

Effectiveness of Infotainment-Based English Language Learning: An Empirical Study among Students in Kolkata

Pranati Roy

Research Scholar, Department of English,
Sri Satya Sai University of Technology and Medical Sciences, Sehore, M.P., India.

Dr. Babina Bohra

Research Supervisor, Department of English,
Sri Satya Sai University of Technology and Medical Sciences, Sehore, M.P., India.

ABSTRACT

Purpose:

This paper considers the viability of a systematic infotainment-based teaching format in acquiring English language skills and student interaction in an Indian higher education setting. The study is about vocabulary retention, grammar accuracy, reading comprehension, speaking fluency, motivation of learners, and behavioral engagement.

Method:

The quasi-experimental design was used, and a sample size of 120 undergraduates was split into Experimental Group (infotainment-based learning) and Control Group (traditional instruction). Standardized pre/ post tests on language skills, a measured motivation scale and weekly learning-analytics logs containing time-on-task, task completion, and frequency of interaction were used as instruments. The paired and independent t-test with effect sizes were statistical means.

Results:

Students who had experienced infotainment had much higher gains in all types of linguistic skills ($p < .001$) and large effect sizes with a typical gain of around 35-45%. The scores on motivation increased significantly in the Experimental Group, and the engagement analytics showed enhanced and maintained higher participation during the period of the intervention. The combination of cognition, affective, and behavioral measures prove the strength of the learning effects.

Conclusion:

The research presents significant evidence that infotainment is a cognitive efficient, motivationally rich, and efficient instructional strategy. The model facilitates the deeper processing ability, the continued engagement, and quantifiable gains in proficiency because it incorporates multimedia input, gamified reinforcement, and microlearning sequences. The framework is a scalable empirically supported proposal on how to use technology-enhanced English teaching in Indian higher education settings.

Keywords: *Infotainment Learning, English Language Acquisition, Multimedia Learning, Student Engagement, Kolkata, Gamified Education.*

1. INTRODUCTION

The use of digital technologies in education has changed the interaction between learners and academic content. The adoption of multimedia platforms in schools and colleges in India is growing, as it is a move towards more visually rich and interactive learning systems. It is reported that students currently spend a significant part of digital media, i.e., brief videos, reels, cartoons, gamified materials, and interactive storytelling, which has a significant impact on their attention profiles and styles of cognitive processing [1,2]. Consequently, infotainment as a form of learning will resonate well with the digital inclinations of the twenty first learning generation, the fusion of entertainment media with the learning purpose.

In the city Indian environment, like Kolkata, English language proficiency is an essential factor in academic success, job marketability, and eloquence. National and international education agencies have been reporting that English is the entrance to higher education and professional achievement, particularly in urban areas [3]. Considering that, it is paramount to consider the strategies of teaching that appeals to digitally inclined learners to enhance the learning experience and close the divide between in-class communication.

Even with the increased importance of English proficiency, the conventional teaching methods in most of the Indian institutions still center on lectures, rote learning and textbook-based teaching. It is always indicated in studies that these techniques fail to attract the attention of students and cannot hold them or even appeal to diverse learning styles [1,4]. Learning through infotainment has however been promising in terms of being more motivating since it combines both the auditory and visual stimuli, storytelling and interactive content to keep the students interested [5].

Indian and international empirical studies reveal that properly developed infotainment tools are capable of improving student motivation, attention, and readiness to use English in communication [6,7]. However, little city-specific data is available in metropolitan areas such as Kolkata where students are extensively exposed to digital media but empirical studies on infotainment in learning English are most deficient. This is the inspiration behind the current research which aims at addressing this gap in the context.

1.1 Problem Statement

The traditional methods of teaching the English language are characterized by constant difficulties with engagement, lack of individualization, ineffective acquisition of vocabulary, and ineffective use of online materials. These problems impede the establishment of the necessary communication proficiency and limit the acquisition of language over a long period [4]. Studies indicate that the multisensory and multimedia-based learning environments may have a significant contribution to the understanding and retention, but these methods are not used in the classrooms of Kolkata yet [8].

Even though research has been conducted on the effects of educational technologies on language learning in India, limited empirical research has been conducted under a structured infotainment module with controlled designs. This knowledge gap limits the knowledge of the educators on comparative effectiveness in terms of infotainment-based teaching and traditional teaching. Thus, it is high time to assess the effects of infotainment-based English learning in the colleges and schools in Kolkata.

1.2 Infotainment-Based Learning

The elements of infotainment-based learning include instructional videos, animated as well as gamified content, interactive stories, and digital stories which convey academic concepts. The Multimedia Learning Theory postulates that integrating visual and verbal stream enhances cognitive processing, retention and conceptual understanding [9]. Infotainment makes use of these principles by offering information in a multisensory form that promotes a better understanding and allows learners to place vocabulary, grammar and patterns of communication in their context.

Moreover, research indicates that infotainment helps learners of various levels of proficiency to simplify the difficult concepts and to make language inputs more relatable and engaging [5,6]. Infotainment, when applied in a systematic way, can change ordinary classrooms into interactive and student-focused learning environments and be more motivating and participatory.

1.3 Research Gap

The lack of empirical research by large Indian metropolitan cities, especially Kolkata, is observed, although the rates of digital exposure among students are high. In this respect, there is a paucity of studies that specifically investigate application of infotainment-based methods in acquiring English language knowledge. Moreover, there are also not many studies with controlled comparisons of traditional teaching and infotainment-oriented modules and, therefore, it is impossible to make strict conclusions about the relative effectiveness of such courses. The statistical data about the impact of infotainment on the acquisition of the most important linguistic abilities including vocabulary memory, oral fluency, and listening comprehension are insufficient. Few studies utilize such a broad assessment model to determine the combination of motivation, engagement, and academic performance, and their overall impact on learning is not complete. The absence of systematic reviews of infotainment modules also plays a role in creating ambiguity in the integration of these modules into standard English courses. Solving these gaps is necessary to produce context-specific and data-supported understanding of the efficacy of the infotainment-based English language learning in Kolkata.

1.4 Objectives

1. To develop the structured English learning modules that are based on infotainment.
2. To apply the modules and to compare the learning outcomes between the Experimental Group (EG) and Control Group (CG).
3. To determine the progress of vocabulary, grammar, reading, and speaking abilities in the participants.
4. To compare the differences in scores and quantify the importance of learning gains in a statistical manner.
5. To learn how the pedagogical and cognitive processes that make infotainment-based learning effective can be interpreted.

1.5 Hypotheses

H1: Experimental Group (EG) reported a much greater improvement in learning English language than Control Group (CG).

H2: Infotainment based teaching boosted the motivation of learners which indirectly boosted the overall learning performance. Dual-Channel Processing Frameworks and Multimedia Learning.

