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Leveraging Digital Tools for Improving Speaking Skills among Undergraduate Students

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A R T I C L E I N F O

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A B S T R A C T

In the contemporary landscape of English Language Teaching (ELT), digital resources have emerged as powerful tools for enhancing language proficiency. The development of speaking skills, in particular, has seen significant advancements due to technological innovations. This paper investigates the efficacy of leveraging digital tools to enhance speaking skills among undergraduate students. The integration of digital resources has revolutionized traditional pedagogical methods, offering interactive and engaging platforms for language practice. This study delves into the types of digital tools available, their classroom implementation, and the perceptions of students and educators regarding their effectiveness. Through a mixed-methods approach involving pre- and post-tests, surveys, and interviews, the research analyzes the impact of digital tools on speaking proficiency. Key findings indicate significant improvements in speaking abilities, with tools like Duolingo, Italki, and Zoom facilitating enhanced feedback, engagement, and interaction. While acknowledging challenges such as technical issues and the need for comprehensive training, the study emphasizes the transformative potential of digital resources in ELT, providing valuable insights for optimizing language learning outcomes

INTRODUCTION

In recent years, the integration of digital resources in English Language Teaching (ELT) has transformed traditional pedagogical approaches. Speaking skills, a critical component of language proficiency, have particularly benefited from these technological advancements. This study aims to explore the effectiveness of digital resources in enhancing speaking skills among undergraduate students. By examining the types of digital tools available, their classroom usage, and the perceptions of students and educators, this research provides insights into optimizing digital resource integration in ELT programs.

LITERATURE REVIEW

Speaking is a primary mode of communication and a crucial skill in language learning. It involves not only linguistic competence but also the ability to use language effectively in various contexts. Traditional methods for teaching speaking skills include dialogues, role-plays, and oral presentations, which are often constrained by classroom size and time limitations. The integration of digital resources in English Language Teaching (ELT) has transformed traditional pedagogical approaches, particularly in the development of speaking skills. As language proficiency requires effective oral communication, leveraging technology to enhance speaking skills is critical. In the realm of English Language Teaching (ELT), the development of speaking skills is a fundamental component of language proficiency. The advent of digital tools has introduced innovative methods for enhancing these skills, particularly among undergraduate students. This literature review explores the impact of various digital tools on the improvement of speaking skills. It examines the effectiveness of these tools, the factors influencing their success, and the critical role of educators in integrating them into the curriculum.

The integration of digital tools in ELT has evolved significantly over the past decade. Technological advancements have introduced a range of tools designed to improve language learning outcomes. According to Godwin-Jones (2022), digital tools such as mobile applications, online platforms, and multimedia resources have become integral to modern ELT practices. These tools offer interactive and engaging ways for students to practice speaking, receive feedback, and improve their language proficiency.

The use of digital tools in English Language Teaching (ELT) has revolutionized the approach to enhancing speaking skills among undergraduate students. This literature review critically examines various digital tools designed to enhance speaking skills, their documented effectiveness, and the factors that influence their success. Additionally, it underscores the critical role of educators in integrating these tools into the ELT curriculum.

Studies on Digital Tools Targeting Speaking Skills

Various digital tools have been specifically developed to improve speaking skills. These include: Applications like Duolingo, Babbel, and Elsa Speak provide structured speaking exercises and real-time feedback. Xu and Peng (2017) note that these apps use artificial intelligence (AI) to offer personalized learning experiences, adapting to the learner's proficiency level and providing instant corrections. These applications have demonstrated potential in improving pronunciation and fluency by offering learners immediate feedback and adaptive learning pathways.

Platforms such as English Central, TalkAbroad, and Zoom enable students to engage in real-time conversations with peers and native speakers. Hampel and Stickler (2015) highlight the benefits of synchronous communication tools in providing authentic speaking practice opportunities. These platforms offer immersive experiences that closely mimic real-life interactions, thereby enhancing conversational skills. Video-based resources, podcasts, and interactive simulations offer diverse ways to practice speaking. According to Lee and Lee (2020), multimedia tools can enhance engagement and motivation, providing varied contexts for speaking practice. These resources cater to different learning styles and preferences, contributing to a more engaging learning environment.

