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Integration of CLIL through TED Talks: An Approach to Enhance Vocabulary Acquisition among ESL Learners

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ABSTRACT

English as a language plays a major role in various fields like education, business, international relations and travel. As a result, English Language Teaching (ELT) has been evolving significantly with various methods to enhance learners' proficiency. Vocabulary acquisition is one of the fundamental components in ELT because it enables learners to communicate effectively. Over the years, a wide range of strategies has been employed to help the learners enrich their vocabulary level. With the rapid advancement of technology, the process of teaching and learning became more engaging, interactive and accessible. This research aims to analyse the effectiveness of integrating Content and Language Integrated Learning (CLIL) through TED Talks to enhance the vocabulary acquisition among English as Second Language (ESL) learners. CLIL allows the learners to gain both subject knowledge and language skills simultaneously, while TED Talks is a great resource which contains videos comprising diverse topics that help in language enhancement. The study utilized quantitative research design as the methodology to evaluate how the learners efficiently learn the content along with the enrichment of vocabulary. ESL Learners were selected as the participants and they were further divided into two groups namely, the control, the experimental. Both the groups took a pre-test to assess their initial vocabulary level. After a period of intervention, a post-test was conducted to evaluate their progress. The pre-test and post-test data were analysed using SPSS software. The

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results revealed that infusion of CLIL with TED talks efficaciously upgrades vocabulary level compared to the traditional CLIL approach.

Keywords: Advancement of Technology; CLIL; ESL Learners; TED Talks; Vocabulary Acquisition

1. Introduction

English Language Teaching (ELT) is a broad field of study that addresses the development of the four key language skills: listening, speaking, reading, and writing. Among these, writing is often considered particularly difficult for English as a Second Language (ESL) learners because it requires the integration of multiple sub-skills, such as grammar, vocabulary, coherence, and organization[1]. Within these sub-skills, vocabulary plays a vital role, as a limited vocabulary restricts learners' ability to express ideas effectively in both spoken and written communication. As Schmitt (2008) and Webb and Nation (2017) note, vocabulary knowledge is fundamental to language competence, and successful communication cannot occur without sufficient lexical resources[2,3].

Vocabulary learning remains one of the most challenging aspects of ESL acquisition. Traditional approaches, often relying on rote memorization, may not lead to long-term retention or contextual usage of new words[4]. To address this, researchers have highlighted the benefits of authentic and meaningful input in vocabulary instruction[5]. In recent years, Information and Communication Technology (ICT) has provided new opportunities for enhancing vocabulary learning by offering multimodal, contextualized, and engaging resources[6].

The Content and Language Integrated Learning (CLIL) approach is one such pedagogical framework that combines subject content and language development simultaneously[7]. CLIL has been shown to support vocabulary growth by embedding new words in meaningful disciplinary contexts. However, while studies have examined CLIL's effectiveness, relatively little research has investigated how digital, authentic materials can be systematically integrated into CLIL to maximize its benefits.

TED Talks, freely accessible online presentations on a wide range of topics, represent a valuable but underutilized resource in this regard. They expose learners to authentic language, varied accents, and real-world contexts, while also encouraging critical thinking and learner autonomy[8]. Although some research has explored the motivational benefits of TED Talks in language learning, their specific role in enhancing vocabulary acquisition within CLIL classrooms has not been sufficiently studied[9–12].

This gap forms the basis of the present study, which investigates the effectiveness of incorporating TED Talks into the CLIL approach to improve ESL learners' vocabulary learning. Accordingly, the study addresses the following research questions:

Does the integration of TED Talks into CLIL enhance ESL learners' vocabulary acquisition compared to traditional CLIL methods?

What are learners' perceptions of using TED Talks as a tool for vocabulary learning within CLIL classrooms?

incorporated CLIL approach?

How effectively does the learners learn the content and also enhance their vocabulary simultaneously?

