

Integrating Instant Messaging (IM) App in an ESL Classroom to Develop Academic Vocabulary at the Tertiary Level

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Abstract

The present study examines the effect of an instant messaging (IM) app, WhatsApp-based academic vocabulary instruction on 12 MTech (Computer Science Engineering) students in an ESL classroom. They were given interventional academic vocabulary instruction using instructional materials developed by the researcher and the instructional method informed by the Cognitive Theory of Multimedia Learning (CTML) (Mayer, 2021; Mayer, 2022). The study adopted pre-test and post-test designs to see the effect of the intervention on overall academic vocabulary performance before and after the intervention. The research method employed for the study was primarily quantitative, along with some qualitative elements. The study was conducted for two weeks, during which the students were exposed to fifteen words per week via WhatsApp. The results show that integrating an Instant Messaging app, WhatsApp, into academic vocabulary instruction has positive effects on the participants' performance, highlighting WhatsApp's potential in the ESL context.

Keywords: Instant Messaging (IM) app, WhatsApp, academic vocabulary, MALL

Introduction

James Pearson (1991) maintains that increased vocabulary and spelling proficiency are essential for literary attainment as they are inevitable ingredients for reading, writing, and speaking competence. The current

boom in the field of technology has led to a paradigmatic shift from traditional face-to-face classroom teaching to electronic interfaces in ESL classrooms. Dror (2008) observes that students increasingly use technological advances to enhance their academic performance. Against this backdrop, the study assesses the impact of instant messaging applications on improving overall academic vocabulary performance. This quasi-experimental study was conducted among 12 MTech students from the CSE (Computer Science Engineering) stream. Although vocabulary proficiency is checked in terms of reception and production, the study focused on the receptive aspect of vocabulary learning. Secondary attention was also given to the production phase through guided production. Sensory word knowledge was analysed in terms of recall and recognition criteria.

Mobile Assisted Language Learning (MALL)

Mobile Assisted Language Learning (MALL), generally, falls into two categories with the focus either on the mobility of the learner or on the mobility of the portable devices. According to Sharples et al. (2005), MALL refers to the mobility of the learners who opportunistically expropriate whatever technology is at hand as they move between settings. The definition would include desktop computers, notebooks, netbooks, and notes, which are typically stationary, and access to them. On the contrary, Kukulska-Hulme and Shield (2008, 2013) restrict the notion of mobile learning to one handheld device that can support it. They define MALL as using mobile technologies in language learning, especially when device portability offers specific advantages. Devices include a range of MP3/MP4 players, smartphones, and personal digital assistants (PDAs). Palalas (2011) incorporates both aspects of mobility and defines MALL as the language learning process enabled by the learner's mobility and the portability of the handheld devices. The present study adopts the notion of MALL in Palalas (2011), where mobility of the technology, learner mobility, and learning mobility are considered.

Over the past decade, MALL has developed as a field in its own right, with an increasing number of researchers examining various mobile devices used inside and outside the context of language learning situations. This growing number of research studies in mobile language learning indicates the acceptance of mobile learning (m-learning) among the educational community (Aamri & Sulaiman, 2011; Corbeil & Corbeil,

2007; Gounder, 2011; Kim et al., 2006). Mobile learning is a future trend that facilitates lifelong education, where learning can be anywhere and everywhere (Khubyari, 2016). Vocabulary acquisition is the most frequent target in MALL (Burston, 2014), which indicates that using mobile devices to learn vocabulary has been found to be a successful application (Chang et al., 2013). Amid the available plethora of research in MALL, there lies the emerging trend of study where WhatsApp, an instant messaging (IM) app, is improvised in a language learning space to examine its positive learning outcomes for language teaching and learning. The present study is concerned with developing academic vocabulary by integrating WhatsApp, an IM app, as a learning tool.