Effectiveness of Digital Tools

The effectiveness of digital tools in improving speaking skills is well-documented in recent research. Studies by Liu et al. (2020) demonstrate that AI-powered applications can significantly improve pronunciation and fluency. These tools provide learners with immediate feedback, helping them identify and correct errors in real-time. Additionally, online speaking platforms offer immersive experiences that closely mimic real-life interactions, further enhancing conversational skills (Hampel & Stickler, 2015).

Factors Influencing Effectiveness

Several factors influence the effectiveness of digital tools in improving speaking skills: Engaging students are more likely to benefit from digital tools. Research by Lee and Lee (2020) shows that gamified elements and interactive features can enhance student engagement, making learning more enjoyable and effective. Therefore, it is essential to design digital tools that are not only educational but also engaging and interactive. Students' ability to navigate and use digital tools effectively is crucial. As noted by Blake (2013), students with higher technological proficiency are better able to leverage digital tools for language learning. This highlights the need for providing students with training and support to use these tools effectively. The integration of digital tools into the broader ELT curriculum is essential for their success. Walker and White (2018) emphasize the importance of aligning digital tools with curriculum goals and providing adequate training for educators to ensure effective implementation. This requires a strategic approach to integrating technology in a way that complements and enhances traditional teaching methods.

Role of Educators

Educators play a pivotal role in the successful integration of digital tools in ELT. They are responsible for guiding students in the use of technology, providing feedback, and creating a supportive learning environment. According to Stanley (2021), professional development programs are essential to equip teachers with the necessary skills and knowledge to integrate digital tools effectively into their teaching practices. These programs should focus on both the technical aspects of using digital tools and the pedagogical strategies for incorporating them into lessons.

Language Learning Applications used for this study

Digital resources for learning speaking skills are diverse and include language learning applications (e.g., Duolingo, Babbel), online speaking practice platforms (e.g., Italki, Verbling), video conferencing tools (e.g., Zoom, Skype), and multimedia resources (e.g., podcasts, videos). These tools facilitate asynchronous and synchronous speaking practice, offer instant feedback, and allow for personalized learning paths. They also enable learners to practice speaking outside the classroom, increasing their exposure to the target language. Language learning applications are designed to facilitate interactive language practice through various activities. Some of the key applications used in this study include:

i) Duolingo

a) **Gamified Learning:** Uses game-like elements such as points, levels, and rewards to engage learners.
b) **Interactive Exercises:** Includes speaking, listening, and pronunciation tasks that adapt to the learner's proficiency level.
c) **Voice Recognition:** Provides immediate feedback on pronunciation and fluency, helping learners correct errors in real time.
d) **Progress Tracking:** Offers personalized learning paths and tracks progress through detailed statistics and milestones.

ii) Babbel

a) **Structured Lessons:** Designed by language experts, focusing on conversational skills relevant to real-life scenarios.
b) **Speech Recognition:** Utilizes technology to assess and correct pronunciation, aiding in the development of speaking skills.
c) **Cultural Insights:** Integrates cultural tips and context to enhance language understanding and usage.
d) **Review Sessions:** Regularly scheduled review sessions help reinforce learning and improve retention.

iii) Rosetta Stone

a) **Immersive Method:** Emphasizes learning through immersion, using images, audio, and text in the target language.
b) **Adaptive Learning:** Adjusts to the learner's progress, providing personalized practice activities.
c) **Speech Analysis:** Provides detailed feedback on pronunciation and fluency using advanced speech recognition technology.
d) **Live Tutoring:** Offers access to live tutoring sessions with native speakers for additional speaking practice.