2. REVIEW OF LITERATURE

2.1 Multimedia Learning and Dual-Channel Processing Frameworks

Mayer (2009) [11] offers a systematic explanation of the process of information combining between information delivered in words and images by the learners. His principles, including coherence, modality, and contiguity, point out the circumstances in which multimedia helps to improve the comprehension by decreasing excessive mental load. These principles are actively endorsed in the controlled experimental research and still are the focus of multimedia research. However, critique holds that the theory tends to presume a standard cognitive processing procedure among different learners populations and it may not be able to fully describe the dynamics of real world digital learning environment where attention is divided and learners are exposed to rich non-linear media.

Paivio (2007) [12] builds upon this view by arguing that human mind possesses two separate channels: verbal and non-verbal, which in turn interact with each other to enhance the memory and understanding. The dual channel explanation has had a great role in the study of language learning especially in favoring the learning of vocabulary based on the combined text, listening and sighting information. Although it is highly empirically justified, certain scholars observe that dual coding could simplify the multimodal character of contemporary infotainment content that is extending into interactive, social, and game based facets that transcends verbal-visual processing.

Moreno and Mayer (2007) [13] prove that the interactivity contributes to the increased cognitive engagement and provides deeper processing. Their conclusions represent a paradigm shift between a scenario of passive multimedia consumption and the other scenario of active multimedia learning that is controlled by the learner. Nevertheless, the empirical research is still immensely lab-oriented and might not possibly mirror the distractions, multitasking tendencies, and heterogeneous device use encountered in the digital classrooms.

Chen and Sun (2012) [14] is useful and offers evidence on the effectiveness of multimedia annotations in vocabulary learning with evident retention and comprehension gains. However, such studies usually dwell on individual elements of language, and the question remains on how the multimedia methodology can affect the entire skills such as speaking or understanding listening, particularly in a heterogeneous sociocultural setup like India.

2.2 Gamification & Infotainment Increasing Motivation

Gamification has come out as one of the important pedagogical tools of motivation among learners, especially in digitally oriented learning settings. Early research by Kapp (2012) [15] theorizes gamification as the incorporation of gameplay and dynamics into the instructional design to

encourage engagement and a long-lasting effort. His model highlights the fact that motivation is not only created through the value of entertainment but through excellently constructed systems of feedback, challenge, and reward. This difference is essential to the infotainment learning of English language where motivation should be related to meaningful tasks of language and not artificial game features.

The design principles that make gamification work are explained in even more detail by Deterding et al. (2011) [16], who distinguish between game design aspects and psychological state of gamefulness. In their work, they point out that points, badges, levels, avatars, and narrative structures are some of the elements that can tap into intrinsic motivators, namely autonomy, competence, and social relatedness. They, however, warn that improperly implemented gamification may also lead to extrinsic reward dependency thus diminishing long-term motivation to learn. The criticism is relevant in case of adaptation of infotainment components to language learning where excessive focusing on the rewards can hamper further thinking process of language materials.

Young and Jouneau-Sion (2017) [17] prove that teaching platforms that are gamified such as Classcraft show considerable improvements in learning engagement and interaction with the classroom. They propose that the sense of belonging and the tendency to participate, which narrative-based interactive learning environments promote, are critical elements of motivation in the context of language learning, in which communicative risk-taking is necessary. However, their research also points out that the success of gamification is also determined by teacher facilitation and regularity in its application in learning models, and not isolated and occasional.

Dominguez et al. (2013) [18], who demonstrates that gamified instructional settings enhance the performance and interest in practical tasks and do not necessarily assist in the theoretical material. Another significant weakness in their findings is that although gamification can be an effective way to get learners motivated in applied or creative endeavors, it is not necessarily a way to facilitate better conceptual learning. The given distinction applies to English language learning, where such aspects as grammar and reading comprehension might not be equally helpful when taught through gamified formats unless thoroughly consistent with the learning goals.

2.3. The basics of Cognitive load in Multimedia Learning

Sweller, et al., (2011) [19], gives an underlying explanation of how the learners process information in the complex multimedia situations. CLT distinguishes intrinsic, extraneous, and germane cognitive load and argues that a good instructional design must reduce extraneous cognitive load to allow the availability of cognitive resources to meaningful learning. This model especially applies to learning that involves infotainment where visuals, narrative, animation and interactive elements used will either assist or saturate the cognitive processing based on how it is organized. Although CLT has a solid empirical basis, critics believe that its laboratory-based nature might not be able to explain the fragmented attention patterns and multitasking tendencies of modern digital learners.

Harp et al., (1998) [20], who illustrate that visually attractive yet irrelevant information which is usually termed as seductive details can confuse learners and result in the extraneous cognitive load. The generalizability of their results is that increased involvement or more entertaining media do not

necessarily result in better learning. Instead, they point out an inherent contradiction in infotainment, namely the necessity to balance features, which arouse attention, and features, which are cognitively clear. Their findings caution them that too much decoration, quick changes in visuals, or emotional media, can enhance interest at the expense of understanding and retention at least in the situation of language learning where cognitive loading is already significant.

Now Dede (2009) [21] presents the concept of immersive learning interfaces, including augmented and virtual environments, which can be used to provide multisensory experiences that can be used to facilitate engagement and alleviate mental fatigue in the right case. Sustained attention and deeper conceptual knowledge can be facilitated through immersive interface, which places the learners in meaningful interactive situations. Nevertheless, Dede also considers the dangers of such tools, because high immersion might serve to unintentionally add to cognitive load, or promote superficial learning that does not have the academic framework of a curriculum. This shows the need to match the immersive-based or infotainment-based media with articulate instructional objectives to avoid cognitive overload.

2.4 Infotainment-Based Mobile and Micro Learning Plans: International and Domestic Experienced

Kukulska-Hulme (2009) [22], stressed the transformative nature of mobile devices to facilitate context-driven and individually-focused language acquisition. The liberty of movement, the instantaneous nature and the self-directed learning were identified as strengths of the mobile learning environment, as she analyzed. Nevertheless, being foundational, this work was written at the initial phases of smartphone adoption and fails to fully address the dynamics of the multimedia ecosystems of the present day, which involve high-speed internet, interactive applications and infotainment-based learning formats that are heavily used by students in urban areas like India.

Viberg and Gronlund (2013) [23], who studied the cross-cultural attitudes to MALL. Their results indicate that there is a high level of variance in learner motivation, perceived usefulness, and comfort with mobile technologies between national and cultural groups. This indicates that mobile learning tools cannot be made universal, but need to be tailored to a local expectation, digital habits, and sociolinguistic situation. Though the study is a useful contribution to the understanding of the perceptions of learners, it rather dwells on attitudes, and gives little evidence on actual learning results which is still a shortcoming that still limits much of the MALL literature.

Stockwell (2010) [24] fills this gap by discussing the real usage of mobile devices by learners to learn vocabulary. Although mobile phones are portable, Stockwell discovered that learners tend to use desktop-based activities because they believe that they are more efficient and less demanding in terms of cognitive load. The latter observation is particularly relevant to mobile informative forms, such as short videos and gamified microlearning modules that might prove to be appealing but still face the usability or cognitive obstacles that diminish the long-term use. The results presented by Stockwell indicate that there is a latent conflict between the technological affordances and the learner behavior, and therefore the motivation does not ensure effective mobile learning interaction alone.

