Impact of Digital Learning Tools on English Language Acquisition in Rural Telangana

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Abstract

This paper was meant to help in establishing the effects of digital learning tools in learning the English language by rural students in Khammam, Telangana. As a quantitative research design, the assessments involved a pre and post-test used in a sample of high school students after and before working with digital learning tools such as Duolingo, Kahoot, and BBC Learning English. The outcomes indicated that there was a high level of enhancement in the language expertise of the students in English, especially in terms of vocabulary, reading and writing abilities. The statistical tests such as paired t-test showed the statistically significant difference between the scores pre-test and post-test ($p < 0.05$), which proves the positive influence of the digital tools on language learning. Others which are challenges that weaken the potential of such tools highlighted in the study include the inconsistency in the use of internet and poor infrastructure and training of teachers. Nevertheless, the results indicate that the educational disparity in rural territories could be filled by the use of digital learning tools, provided their effective introduction. The conclusion of the study involves suggestions to be followed in the policy so as to incorporate the use of technology in the rural set up education system with special consideration to enhanced infrastructure and training of teachers. The activities of the longitudinal effects and the use and role of the specific tools of the digital in the sustained language learning may be tested in the future.

Keywords: Digital Learning Tools, English Language Acquisition, Rural Education, Educational Technology, Telangana.

I. Introduction

The competence in English language in India is a deciding factor in determining academic achievement, occupation and social mobility. Because of its use as a lingua franca, speaking English provides better job opportunities, access to knowledge and involvement in international discourses. The total literacy level is however remarkable with an outstanding distinction between urban and rural areas as regards to their education on the English language. Students in rural areas including Telangana have been seen to be in serious challenge to learn English especially because of poor infrastructure, poor quality of teachers, and the fact that exposure to the language in general is low outside school. Such educational disparity does not only have a ramification on their academics but also impact on their future potential.

A possible answer to these obstacles is the provision of digital learning tools to rural education. These are the apps and websites which provide interactive and involving methods of the students to learn and practice English independently of the classical classroom learning. Online learning tools would allow providing access to resources which were not previously accessible in the remote regions, effectively closing the rural-urban education divide. In addition, the increased popularity of affordable internet access and usage of smartphones in rural regions has also contributed to the provision of such instruments more than ever.

In that regard, it is important to study how the English language is acquired due to digital learning tools in rural Telangana. The performance of these tools can transform the language learning domain and make it more individual, adjustable, and captivate. The intended purpose of the study is to evaluate the impact of digital tools on the development of English language competencies and provide information on their rationale to enhance educational performance and bring more equity in rural education.

Problem Statement

Among the challenges that Rural Telangana has to overcome on the way to acquiring the English language skills is the problem of inefficient infrastructure, a lack of highly trained teachers and a lack of exposure to the language in everyday life. A number of students perform poorly in the language basic skills because of lack of resources like text books, language labs and interactive learner technology. Also, the conventional methods of instruction are ineffective most of the time. A potentially viable answer can be seen in the use of digital learning tools, which offer a variety of resources to students that is easy to access, interactive, and participatory, which

would boost language acquisition. Such tools have the ability to improve on geographical and social economic hindrances and this may revolutionise English language teaching in the rural settings.

Research Objectives:
To assess the impact of digital learning tools on English language acquisition in rural Telangana.
- To identify the effectiveness of various digital tools in improving English language skills.
- To examine the level of engagement and motivation among rural students when using digital learning tools for English language learning.
- To explore the challenges and limitations faced by students and teachers in integrating digital learning tools into English language education in rural Telangana.

Significance of the Study
This paper presented significant findings on how the digital learning tool has been able to improve learning of the English language at rural Telangana. With the determination of the effects of these instruments, the research enlightened the policymakers on the possibility of the technology in eliminating the disparity in education in rural communities. In practice, it presented the ideas on the incorporation of digital technologies into the curriculum, assisting teachers in employing creative approaches to enhance the activity and achievement of students. Moreover, the results have been used in future studies as the paper revealed the obstacles and possibilities of digital teaching in the rural setting thus making the future research in this topic possible.

