Beyond Engagement: Scrutinizing Second Language Acquisition (SLA) in Active Digital Classrooms

Sushma S K[1] iD ✉ Dr A. Rathina Prabhu[2] iD ✉

Abstract

Learners face numerous hurdles while acquiring a second language. The use of mobile applications and digital technologies in language learning enhances the language proficiency of the learners. The objective of the study is to evaluate the effectiveness of technology in second language classroom. The study also tries to explore the theoretical aspects of the Cognitive Theory of Multimedia Learning by Richard Mayer. The role of facilitator has also been elucidated along with Technological Pedagogical Content Knowledge (TPACK) and Substitution, Augmentation, Modification, and Redefinition (SAMR) model. The method of the study includes a quantitative method to collect data for the pretest and post-test. "Mobile learning offers unprecedented opportunities for learners to engage with language learning materials anytime and anywhere. This flexibility promotes learner autonomy, enhances motivation, and supports individualized learning experiences, allowing students to progress at their own pace and according to their specific learning needs" (Kukulska-Hulme and Shield 273).The methodological tools used in the research include structured classroom activities, digital tools and instructional materials. The findings of the research elucidate that the technology and mobile applications help learners to attain language proficiency. The research tries to explain that technology enhanced language learning plays a pivotal role in second language acquisition.The future scope of the study can be associated with emerging technologies such as Artificial Intelligence (AI) and Virtual Learning environment.

Introduction

Learning with mobile applications has become a recent trend in the present era, "Currently, the practice in the use of mobile apps in language learning is that they are mostly used as a support in language acquisition. Ergo, the blended learning (BL) approach (a combination of face-to-face interaction and online learning) is mostly implemented in relation to their use" (Kacetl and Klimova 2). The development of technology in the present era enables learners not to entirely depend on learning information from classrooms and people can learn anything from anywhere, "Mobile-Assisted Language Learning (MALL) focuses on language acquisition using mobile technology. There's no need for learners to sit in a classroom or at the front of a computer to study in a MALL environment. MALL can actually be seen as an ideal solution for barriers to language learning in terms of time and place" (Ameri 1366).

Language learning with mobile applications can be easily accessible and experience learning at their convenience. Learning language with Mobile-Assisted Language Learning (MALL) enhances the language proficiency of the learner and creates an intrinsic motivation for the learner, "MALL facilitates personalized and adaptive language learning experiences, allowing learners to tailor their learning pathways to suit their individual goals, interests, and proficiency levels" (Chen 217). The paper tries to focus on the importance of technology in English Language Teaching, "Technology has greatly improved English Language Teaching (ELT)" (Babu 166). Highlighting digital platforms such as language learning applications and online interactive applications enhances the language learning experience. "The rise of digital tools and online platforms has provided new ways to enhance ELT, making it more interactive, flexible, and learner-centred. In particular, language learning apps, virtual classrooms, and multimedia resources emerged as popular tools for both teachers and students" (Aashika and Batta 67). The circumstances of learning a language with mobile applications create an interactive and learner-centred approach.

Literature review

Karthika et.al emphasize the significance of learning language with mobile applications, "MALL emerges as a potent and optional weapon in the arsenal of modern language education. Its alignment with the evolving technological landscape has positioned MALL as a catalyst for overcoming traditional constraints in language learning" (111).

Candlin and Nunan have proposed four levels for generating cognitive demands. The four levels formulated by Candlin and Nuan are "Attending and recognizing; Making sense; Going beyond the information given; Transferring and generalizing". Attending and recognizing incorporate the learner's input ability. Making sense exemplifies the learner achieving clarity about the pattern and structures. The learners are urged to make judgments in going beyond the information. Transferring and generalizing is the last level which makes the learner use the learned concepts in the target language. "Mobile-assisted language learning supports collaborative interaction, encourages learner independence, and facilitates authentic language use beyond classroom settings. These features contribute significantly to language acquisition and enhance learners' communicative competence in meaningful contexts" (Burston 5).