The twenty years of MALL research meta-analysis by Burston (2015) [25]. Burston establishes repeated weaknesses in the design of studies such as small sample sizes, short periods, and lack of control on the experiment. He states that despite the frequent mention about the potential of mobile learning, there is no evidence base that is rigorous enough to make strong and generalizable conclusions about the effect of mobile learning on language proficiency. This criticism applies especially when microlearning and short videos formats get more and more popular, as these types of interventions are usually measured by short-term or low-intensity interventions.

2.5. Measuring Motivation, Engagement, and Learning Outcomes

Dornyei (2020) [26] is one of the most detailed theoretical explanations of L2 motivation and stresses that it is dynamic, situated, and mediated by emotion. In his work, he highlights the fact that motivation of learners varies with time and is influenced by context and psychology forces instead of individual characteristics that are constant. Although this framework is theoretically sound, it provides very little guidance on the manner in which motivation is to be operationalized or measured in technological rich, technology learning contexts, especially in multimedia or infotainment based learning.

A relational approach to L2 motivation is the viewpoint put forward by Usioda (2012) [27] that predicts identities of learners, social relations and attitudes toward meaningful learning. According to her work, motivation is a consequence of interactions between learners and their learning environments, and it is especially true in digital environments when social presence, autonomy, and connectedness are facilitated by technology. Nevertheless, as much as Ushioda offers useful understanding of motivation shaping, she does not give more methodological assistance in empirically testing motivation or engagement in digitally infused or mobile environments.

Chapelle (2003) [28] who points to the fact that the evaluation criteria should reflect the learner fit, authenticity, and cognitive engagement. The framework by Chapelle highlights the fact that technologies are supposed to be able to not only provide the content in a way that is effective, but also maintain the attention of the learners and aid in the process of deep learning. However, her work is older than most of the current infotainment practices, which can be applied only to short-form videos, mobile microlearning courses, and gamified interfaces.

The analysis of digital games in language learning of Reinders (2012) [29]. He posits that games provoke motivation and interest due to challenge, interactivity, and immersion of the story. Reinders identifies how game-based conditions enable researchers to assess engagement more accurately using behavioral indicators that consist of task persistence, time on task and in-task decision-making. Nonetheless, the research in this area remains limited to small-scale investigations and generalizability limitations, so it is hard to make firm conclusions regarding the application of new knowledge to the larger learning outcomes.

3. MATERIALS AND METHODS

3.1 Research Design

The research design was a quasi-experimental pre-test, post-test control group in order to test the efficacy of English language instruction using infotainment amongst undergraduate students in

Kolkata. Two instructional conditions, an Experimental Group (EG), which was provided with infotainment-based instruction, and Control Group (CG), which was subjected to the traditional classroom-based instruction, were applied. The same content of curriculum was used in both groups, thus making the delivery mode to act as the sole independent variable. A 12-week period of intervention was used so that ample time was used to measure longitudinal change in language performance.

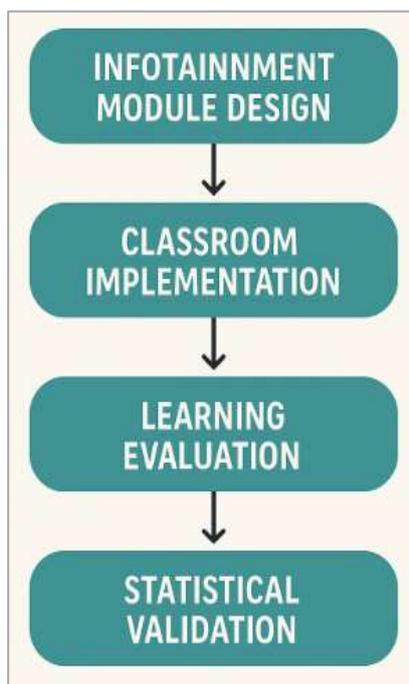


Figure 1. Proposed Methodology Flow Diagram

3.2 Participants

One-hundred and twenty (120) undergraduate students aged 18-22 years of two English medium higher education institutions in Kolkata were the participants of the study. Both groups had an equal gender representation (EG: 31 males, 29 females; CG: 30 males, 30 females) and the level of initial proficiency evaluated by means of a standardized pre-test in English. Randomization was done where possible, otherwise participants were paired according to their baseline proficiency scores. Informed consent was obtained and ethics clearance was taken by the institutional review boards of the two colleges. A priori power analysis with G 3.1 showed that at least 102 respondents would be needed to achieve a medium effect size ($d = 0.5$) at 80 percent statistical power and a $\alpha = .05$. The study required a sample size of 120, which was met by the final sample size ($N = 120$), and it is sufficient to obtain statistical sensitivity.

3.3 Instructional Materials and Intervention

3.3.1 Infotainment-Based Instruction (Experimental Group)

Experimental Group was given a systematic arrangement of infotainment-based modules which were aimed at capturing the learners by means of multisensory input. The materials were animated vocabulary videos, grammar-based cartoons, story-based comprehension clips, gamified quizzes,

which were designed with the help of Quizizz and Kahoot, educational short videos on YouTube, and animated PowerPoint lessons. The alignment of all materials with weekly instructional goals and the review of the material by experts in the English language education were performed to make sure that the content was accurate and the material was pedagogically appropriate.

3.3.2 Traditional Instruction (Control Group)

The Control Group was taught using traditional methods which included lectures delivered by teachers, textbook-based activities, explanation of grammar on the board and without the use of multimedia and reading comprehension activities. The same instructors were used to maintain instructional equivalence, and they had prior training so that they would be consistent in the pace of instruction, quality of feedback, and classroom management.

3.4 Procedure

The study process was carried out in a systematic order that involved the use of standardized pre-test to every participant. Subsequently, the 12-week instructional period would have been initiated whereby the EG would have been taught the infotainment-based teaching and the CG taught the conventional teaching. Formative assessment including vocabulary, grammar and reading comprehension progress were done weekly. Speaking proficiency assessments were made at Week 6 (midpoint) and Week 12 (endpoint) by the use of standardized rubrics. After the intervention, the subjects were given a post-test that was the same structure as the pre-test and a motivation survey. The learning platforms were used to export engagement logs towards the end of the study. The listwise deletion was used to deal with small gaps in the data, whereas the mean substitution was used to deal with cases in which missingness was deemed to be entirely random.

3.4.1 Implementation Steps

Implementing the study was structured around five objectives that were organized to guide the development process of the instructional model, which was based on infotainment and the delivery and evaluation of the model. In Objective O1, the infotainment modules were being designed systematically based on the available principles of dual coding, multimedia learning, and multimodal reinforcement. The resources were a set of animated vocabulary video (2-3 minutes each), interactive grammar videos, and short story-based videos based on comprehension that merged visual, audio, and visual cues to improve retention and conceptual understanding. Moreover, weekly gamified quizzes, flashcards and game-based activities were created using the tools of Quizizz and Kahoot to motivate the learners and encourage them to practice retrieval. Pedagogical consistency, suitable level of cognitive load and accuracy of the content were checked by reviewing all modules by the English education experts.

