Interaction Analysis of WhatsApp Application Integration in M-Learning

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Abstract

Interaction analysis (IA) describes and analyzes an instructor's verbal interaction with a student(s). The use of interaction analysis has aided in the monitoring of teacher verbal behavior. WhatsApp is also extensively used in language learning, and it is the most widely used program for this function. WhatsApp Interaction was investigated using Language Related Episodes (LRE) and Interaction Analysis to utilize WhatsApp. Eight pairs of pupils were formed from the sampled students. The 16 students were all enrolled in the public university's PYP section. The investigation took place for four weeks, for three days for the class, and the sampled students collaborated in pairs via WhatsApp. Pearson's correlation method was used to demonstrate the association between two or more groups without any modification. Findings indicated that there was a negative correlation between the time spent on WhatsApp and vocabulary scores.

Keywords

Interaction Analysis, WhatsApp, LREs, Vocabulary.

Introduction

Teachers who have integrated technology into their lessons can instruct students in the twenty-first century. The employment of technologies in a daily language classroom and education management is technology adoption (Al-Emran et al., 2016). When technology incorporation is at its peak, it is natural for a student or an educator to continue to utilize a digital tool without even thinking about it. (Sarkar et al., 2017). In education, the growing diversity of online learning tools, including webinars, webcams, virtual classrooms, M-
Learning, social media, and discussion forums, is driven by formal classes (AlKhunzain & Khan, 2021).

According to recent research, it is estimated that there are approximately twenty million learners are now pursuing online education (Wang et al., 2021). In most teaching practices, virtual platforms favor traditional classroom settings for instructors and learners. The early days of classroom conversation analysis originated when researchers discovered discrepancies between the instructors' intended message and the students' interpretations (Barraja-Rohan, 2011). Pertaining the time and space distance between the students and teachers in E-Learning, there is a gap between the phases of initial development, feedback, responses, and inquiry in adaptive educational experiences, the same mismatches are manifested today as impediments in distance learning between the instructors' actual meaning in queries and the students' replies (Grossen, 2010). Thus the integration of E-learning or M-learning needs careful planning and consideration before the implementation. This becomes more essential when instructors employ social media apps in M-learning settings.

**Literature Review**

The field of linguistics and psychology coincide because language acquisition occurs through interaction with others (Larsen-Freeman, 2018). Many studies have shown that in a classroom context, interaction is essential, as it is considered that languages can be best learned and delivered by interacting (Spada & Tomita, 2010). Since interaction helps with second language (L2) acquisition, learning is enhanced by engaging in different practices, such as reinforcing concepts, actively communicating, and offering more essential details to guarantee that one's thoughts and messages are understood (Tuan & Nhu, 2010).

There are several ways that we might create incentives for L 2 learners to engage with each other. One way is through task-based education. Students utilize language to complete tasks rather than acquire specific language objects in task-based teaching (Ellis, 2013). The situation is such that functions take the place of language and are employed as a stimulant for developing discourse. There is the perception that their ability to alter engagement and the negotiation procedure for interpretation may be achieved through them (Gilakjani & Ahmadi, 2011). Many research studies (Purarjomandlangrudi et al., 2016; Tsang, 2017; Vlachopoulos & Makri, 2019) have proven that tasks allow learners to engage in interpersonal interaction. Importance is placed on functions to deal with group communication activities that involve students getting their hands in working as groups.
According to the researchers, communication tasks allow students to negotiate meaning, which is thought to be beneficial for L2 in general (Nakatani, 2010).

In previous studies, interactions (Powers & Fuller, 2001), function of interaction (Moskowitz, 1976). The types of experience (Kanuka, 2011), the attributes of interactions within a particular website (Millard, 2010), and were used to guide their assessment of discourse in virtual environments (Ding & Zhu, 2003). But relatively few studies have looked at features of interactions, including questions and responses, or the connection between given query and respondents' participation in conversations taking place in an online setting, particularly in M-Learning.

As smartphones became more ubiquitous and online communication among individuals became more socialized, an increasing number of online forums are being developed for various functions (Khan et al., 2018; Shahbaz & Khan, 2017). Sometimes, distinct participants or administrators form specialized networks for the aim of facilitating certain learning activities. Various educational activities such as classes, conferences, workshops, and other events are carried out in an online environment in educational settings (Alexander & Boud, 2018). So when the framework of interaction among educators shifts, it is evident that the conversation will shift in the contemporary paradigm to reflect the change in the context. They invent new methods for establishing interactions, like background music, hypertext, and emojis, which impact interpretation of the conversation. So as the range of online venues for virtual education grows, so has the complexity of processes of virtual interaction analysis in educational situations.