Long and Crookes claim that the activities act as a vehicle to acquire a target language. According to him, input in the target language generates cognitive processing capabilities. Ortikov Affirms that, "Understanding the underlying language learning strategies may also help the language model designers to identify language learning strategies may also help the language model designers to identify language learning tasks or activities that maximize the efficiency and effectiveness of language learning with technology use" (165). Tuychieva et al. explains that with the help of technology learners can choose from a variety of virtual environments, scenarios, and activities tailored to their interests and needs, thereby promoting learner autonomy and motivation.

Objectives

To evaluate the effectiveness of the theoretical approach of second language acquisition and determine how the learner can utilize the digital and mobile applications for learning second language and the research also provides pedagogical implications for applying practical approaches in classrooms.

To examine the importance of digital technology in second language acquisition. To evaluate the data through quantitative experimental approach. The research aims to explore the theoretical frameworks, such as Cognitive Theory of Multimedia Learning by Richard Mayer and analyse data with quantitative research.

Theoretical Applications and Pedagogical Insights

Cognitive Theory of Multimedia Learning by Richard Mayer

The cognitive theory of multimedia was formulated by Richard Mayer. The key idea of the theory includes, "The cognitive theory of multimedia learning (CTML) centres on the idea that learners attempt to build meaningful connections between words and pictures and they learn more deeply than they could have with words or pictures alone" (Sorden 2). The theory explains that learning acquires deeply from pictures, "Mayer agreed that multimedia instruction(Combining video, sounds, pictures together) would support meaningful learning as well as enable learners to understand the materials better" (Rathina Prabhu et al. 219). With the technological

enhancement, the learners can access easily to virtual experience that enables learners to understand concepts, "For example if a child sees a picture of a farm animal, the picture is the extent of the knowledge of this subject but if the child physically met the farm animal, their understanding of this subject becomes multilayered" (McLelland 5). Instead of memorization, the learners can acquire language. Moreover, the educators can enhance the pronunciation and accent by exposing the videos of the native speakers. Listening to the authentic speakers facilitates the language proficiency of the learners. "People learn more deeply from words and pictures than from words alone because learners engage in active cognitive processing, including selecting relevant information, organizing it into coherent structures, and integrating it with prior knowledge" (Mayer 43). The theoretical framework explains that how learners process and perceive information presented through multiple media modalities. The framework of pretest and post-test activities were designed by the researcher based on the principles of Richard Mayers Cognitive theory of multimedia given below:

Principles	Activities
Multimedia Principle	Picture based comprehension
Contiguity Principle	Compare and Contrast activities
Modality Principle	Information Gap tasks
Redundancy Principle	Story narration
Coherence Principle	Dialogue Writing
Segmenting Principle	Mind Mapping activities
Personalization Principle	Role play activities

The framework tries to demonstrate the association of principles with pretest and post-test activities. The multimedia principle explores the importance of the combination of picture and words rather than words alone. The second principle (i.e.) Contiguity Principle deals with the establishment of connections between the images. The next principle, the Modality Principle deals with how the learners tend to solve the activities through discussion with peers to solve missing information. Furthermore, the Redundancy Principle, Coherence Principle, Segmenting Principle, and Personalisation Principle deals with activities such as Story narration, Dialogue Writing, Mind Mapping activities and Role play activities.

Methodology & Methodological tools

The research adopts a quantitative research design using a pretest and post-test activities to evaluate the importance of technology in language learning second language. The research deals with instructional based activities includes picture comprehension, information gap activities, compare and contrast activities, mind mapping strategies and role play. "Experimental research design allows researchers to examine cause-and-effect relationships by manipulating variables and observing

outcomes, making it particularly effective for evaluating instructional interventions in educational contexts" (Creswell and Creswell 168).

The present study involves has twenty post graduate students from select arts and science colleges to collect data. After conducting pretest, the researcher has given period of three weeks. During this time, the learners engaged in learning practices with digital technology and mobile applications. These activities are concisely designed by the researcher to create interactive learning circumstances and to analyse the effectiveness of technology and mobile applications in learning language. The research also primarily focuses on language proficiency of the target language. The methodological tools used in the research include structured classroom activities, digital tools and instructional materials. Digital tools can be defined as "The use of digital tools makes the learning process more practice-oriented, which implies the acquisition of knowledge not in a ready-made form from a teacher-translator, but in the course of independent cognitive activity" (Alipkhanova et al. 5). The implementation of digital tools into education has shifted teaching and learning experiences, enacting more interactive, collaborative, and learner centred practices.