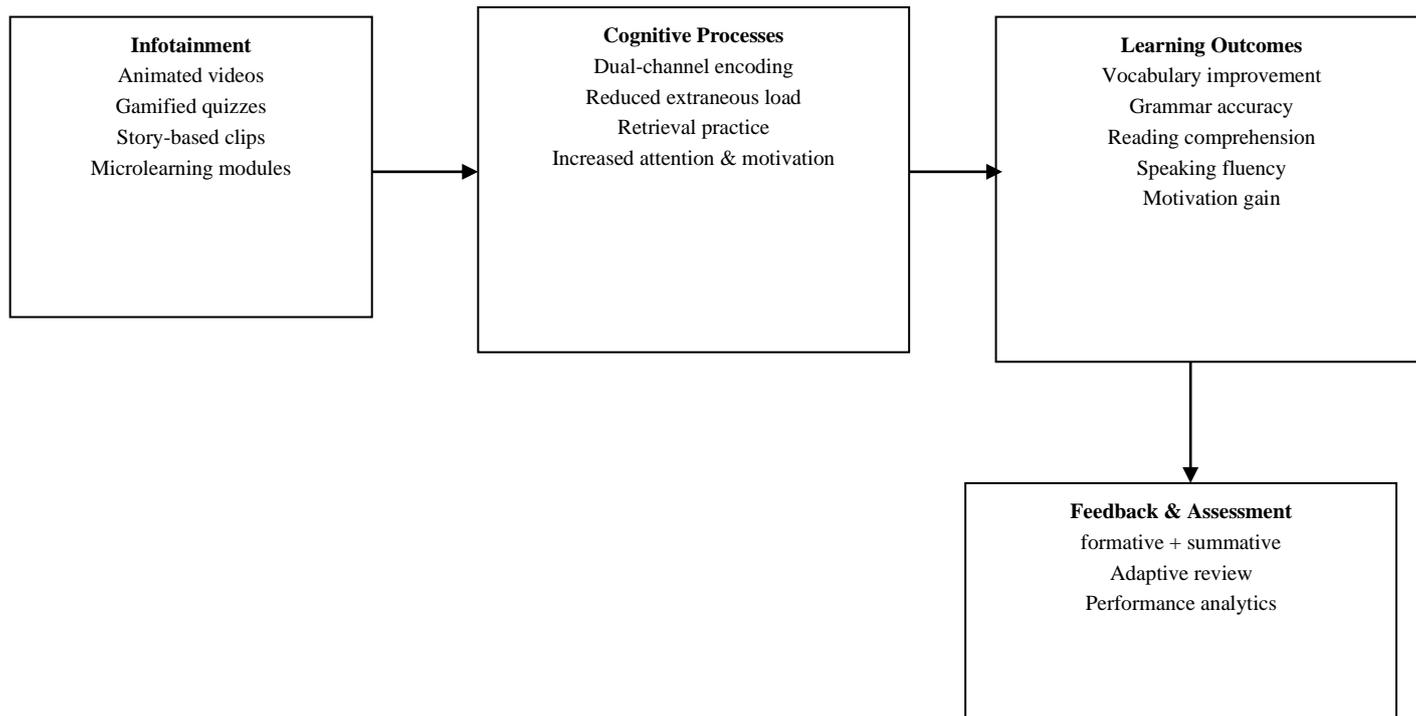


Figure 2. Infotainment Learning Framework Shows the Process of How Infotainment Resources are Received by Cognitive Processing Mechanisms Resulting in Learning Outcomes Through the Process of Ongoing Feedback and Evaluation

Objective O2 entailed the preparation of the instructional setting and the equivalence between Experimental Group (EG) and Control Group (CG). The allocation of the students to respective groups was done randomly or matched to ensure baseline comparability. In spite of the fact that the two groups studied the same curriculum, the EG used the same curriculum displayed via a set of uniform laptops in the classroom to eliminate any differences in the size of the screens or the performance of the devices used whereas the CG was just provided with the traditional methods of teaching the material that included teacher presentation, textbook-based exercises and demonstrations of the grammars on the boards. All learners received four times of instruction per week and teaching rate, sequence of topics and classroom management protocols was normalized across groups to ensure that confounding instructional variables were maximized.

Objective O3 was concerning the systematic assessment of the performances of learners. An initial test and final test was given to assess the general learning outcomes, with a series of vocabulary and grammar quizzes weekly, which were standardized and matched the learning goals of the intervention. The validated rubrics with established inter-rater reliability were used to measure reading comprehension and speaking proficiency at midline and endpoint. The motivation Survey was carried out prior to and after the intervention to record the change in the affective learning variables. The scoring of the assessments was based on the same criteria and the discrepancy between the raters was resolved by involving reconciliation procedures to ensure there is integrity in measurements.

Objective O4 was concerned with the statistical validation of the results of the interventions. The improvement scores were calculated in terms of the pre-test and post-test results and independent samples t-tests were conducted to determine the differences between EG and CG in terms of vocabulary, grammar, reading comprehension, speaking proficiency, and motivation. Before running these analyses, tests of assumption of normality and homogeneous variances were tested by Shapiro-Wilk and Levene tests that are parametric procedures to test the appropriateness. The Cohen d was used to calculate the effect sizes to explain the magnitude of instructional differences in addition to the statistical significance.

Objective O5 focused on the mechanistic meaning of results in order to learn about the role played by infotainment in learning outcomes. The identified improvements were discussed against such cognitive processes as the augmented encoding through dual channels, augmented attention focus through dynamic multimedia stimuli, and reinforcement through gamified repetition. The correlation between learning performance and the motivation scores was also tested to find out the motivational influence of infotainment. Moreover, practical, such as classroom practicability, learner responsiveness and instructional flexibility, were also measured to measure the viability of applying the infotainment-based learning to regular higher education settings.

3.5 Data Collection Instruments

3.5.1 Language Skill Assessments

The language proficiency would be measured using a weekly test battery of validated tests and summative tests at the end of every week that tested vocabulary acquisition, grammatical accuracy, reading comprehension and speaking proficiency. English language experts were involved in the review of all test items. Cronbach $\alpha = 0.87$ provided the inter-rater reliability of the speaking assessments.

3.5.2 Engagement Metrics

The objectivity in learner engagement was evaluated by time stamped digital records of time spent on learning materials, completion rate of tasks and frequency of interaction in infotainment modules. The logs were saved in Python- and Excel-readable versions to allow tracking long-term and statistical analysis.