2. Survey of Literature

2.1. Vocabulary in ESL Learning

Vocabulary is widely recognized as a cornerstone of language competence, influencing learners' abilities in listening, speaking, reading, and writing[13]. Without sufficient lexical knowledge, learners struggle to comprehend input and express themselves effectively[13]. Despite its importance, vocabulary acquisition remains one of the most difficult tasks for ESL learners. Traditional methods such as rote memorization often result in limited retention and lack of contextual use[14]. Recent research emphasizes the importance of contextualized, meaningful, and multimodal approaches to vocabulary learning[15].

2.2. CLIL and Vocabulary Learning

Content and Language Integrated Learning (CLIL) provide opportunities for learners to acquire language alongside

subject knowledge[16]. By embedding vocabulary into meaningful disciplinary contexts, CLIL promotes deeper learning and long-term retention. Studies have shown that CLIL can increase exposure to academic language and enhance learners' lexical repertoire[17]. However, some scholars point out that CLIL classrooms still rely heavily on teacher-centered methods, which may limit active learner engagement[18]. This has led to calls for integrating more innovative and technology-driven approaches within CLIL to maximize its effectiveness.

2.3. ICT and Authentic Materials in Language Learning

The rapid development of Information and Communication Technology (ICT) has transformed language learning by providing learners with access to authentic, multimodal input. ICT tools have been shown to enhance motivation, foster autonomy, and provide opportunities for real-world language practice[19]. Mobile-assisted and online learning resources, in particular, have created flexible environments where learners can engage with language beyond the classroom[20]. Nonetheless, the challenge remains in identifying and utilizing authentic digital resources that align with both language and content learning objectives.

2.4. TED Talks in ESL and CLIL Contexts

TED Talks are short, publicly available lectures that expose learners to authentic language, diverse accents, and real-world issues. They have been found to enhance listening comprehension, motivation, and critical thinking skills[21]. Their multimodal nature combining visual, auditory, and contextual cues provides fertile ground for vocabulary acquisition. Furthermore, TED Talks encourage learners to engage with global perspectives, supporting intercultural awareness[22]. Despite these benefits, limited research has examined how TED Talks can be systematically integrated into the CLIL framework to target vocabulary growth in ESL learners.

2.5. Research Gap

The reviewed studies suggest that while vocabulary acquisition is central to ESL learning and CLIL has proven effective in promoting contextualized learning, few studies have explored the integration of authentic digital resources such as TED Talks into CLIL classrooms. Existing research has highlighted the motivational and cognitive benefits of TED Talks but has not sufficiently examined their specific role in enhancing vocabulary acquisition. This study addresses this gap by investigating how TED Talks, when incorporated into CLIL, can support ESL learners' vocabulary development and engagement.

3. Theoretical Framework

The study uses the framework of Content and Language Integrated Learning (CLIL) approach. The term CLIL was created by David Marsh in the mid-1990s as an approach that is used to teach a new subject in a language which is foreign to the students. This helps the students to learn their content along with their second language, mostly English. Unlike the traditional language learning approach that focuses solely on language acquisition, CLIL fosters language learning and teaching through the study of academic subjects. According to Alshammari (2020), CLIL is an "umbrella term" that describes any learning context where a foreign or second language is used as a medium for teaching and learning process. The defining features of the CLIL approach make it unique and powerful one in the language learning process. One of the most significant features of CLIL is its dual-focused role in language acquisition. This helps the students to gain knowledge about their subject as well as learn a new language simultaneously. Task-based and provides the learners with meaningful and accessible input[22]. The next striking feature of CLIL is in its constant attention to real-world scenarios. The learners are exposed to and trained in authentic contexts, which makes them more engaged in the learning process.

Do Coyle introduced the 4Cs framework, which is given in the **Figure 1**, It integrates four elements: Content, Communication, Cognition and Culture to ensure effective learning which helps the educators to design the curriculum that is meaningful and engaging. It provides a structured and holistic approach to incorporating subject with language learning. In this framework, the learners acquire knowledge along with the needed skills for effective communication. It also promotes critical thinking and cultural understanding which has a significant impact on the learners.
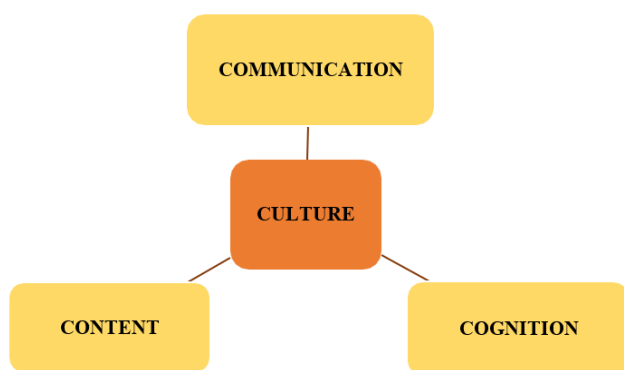
Figure 1. The 4 Cs of CLIL approach.