Data Analysis & Findings

The researcher used quantitative research design to examine the proficiency in learning language among post graduate students through activity-based learning strategies among twenty students from selected arts and science colleges. "Quantitative data analysis enables researchers to measure learning outcomes objectively, compare pre-test and post-test performance, and determine the effectiveness of instructional strategies using statistical techniques" (Ary et al. 132). The activity-based instruction includes picture comprehension, information gap activities, compare and contrast activities, mind mapping strategies and role play. These activities were chosen by the research to create a interactive learning circumstances and enhance basic four language skills namely, listening, speaking, reading and writing (LSRW).

The researcher planned to conduct pretest and post-test for the students. The researcher measured the effectiveness of the learners through pretest and post-test activities. The pretest was organized by the researcher initially to analyse the level of learners. After pretest, the researcher introduced various learning digital tools and mobile application. In addition, with several weeks of practice. Later, the post test was conducted by the researcher to analyse the language proficiency. The researcher noticed a slight improvement in the learning process. The data collected by the researcher were calculated using percentage analysis. The improvement percentage can be calculated using the formula:

Improvement Percentage = (Post-test score-Pretest score)/ Pre-test score x100.

Student	Pre-Test Score	Post-Test Score	Percentage Improvement (%)*
S1	43	74	72.09
S2	58	81	39.66
S3	36	68	88.89
S4	68	84	23.53
S5	49	73	48.98
S6	55	78	41.82
S7	66	89	34.85
S8	60	81	35.00
S9	62	84	35.48
S10	43	78	81.40
S11	64	76	18.75
S12	52	68	30.77
S13	69	87	26.09
S14	59	76	28.81
S15	64	79	23.44
S16	58	73	25.86
S17	60	83	38.33
S18	58	74	27.59
S19	58	78	34.48
S20	68	86	26.47

*Improvement Percentage = (Post-test score-Pretest score)/ Pre-test score x100.

Figure 1 (The data collected by the researcher)

For privacy, the researcher has used name of twenty particpants as from (S1-S20) instead of names. The data set consists of twenty particpants for both pretest and post test activities. The average pretest score of the student was 57.5 whereas the average post test score was improved to 78.5 after the intervention of digital tools.