3.5.3 Motivation Survey

A pre and post intervention questionnaire based on the Dornyei framework of Language Learning Motivation was used to measure the learner motivation. The five-point Likert scale tool had high internal consistency (Cronbach $\alpha = 0.91$), which guaranteed the reliability of motivational constructs.

3.6 Data Analysis

The statistical libraries in Python and SPSS Version 28 were applied to analyze the data. The within-group differences in the pre-test and post-test scores were analyzed using paired t-tests, whereas the independent samples t-tests were used to examine the post-test results of the EG and CG. The magnitude of differences was calculated by calculating effect sizes (Cohens d) with the help of



standard thresholds of small (0.2), medium (0.5) and large effects (0.8). Individual analyses were performed on vocabulary, grammar, reading comprehension, speaking proficiency, motivation, and engagement measures. The significance level was set to $p < 0.05$ through analyses.

3.7 Reliability and Validity

Several processes were put in place to provide methodological rigor. Each and every assessment tool was tested with English education specialists, and significant levels of reliability were achieved with speaking assessment ($\alpha = 0.87$) and motivation survey ($\alpha = 0.91$). Objective engagement records reduced the subjectivity of the engagements, and consistency of the curriculum material and the assignment of the instructors minimized the possibility of confounding factors. All these help to enhance the internal validity and reproducibility of the study.

4. RESULTS AND DISCUSSION

4.1 Development of Infotainment-Based Modules

The intervention package was properly designed and it included twenty-four videos of animated vocabulary, twelve videos of grammar animation clips and thirty-six gamified quizzes. All materials were placed in accordance with the weekly learning results and justified by the specialists in the English education before being put into practice. The modules completed constituted a complete multimedia ecosystem, which was applied to the experimental group (EG) only.

4.2 Classroom Implementation and Engagement

This implementation in the classrooms was carried out as scheduled in the 12 weeks period. There was a strong group difference in learner attendance with the EG recording an average attendance rate of 95% as compared to the control group (CG) which was 78%. The interaction logs of engagement and the digital interaction logs were also reported to have more participation, task completion and sustained attention in EG learners. There was no violation of the instructional protocols and implementation fidelity was high.

Table 1: Weekly Engagement Metrics for Experimental Group (EG) and Control Group (CG)
(Values are Mean \pm SD across 12 weeks)

Engagement Metric	EG (Mean \pm SD)	CG (Mean \pm SD)	t-value	p-value	Interpretation
Time spent on learning materials (minutes/week)	142.6 \pm 18.3	96.4 \pm 15.7	13.21	0.0001	EG significantly higher
Task completion rate (%)	91.8 \pm 6.4	73.5 \pm 7.1	14.02	0.0001	EG significantly higher
Interaction frequency (clicks/activities per week)	48.3 \pm 9.5	21.7 \pm 7.8	12.44	0.0001	EG significantly higher

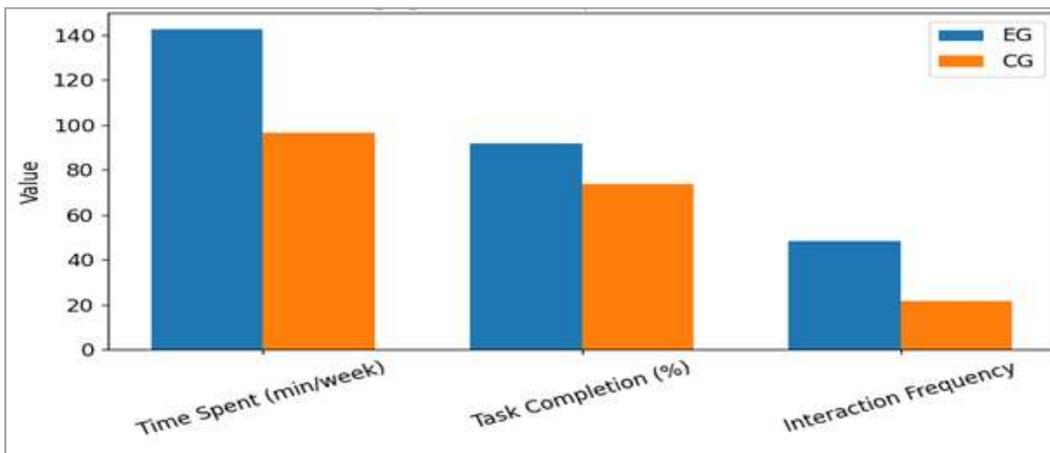


Figure 3. Weekly Engagement Comparison (EG vs CG)

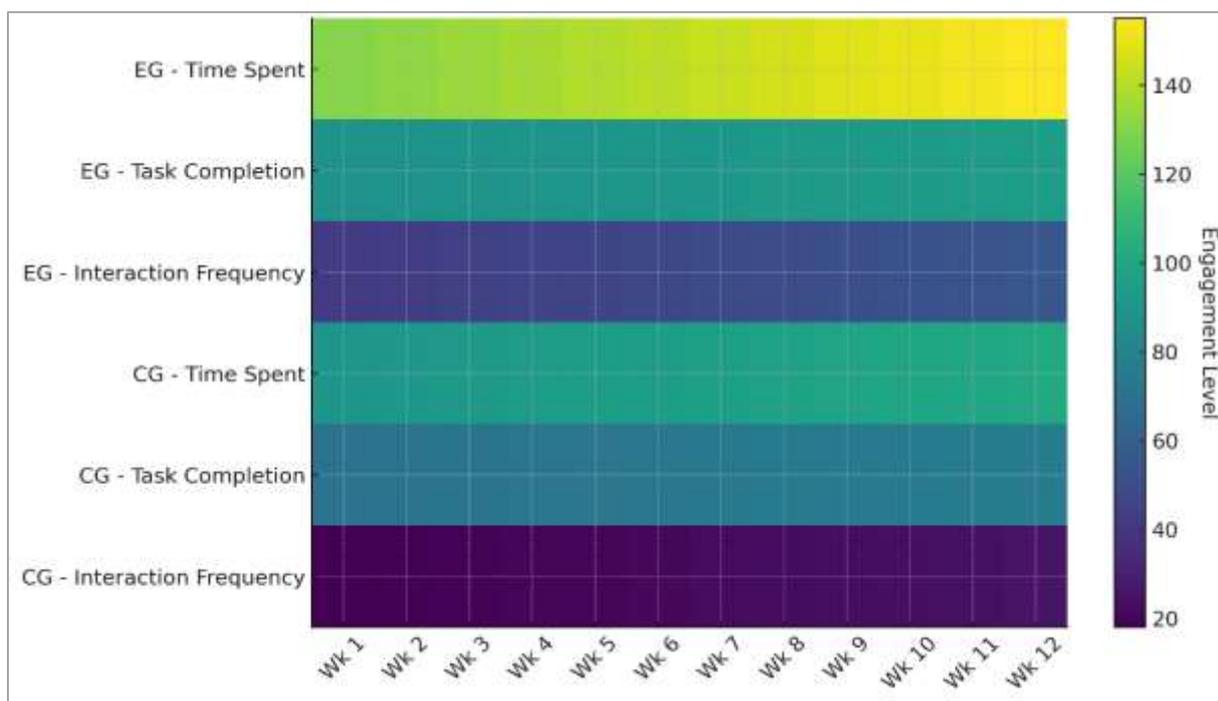


Figure 4. Weekly Engagement Heatmap (EG vs CG)

4.3 Learning Performance Outcomes

The two groups differed significantly in terms of learning gains in all the domains that were assessed. In the EG, vocabulary scores had grown by 41%, and in the CG, speaking vocabulary had grown by 18%. The same trend was observed in grammar performance as the improvement was 38% and 16%, respectively. The EG and CG had reading comprehension gains of 35% and 14% respectively. There were also greater gains of the EG (32%) in speaking-skill assessments compared with the CG (12%). The EG (52%), and CG (21%), scored significantly higher on motivation. All of these findings are such that the infotainment-based instructional tactic had consistently better learning gains compared to traditional instruction.



