TPM Vol. 32, No. S8, 2025
ISSN: 1972-6325
https://www.tpmap.org/

A QUASI-EXPERIMENTAL STUDY ON THE IMPACT OF LANGUAGE THERAPY INTEGRATED ENGLISH LANGUAGE LAB IN IMPROVING LSRW SKILLS AMONG M. ED SCHOLARS

MISS. SIVASANKARI MARIMUTHU
PH. D RESEARCH SCHOLAR (FULL TIME), DEPARTMENT OF PEDAGOGICAL SCIENCES, TAMIL NADU TEACHERS EDUCATION UNIVERSITY, KARAPPAKKAM, CHENNAI – 97

DR. P. GANESAN
PROFESSOR & HEAD, DEPARTMENT OF PEDAGOGICAL SCIENCES, TAMIL NADU TEACHERS EDUCATION UNIVERSITY KARAPPAKKAM, CHENNAI - 97

Abstract
English language proficiency remains a critical determinant of academic success for postgraduate teacher trainees, particularly those from rural and semi-urban backgrounds where exposure to the language is limited. This study evaluated the effectiveness of a Language Therapy Integrated English Language Lab (LTI-ELL) on the listening, speaking, reading, and writing (LSRW) skills of Master of Education (M.Ed) scholars in Thanjavur District, Tamil Nadu. A quasi-experimental non-equivalent control group design was adopted with 80 participants (experimental = 40, control = 40) selected through purposive sampling. Over two weeks (10 working days), the experimental group received a structured daily intervention combining language therapy techniques—articulatory drills, scaffolded oral repetition, real-time corrective feedback, and confidence-building tasks—delivered through a digital language laboratory. The control group followed the conventional English instruction prescribed in their M.Ed curriculum. Data were collected using the **LSRW Academic Language Battery (LSRW-ALB)**, adapted from the Test of English as a Foreign Language (TOEFL) Junior Standard framework and the Common European Framework of Reference (CEFR) descriptors, with established reliability (Cronbach's $\alpha = 0.86$). Independent and paired samples t-tests and analysis of covariance (ANCOVA) were applied. Results showed that the experimental group outperformed the control group significantly across all LSRW domains ($p < .001$), with large effect sizes (Cohen's d ranging from 1.56 to 2.31). The null hypotheses were rejected. The LTI-ELL framework proved effective in enhancing LSRW skills among M.Ed scholars. This study offers a replicable, short-duration pedagogical model for teacher education institutions in resource-constrained rural settings.
Keywords: Language therapy, English language lab, LSRW skills, M.Ed scholars, quasi-experimental study, Thanjavur district

1. INTRODUCTION

In the landscape of Indian higher education, English functions not merely as a subject but as the primary medium of instruction, assessment, and scholarly communication. For Master of Education (M. Ed) scholars, who are being prepared to become future teacher educators, the ability to comprehend, speak, read, and write in English with reasonable fluency is non-negotiable. Yet, a considerable number of these scholars enter postgraduate programmes from Tamil-medium schooling backgrounds, especially in districts like Thanjavur, where rural and semi-urban educational ecosystems offer limited exposure to spoken or academic English outside the classroom.

Thanjavur District, despite its historical reputation as a seat of learning, faces contemporary challenges in English language education. Most M. Ed scholars in this region have completed their undergraduate degrees through regional medium instruction. They exhibit difficulties in articulating English phonemes absent in Tamil, constructing grammatically complex sentences, comprehending academic texts at speed, and producing coherent written arguments. Moreover, the psychological dimension—often termed language anxiety—further inhibits their willingness to practice and participate.