Below lies the chart (Fig.2) that gives the graphical representation of the pretest and post-test. This graphical representation presents the comparison of students score from S1 to S20. The figure illustrates that the post test scores are higher than the pretest scores. To illustrate, A student secured thirty-six marks from pretest and sixty-eight marks from post-test. This indicate that the students improved after implementing digital tools.
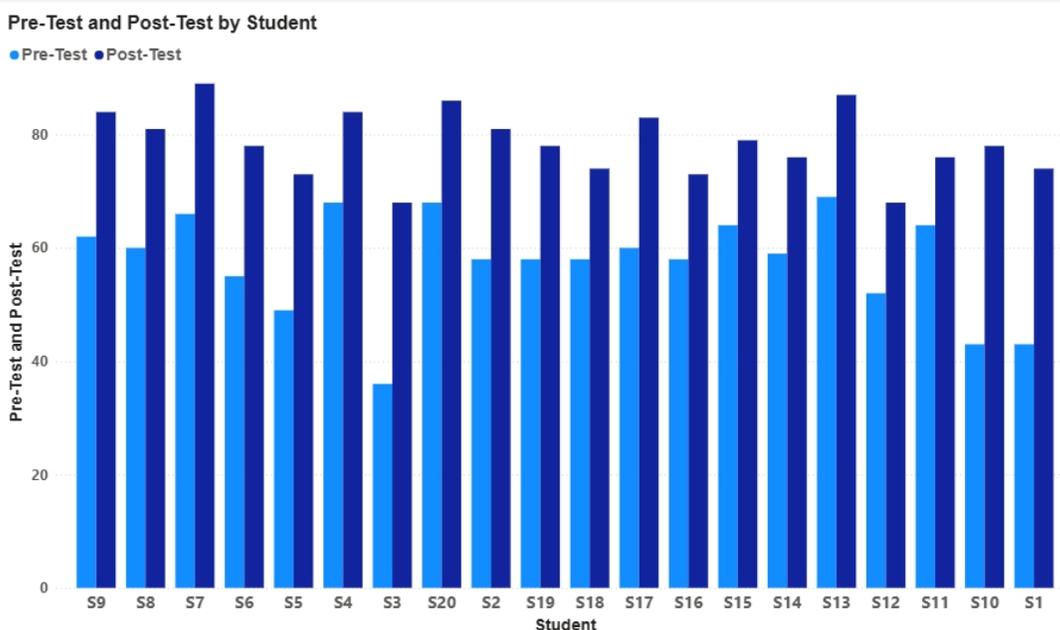
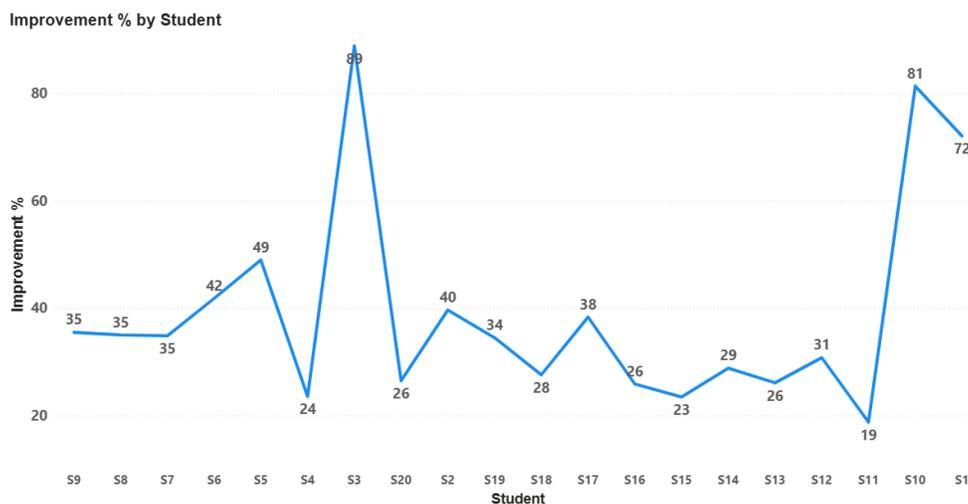Figure 2(Graphical representation of pretest and post-test)

Figure:3 (Improvement of students)

These diagrammatic representation clearly explains the improvement of language proficiency among the students. The improvement percentage of the students approximately range from 18% to 88% and most of the students slightly improved between 25% to 40%. The highest improvement was observed in the student S3(88.89%) which was followed by the student S10(81.40%). Taken together, the researcher observed that all the twenty students performance has been slightly improved when compared with pretest scores. The notable enhancement clearly explains that digital learning platforms helps learns to achieve language proficiency.

Role of the Facilitator

The teacher helps the learner acquire knowledge and skills through different aspects. The facilitator plays a major role in transferring knowledge. The use of technology in second language acquisition supports learners to overcome difficulties and alleviate the learning process. There is an essential need for facilitator to get access "Regarding teacher readiness, teachers should know how to use the technology effectively and be able to deal with any difficulties that may occur" (Chumpavan et al. 2). Apart from common people, English language teachers should be so concise about technology,

Perhaps even more so than any other professionals, ELT practitioners need to be critically aware of the connections among technology, culture, and ideology, and specifically about the ways in which technology amplifies and constrains aspects of language learning and research. In short, a balanced perspective for English language teaching today might be a critical, technologically-informed pragmatism (Chapelle 9).