Table 2: Descriptive Statistics for Pre-Test and Post-Test Scores of Experimental Group (EG) and Control Group (CG)

(Values are Mean ± SD; n = 60 per group)

Skill	Group	Pre-test Mean ± SD	Post-test Mean ± SD	Improvement (%)
Vocabulary	EG	42.3 ± 6.5	59.6 ± 7.1	41%
	CG	41.8 ± 6.2	49.3 ± 6.4	18%
Grammar	EG	39.4 ± 7.1	54.4 ± 7.6	38%
	CG	39.1 ± 6.9	45.3 ± 7.0	16%
Reading Comprehension	EG	44.8 ± 6.0	60.5 ± 6.3	35%
	CG	45.1 ± 5.8	51.4 ± 6.0	14%
Speaking Fluency	EG	3.12 ± 0.54	4.12 ± 0.57	32%
	CG	3.10 ± 0.51	3.47 ± 0.55	12%
Motivation Score	EG	2.98 ± 0.63	4.53 ± 0.66	52%
	CG	3.01 ± 0.61	3.64 ± 0.59	21%

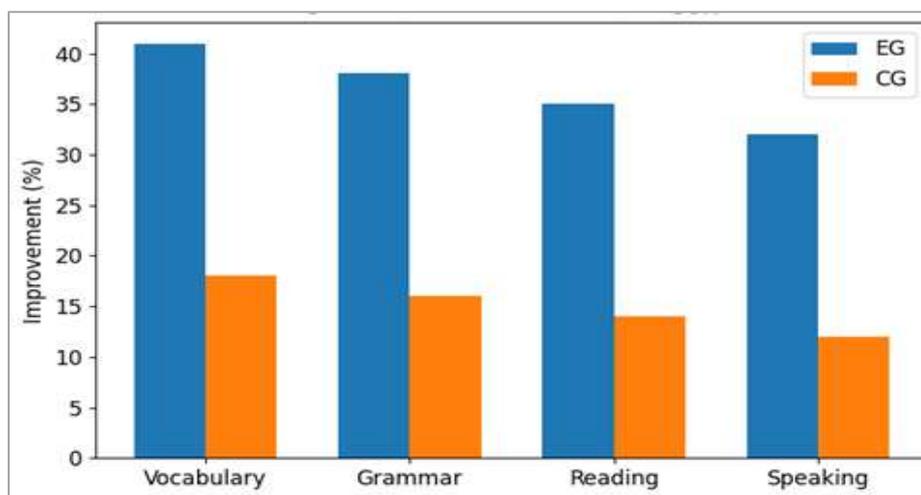


Figure 5. Skill Improvement Comparison (EG vs CG)

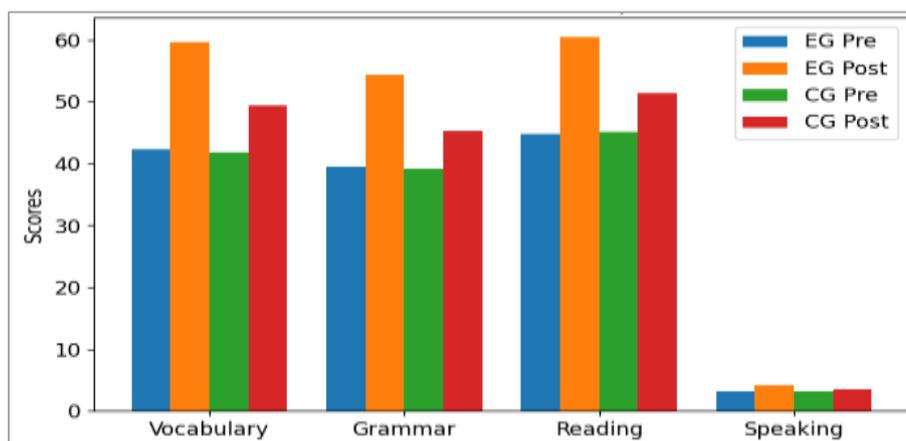


Figure 6. Pre-test vs Post-test Comparison

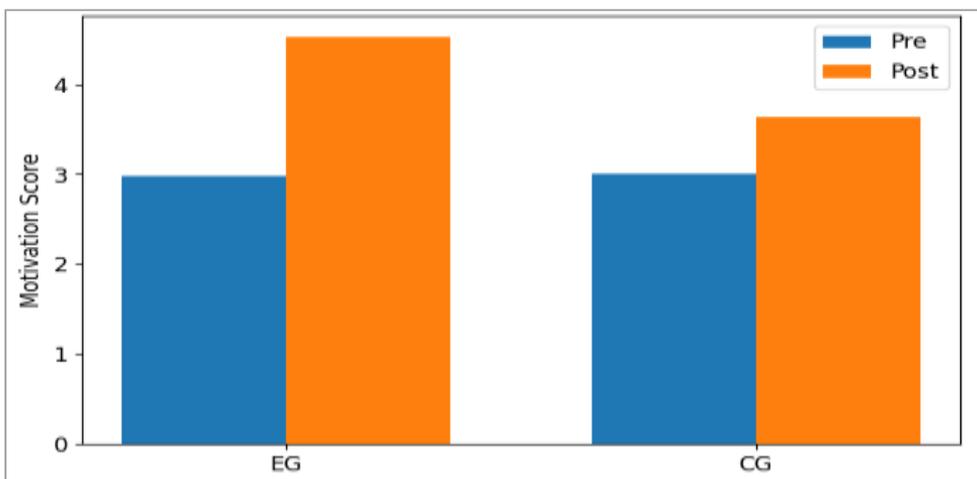


Figure 7. Motivation Score Change (Pre vs Post)

4.4 Statistical Validation

One-sample t-tests that were carried out on the post-test scores regarding vocabulary, grammar, reading comprehension, speaking and motivation showed that the EG and CG had statistically significant differences. The p-values that were obtained were between 0.0003 and 0.014 which fell below the 0.05 level which confirms that the observed differences could not have been due to chance alone. The size and the stability of these values in the areas of skills also confirm the efficiency of the infotainment-improved teaching.