2. Online Speaking Practice Platforms

i) Italki

a) **One-on-One Lessons:** Connects students with professional language teachers for personalized speaking practice.
b) **Flexible Scheduling:** Allows learners to schedule lessons at their convenience, offering flexibility in practice times.
c) **Community Tutors:** Provides access to community tutors for informal language exchange and practice at a lower cost.
d) **Lesson Recording:** Enables students to record sessions for review, aiding in self-assessment and continuous improvement.

ii) Verbling

a) **Certified Teachers:** Features a wide range of certified teachers available for personalized language lessons.
b) **Integrated Video Platform:** Built-in video calling with features tailored for language learning, such as real-time correction tools.
c) **Customizable Lessons:** Allows teachers to tailor lessons according to the student's needs and goals.
d) **Multilingual Interface:** Supports multiple languages, making it accessible for learners worldwide.

iii) HelloTalk

a) **Language Exchange:** Facilitates language exchange by connecting learners with native speakers for mutual practice.
b) **Text, Voice, and Video Chats:** Offers various modes of communication, including text, voice messages, and video calls.
c) **Correction Tools:** Provides tools for native speakers to correct each other's language usage in real-time.
d) **Community Features:** Includes social features like group chats and language-related posts to foster a community of learners.

3. Video Conferencing Tools

i) Zoom

a) **Breakout Rooms:** Allows for small group or pair activities within a larger session, enabling focused speaking practice.
b) **Session Recording:** Enables recording of sessions for later review and self-assessment.

c) **Screen Sharing:** Facilitates interactive activities such as presenting visual aids and using digital whiteboards.
d) **Virtual Backgrounds:** Helps create a comfortable and engaging learning environment by allowing custom backgrounds.

ii) Skype

a) **Video Calling:** Supports high-quality video calls for one-on-one or group speaking practice.
b) **Screen Sharing:** Allows participants to share their screens, useful for interactive exercises and presentations.
c) **Call Recording:** Offers the option to record calls, providing a resource for reviewing and assessing speaking performance.
d) **Instant Messaging:** Complements video calls with text messaging for additional communication and practice.

iii) Google Meet

a) **Large Group Sessions:** Supports large group meetings, making it suitable for class-wide speaking activities.
b) **Integration with Google Classroom:** Seamlessly integrates with Google Classroom for easy management of lessons and assignments.
c) **Live Captions:** Provides real-time captions during calls, aiding comprehension and language learning.
d) **Recording and Transcripts:** Offers recording and automatic transcription features for reviewing sessions.

4. Multimedia Resources

i) Podcasts

a) **Real-World Conversations:** Features natural, real-world conversations that provide context-rich listening material.
b) **Transcripts:** Often accompanied by transcripts, aiding comprehension and allowing for detailed study of spoken language.
c) **Thematic Content:** Covers a wide range of topics, helping learners build vocabulary and cultural knowledge in different areas.

ii) YouTube Channels

a) **Educational Videos:** Channels like "EngVid" and "Rachel's English" provide focused lessons on pronunciation, idioms, and conversational skills.
b) **Interactive Comments:** Allows learners to interact with instructors and other learners through comments and Q&A sessions.
c) **Visual and Auditory Learning:** Combines visual aids with spoken language to enhance understanding and retention.

iii) TED Talks

a) **Diverse Topics:** Offers presentations on a vast array of subjects, providing exposure to varied vocabulary and speech styles.
b) **Subtitles and Transcripts:** Includes subtitles and transcripts in multiple languages, aiding in comprehension and language practice.
c) **Engaging Content:** High-quality, engaging content that motivates learners to listen and discuss complex ideas.

Research Design

This study employs a mixed-methods approach, combining quantitative and qualitative data to provide a comprehensive analysis of the impact of digital resources on speaking skills. The quantitative component involves pre- and post-tests to measure improvements in speaking abilities, while the qualitative component includes surveys and interviews to gather insights into students' and educators' experiences and perceptions.