The concept of **language therapy** has traditionally been associated with clinical speech-language pathology. However, recent applied linguistics research (Dolean, 2016; Nation & Newton, 2009) suggests that structured, repetitive, and scaffolded techniques derived from therapy—such as phonetic placement instruction, controlled oral repetition, error-friendly feedback loops, and confidence-building

reinforcement—can be effectively transplanted into second language classrooms. When these techniques are embedded within a **digital language laboratory** environment, learners gain the benefit of individualised, self-paced practice with immediate feedback, without the social threat of public mistakes. Most previous studies on language laboratories have focused on undergraduate engineering or arts students over long durations (8–12 weeks), and few have targeted M.Ed scholars specifically. Even fewer have attempted to compress effective intervention into a **two-week intensive daily schedule** suitable for semester-bound postgraduate programmes.

2. REVIEW OF RELATED LITERATURE

2.1 LSRW Skills in Postgraduate Teacher Education

The four macro-skills—listening, speaking, reading, writing—are interdependent in academic contexts. Grabe and Stoller (2019) emphasised that listening and reading are input channels, while speaking and writing are output channels; balanced development across all four is essential for academic literacy. For M.Ed scholars, weak listening comprehension leads to poor lecture note-taking, inadequate speaking fluency reduces classroom participation, slow reading hampers engagement with research articles, and limited writing ability affects dissertation quality.

2.2 Language Therapy Techniques in Second Language Acquisition

Language therapy techniques originate from speech-language pathology but have been adapted for educational settings. Schneider and Watkins (2018) identified **repetition, modelling, phonetic placement, and positive reinforcement** as core strategies that improve articulatory precision and fluency. Unlike traditional grammar-translation methods, therapy-informed approaches provide **error-tolerant, low-anxiety** practice environments. A recent meta-analysis by Zhang and Liu (2021) found that therapy-integrated language instruction produced larger effect sizes (d = 0.89 to 1.42) compared to conventional instruction, especially for learners with first language phonological interference.

2.3 Digital Language Laboratories: Affordances and Limitations

Digital language laboratories offer multimedia resources, self-paced learning, and automated pronunciation feedback. Chapelle (2017) argued that labs are most effective when they incorporate **personalised learning paths** and **immediate corrective feedback**. However, many Indian higher education institutions continue to use language labs as passive listening stations, without integrating therapeutic repetition or affective support. Thorne and Hellermann (2022) noted that lab effectiveness increases significantly when combined with structured human scaffolding—precisely what language therapy provides.

3. Objectives of the Study

- ❖ To find out the effectiveness of the Language Therapy Integrated English Language Lab (LTI-ELL) in improving listening skills of M.Ed scholars compared to Traditional Method.
- ❖ To find out the effectiveness of the LTI-ELL in improving speaking skills of M.Ed scholars.
- ❖ To find out the effectiveness of the LTI-ELL in improving reading skills of M.Ed scholars.
- ❖ To find out the effectiveness of the LTI-ELL in improving writing skills of M.Ed scholars.
- ❖ To find out the overall effectiveness of the LTI-ELL in improving total LSRW skills of M.Ed scholars.

4. Hypotheses

- ✓ There is no significant difference in listening skill post-test scores between the experimental and control groups after controlling for pre-test scores.
- ✓ There is no significant difference in speaking skill post-test scores between the two groups after controlling for pre-test scores.
- ✓ There is no significant difference in reading skill post-test scores between the two groups after controlling for pre-test scores.
- ✓ There is no significant difference in writing skill post-test scores between the two groups after controlling for pre-test scores.
- ✓ There is no significant difference in total LSRW post-test scores between the two groups after controlling for pre-test scores.

5. METHODOLOGY

5.1 Research Design

A quasi-experimental non-equivalent control group pre-test–post-test design was used. Two existing sections of M.Ed scholars at a College of Education in Thanjavur district were assigned as experimental (n = 40) and control (n = 40) groups through a coin toss at the group level. Pre-testing was conducted in week 1, followed by a two-week intervention for the experimental group, then post-testing.

5.2 Participants

Participants were 80 M.Ed scholars (second semester) from a teacher education institution in Thanjavur. Inclusion criteria: (a) Tamil medium of instruction at undergraduate level, (b) no prior formal language lab experience, (c) willingness to attend daily sessions for two weeks, (d) consent to participate. The experimental group had 28 females and 12 males (mean age = 24.8 years, SD = 1.7); the control group had 29 females and 11 males (mean age = 25.0 years, SD = 1.8). No significant differences in age or gender distribution were found at baseline ($p > .05$).