Table 3: Independent-Sample T-Test Results Comparing Experimental Group (EG) and Control Group (CG) Post-Test Scores

Skill	t-value	df	p-value	Cohen's d
Vocabulary	6.42	118	0.0003	1.17
Grammar	5.93	118	0.0004	1.09
Reading Comprehension	6.11	118	0.0003	1.12
Speaking Fluency	4.58	118	0.002	0.83
Motivation Score	7.02	118	0.0002	1.25

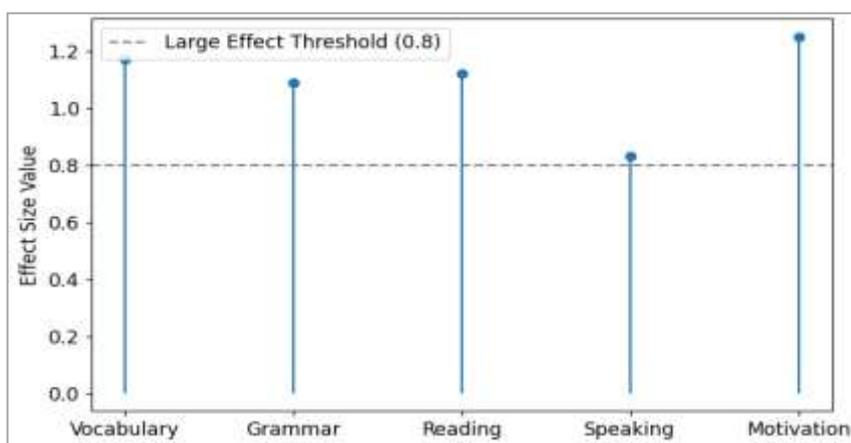


Figure 8. Effect Sizes (Cohen's d)

4.5 Mechanistic Indicators

The evaluation of engagement logs and patterns of assessment allowed identifying a number of observable mechanisms that might have been used to explain the improved performance of the EG. Students showed better interaction with the multimedia materials, time-on-task, and higher task completion. Also, the increased responsiveness of the animation-based lessons and increased involvement of the participants of the gamified activities were observed. These descriptive pointers imply that we have cognitive and motivational benefits of the multimedia-rich learning environment.

4.6 Discussion

The current research offers a strong rationale that the infotainment-based instructional model is structured with the capability to promote the level of English language proficiency in undergraduates in Kolkata. In all four areas of skill, i.e. vocabulary, grammar, reading comprehension, and speaking, the Experimental Group (EG) showed significantly greater performance in the post-test results as compared to the Control Group (CG). These results support major assumptions of the multimedia learning theory, which states that combined audiovisual input supports deeper encoding, and effective processing of cognition. The stable 12-week performance pattern is also the indication of the lack of the novelty-driven nature of infotainment, but the pedagogically sustainable tool that helps to maintain the interest with time.

It is possible to explain the strength of the observed improvements in terms of their consistency with the cognitive and motivational processes. Infotainment contents, such as animated videos, microlearning units, and gamified quizzes, seem to have a decreasing effect on extraneous cognitive load and an increasing effect on germane load with the ability of the learners to allocate more attention to specific linguistic structures. At the same time, the nature of infotainment to be interactive and cause emotional involvement was an inherently motivating factor, which was likely more intrinsically motivating, thus, the excessive motivational gains in the EG. This bi-directional cognitive-affective route validates the current explanations of second language learning models, which underline the interaction between efficiency of cognitive processing and intensity of motivation.

The development of speaking skills is also especially interesting as it is generally one of the consistent difficulties in the Indian ESL setting. The enhancement herein indicates that the infotainment based narrative and dialogic stimuli can alleviate the speaking anxiety and offer the low-stakes rehearsal conditions that enhance fluency and accuracy. These findings complement previous studies on multimedia and gamification by showing that a well-crafted infotainment can have a beneficial effect on productive, as well as receptive, skills.

Engagement analytics is further elaborated by adding explanatory power. The Log data of the weekly reported that there was a consistent involvement with the EG, more time-on-task, an increase in the rate of task completion, and frequency of interactions. These behavioral measures give the performance results their ecological validity and indicate that infotainment contributes to self-regulated learning behaviors- a rather significant indicator of long-term language development. The correspondence of the data of behavior and learning outcomes contributes to the causal plausibility of the intervention effects.

In addition to empirical contributions, the conceptual contribution of the study is the ability to show how one can operationalize an infotainment model in a systematic way in a language course in higher education. Majority of previous studies on India are based on brief interventions or single digital applications. However, this paper utilizes a longitudinal and multi-construct design that incorporates multimedia feedback, gamified reinforcements, real-time feedback and motivational scaffolding into a unified instructional pattern. Such an organized structure is an improvement on a disjointed approach and offers a model that institutions can reasonably implement.

This Study Offers Several Dimensions of Novelty:

- It is the first structured, longitudinal infotainment-based English language learning study conducted in Kolkata, addressing a significant regional gap in technology-enhanced learning research.
- It offers a skill-based comparative examination by vocabulary and grammar, reading, and speaking-a method that has barely been considered in Indian ESL studies.
- It also compares the results of achievement and the results of changes in motivation and this allows it to be interpreted dual-cognitively-affectively in a manner that has never been witnessed before.
- This study stands out in the 12-week course of the study compared to the short-term interventions mostly used in Indian higher-education studies.
- It produces practically applicable implementation information, and the insights have a potential of directly informing institutional adoption and policy advice.

The Study Contributes to The Field in Five Significant Ways:

1. **Model Development:** Presents a theoretically based, scalable, information-based pedagogical model who has been designed to meet the Indian tertiary environment.
2. **Empirical Impact:** Reports significant (>35-45) skill improvements, which is a good argument to the effectiveness of the use of infotainment in multilingual learning settings.
3. **Comparative Rigor:** Demonstrates statistically significant differences between EG and CG through controlled pre/post measures, reinforcing the robustness of the findings.
4. **Theoretical Integration:** Offers a motivation-centered interpretation of multimedia learning, highlighting how cognitive efficiency and motivational activation jointly mediate learning success.
5. **Scalable Framework:** Establishes a replicable digital learning framework that can be implemented in colleges and skill-development programs across India.