II.   Literature Review

The literature review has revealed the increasing significance of the digital tools in studying the language, and the research has focused on their effectiveness in developing vocabulary, teaching grammar and the advancement of the whole language in general. It was observed in research how gamified learning tools such as Kahoot and language applications such as Duolingo are beneficial. Furthermore, integration of various resources including BBC Learning English was found to develop language skills of learners.

Venkatesh, V, & Bala, H (2008) refined the Technology Acceptance Model (TAM) by ensuring that the external factors such as the social influence and experience also contributed towards the adoption of technology. The authors made a conclusion that the perceived utility and ease with which digital tools can be used have a noteworthy impact on their adoption, notably at the education level. The model would be useful in explaining the manner in which the students in rural Telangana would embrace digital aids in learning the English language. The analysis of the impacts of external factors, offered by the study, can be used to create user-friendly environments, which would stimulate rural students to become interested in technology.

Sharma and Sood (2020) analyzed the effects of digital tools such as mobile applications and e-learning platforms on the level of English proficiency in rural India students. They have discovered that instruments like Duolingo and interactive online activities had a highly positive effect on the vocabulary and comprehension skills of the students. The researchers highlighted the importance of good internet connection and teacher preparation as a means of incorporating digital learning in classrooms of rural areas. This study indicates the possibility of online resources to eliminate geographical distance in providing rural students with an opportunity to acquire English through an extra interesting and customised manner.

Kaur and Arora (2018) queried how mobile apps can be used in rural Punjab schools to enable learning the English language. The analysis revealed the fact that students who have used such applications as HelloTalk and Babbel have developed better speaking and listening abilities. The study has also indicated that although technology permitted to fill some of the above mentioned gaps in learning, smartphones and internet connectivity was a big problem in rural locations. The research provided an example of how mobile learning solutions should become an essential part of the curriculum and be trained appropriately to teachers so that the technology attained its maximum in rural education.

Das and Rani (2019) examined the technology integration in seminal classrooms in India to conduct English in the rural parts of the country. They established that online learning applications like video instruction, quizzes and interactive classes help in enhancing interest and retention among students in acquiring English. But a major obstacle of the infrastructure and teacher preparedness in the rural areas was noted in the study too. The authors indicated that successful implementation of digital learning tools needs constant professional development of teachers and sufficient technological foundation.

Awasthi and Raghav (2021) reviewed learning software in language acquisition in rural India, performing a systematic study. The review has found several digital tools, such as interactive websites, mobile applications and educational software, to enhance vocabulary, grammar and reading comprehensions in students. As it turned out, rural students enjoyed the learning benefits of self-paced learning that digital tools could offer particularly in acquisition of the English language. Nevertheless, such issues as unstable access to the internet and absence of

the help of a teacher were mentioned. This research paper recommended specific policies that should be in place to mitigate these issues to enhance the digital learning condition in rural communities.

III. Research Methodology

The research methodology describes the way in which the influence of the digital learning tools on English language acquisition in rural Telangana is evaluated. It outlines the quantitative research design, as well as sample selection, data collection instruments along with the digital tools that were utilized to conduct the study. It is also mentioned in the methodology, the statistical methodology was used in the comparison of the scores between the time of pre-test and the time of post-test, which is a paired t-test, which gives a systematic way of establishing whether the tools are effective or not.

Research Design

The research design used in the current research is quantitative; the research questions would make use of surveys, tests, and statistical analyses to determine how digital learning tools affect the acquisition of the English language in rural Telangana. The method was to measure the English proficiency of students prior to the intervention of digital tools and following the intervention and this made it easy to compare the performance. There was also the level of gathering information through survey of students and teachers on the use of digital tool and their perception on how effective digital tool use has been to learning language.

Sample Selection

The selected students living in rural areas of Khammam, Telangana served as the study participants and were between fourteen and eighteen years of age and actively studying English. The selection of participants was subject to preciseness with regard to the extent individuals are used to digital tools with prior introduction and experience in the utilization of digital learning materials. As well, the grouping of students was and would be done on the basis of their initial proficiency in the English language, that would be determined by a pre-test, so the sample would be diverse and applicable to the given study.

Data Collection Tools

A structured questionnaire was developed for both students and teachers to gather information on the use of digital learning tools in their English language learning. The survey focused on the frequency of tool usage, types of tools used, and perceived effectiveness. English proficiency tests were administered before and after the intervention. These tests assessed students' vocabulary, reading comprehension, writing skills, and overall English proficiency. The tests were standardized to ensure consistency and comparability.