The first C is Content, which refers to the subject matter that the students should learn. This plays a major role as it decides what the learners will learn during course period. The second C is Communication which refers to the language that the learners use to express their thoughts and opinions. CLIL promotes real-world contexts which makes the communication process a meaningful one. The third C is Cognition where the learners develop critical thinking skills through their learning process. When learners deal with complex subject along with a new language, it makes the learners to delve deeply in the learning process to understand the underlying aspects of the subject and the language. The last C refers to Culture in which the learners come across various cultural perspectives as they deal with a foreign language. CLIL approach encourages students to have a broad and global view in their learning journey.

CLIL is an effective and dynamic approach that makes the learners acquire vocabulary in meaning contexts. Safitri, Silawati, Nurjannah and Nuru (2024) say that teaching vocabulary through CLIL framework at primary level is effective as it creates an enjoyable and interactive environment among learners[19]. Unlike the traditional method where the learners rely on vocabulary lists, and CLIL makes the learning process natural in which the students are exposed to new words while learning their subject content. Another key advantage of CLIL is its higher-order thinking skills, which is the most needed skill in the acquisition of vocabulary. Using technology in conjunction with CLIL approach for language acquisition enhances the learning experience by making it interactive, engaging and effective. Going beyond traditional textbooks and classroom lectures helps leaners to have a wide range of knowledge along with real-world exposure.

4. Methodology

4.1. Research Design

The pivotal task for a researcher is to choose the appropriate research design as it has a great impact on methods of data collection and analysis procedures employed in the study. This section aims to outline the appropriate method that should be used to obtain the desired findings and it also provides a detailed and thorough description of the research design. This study employed quantitative research design to analyse the impact of integration CLIL through TED Talks for vocabulary acquisition.

Quantitative research is a process of collecting and analyzing data based on empirical evidence. The researchers prefer this method if they want to get accurate results as the data serves as concrete evidence without any biases. Another feature of this methodology is to generalize the findings to larger populations.

4.2. Participants

The study involved 74 undergraduate students involved in this study. Participants were informed about the purpose of the study, assured of confidentiality, and voluntarily provided written consent before participating. As the institution admits only female students, the sample was exclusively female. Participants were between the ages of 18 and 21 and were enrolled in their second year of undergraduate studies in Arts and Science disciplines. Their English proficiency levels ranged from intermediate to upper-intermediate, as determined by their academic records and prior English course performance.

4.3. Research Procedure

The research was divided into multiple stages as given in the **Figure 2**, which were carried out in different time spans to track the learners' progress. The ethical consideration was acquired before starting with the research procedure from the participants to be engaged in the ICT tool. The initial stage of this research is the introductory questionnaire where the students are asked to fill up their demographic details. The next is the pre-test, where a questionnaire with a set of ten questions about the use of online tools in enhancing vocabulary acquisition was provided to both the experimen-