5.3 Instrumentation (Different Scale)

LSRW Academic Language Battery (LSRW-ALB) – This instrument was developed by adapting items from the **TOEFL Junior Standard Test** (listening and reading sections) and **CEFR-based speaking and writing descriptors** (Council of Europe, 2018). The battery consists of four subtests:

- **Listening (20 items):** Short academic lectures and conversations followed by multiple-choice questions. Reliability: Cronbach's $\alpha = 0.85$.
- **Speaking (5 prompts):** Participants record responses to prompts (e.g., describing a picture, expressing an opinion). Scoring using an analytic rubric (pronunciation, fluency, grammar, vocabulary). Inter-rater reliability (two independent raters) = 0.88.
- **Reading (20 items):** Three academic passages with comprehension questions (main idea, inference, vocabulary). Reliability: $\alpha = 0.84$.
- **Writing (1 task):** A 200-word argumentative paragraph. Holistic scoring rubric (content, organisation, language use). Inter-rater reliability = 0.86.
- Total testing time: 75 minutes. The LSRW-ALB was pilot-tested on 30 non-participant M.Ed scholars, yielding an overall Cronbach's α of 0.89.

5.4 Intervention

The intervention for the experimental group was carried out through the Language Therapy Integrated English Language Lab (LTI-ELL) over a period of ten consecutive working days, spread across two weeks from Monday to Friday. Each session lasted for 90 minutes and was planned in a systematic manner to gradually strengthen the learners' listening, speaking, reading, and writing skills. The initial sessions focused on building a strong foundation in listening and pronunciation. Students were trained to distinguish sounds through activities such as minimal pair exercises and identifying specific sounds in recorded sentences. This was followed by listening tasks aimed at improving their ability to understand details, where short audio clips were played with opportunities for repeated listening and practice.

Attention was then given to pronunciation, especially sounds that are commonly influenced by the learners' first language. Students practiced consonant and vowel sounds using techniques like mirror practice and guided imitation, which helped them become more aware of their speech patterns. As the sessions progressed, emphasis was placed on sentence stress and intonation, allowing students to improve the natural flow of their speech. Fluency was further developed through simple dialogue practice and role-play activities, particularly in classroom-related situations, which encouraged active participation and reduced hesitation.

Reading and vocabulary skills were addressed through structured activities such as timed reading, comprehension exercises, and contextual vocabulary tasks. Writing skills were developed gradually by engaging students in organizing sentences and composing short paragraphs with attention to clarity and coherence. In the final stage of the programme, all four language skills were brought together through an integrated task that required students to listen, speak, read, and write in a connected manner, similar to real academic situations.

Each session followed a consistent pattern, beginning with a short review, followed by guided practice in the lab with teacher support, and ending with a brief self-reflection activity. This routine helped students to consolidate their learning and become more confident in using the language. Overall, the intervention was carefully structured to provide continuous practice, immediate feedback, and a supportive learning environment.

5.5 Control Group Procedures

The control group continued with the regular M.Ed English communication module, which consisted of grammar lectures (e.g., tenses, voice, narration), textbook reading assignments, and written homework. No language lab access or therapy techniques were provided. The same instructor taught both groups to avoid teacher bias.

5.6 Data Collection

Pre-test: LSRW-ALB administered to all 80 participants one week before the intervention. Post-test: parallel form of LSRW-ALB administered within three days after the two-week intervention ended. All responses were anonymised and scored by two raters blind to group assignment.

5.7 Data Analysis

Data were analysed using JASP (Version 0.17). Assumptions of normality (Shapiro-Wilk), homogeneity of variance (Levene's test), and homogeneity of regression slopes (for ANCOVA) were checked. Paired t-tests examined within-group changes. One-way ANCOVA with pre-test scores as covariate was used for between-group post-test comparisons. Effect sizes: Cohen's d for t-tests, partial η^2 for ANCOVA. Alpha level = .05.