Rationale and Background of the Study

WhatsApp is the most popular messenger application among college and university students (Jadhav et al., 2013). Research shows that many students are willing to use texts and instant messages as communication tools for academic purposes, as they are ideal for educational learning environments (Lauricella & Kay, 2013). Consequently, WhatsApp has become the 'communication portal' for social networking, rapidly changing how people communicate (Susilo, 2014). In such a naturalistic communicative space, language use is diverse, and it offers learners opportunities to draw upon their linguistic repertoires. Hence, the researcher strongly felt that a pedagogic intervention, such as the one conducted here, would provide the learners with insights into language used by them and aid them in developing an academic vocabulary that is important for academic literacy.

Empirical studies further support the pedagogical potential of WhatsApp. It is observed that using WhatsApp in learning will likely enhance students' performance in basic subjects (Raman et al., 2014). Research studies in the Southeast and Middle East Asian countries have demonstrated the positive impact of WhatsApp on student language learning performance. One reason could be students' ability to learn at their own pace. Another possible explanation is that WhatsApp might have piqued curiosity among students, as this radically different teaching mode might have motivated them to perform better in their tasks. However, while such studies offer valuable insights, their findings may not necessarily apply to the Indian context. In India, institutional policies often prohibit students from carrying mobile phones into classrooms, and teachers seldom integrate WhatsApp into formal language teaching and

learning practices. Despite these constraints, tertiary students outside the classroom popularly use it. This suggests an untapped potential for its pedagogical use in ESL classrooms. Researchers have more recently observed some flexibility, presumably an offshoot of the pandemic lockdowns, and people seem to be warming up to the use of mobile phones as a learning platform.

Additionally, India's multicultural landscape presents unique challenges to language teaching and learning. These complexities make it essential to explore innovative, context-sensitive approaches that leverage platforms which students are already using. The researcher thus finds it crucial to explore the use of WhatsApp in an educational context among university students in India. Although studies have documented teachers' perceptions of the selection of ICT (Information and Communication Technology) instruments at tertiary levels and the effectiveness of CALL (Computer Aided Language Learning), there remains a gap in understanding how Indian university students perceive and utilise WhatsApp as a learning tool. Investigating this gap is especially significant because students constitute a large segment of social media users, yet their adoption of WhatsApp as a learning tool in the Indian context remains underexplored. Against this backdrop, the present study explores the pedagogical potential of WhatsApp as a learning tool among 12 MTech students in one of the universities in India.

Why Academic Vocabulary?

In any domain of academia, all students are expected to adhere strictly to a formal writing style. One of the crucial aspects of a formal writing style is learning how to use academic vocabulary. Academic vocabulary is crucial for text comprehension at an academic level, as the lack of knowledge of these words will severely impair academic literacy (Snow, 2011). According to Marzano and Pickering (2005), providing direct instruction in these terms is the most decisive action a teacher can take to ensure that students have the academic background knowledge to understand the content they will encounter. When students understand these terms, it is easier for them to navigate what they read and hear in class. It is not therefore surprising that recent research has investigated the potential of ICT tools in vocabulary teaching-learning. Lu (2008), in her research *Effectiveness of Vocabulary Learning Via Mobile Phone*, explores the possibilities of vocabulary learning through Short Message

Service (SMS). During her research, thirty high school students were randomly distributed into two groups and given two sets of English words on paper or through SMS for two weeks. She concludes her paper by observing that students generally hold a positive attitude towards learning vocabulary via mobile phones. Another cardinal work by Thornton and Houser (2005) provides valuable insights into vocabulary learning through electronic mail (email). Forty-four Japanese students were taken as a sample group, and the experiment produced positive outcomes. These studies point to the compatibility and effectiveness of mobile phones in vocabulary learning. WhatsApp and its enormous possibilities are scantily focused on in the Indian context; the study has tried to see how the App can enhance overall vocabulary proficiency and help retain words that have been learnt.