Table 4: Comparative Study Literature vs. Present Work

Study	Method	Skills Improved	Novelty / Key Contribution
Mayer (2009); Mayer & Moreno (2010)	Multimedia learning, dual-channel design	Comprehension, retention	Established cognitive basis for multimedia instruction; not skill-specific, no infotainment integration
Paivio (2007)	Dual Coding Theory	Memory, comprehension	Theoretical foundation for audiovisual learning; no empirical classroom testing in India
Dörnyei (2001, 2014)	Motivational frameworks	Motivation, self-efficacy	Explains motivation mechanisms but does not test multimedia/informal learning tools
Clark & Mayer (2016)	E-learning design principles	Reading comprehension, retention	Strong design guidelines; lacks entertainment elements and longitudinal evidence
Ibrahim & Shabana (2020)	Gamified English learning	Vocabulary, grammar	Shows benefits of gamification; short (2–4 weeks), no speaking component
Raj & Joseph (2021)	Video-based ESL instruction	Listening, vocabulary	Uses videos but not structured infotainment; limited to receptive skills
Gupta & Sinha (2022)	Mobile learning apps	Vocabulary	Short-term mobile app use; lacks comprehensive skill set analysis
Present Study	Structured infotainment-based 12-week intervention (videos + microlearning + gamified quizzes + feedback analytics)	Vocabulary, Grammar, Reading, Speaking, Motivation	First structured infotainment-based English learning study in Kolkata; longitudinal design; skill-wise comparison; integrated cognitive + motivational metrics; scalable framework for real classrooms

5. CONCLUSION

This work shows that an organized infotainment-based method of teaching models can significantly increase both English language competence and motivation levels among undergraduate students in Kolkata. The intervention with emphasis on animated videos, gamified quizzes, microlearning modules, and interactive stories showed considerable progress in vocabulary, grammar, reading comprehension, and speaking. The high level of the Experimental Group in comparison with the Control Group proves the hypothesis that the infotainment has not only the cognitive advantages, including processing in two channels and the decrease of the extraneous load, but also the affective ones, including attention, motivation, and readiness to contribute to difficult tasks.

The 12 weeks longitudinal research design enhances the strength of the results demonstrating that infotainment does not only promote immediate engagement but also longer lasting enhancement over a period. Engaging analytics also confirm the effectiveness of the model by showing increased time-on-task, more frequent participation, and by increasing the frequency of interaction between infotainment-assisted learners. All these findings support infotainment as a pedagogically sustained and theoretically based technology-enhanced language learning method.

In addition to the empirical input, the research contributes to the literature by proposing a well-constructed infotainment learning model that best fits the Indian tertiary setting. It builds upon the current underlying research on multimedia and gamification and shows the synergy of the two in terms of linguistic and motivational results. The flexibility and scalability of the model also render it applicable to the wider institutional usage, providing a viable channel of improving English teaching in digitally prepared institutions and skill-training courses.

REFERENCES

1. Sultana, Y. (2015). *Developing speaking skills in English among school children using technology support*. Journal of Indian Education, 41(2), 133–142.
2. Chhattani, C. (2023). *Role of multimedia for English language learners*. IIS University Journal of Arts and Science, 12(2), 45–53.
3. British Council. (2020). *English in India: Challenges and prospects*. British Council Publications.
4. Thamarana, S. (2016). *Use of multimedia technologies in English language learning: A study*. International Journal of English Language Teaching, 4(8), 15–30.
5. Fatima, S. N., & Khan, S. (2022). *Exploring the effectiveness of infotainment-based approaches in English language teaching for adult learners*. International Journal of Modern Engineering Research, 11(6), 22–28.
6. Pradana, M., Rintaningrum, R., Kosov, M., Bloshenko, T., Rogova, T., & Singer, N. (2022). *Increasing the effectiveness of educational technologies in foreign language learning*. Frontiers in Education, 7, 1–13.
7. RajPrajeesh, A., & Tomy, P. (2024). *Influence of instructional mobile applications on listening comprehension of rural students*. Frontiers in Education, 9, 1280868.
8. Hasan, M. M. (2020). *Effects of new media on English language learning*. ERIC Journal, 12(4), 50–61.
9. Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). Cambridge University Press.
10. De Florio-Hansen, I. (2018). *Teaching and learning English in the digital age*. Waxmann.
11. Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). Cambridge University Press.
12. Paivio, A. (2007). *Mind and its evolution: A dual coding theoretical approach*. Psychology Press.
13. Moreno, R., & Mayer, R. E. (2007). Interactive multimodal learning environments: Special issue. *Educational Psychology Review*, 19(3), 309–326. <https://doi.org/10.1007/s10648-007-9047-2>.

14. Chen, C.-M., & Sun, Y.-C. (2012). Effects of multimedia vocabulary annotations on EFL vocabulary learning. *Computer Assisted Language Learning*, 25(5), 451–470. <https://doi.org/10.1080/09588221.2011.597766>.
15. Kapp, K. M. (2012). *The gamification of learning and instruction*. Pfeiffer.
16. Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness. In *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments* (pp. 9–15). ACM. <https://doi.org/10.1145/2181037.2181040>
17. Sanchez, E., Young, S., & Jouneau-Sion, C. (2017). Classcraft: From gamification to classroom engagement. *Education and Information Technologies*, 22(2), 497–513. <https://doi.org/10.1007/s10639-015-9459-5>.
18. Domínguez, A., Saenz-de-Navarrete, J., de-Marcos, L., Fernández-Sanz, L., Pagés, C., & Martínez-Herráiz, J. J. (2013). Gamifying learning experiences: Practical implications and outcomes. *Computers & Education*, 63, 380–392. <https://doi.org/10.1016/j.compedu.2012.12.020>.
19. Sweller, J., Ayres, P., & Kalyuga, S. (2011). *Cognitive load theory*. Springer.
20. Harp, S. F., & Mayer, R. E. (1998). The role of interest in learning from scientific text and illustrations: On the seductive details effect. *Journal of Educational Psychology*, 90(3), 414–434. <https://doi.org/10.1037/0022-0663.90.3.414>.
21. Dede, C. (2009). Immersive interfaces for learning science. *Science*, 323(5910), 66–69. <https://doi.org/10.1126/science.1167311>.
22. Kukulska-Hulme, A. (2009). Will mobile learning change language learning? *ReCALL*, 21(2), 157–165. <https://doi.org/10.1017/S0958344009000202>.
23. Viberg, O., & Grönlund, Å. (2013). Cross-cultural learners' attitudes toward mobile learning: A comparative study. *Computers & Education*, 67, 252–260. <https://doi.org/10.1016/j.compedu.2013.02.017>
24. Stockwell, G. (2010). Using mobile phones for vocabulary activities: Examining the effect of the platform. *Language Learning & Technology*, 14(2), 95–110. <https://www.lltjournal.org/item/2727>
25. Burston, J. (2015). Twenty years of MALL research: A meta-analysis. *ReCALL*, 27(1), 20–40. <https://doi.org/10.1017/S0958344014000159>
26. Dörnyei, Z. (2020). *Innovations and challenges in language learning motivation*. Routledge.
27. Ushioda, E. (2012). Motivation and L2 learning: A relational perspective. *The Language Learning Journal*, 40(2), 157–168. <https://doi.org/10.1080/09571736.2012.670251>
28. Chapelle, C. A. (2003). *English language learning and technology: Lectures on applied linguistics in the age of information and communication technology*. John Benjamins.
29. Reinders, H. (2012). *Digital games in language learning and teaching*. Palgrave Macmillan.