. B., & Tunmer, W. (1986). Decoding, reading, and reading disability. *Remedial and Special Education, (7),*6–10.

Knowles, M. S., Holton, E. F. III., & Swanson, R. A. (2012). The Adult Learner. Milton Park: Routledge. doi: 10.4324/9780080964249

Ministry of Federal Education and Professional Training. (2020, May). Prevention Web. Retrieved from Pakistan national education response and resilience plan (K-12): https://www.preventionweb.net/go/71812

Mukhtar, K., Javed, K., Arooj, M., & Sethi, A. (2020). Advantages, Limitations and Recommendations for online learning during the COVID-19 pandemic era. Pakistan Journal of Medical Sciences, 36 (COVID19-S4).

National Institute for Literacy (2007). What Content-Area Teachers Should Know About Adolescent Literacy. Washington, DC: National Institute for Literacy.

Pakistan Case Study Situation Analysis Report (2021). Pakistan Situation Analysis on the Effects of and Responses to COVID-19 on the Education Sector in Asia.

Piret, J, & Boivin, G. (2021). Pandemics throughout History. *Journal of Microbiology. (15),*11. doi: 10.3389/fmicb.2020.631736.

Pokhrel, S., & Chhetri, R. (2021). A literature review on impact of COVID-19 pandemic on teaching and learning. Higher education for the future, 8(1), 133-141.

Smith, M. (2017). Using andragogy to teach pedagogy: Expecting heutagogyusing against-the-grain teaching practices for desired outcomes. Res. Teach. Educ. 7, 13–18.

UNICEF Pakistan (2021). Pakistan Brief on Learning Continuity a midst COVID-19 School Closures. Retrieved from: https://www.unicef.org/pakistan/reports/brief-learning-continuity-amidst-covid-19-school-closures-pakistan

UNICEF and World Health Organization [WHO] (2019). Progress on Household Drinking Water, Sanitation and Hygiene: 2000-2017. Available: https://www. UNICEF.org/reports/progress-on-drinking-water-sanitation-and-hygiene-2019

World Bank, UNICEF, UNESCO, & OECD. (2022). *From learning recovery to education transformation*. doi:10.1596/38112