Purpose of the Study

The primary purpose of this study was to investigate the effectiveness of WhatsApp as a learning tool in academic vocabulary learning at the tertiary level in an Indian educational setting. Many studies have emphasised the benefits of WhatsApp mobile learning, as it has the potential to enhance students' learning and thus improve students' experiences with technology (Apeanti & Danso, 2013). Policymakers, school administrators, educators, and learners are urged to consider the required aspects of integrating WhatsApp into education systems (Mikre, 2011). The scope of the findings from the present study is limited to tertiary-level students in the Indian context. Their applicability in other settings requires further research. The present study only looks at the possible efficacy of using an instant messaging application like WhatsApp outside the classroom to enhance vocabulary learning among tertiary learners such as Master's students in the Indian context.

Research Questions:

The following research questions guide the present study:

1. Does learning academic vocabulary through WhatsApp improve students' overall academic vocabulary performance?
2. What impact does learning academic vocabulary through WhatsApp have on receptive and production word knowledge of the overall performance?

3. Does learning academic vocabulary through WhatsApp positively affect the retention of the learned vocabulary?

Operational Definitions of Overall Performance

In the present study, the development of vocabulary knowledge is measured in terms of three aspects: receptive recall, receptive recognition, and productive recall. The overall performance across these three aspects is referred to as 'overall performance'.

Methodology

Research Design

The primary objective of the study was to examine the effectiveness of Instant Messaging (IM), WhatsApp, in learning academic vocabulary. Hence, a quasi-experimental pre-test and post-test (post-test and delayed post-test) design was considered suitable for the present study.

Participants of the Study

The participants were a group final-year engineering postgraduate MTech students in their fourth semester from the School of Computer and Information Sciences, University of Hyderabad, Telangana (n=12). They studied English as part of a communication skills course in their third semester. All the participants were from a semi-urban background. Among the 12 participants, three had studied in a regional medium, Telugu, up to intermediate level, while the rest had studied in English. In both cases, English was taught to them as a subject to fulfil their course requirements up to their 10+2 standard. The participants comprised males and females aged 22 to 28 years. Gender was considered an extraneous variable for the present study. There were six Telugu speakers, four Hindi speakers, and one Gujarati and Assamese speaker each. L1 was also considered an extraneous variable for the present study.

Procedure

The sample was given an interventional treatment, and their pre-test and post-test (post-test and delayed post-test) performance were compared later. Data gathered from the pre-test and post-test were analysed to observe the effect of the intervention on vocabulary learning. The analysis of the delayed post-test further followed this to examine the long-term effect of WhatsApp-based academic vocabulary learning on vocabulary retention.

Materials

To collect the required data, the researcher employed several materials in this study:

1. The researcher-made test of recognition: It consisted of 20 items of multiple-choice questions (10 each for receptive recall and receptive recognition). The test of recognition comprised two sections (A & B). To create section A, ten items of multiple questions, the researcher adopted the principles of *the Vocabulary Size Test* in which the words to be tested are presented in a non-defining context. The test-takers are provided with three options in which the test maker cum the researcher used high-frequency words for the definitions or synonyms among the possible answers so that the evaluation of understanding of the target words would not be affected by the understanding of the distracters.

Example: During the economic blockade in Manipur, petrol prices fluctuate between Rs. 280 and 300 a litre.

Here, *fluctuate* means:

- a. An anomaly of the petrol price during the economic blockade.
- b. Persistence of the petrol price during the economic blockade.
- c. Retention of the petrol price during the economic blockade.

Section B comprised ten gap-fill items with three options. Students were expected to recognise the words from the clues and the three options and fill the gap with words appropriate to the given sentential context.

Example: "Conversation analysts have found that women tend to be..... in conversations, while men tend to be competitive.

a. contributor b. dominant c. cooperative"

2. The researcher-made production test of the academic words: It was modelled on *The Productive Vocabulary Levels Test* (Nation, 2008). It comprised a closed test of guided production. It was ten gap-fill type test items. Guided production test questions consisted of a sentence with guided clues about the missing word. The headwords of the words were provided to avoid prompting words that would fit in the context but are not being tested. This test expected students to recall the words most appropriate to the context in the sentence and the correct form of the word to be used. It required them to recall the word families of the words learned during the intervention. Section C tested the use and correct form of the target word.

Example: I seem to have.....(accumulate) many books over two years.