tal and control groups to know about the initial level of their understanding and knowledge. This is filled by the learners with their prior experience and opinions which will be used to compare to know about their progress. The third step is the intervention in which the participants were divided into two groups - control and experimental where the experimental group was taught with an ICT tool and on the other hand, the control group was learning through the traditional method. The last procedure is the post-test, where the participants are provided again the questionnaire same as the pre-test. This is to assess the proficiency before and after intervention.
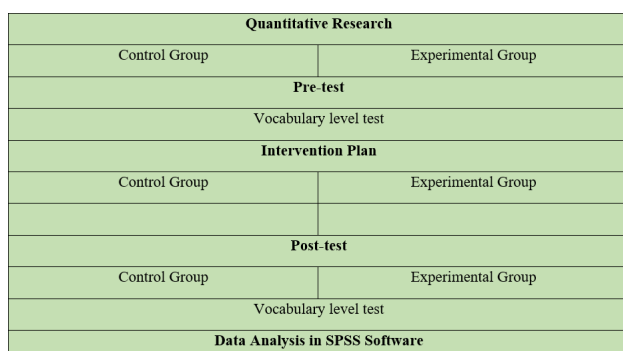
Quantitative Research	
Control Group	Experimental Group
Pre-test	
Vocabulary level test	
Intervention Plan	
Control Group	Experimental Group
Post-test	
Control Group	Experimental Group
Vocabulary level test	
Data Analysis in SPSS Software	

Figure 2. Flowchart of the Research Procedure.

4.4. Intervention Design

The intervention was carried out over a period of six weeks, with two sessions conducted per week. Each session lasted approximately 50 minutes. During the sessions, learners engaged with selected TED Talks, followed by structured vocabulary and comprehension activities designed to reinforce language learning outcomes.

A total of five TED Talks were carefully selected based on the following criteria:

- Relevance of topics: Talks addressed themes familiar and meaningful to undergraduate learners, such as education, technology, and motivation.
- Language accessibility: The content was suited to learners at the CEFR B1–B2 level to ensure comprehensibility while still providing cognitive and linguistic challenge.
- Speaker diversity: Talks featured presenters with varied accents (American, British, and Indian) to expose learners to multiple English varieties.
- Duration: Talks were limited to under 15 minutes to maintain learner attention and manage classroom time

effectively.

The vocabulary list used in the intervention was directly derived from the transcripts of the selected TED Talks. The transcripts were analysed using AntConc software, which facilitated frequency analysis to identify mid-frequency lexical items not typically included in beginner-level word lists but still pedagogically valuable. These items were further cross-checked by two ESL instructors to ensure both thematic alignment with the TED content and relevance to learners' academic needs. The validated list then served as the basis for vocabulary-focused exercises incorporated into each session.

Each intervention session followed a structured format: learners first viewed the TED Talk (or a segment, when the talk exceeded 10 minutes) without subtitles, followed by a second viewing with English subtitles enabled. Post-viewing activities included vocabulary exercises derived from the transcripts, group discussions, and comprehension tasks aimed at promoting active engagement with both the content and the target lexical items.

In the **Figure 3**, the stages of intervention have been highlighted. The study begins with stage 1 in which there will be a warm-up session to ease the environment. Then an introduction is given by highlighting the importance of English vocabulary development and how ICT plays a major role in the language learning process. This gives an overall idea to the students about the upcoming lesson. In stage 2 the learners are introduced to TED Talks platform and its working mechanisms. Then they are provided with vocabulary word list and later, the selected videos that align to their course are played to the learners. These videos are all about their subject as well as the new terms. The stage 3 focuses on deeper understanding the words from the vocabulary list which is given in the **Figure 4**. The learners are asked analyse and understand the meanings of the given words in a different context that is used in the video. At last, a replay of the video is done for gaining deeper insight of the content. The 4th stage is recaptualising the content and clearing the doubts of the learners. In this stage the students also clear their queries. The fifth, and the last, stage is the feedback session. The students are asked to give feedback for the session to further improvise the plan if needed. In the end, students are given homework where the link of the video is sent to the students. The next day a small assessment

is conducted to check the understandability of the learners. After the intervention, a post-test was conducted for both the groups to know about the progress of the course. This is done through a questionnaire which is same as the pre-test so that it can be analysed using statistical software. The results of the analysis shows whether the participants have enhanced their vocabulary retention.
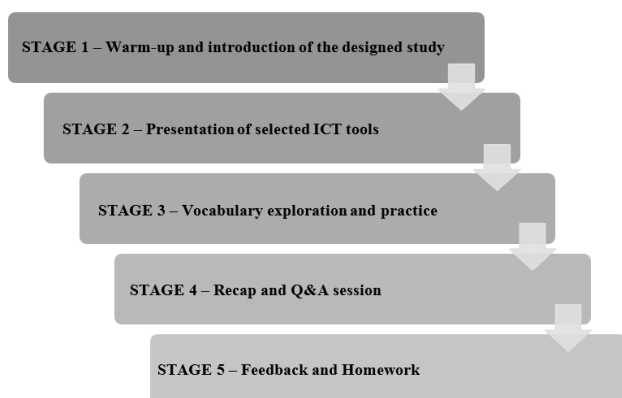