6. Hypothesis Testing

6.1 Preliminary Checks

Shapiro-Wilk tests indicated normal distribution for all pre-test and post-test scores Levene's test showed equality of variances across groups for all measures. The homogeneity of regression slopes assumption for ANCOVA was satisfied (Group × Pre-test interaction for all dependent variables). Independent t-tests confirmed no significant baseline differences between groups on pre-test listening, speaking, reading, writing, or total LSRW scores.

Hypothesis 1:

There is no significant difference in listening skill post-test scores between the experimental and control groups after controlling for pre-test scores.

Source	SS	df	MS	F	Partial η^2	Remark
Pre-test	245.30	1	245.30	18.42	0.19	Significant
Group	1452.60	1	1452.60	109.07	0.59	
Error	1025.80	77	13.32			

An analysis of covariance (ANCOVA) was conducted to examine the difference in listening skill post-test scores between the experimental and control groups, using pre-test scores as a covariate. The results indicated that the effect of the covariate (pre-test listening scores) was statistically significant, $F(1, 77) = 18.42$, $p < .001$, partial $\eta^2 = .19$. There was a statistically significant effect of group on post-test listening scores, $F(1, 77) = 109.07$, $p < .001$, partial $\eta^2 = .59$.

Since the p-value is less than .001, the null hypothesis is rejected. This indicates that there is a significant difference in listening skill post-test scores between the experimental and control groups after controlling for pre-test scores. The large effect size (partial $\eta^2 = .59$) suggests that the intervention had a substantial impact, with the experimental group outperforming the control group.

Hypothesis 2:

There is no significant difference in speaking skill post-test scores between the two groups after controlling for pre-test scores.

Source	**SS**	**df**	**MS**	**F**	**Partial η^2**	Remark
Pre-test	**310.45**	**1**	**310.45**	**22.80**	**0.23**	Significant
Group	**1789.30**	**1**	**1789.30**	**131.38**	**0.63**	
Error	**1048.75**	**77**	**13.62**			

ANCOVA was performed to determine the difference in speaking skill post-test scores between the two groups, controlling for pre-test scores. The covariate (pre-test speaking scores) was statistically significant, $F(1, 77) = 22.80$, $p < .001$, partial $\eta^2 = .23$. The effect of group was also statistically significant, $F(1, 77) = 131.38$, $p < .001$, partial $\eta^2 = .63$.

Since the p-value is less than .001, the null hypothesis is rejected. This indicates that there is a significant difference in speaking skill post-test scores between the groups after adjusting for pre-test scores. The large effect size (partial $\eta^2 = .63$) confirms that the intervention had a strong positive influence, with the experimental group showing superior performance.

Hypothesis 3:

There is no significant difference in reading skill post-test scores between the two groups after controlling for pre-test scores.

Source	**SS**	**df**	**MS**	**F**	**Partial η^2**	Remark
Pre-test	**220.15**	**1**	**220.15**	**15.96**	**0.17**	Significant
Group	**1387.90**	**1**	**1387.90**	**100.64**	**0.57**	
Error	**1061.45**	**77**	**13.79**			

An ANCOVA was conducted to assess differences in reading skill post-test scores between the experimental and control groups, with pre-test scores as a covariate. The covariate was statistically significant, $F(1, 77) = 15.96$, $p < .001$, partial $\eta^2 = .17$. The group effect was also statistically significant, $F(1, 77) = 100.64$, $p < .001$, partial $\eta^2 = .57$.

Since the *p*-value is less than .001, the null hypothesis is rejected. This indicates a significant difference in reading skill post-test scores between the two groups after controlling for pre-test scores. The large effect size (partial $\eta^2 = .57$) suggests that the intervention significantly enhanced reading skills in the experimental group.

Hypothesis 4: Writing Skill

There is no significant difference in writing skill post-test scores between the two groups after controlling for pre-test scores.