Results and Discussion:

1. The Pre- and Post-Test Scores

The pre and post-test scores were analysed using paired samples t-test to check the overall academic vocabulary performance. A comparison of the total scores achieved in the pre and post-tests shows significant overall improvement (Table 1).

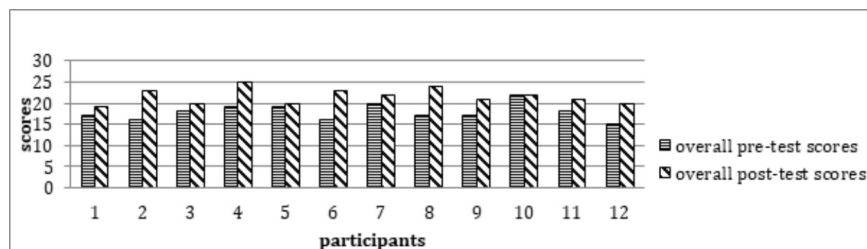
Table 1. Comparison of Pre-test and Post-test Scores

	N	Mean	SD	t statistic	Significance p<0.05
Pre-test score	12	17.8	2.51	-5.277	0.000
Post-test score	12	21.5	1.82		

As Table 1 indicates, the mean score increased by 3.70 in the pre-and post-test scores. This difference with a t-value of -5.277 was significant at 0.000, indicating a high significance. It can be inferred from the highly significant p-value (0.000) that the intervention significantly affects the overall academic vocabulary performance of the participants. The overall academic vocabulary performance was scored against a maximum score of 30. The mean of the pre-test performance was 17.8, and the mean of the post-test performance was 21.5. An approximate growth of 72.2 per cent in performance was achieved with a significant (p=0.000) at p<0.05.

Given below is a bar graph of Table 1 that represents participants' overall performance in pre and post-tests.

Figure 1. Comparison of Pre-test and Post-test Scores



2. Impact on the Receptive and Production Word Knowledge

In order to find out the impact of learning academic vocabulary through WhatsApp on receptive and production word knowledge, the data

gathered from pre- and post-tests were analysed quantitatively in terms of receptive recall, receptive recognition, and recall production. Table 2 shows the analysis of the scores of all three aspects of performance in the pre and post-test.

Table 2. Comparison of Three Aspects of Scores of Pre-test and Post-test

	M		SD		T	Significance p<0.05
	Pre-test	Post-test	Pre-test	Post-test		
Receptive recall	6.25	7.60	0.96	0.98	-3.957	.002
Receptive recognition	7.16	8.75	1.11	0.86	-5.062	.000
Recall production (guided production)	4.41	5.33	0.99	1.37	-2.303	.042

As Table 2 indicates, all the aspects were found to be significantly improved in performance from pre- to post-test. The t-test results show that all the aspects of assessment at a highly significant level $p < 0.05$ indicated a positive effect of the intervention on all the aspects of assessment. Receptive recognition with a t-value of -5.062 was found to have improved more than receptive recall, and production recalls with t-values of -3.957 and -2.303. The t-value for production recall was found to be the lowest -2.33. These results indicate that integrating WhatsApp into instruction can improve academic vocabulary performance.

3. Impact on Retention

To examine if learning vocabulary through WhatsApp positively affects the retention of the learned vocabulary, the overall performance of the pre, post, and delayed post-tests was observed. Data from pre-test, post-test, and delayed post-tests were analysed quantitatively for the overall performance. Firstly, data gathered from post-test and delayed post-tests were analysed quantitatively, followed by the quantitative analysis of pre and delayed post-tests.