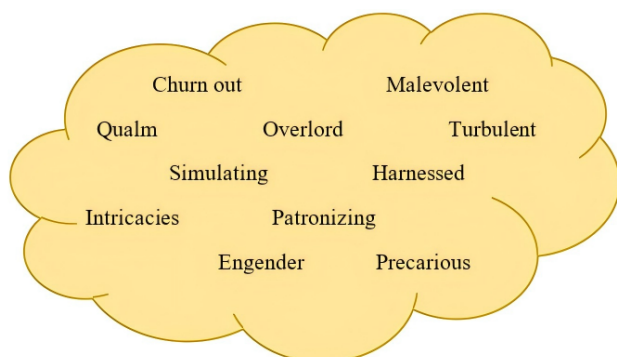**Figure 3.** Intervention plan stages.

Figure 4. Few words from wordlist.

4.5. Research Tools

TED Talks is the tool used in the study to enhance vocabulary acquisition. The TED Talks are short and in-fluential speeches delivered by professionals from various fields to share their inspiration, ideas, and knowledge. Organized by the TED (Technology, Entertainment, Design), these speeches vary in themes like education, business, science, and self-development. TED Talks offer rich content for teachers and self-learners alike by helping students build their language skills, critical thinking, and common world awareness.

5. Data Analysis

5.1. Frequency Distribution

The **Table 1** presents analysis of learners' perception regarding role of technology in enhancing their engagement and motivation in vocabulary learning before and after the intervention. The data consists of pre-test and post-test scores collected from 37 students belonging to experimental group. The table categorizes responses on a scale of 1–5 indicating different levels of agreement. The pre-test data shows that seventeen students rated as 2 which means they disagree while five students rated it as 3 indicating a neutral response. Additionally, fifteen students have given 5 as their response which shows their strong agreement. These observations denotes that learners had mixed perceptions.

In the post-test, students' responses increased significantly to higher ratings. The number of students who rated with lowest score of 1 remained just one, while the number of students to give 3 increased to five. However, sixteen students rated 4 and fifteen gave the highest rating of 5. This shows the intervention played a positive role in impacting students' perception. The shift from lower to higher ratings suggests that the intervention effectively enhanced learners' engagement and motivation in vocabulary acquisition through ICT.

Table 1. Frequency Distribution of Students' Perception on Technology Enhancing Engagement and Motivation in Vocabulary Learning (Pre and Post-test).

	Technology Have Enhanced My Engagement and Motivation in Vocabulary Learning (Post)				Total
	1	**3**	**4**	**5**	
Technology have enhanced my engagement and motivation in vocabulary learning (Pre)	0	1	9	7	17
	0	1	3	1	5
	1	3	4	7	15
Total	1	5	16	15	37

5.2. Wilcoxon Signed-Rank Test

The **Table 2**, represents the test analyses the ESL learners' viewpoint on integration of technology in enhancement of vocabulary acquisition. The test compares data before and after intervention for three key variables: the role of online tools in providing personalized learning experience, impact of technology on learners' engagement and motivation, and the necessity of technology being a part of student learning outcome. It states whether the intervention had made a significant change in the students' response.

In the first variable, the result shows that 18 participants have reported positive rank with the mean of 18.56 and sum of ranks totaling 334. This shows that the learners have benefited after the intervention. In contrast, 10 students reported negative rank indicating a disapproval in their viewpoint. The mean rank of this group was 7.20 with a sum of ranks of 72. However, 9 students had tied ranks which means their opinion is unchanged before and after

intervention. This significant difference in the number, mean and sum of both positive group and negative group denotes that the intervention plan had a notable effect on learners' opinion towards the idea of technological tools providing personalized learning experience.