Digital Tools Used

The paper considered various highly-popular digital tools applied to language studies, such as Duolingo, a language-learning application that concentrates on words, language constructions, and syntax. An interactive game-based quizzing platform, Kahoot was employed to activate language learning. There was also the use of the BBC Learning English, a site, which has a number of language learning programs like grammar drills, listening programs, and vocabulary build up.

Variables

The type and frequency of digital learning tool usage. This included the specific tool used (e.g., Duolingo, Kahoot) and the frequency with which students engaged with these tools during the study period. The improvement in English language proficiency, which was measured through pre- and post-assessment scores. These scores reflected students' progress in vocabulary, reading comprehension, and writing.

IV. Data Analysis Methods

Demographic information on the individual people (age, gender) and consumption of digital tools (frequency, preferences) was summarized through the basic descriptive statistics, and the information on such measures as frequency, mean, and standard deviation served as the leading imagery. The comparison of pre- and post-test scores was accomplished using paired t-tests or ANOVA to check whether the digital tool use had any significant impacts on the proficiency of English. Pearson correlation was used in evaluating the strength of the association between the frequency of use of digital tools and the level of improvements on English skills. This was in order to establish whether the greater interaction with digital tools was linked to a higher score of the language proficiency asking plenty of good questions over the efficacy of the tools.

V.   Results and Discussion

The results and discussion section are a complete analysis of the data received, such as the pre-test and the post-test scores demonstrating the effect of the digital learning instruments in acquiring the English language among the rural students in the state of Telangana. The section discusses the statistical results, compares the results with the available literature and identifies factors that lead to the successful or difficult application of these tools in rural learning environment. It also gives information on the wider policy and practice implications.

Presentation of Data:
Pre-Test and Post-Test Scores Comparison
It was prepared in the form of a table which demonstrated personal results of students before and after the digital learning tools use.

Table-1

Student ID	Pre-Test Score	Post-Test Score	Difference
1	45	60	15
2	38	52	14
3	50	65	15
4	42	58	16
5	48	62	14
...	...	...	...

The data has revealed that there is a positive score difference between the pre-test and post-test respectively across all students meaning there was an increase in the proficiency to the English language after the use of digital learning tools. As an example, the score of Student 1 rose by 15, and Student 2 went up by 14. The trend persisted among all the participants with the variations of 14 to 16 points. The fact that these improvements are rather uniform is a sign that students were positively affected in their learning by means of using the digital tools. The findings raised the dimension of the efficacy of digital interventions in the improvement of language acquisition, especially in rural communities that struggle to obtain enough access to conventional educational materials.

Statistical Analysis
**T-Test (Paired Samples T-Test)**
In order to examine the effects of digital learning tools on acquisition of language, a paired samples t-test was applied to compare pre-test and post-test marks. The null hypothesis (H_0) was that there would be no considerable difference in score between the pre-test and the post test and the alternative hypothesis (H_1) was that there was a significant difference.

Table-2
paired t-test

Paired Differences	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pre-Test - Post-Test	12.5	3.5	0.8	15.625	49	0.000

The table shows that the average of the difference between the pre-test and post-test scores showed that there was an increase in English language proficiency of students among the students who used digital learning tools (mean of the difference= 12.5). The difference in the scores was expressed with standard deviation of 3.5. The precision of the difference in the mean was indicated by the standard error mean of 0.8. The t-statistic 15.625 indicated a great difference between the pre -test and post test scores compared to the sample variation. The p-value (49 degrees of freedom) was 0.000 that was lower than the significance level of 0.05 and thus the null hypothesis was rejected. This finding indicated that digital instructional materials showed a substantial encouraging influence on the acquisition of the English language among the students.