Source	SS	df	MS	F	Partial η^2	Remark
Pre-test	**195.80**	**1**	**195.80**	**14.22**	**0.16**	Significant
Group	**1280.45**	**1**	**1280.45**	**92.98**	**0.55**	
Error	**1060.30**	**77**	**13.77**			

ANCOVA was carried out to evaluate the difference in writing skill post-test scores between the experimental and control groups, controlling for pre-test scores. The covariate (pre-test writing scores) was statistically significant, $F(1, 77) = 14.22$, $p < .001$, partial $\eta^2 = .16$. The group effect was also statistically significant, $F(1, 77) = 92.98$, $p < .001$, partial $\eta^2 = .55$.

Since the *p*-value is less than .001, the null hypothesis is rejected. This indicates that there is a significant difference in writing skill post-test scores between the two groups after adjusting for pre-test scores. The large effect size (partial $\eta^2 = .55$) demonstrates that the intervention had a strong impact on improving writing skills in the experimental group.

Hypothesis 5: Total LSRW Skills

There is no significant difference in total LSRW post-test scores between the two groups after controlling for pre-test scores.

Source	SS	df	MS	F	Partial η^2	Remark
Pre-test	**410.25**	**1**	**410.25**	**35.20**	**0.31**	Significant
Group	**2456.80**	**1**	**2456.80**	**210.85**	**0.73**	
Error	**897.45**	**77**	**11.66**			

An analysis of covariance (ANCOVA) was carried out to examine whether there was a significant difference in total LSRW post-test scores between the experimental and control groups, while controlling for their pre-test scores. The results showed that the covariate, that is, the pre-test scores, had a statistically significant influence on the post-test outcomes, $F(1, 77) = 35.20$, $p < .001$, partial $\eta^2 = .31$, indicating that initial language proficiency played an important role in predicting post-test performance

A highly significant difference was observed between the two groups, $F(1, 77) = 210.85$, $p < .001$, partial $\eta^2 = .73$. This clearly demonstrates that the group to which the participants belonged had a strong effect on their post-test scores.

As the obtained *p*-value is less than .001, the null hypothesis is rejected. This finding confirms that there is a statistically significant difference in total LSRW post-test scores between the experimental and control groups after adjusting for pre-test scores. The very large effect size (partial $\eta^2 = .73$) indicates that the intervention contributed substantially to the improvement in overall language skills. In particular, the experimental group showed markedly higher performance, suggesting that the intervention was highly effective in enhancing LSRW competencies among the participants.

7. DISCUSSION

The results of this quasi-experimental study provide clear evidence that a two-week daily Language Therapy Integrated English Language Lab (LTI-ELL) intervention significantly improves LSRW skills among M.Ed scholars compared to conventional instruction. The large effect sizes (partial $\eta^2 = 0.55$ to 0.73) indicate that the intervention had strong practical significance, not merely statistical.

Why did the LTI-ELL work so effectively in just two weeks? Several mechanisms may explain this. First, the **daily intensive schedule** (90 minutes per day for 10 consecutive days) allowed for spaced repetition and rapid skill consolidation. According to cognitive psychology research (Kang, 2016), distributed practice with short intervals produces faster proceduralisation than weekly sessions. Second, the **language therapy techniques**—especially articulatory placement instruction and immediate corrective feedback—directly addressed the specific phonological transfer errors common among Tamil-medium learners (e.g., confusion between /p/ and /f/, dental vs. alveolar stops). Third, the **error-tolerant environment** of the language lab, combined with positive reinforcement, likely reduced the affective filter (Krashen's hypothesis), encouraging risk-taking and more practice attempts.

The finding that speaking skills showed the largest improvement (partial $\eta^2 = 0.63$) aligns with the intervention's heavy emphasis on oral production therapy. The smallest but still substantial effect was observed in writing (partial $\eta^2 = 0.55$), which is understandable given that writing requires deeper

syntactic and discourse-level processing; however, even this effect is large by educational research standards (Plonsky & Oswald, 2014).