The second variable is all about engagement and motivation in vocabulary learning. In this, 21 students given positive rank indicating that intervention has increased their engagement and motivation. The mean rank of this group is 16.33 with sum of ranks totaling 343. On the contrary, 8 learners reported negative ranking with a mean rank of 11.5 and sum of ranks 92. This shows that there was a decrease in engagement and motivation while using online tools. Additionally, 8 students had tied ranks which denotes no change of perception. The higher number in positive rank in comparison to negative rank highlights that a considerable number of students felt that technology played a vital role in enhancing motivation and engagement among learners. This is due to the fact that intervention of the study was effective for the learners.

Table 2. Wilcoxon Signed-Rank Test Comparing Pre and Post-Intervention Data of the Experimental Group.

Variables		N	Mean Rank	Sum of Ranks
Online tools provide a personalized learning experience.	Negative Ranks	10	7.20	72.00
	Positive Ranks	18	18.56	334.00
	Ties	9	–	–
	Total	37	–	–
Technology have enhanced my engagement and motivation in Vocabulary learning.	Negative Ranks	8	11.50	92.00
	Positive Ranks	21	16.33	343.00
	Ties	8	–	–
	Total	37	–	–
Use of technology should be part of student learning outcomes.	Negative Ranks	9	8.67	78.00
	Positive Ranks	21	18.43	387.00
	Ties	7	–	–
	Total	37	–	–

The third variable results states that 21 participants showed a positive rank with the mean rank of

18.43 and sum of ranks being 387. This positive result means that the learners' perception on the importance technology being in learning outcome has improved after the intervention. However, 9 students gave negative rank and the mean of this group was 8.67 with sum of ranks of 78. This negative rank says that the said number of students doesn't have a good attitude towards technology being in the learning outcome. Moreover, 7 participants had tied ranks suggesting no shift in their thoughts. The larger sum of

ranks and mean rank states that the intervention was highly influential in changing the learners' viewpoints.

Overall, the Wilcoxon Signed-Rank Test results indicates that the intervention made a significant positive change towards students' insight of technology in education. In all the three variables, the positive ranks consistently exceeded the negative ranks, denoting that leaners were literally benefited by the use of technology in language learning.

The **Table 3** provides the statistical evidence of positive change in students' perceptions of technology in learning. The analysis examines data before and after intervention for

three key variables: the role of online tools in providing personalized learning experience, impact of technology on learners' engagement and motivation, and the necessity of technology being a part of student learning outcome. It states whether the intervention had made a significant change in the students' response. The test outcomes showed that all three variables showed statistically significant improvement after intervention as indicated by Z-values and *p*-values.

Table 3. Test Statistics for Wilcoxon Signed-Rank Test (Pre and Post-test Comparison of the Experimental Group).

	Online Tools Provide a Personalized Learning Experience.	**Technology Have Enhanced My Engagement and Motivation in Vocabulary Learning.**	**Use of Technology Should be Part of Student Learning Outcomes.**
Z	−3.035	−2.755	−3.218
Asymp. Sig. (2-tailed)	0.002	0.006	0.001

In the first variable, Z = −3.035 with a *p*-value of 0.002 indicating a positive shift in learners' viewpoint. A negative Z-value along with a *p*-value below the conventional criterion of 0.05 states that students recognised the potential of using technological tools to offer personalized learning experience. This highlights how digital tools helps the learners to have their own learning pace, style and preference. In the second variable, Z = −2.755, *p* = 0.006 denoting that the intervention had a significant effect among the learners. The negative Z-value and *p*-value < 0.05 suggests that technology can enhance students' engagement and motivation efficiently.

The third variable have Z-value of −3.218 and *p* = 0.001, highlighting it to be highly significant in terms of positive perception. In comparison to other variables, this has the lowest value indicating the intervention to be more effective. It suggests that digital tools should be incorporated into educational framework. On the whole, the results provide strong evidence that learners are in support towards using ICT tools in learning process as it has significantly improved their vocabulary acquisition.