Paired Sample t-test of post-score and delayed post-score**Table 3.** *Comparison Post-test and Delayed Post-test Scores*

	N	Mean	SD	t statistic	Significance p<0.05
Post-test score	12	21.66	1.82	3.800	.003
Delayed Post-test score	12	20.08	1.50		

Table 3 indicates that the mean score decreased by 1.58 in the total scores from the post-test to the delayed post-test. This difference with a t-value of 3.800 was significant at .003, indicating a high significance. It can be inferred from the highly significant p-value (.003) that there was a decrement in participants' overall performance in the delayed post-test. The mean of the post-test performance was 21.66, and the mean of the delayed post-test performance was 20.08. An approximate decrease of 8.06 per cent (72.2 per cent - 64.16 per cent) in performance occurred with a significant ($p=.003$) at $p<0.05$. The significant decrease in participants' overall performance can be attributed to a delayed post-test administered two weeks after intervention.

Paired Sample t-test of pre-test score and delayed post-test score**Table 4:** *Comparison Pre-test and Delayed Post-test Scores*

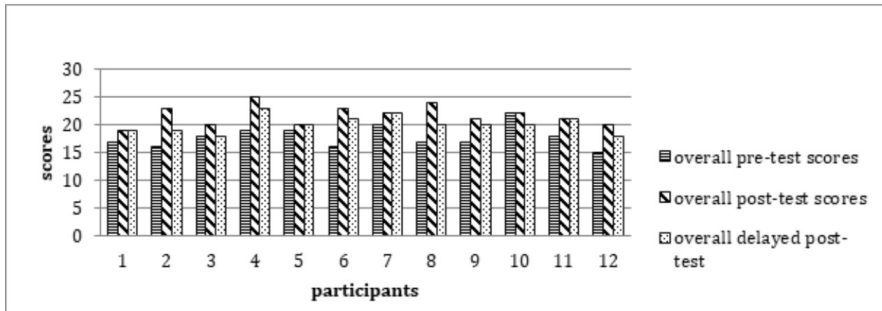
	N	Mean	SD	t statistic	Significance p<0.05
Pre-test score	12	17.83	1.94	-4.180	.002
Delayed post-test score	12	20.08	1.50		

Table 4 shows a one-sample dependent t-test for the participants. It was run to investigate whether there was a difference between its pre-test and delayed post-test scores. The result shows that the participants' delayed post-test scores were significantly (statistically) greater with p-value ($p=0.02$), mean=20.08, and SD=1.50 than the pre-test score of the participants' mean=17.83, SD=1.94. This indicates a difference between the means of pre-test scores and the delayed post-test performance of the participants. The difference was statistically significant, with a p-value of $p=0.02$. It can be inferred from the statistically significant p-value (.003) that there was an increment in participants' overall performance

in the delayed post-test compared to the pre-test performance. An approximate increase of 4.72 per cent (64.16 per cent - 59.44 per cent) in performance was achieved with a significant ($p=.003$) at $p<0.05$.

Given below is bar graph that represents the comparative performance of participants' overall performance in pre-, post and delayed post-test.

Figure 2. Comparison of Overall Pre-test, Post-test, and Delayed Post-Test Scores



A close quantitative analysis of the statistical data has prompted the researcher to reach certain conclusions regarding the results of the tests (pre, post, and delayed post-test). Participants were observed to perform better in delayed post-tests than in their pre-tests. However, they showed their highest competence in the post-test, though their performance slightly decreased in the delayed post-test. However, considering the statistical difference in means of pre-test, post-test, and delay post-test performance of the participants, it can be concluded that the learned target words were retained in the participants to a substantial degree.

Conclusion

As the findings indicate, the Instant Messaging app, WhatsApp, harnessed for vocabulary teaching and learning, is an effective tool to increase students' vocabulary learning, retention, retrieval, and motivation for vocabulary learning. This enables teachers to extend learning beyond the formal classroom and makes language learning significantly learner-centred. Thus, the students had a fair number of opportunities to observe their progress, fostering autonomy. Teachers can create weekly WhatsApp word lists with short quizzes to reinforce learning outside the classroom. It encourages students to engage regularly with target words. It helps them internalise academic

vocabulary through repeated, meaningful exposure in a familiar digital space. The findings, while significant, are based on a small sample size of 12 MTEch students. Therefore, a larger number of academic words, a larger sample size, implicit instruction of academic vocabulary, longer intervention, similar studies in different contexts with students from different disciplines are recommended.

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