The teachers should be aware of using technology in English Language Teaching Classrooms, "Thus use of modern technology in teaching English is broadly understood to encompass an innovative application of methods, tools, materials, devices, systems and strategies which are directly relevant to English Language Teaching"(Nita 169).The research tries to explore effective teaching model for teachers specifically Technological Pedagogical Content Knowledge (TPACK) framework and Substitution, Augmentation, Modification, and Redefinition (SAMR) model

Technological Pedagogical Content Knowledge (TPACK) was developed by Punya Mishra and Matthew J. Koehler in 2006 based on Pedagogical Content Knowledge (PCK), The model highlights three key component namely, 'Content Knowledge (CK), Pedagogy Knowledge (PK), Technology Knowledge (TK)'. The three core idea deals with the subject matter, methodology of teaching and the importance of technologies and digital tools in technology. The intersection between three key components creates additional integration areas especially, 'Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK) and Technological Pedagogical Knowledge (TPK)'. "Technological Pedagogical Content Knowledge (TPACK) emphasizes that effective teaching with technology requires an understanding of the complex relationships between content, pedagogy, and technology. Teachers must integrate these three knowledge domains to create meaningful and engaging learning experiences for students" (Mishra and Koehler 1029). The Pedagogical Content Knowledge tries to explain that how the subject matter can be taught effectively and satisfy basic needs of the learner. The next two domain Technological Content Knowledge and Technological Pedagogical Knowledge deals with the ideology that how teaching methods can be facilitated through technology and infuse of digital tools in learning model. The key idea of the method is to assist educators to teach content knowledge through technology and

pedagogical strategies.

The technologies within TPACK framework makes the learning experience more interactive, "the function of technologies in TPACK is as learning tools to help teachers enhance teaching instructions, at the same time, assist students to be more engaged and interactive in their learning experience" (Alivi 4). In terms of language learning, the framework of TPACK elucidates the infusion of technological strategies, pedagogical innovations and content knowledge to enhance language learning skills such as Listening, Speaking, Reading, Writing(LSRW). "Teachers in technology-enhanced classrooms shift from knowledge transmitters to facilitators who guide learners in constructing knowledge, promoting collaboration, and developing critical thinking skills through digital tools" (Hubbard and Levy 10). The educators can introduce digital platforms through this framework in order to create engaging and interactive learning circumstances. For instance, the teachers can ask the learners to listen to native speakers to practice fluency and can use digital applications to conduct quiz. Such quiz activities help to get clarity and rectify their mistakes.

The SAMR model was proposed by Ruben R. Puentedura provides a systematic conceptual framework for implementing technology in the field of teaching and learning practices. The model consists of four steps namely Substitution, Augmentation, Modification, and Redefinition. "The SAMR model provides educators with a framework to evaluate how technology transforms learning, moving from basic substitution to innovative redefinition that enables previously inconceivable learning experiences" (Puentedura 3). The first substitution level deals with technology act as substitute for traditional methods. For instance, printed books can be replaced with pdfs and learners are asked to submit their assignments through mail. The Augmentation level deals with infusion of technology in classrooms as a direct tool. For instance, learners can highlight in the pdf and can use speech to text recognition tools. The Motivation level deals with redesign of tasks. The Redefinition level deals with that learning only exists with the help of technology. For example, instead of writing report of the particular topic, the learner can create blog, video documentary or podcast in the target language.

(1) Substitution level, writing handwriting on paper, students typing it on a mobile device using a note-making application or digital tools such as Google Drive, Microsoft Office Online, Evernote or Etherpad. (2) Augmentation level, when they write text on their mobile devices, students can highlight words, check spelling, and adjust the font format and style . . . (3) Modification level, Students can enrich text by adding images, sounds, animations, and videos . . .(4) Redefinition level, students post their written production (Suryani et al. 4).

The TPACK framework and SAMR model provide educators with structural framework to implement technology in language learning classrooms.

Conclusion

"Technology-enhanced language learning environments promote learner engagement, improve language proficiency, and create opportunities for authentic communication, making them essential components of modern language education" (Chapelle 57).The future of language learning depends on the fusion digital technology with traditional methods, "By adopting innovative strategies and staying informed about the latest trends, educators can make language learning more engaging, accessible, and effective. The future of language education lies in the thoughtful fusion of traditional methods with cutting-edge technology, ultimately leading to more dynamic and successful language acquisition experience" (Annet 29). The research tries to justify the importance of digital technology and mobile applications in second language acquisition.

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