5.3. Mann-Whitney U Test

The Mann-Whitney U Test is a non-parametric statistical test used to compare two independent groups as shown in **Table 4**. The post-test data of both control group and experimental group was compared to know how significantly the intervention was effective. It compared the data of three variables: the role of online tools in providing personalized learning experience, impact of technology on learners' engagement and motivation, and the necessity of technology being a part of student learning outcome.

Table 4. Mann-Whitney U Test Comparing Post-Intervention Data of Control and Experimental Groups.

Variable	**Control Group Mean Rank**	**Experimental Group Mean Rank**	**Mann-Whitney U**	**Z**	**Asymp. Sig. (2-Tailed)**
Online tools provide a personalized learning experience.	31.09	43.91	447.5	−2.944	0.003
Technology have enhanced my engagement and motivation in vocabulary learning.	30.72	44.28	433.5	−2.957	0.003
Use of technology should be part of student learning outcomes.	32.28	42.72	491.5	−2.278	0.023

For personalized learning using technology, the experimental group had a mean rank of 43.91 compared to control group's 31.09 with U = 447.5, Z = −2.944 and *p*-value of 0.003 demonstrates that students exposed to technological tools can effectively tailor their learning according to their needs. In terms of engagement and motivation, the mean rank of experimental group was 44.28 which is higher than control group's mean rank of 30.72 with U = 433.5, Z = −2.957 and *p* = 0.003 which highlights that digital tools and platforms enhance learners' engagement and motiva-

tion. Moreover, the belief that technology should be part of learning outcome was stronger after intervention. The mean rank of post-test was 42.72 which is high in comparison to the mean rank of control group. It has the values of $U = 433.5$, $Z = -2.957$ and $p = 0.003$. Altogether, the significant differences confirms that usage of ICT tools has positively impacted the learners' learning environment, engagement and perception.

6. Findings

The findings of this research indicate that the usage of TED Talks to acquire vocabulary is more effective than the traditional teaching method. The experimental group possessed a significant improvement in vocabulary retention in comparison to the control group. Moreover, learners exposed to TED Talks were found to be more engaged and motivated as the dynamic features fostered an immersive learning environment. Additionally, the usage of authentic language in TED Talks enhanced contextual understanding, making vocabulary learning more spontaneous and applicable to real-world scenarios. The TED Talks incorporated CLIL approach helped in the enhancement of both vocabulary acquisition as well as subject content compared to the traditional CLIL approach. The use of digital tools also increased learners' confidence in utilizing ICT for academic purposes. In addition, the combination of language learning and subject content encouraged the learners to make deeper analyses, which further improved their critical thinking skills. Lastly, the inclusion of online tools has provided a personalized learning environment for the learners as they can access it at their own pace and convenience.

The study exhibits that integrating TED Talks with the CLIL approach has significantly improved ESL learners' vocabulary acquisition. It also revealed that the reciprocal relationship between TED Talks and vocabulary enhancement can be tracked using quantitative methodology. The research contributes to understanding how digital tools support vocabulary learning through video-based content. The study is in favour of the argument that use of technological tools improves students' engagement and motivation. The usage of authentic language and real-world examples in TED Talk videos enhanced contextual understanding, making the process of vocabulary acquisition more sponta-

neous.

7. Discussion

The results of this research indicate that including TED Talks into the CLIL methodology substantially enhances ESL learners' vocabulary learning, engagement, and motivation in comparison to the conventional CLIL technique. The experimental group's superior post-test results indicate that exposure to real, multimodal material improved vocabulary recall and contextual comprehension. This is in line with what Schmitt (2008) and Alqahtani (2015) said, that vocabulary is the basis of language competency and needs meaningful, contextual learning to be learned [2,5], which posited that mobile and ICT-based methodologies enhance vocabulary acquisition by making it more interactive, portable, and contextually relevant [23]. Nguyen and Boers (2018) found that TED Talks, when combined with summarization activities, enhance vocabulary acquisition [17]. This research corroborates their findings, demonstrating that TED Talks facilitated not just vocabulary learning but also meaningful application in academic situations.

The findings also suggest that technology-enhanced CLIL offers a more individualized educational experience [24]. This result corroborates the assertions of Marsh (2002) and Coyle (2008), who emphasized CLIL's dual function in promoting both subject knowledge and language acquisition [8]. This research used TED Talks to provide genuine and real-world situations, facilitating simultaneous engagement with topic information and new language for learners [8,9].