Method for Pre- and Post-Tests

The pre- and post-tests were designed to measure the improvement in speaking skills among undergraduate students using digital resources over one semester. The pre- and post-tests were meticulously designed to assess the speaking skills of undergraduate students. Tasks included oral presentations, role-plays, and conversational exchanges, all of which are standard measures in evaluating language proficiency. To ensure the reliability and validity of these tasks, they were developed based on established criteria for language assessment and aligned with curriculum objectives.

Participants

The participants in this study are 50 undergraduate students enrolled in II year B.Tech in the stream of computer science engineering and Artificial Intelligence from Bapatla Engineering College. The participants were selected through random sampling to ensure a diverse representation of gender and language proficiency levels.

Test Design

Oral Presentation: Students were asked to prepare and deliver a 3-5 minute oral presentation on a given topic.

Role-Play: Pairs of students participated in a role-play scenario designed to simulate real-life conversational contexts.

Conversational Exchange: An unstructured conversation with the instructor on various topics, assessing spontaneity and fluency.

Assessment Criteria:

Fluency: Measured by the smoothness and pace of speech.

Pronunciation: Accuracy and clarity of spoken words.

Vocabulary: Range and appropriateness of words used.

Grammar: Correctness of grammatical structures.

Comprehension: Ability to understand and respond appropriately.

Interaction: Ability to initiate, maintain, and conclude a conversation effectively.

Rubric and Scoring

A comprehensive rubric was created with detailed descriptors for each assessment criterion, including fluency, pronunciation, vocabulary, grammar, comprehension, and interaction. This rubric provided consistency in evaluating students' performance across different tasks and allowed for objective scoring based on predefined criteria. The rubric included detailed descriptors for each criterion, rated on a scale from 1 (poor) to 5 (excellent).

Fluency:

1: Frequent pauses, hesitations, and disruptions.

5: Smooth, continuous speech with minimal pauses.

Pronunciation:

1: Frequent pronunciation errors that hinder understanding.

5: Clear pronunciation with minor errors that do not affect understanding.

Vocabulary:

1: Limited vocabulary with frequent errors and repetition.

5: Wide range of vocabulary used appropriately and accurately.

Grammar:

1: Frequent grammatical errors that hinder communication.

5: Correct use of grammatical structures with minor errors.

Comprehension:

1: Difficulty in understanding questions and responding appropriately.

5: Fully understands questions and responds accurately and appropriately.

Interaction:

1: Difficulty initiating and maintaining conversation.

5: Effectively initiates, maintains, and concludes conversation.

Data Analysis

Scoring: Pre-test and post-test scores were recorded for each student, and mean scores were calculated for both time points. Statistical analysis, specifically paired t-tests, was used to determine the significance of improvements in speaking skills between the pre- and post-tests. A significance level of $p < 0.05$ was applied. These rigorous analytical methods ensured robustness in evaluating the effectiveness of digital tools on speaking proficiency. Pre-test and post-test scores were recorded for each student across all criteria.

Statistical Analysis

Mean Scores: Calculated the mean scores for pre- and post-tests.

Paired T-Test: Used to determine if the improvement in scores was statistically significant ($p < 0.05$).

Qualitative Analysis

Recorded Sessions: Reviewed to identify common patterns in student improvement and areas needing further support.

Instructor Feedback: Collected to gain insights into observed changes in student performance.

Data Collection

Pre- and Post-Tests: The pre-test assesses students' baseline speaking skills, while the post-test evaluates their progress after using digital resources for one semester. The tests include tasks such as oral presentations, role-plays, and conversational exchanges.

Surveys: Online surveys are administered to gather quantitative data on students' usage of digital resources, their perceived effectiveness, and their overall satisfaction.

Interviews: Semi-structured interviews with a subset of students and educators provide qualitative insights into their experiences and perceptions of using digital tools for speaking practice.

Data Analysis

Quantitative data from the pre- and post-tests are analyzed using statistical methods to determine the significance of improvements in speaking skills. Survey data are analyzed using descriptive statistics to identify trends and patterns. Qualitative data from interviews are transcribed, coded, and thematically analyzed to identify common themes and insights.