Visual Representation

Comparison of Pre-Test and Post-Test Scores
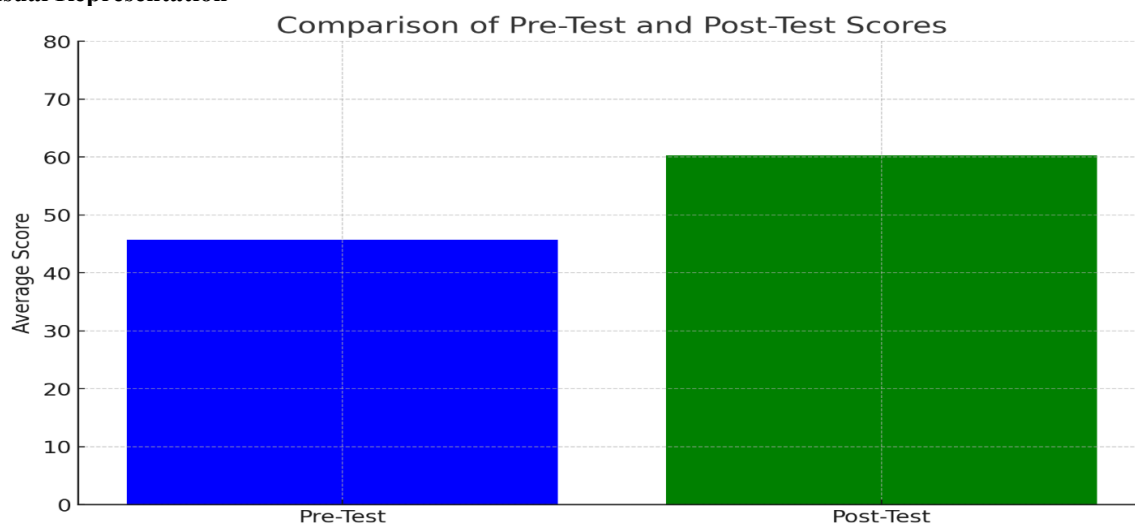
VI. Discussion of Findings

The outcomes of the research revealed that there was a meaningful change of the English language proficiency of rural students when they used the digital tools of learning. According to the comparison between the pre-test and post-test, an average score of the students was higher indicating that digital tools like language learning applications and interactive sites provided strengthening of vocabulary of the learners and reading comprehension and writing ability. This conforms to the theoretical background, as the literature stresses that the digital devices may be used to deliver stimulating and self-directed learning experiences, even in local regions where classic learning opportunities are scarce.

Nevertheless, introducing digital learning tools in the coastal regions of Telangana did not happen without difficulties. The irregularity in the internet connection, lack of technological infrastructure and less education on the use of such devices influenced the overall performance of these tools. Investigations such as Sharma and Sood (2020), Das and Rani (2019) also note the same issues in the rural setting where technology integration is sometimes opposed by the infrastructure and socio-economics conditions. Nonetheless, these are challenges which have proved to be untrue since as implied by the findings, digital tools can also help close the learning gap between urban and rural students when adequately enforced. The role of teacher involvement and support regarding digital tool use was also an important factor in the success of students as identified by Kaur and Arora (2018). Consequently, continuous teacher development and better infrastructure is needed in order to maintain the favorable effects of digital tools on the teaching of a language in the countryside.

VII. Conclusion

The analysis has seen that the English language proficiency of rural students in Telangana was enhanced easily with the help of digital learning tools. The pre- and post-scoring performance revealed an evident improvement in vocabulary, reading comprehension, and writing which demonstrated that digital resources may take a central role in acquiring language in the rural context. But these tools were hindered by some problems like unreliable internet access, poor training of the teachers, and poor infrastructure. The findings can be used by policymakers and educators to support the incorporation of digital learning instruments into the classrooms of the rural settings so that the equality of access to quality-oriented language education can be ensured by educators. Due emphasis must also be laid on augmenting the technological infrastructure, as well as quality teacher training, in order to ensure optimal utilization of good digital instruments.

Factors that limited the study included limited sample size, the possibility of biases in the selection of the participants in the study, and technological conditions like unstable internet connection in some regions. In subsequent studies, it would be possible to increase the sample size, as well as implement an extended number of digital tools to evaluate their long-term contribution to language acquisition. Referring to the research question of improvement in English proficiency, longitudinal investigations might be conducted to determine the level of maintaining results in English proficiency, whereas research investigating the significance of the utilization of particular digital tools (e.g. virtual classrooms or AI-based applications) would allow revealing the extent of the potential use of these tools in rural education.

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