From an educational point of view, the research shows how important it is to use real-world materials in language training. TED Talks, which are accessible for free all around the globe, not only expose people to other dialects and ways of speaking, but they also make people think critically about real-world issues. Combining CLIL with TED Talks improves higher-order thinking abilities, cultural awareness, and learner independence, which makes it a good model for language schools in the 21st century. Nonetheless, the findings must also be evaluated in the context of the study's limitations. The limited study size, brief intervention duration, and emphasis on female participants constrain the applicability of the results. Furthermore, disparities in the difficulty of TED Talk material may have impacted under-

standing and language acquisition.

This study contributes to the growing body of research supporting the role of ICT in language education by offering evidence that authentic, technology-driven tools can complement traditional methods and make vocabulary learning more relevant, motivating, and sustainable.

8. Pedagogical Implications

The findings suggest that TED Talks can be integrated into ESL classrooms not only as motivational tools but as structured resources for skill development. To maximize their impact, the following guidelines are recommended:

1. Careful selection of talks – Teachers should consider learners' proficiency levels (e.g., CEFR B1–B2), thematic relevance, and the variety of English accents when choosing TED Talks.

2. Transcript-based vocabulary work – Extracting frequent and pedagogically useful words from talk transcripts ensures that vocabulary development is tied directly to the listening material.

3. Scaffolded viewing – Providing opportunities for repeated viewing (first without subtitles, then with subtitles) supports both listening comprehension and vocabulary retention.

4. Interactive tasks – post-viewing activities such as group discussions, debates, or reflective writing allow learners to apply new vocabulary and engage critically with the talk's ideas.

5. Cultural awareness – Teachers can draw learners' attention to how speakers' backgrounds influence accent, style, and perspectives, thereby fostering intercultural competence.

These implications show how TED Talks can be systematically embedded into a CLIL-based curriculum to enhance not only motivation but also language proficiency and higher-order thinking skills.

9. Conclusions

The study had few limitations and the first is that the research was conducted using limited number of participants, which restricts the generalizability of the study. It also lacked qualitative component since the study relied only on quantitative methodology. Moreover, the intervention period was short focusing on immediate vocabulary enrichment rather than long-term retention. The research only focused female perspective and also lacked other discipline insights. Furthermore, the difficulty level of language used in the TED Talks varied, potentially affecting learners' comprehension.

The future studies may explore the long-term impact of a TED Talks-integrated CLIL approach on vocabulary retention. The research could also be conducted with large sample size from different disciplines, as a broader range of participants would affect the results more positively. Additionally, a comparative study between TED Talks and other ICT tools can be undertaken to analyse which is more efficient in terms of vocabulary acquisition. Future research with the same study could be done for both male and female to assess the effectiveness authentically. Lastly, a study could be conducted to enhance other language skills apart from vocabulary acquisition.

The research highlighted that integration of TED Talks as a digital tool through CLIL approach has effective enhanced vocabulary acquisition among ESL learners. The study investigated the connection between usage of TED Talk videos as a teaching aid and vocabulary development, demonstrating a vital impact on learners' vocabulary retention, motivation, engagement and personalized learning environment. Through the analysis of the quantitative data, it is proved that integrating TED Talks with CLIL approach enhances contextual understanding making vocabulary enhancement more effective and relevant.

The analysis of pre-test and post-test data revealed that students in experimental group who were exposed to intervention showed significant improvement compared to control group. The findings demonstrates that vocabulary acquisition should not be limited to one way learning but rather carried out through multimodal exposure, enabling learners to develop both subject knowledge and language acquisition simultaneously. The interpretation of data further revealed that ESL learners had a positive perception towards technology assisted language learning.

Author Contributions

Conceptualization, A.G., A.B.R., P.K.; methodology, A.G.; software, P.K.; validation, A.G. and P.K.; formal anal-

Institutional Review Board Statement

Not applicable.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

Data will be available on request.

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Conflicts of Interest

The authors declare no conflict of interest.

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