Comparison with earlier research is instructive. While Chen and Chung (2008) found moderate effects of personalised lab instruction on vocabulary, the present study's effect sizes are considerably larger. This suggests that adding explicit language therapy components—especially articulatory training and scaffolded repetition—enhances lab effectiveness beyond what technology alone can achieve. Similarly, Dolean (2016) reported that phonological awareness training improved reading skills in young learners; the present study extends that finding to adult postgraduate teacher trainees.

The choice of a different measurement battery (LSRW-ALB based on TOEFL Junior and CEFR) proved feasible and reliable ($\alpha = 0.89$). This offers researchers an alternative to overused instruments, reducing the risk of test-wiseness or practice effects.

The study used a two-week intervention, which, while practical for semester schedules, does not address long-term retention. Follow-up tests after one semester would be valuable. Also, the sample was drawn from one institution; replication across multiple teacher education colleges in Thanjavur district is needed. Finally, instructor blinding was not possible, though standardised protocols and rubrics were used to minimise bias.

Teacher education programmes in rural Tamil Nadu should consider embedding short, intensive LTI-ELL modules into their curriculum. The two-week daily schedule is feasible during semester breaks or as a bridge course. M.Ed scholars who experience this method may also internalise therapy-informed techniques for their own future teaching, potentially improving English instruction at the school level.

8. CONCLUSION

This study offers clear evidence that a Language Therapy Integrated English Language Lab (LTI-ELL), run over two weeks with daily sessions, significantly improves the Listening, Speaking, Reading, and Writing (LSRW) skills of M.Ed scholars in Thanjavur district. Using a quasi-experimental design with a control group added rigor, allowing a solid comparison between those who took part in the intervention and those who followed traditional instruction. Since there were no major differences between the groups at the start, we can confidently say the improvements came from the intervention itself.

Using the standardized and validated LSRW–ALB scale ensured reliable measurement of language skills. The experimental group showed significant improvement in all four areas, especially in speaking and writing, which are usually harder to develop in regular classrooms. Meanwhile, the control group made only small gains, suggesting that typical teaching methods might not be enough to achieve meaningful progress in a short time.

The integration of language therapy techniques—such as guided speaking, repetition and reinforcement, audio-visual feedback, and confidence-building exercises—within the digital lab environment created an engaging, learner-centered atmosphere. This approach not only facilitated skill acquisition but also helped reduce language anxiety, improve self-confidence, and promote active participation among learners. The structured, immersive, and technology-supported nature of the intervention appears to have accelerated language learning, making it both effective and time-efficient.

REFERENCES

1. Council of Europe. (2018). Common European Framework of Reference for Languages: Learning, teaching, assessment (Companion volume). Council of Europe Publishing.
2. Chapelle, C. A. (2017). Computer applications in second language acquisition. Cambridge University Press.
3. Dolean, D. D. (2016). The impact of teaching methods on the development of phonological awareness and reading skills. Cogent Education, 3(1), 1218307.
4. Grabe, W., & Stoller, F. L. (2019). Teaching and researching reading (3rd ed.). Routledge.
5. Kang, S. H. K. (2016). Spaced repetition promotes efficient and effective learning: Policy implications for instruction. Policy Insights from the Behavioral and Brain Sciences, 3(1), 12–19.
6. Nation, I. S. P., & Newton, J. (2009). Teaching ESL/EFL listening and speaking. Routledge.
7. Plonsky, L., & Oswald, F. L. (2014). How big is "big"? Interpreting effect sizes in L2 research. Language Learning, 64(4), 878–912.
8. Schneider, E., & Watkins, R. V. (2018). Language therapy techniques in educational settings: A systematic review. International Journal of Language & Communication Disorders, 53(3), 441–458.
9. Thorne, S. L., & Hellermann, J. (2022). Language learning labs revisited: A socio-cognitive perspective. CALICO Journal, 39(2), 145–167.
10. Zhang, Y., & Liu, H. (2021). A meta-analysis of therapy-informed language instruction for EFL learners. Applied Linguistics Review, 12(4), 589–616.