Quantitative Results

The quantitative analysis reveals a significant improvement in students' speaking skills, as evidenced by higher post-test scores compared to pre-test scores. The mean score for the pre-test was 60 out of 100, while the mean score for the post-test was 75 out of 100. Statistical analysis using a paired t-test indicates that this improvement is statistically significant ($p < 0.05$), confirming the positive impact of digital resources on speaking skills.

DISCUSSION

the findings for the pre-test and post-test scores based on the sample data for 50 students:

Analysis of Pre-Test Scores:

The pre-test scores represent the initial level of speaking skills for each student before they engaged with the digital resources. The average pre-test score across 50 students was $X_{pre} = 65$. The minimum pre-test score was 50, and the maximum pre-test score was 75. The standard deviation of pre-test scores was $\sigma X_{pre} = 5$, indicating moderate variability in initial speaking skills among students.

Pre-Test Phase (Traditional Teaching Methods)

In the pre-test phase, traditional teaching methods are utilized to assess and prepare students for speaking tasks. However, it's important to note that these methods may have limitations when it comes to developing speaking skills effectively. Here's how these methods can be applied, acknowledging their potential drawbacks:

Oral Presentation Preparation

Students prepare for oral presentations using traditional methods such as cue cards, outlines, and practice sessions with peers. While these methods provide structure and guidance, they may not fully address nuances in pronunciation, fluency, and spontaneous speech required for effective oral communication.

Role-Play Practice

Role-play activities are conducted in class, where students engage in simulated conversations or scenarios relevant to real-life situations. Although role-plays simulate real-world interactions, they may lack the dynamic feedback and adaptive learning features offered by digital tools.

Conversational Exchange Preparation

One-on-one or group conversational exchanges are facilitated in class, focusing on spontaneous communication and interaction skills. While conversational exchanges promote interaction, they may not provide students with diverse speaking contexts or opportunities for self-paced improvement.

Acknowledging Limitations of Traditional Teaching in Pre-Test Phase

- Traditional teaching methods provided limited feedback on nuanced aspects of speaking skills such as pronunciation, intonation, and pacing.
- Classroom-based activities may not adapt to individual learning styles and pace, potentially hindering students' progress in speaking fluency.
- Traditional resources like textbooks and materials did not offer interactive practice or real-time assessment of speaking abilities.

Post-Test Scores

The post-test scores represent the level of speaking skills for each student after they engaged with the digital resources.

Analysis of Post-Test Scores

The average post-test score across 50 students was X post = 80. The minimum post-test score was 65, and the maximum post-test score was 90. The standard deviation of post-test scores was σX post = 7, indicating variability in the improvement of speaking skills among students.

Qualitative Insights

The qualitative data provides a deeper understanding of students' and educators' experiences with digital resources. Key themes identified include:

- ✓ **Increased Confidence:** Many students reported increased confidence in speaking English due to the frequent practice and immediate feedback provided by digital tools.
- ✓ **Enhanced Motivation:** The interactive and gamified nature of many digital resources motivated students to engage more actively in speaking practice.

- ✓ **Convenience and Flexibility:** Students appreciated the ability to practice speaking at their own pace and convenience, outside the constraints of classroom schedules.
- ✓ **Technical Challenges:** Some students faced technical issues such as poor internet connectivity and lack of access to suitable devices, which hindered their ability to fully utilize digital resources.
- ✓ **Need for Support:** Both students and educators emphasized the need for ongoing support and guidance in using digital tools effectively.

- ✓ **Percentage Improvement:** The percentage improvement represents the increase in speaking skills from the pre-test to the post-test for each student.

Analysis of Percentage Improvement:

The average percentage improvement across 50 students was P Improvement =23.08%. The minimum percentage improvement was 15%, and the maximum percentage improvement was 35%. The standard deviation of percentage improvement was σ Improvement = 4.62%, indicating variability in the extent of improvement among students. The digital resources led to a significant improvement in speaking skills among undergraduate students, with an average percentage improvement of 23.08%. While there was variability in the initial speaking skills (pre-test scores) and the extent of improvement (percentage improvement) among students, the overall impact of the digital resources was positive and statistically significant.

Post-Test Phase (Using Digital Tools)

In the post-test phase, specific digital tools mentioned in the paper are integrated to enhance speaking skills practice, feedback, and engagement.

Using Duolingo for Oral Presentation Practice

Students utilize Duolingo's speech recognition feature for oral presentation practice. They record their presentations within the Duolingo app and receive instant feedback on pronunciation and fluency. Students use Duolingo's "Duolingo Plus" feature, which offers speech recognition and feedback on pronunciation accuracy during oral presentations. The app provides real-time suggestions for improvement.

Using Italki for Role-Play Practice

Students engage enthusiastically in role-plays using Italki's virtual classroom feature. They partner with native speakers or language tutors on Italki to practice role-plays in authentic conversational contexts. Students schedule role-play sessions with native speakers or language tutors on Italki's platform. The sessions are conducted via video calls, allowing students to receive feedback on communication skills and language use.

Using Zoom for Conversational Exchange

Students participate in conversational exchanges using Zoom's video conferencing platform. They engage in one-on-one or group conversations with peers or instructors, focusing on real-time communication and interaction. Students join virtual conversational exchange sessions on Zoom, where they engage in discussions on various topics with classmates or instructors. The sessions are recorded for feedback and self-assessment.

Enhanced Feedback

Digital tools like Duolingo offer instant feedback on pronunciation and fluency, helping students improve their speaking skills effectively. Platforms like Italki provide opportunities for students to practice role-plays in authentic conversational settings with native speakers, enhancing language fluency and communication skills.

Engagement and Interaction: Video conferencing tools like Zoom facilitate interactive conversational exchanges, allowing students to engage in real-time discussions and receive immediate feedback on their communication abilities. By integrating these specific digital tools into the post-test phase, students can benefit from enhanced practice environments, personalized feedback, and interactive learning experiences tailored to improve their speaking skills effectively.

Challenges and Limitations

While the study highlights the benefits of digital resources, it also identifies several challenges. Technical issues, such as unreliable internet access and insufficient technological infrastructure, can impede the effective use of digital tools. Additionally, some students struggled with self-discipline and time management when using these tools independently. The study also notes the need for comprehensive training for both students and educators to maximize the potential of digital resources.

CONCLUSION

The study underscores the critical role of digital tools such as language learning applications, online speaking platforms, video conferencing tools, and multimedia resources in providing interactive, engaging, and personalized learning experiences. These tools offer immediate feedback, authentic speaking practice opportunities, and adaptive learning pathways, addressing the limitations of traditional teaching methods in fostering speaking fluency and communication skills.

One of the key findings of the research is the significant improvement in students' speaking abilities, as evidenced by the pre-test and post-test results. The integration of specific digital tools like Duolingo, Italki, and Zoom in the post-test phase led to measurable enhancements in pronunciation, fluency, vocabulary usage, and overall communication competence. The study highlights the benefits of using these tools to facilitate oral presentation practice, role-play activities, and conversational exchanges, emphasizing their role in providing dynamic feedback, fostering engagement, and promoting interactive learning experiences.

Despite the positive outcomes observed, the study also acknowledges challenges and limitations associated with the use of digital resources, including technical issues, self-discipline, and the need for comprehensive training. These factors underscore the importance of strategic implementation, ongoing support, and effective integration of digital tools within the ELT curriculum.

Hence, this study underscores the transformative potential of digital tools in improving speaking skills among undergraduate students. By harnessing the capabilities of these tools, educators can create immersive, personalized, and impactful learning environments that empower students to achieve greater proficiency in oral communication and language fluency. This study contributes valuable insights and recommendations for optimizing the use of digital resources in ELT programs, paving the way for enhanced language learning outcomes and student success.

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