González-Lloret (2011) describes the computer-mediated conversation as a sort of communication among human beings using networked computers to accomplish its goals. Velasco-Álvarez et al. (2013) assert that the Virtual Asynchronous Environment (VAE), which is another type of computer-mediated communication, can be characterized as a web system of education in which the instructor presents clear concepts, passages, and practices on the available framework and the learner fulfills the required tasks at their tempo, utilizing the 'anytime/anywhere' education system. (Bard et al., 2000) explored conversation functions through synchronous and asynchronous talks, concluding that the conversation elements present in various modes of online communication are distinct and can be used for a variety of instructional functions. The observed discourse activities varied from those present in concurrent talks. There are similarities in communication features between asynchronous discussions and the discussion assessment sequences used in traditional language classes. Donnelly (2010) conducted another study. He analyzed the interactions in an online classroom for teaching sessions and recommended that further
research be conducted on the analysis of L 2 instructors' discourse. Furthermore, it is asserted that if instructors employed computer-mediated spaces regularly, the quality of their interventions would be improved.

WhatsApp is the most commonly used instant messaging application available on nearly all mobile devices and operating systems (Aburezeq & Ishtaiwa, 2013; Khan et al., 2021). Many researchers have used this application as mobile-assisted language learning (MALL) or M-learning context to foster language development. It has become an essential part of daily life and gaining popularity around the globe. WhatsApp, a MALL program, has continued to grow notably in Saudi Arabia because it has developed into one of the most common modes of communication (Alshammari et al., 2017).

WhatsApp enables users to transmit and receive messages for free and provides various other features, such as sending multiple sorts of material, such as images and videos (Amelia, 2020). Additionally, the function of recording and sending voice messages, one can transmit videos and audio to others. Mwakapina et al. (2016) say that WhatsApp's surprisingly simple operating system has evolved into prominence due to its availability to most smartphone users of various ages and origins. Numerous research has established WhatsApp's potential usefulness in academic contexts and language acquisition (Kaid Mohammed Ali & Rashad Ali Bin-Hady, 2019; Nuraeni & Nurmalia, 2020; Tragant et al., 2020). Shahbaz and Khan (2017) demonstrated that WhatsApp could facilitate various types of engagement: student–student, student–content, and student–instructor.

Furthermore, WhatsApp is highly successful at improving English language students' efficiency and proficiency and minimizing their anxiety (Akkara et al., 2020). However, web access and a lack of attention on users were two of the most significant obstacles connected with these kinds of messaging apps. Moreover, students reported that group discourse added to their burden. Alshammari et al. (2017) discovered that WhatsApp contributed to the promotion of independent and group learning, the positioning of teachers as facilitators, and the organization of learning communities. WhatsApp has facilitated the growth of unstructured, anytime-anywhere education, which stringent norms could only accompany. These findings corroborate Gon and Rawekar (2017) assertion that instant messaging using MALL programs (including WhatsApp) can be beneficial. For the use of technology, it is operative for successful inclusion M-learning interaction patterns should be examined.

Interaction analysis is a technique for quantifying the beneficial and detrimental effects of teacher behaviors. More precisely, "the key element of this categorization is its study of
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initiation and reaction, which is a feature of inter-individual interaction." The Flanders approach then gets a chance to categorize both teacher behaviors and students' learning distinct groups, including instructor conversation, (2) student conversation, which are subsequently classified as response and initiation, and silence or bewilderment (Amatari, 2015).

The Flanders method is intended to be used by instructors as a tool for analyzing their instruction in a self-appraisal approach (Freiberg, 1981). It is an easy method to understand and use. A typical instructor can acquire pertinent data and report the performance independently, making this an authentic self-system. While trying to do a self-appraisal, the ideal approach is to select the instructional component that needs to be reviewed, define the purpose of the session, and then use a video or audio recording in various classroom moments. An instructor can demonstrate to his students that his thoughts are accepted and have significance since students are encouraged to share their feelings and experiences (Blaine, 2019). Students learn that their thoughts and feelings are an extension of themselves when they believe that their thoughts have value. Once they understand that, they assume they may reach the utility of the application.

The term "Language Related Episodes" (LREs) refers to "Language Related Episodes" (LREs), which are classified as "specific instances of collaborative dialogue" (Basterrechea & Mayo, 2013). LREs are interval or intervals which facilitates learners to focus concentrate on the form. M. d. P. G. Mayo and Azkarai (2016) asserts that "all engagement in which learners bring attention to form" is when "meaningful communication" is taken into account, and also situations in which "form" is isolated from this interaction, simply revolving around the concept of type. Learners, during the occurrence of LREs, emphasize form, and such circumstances are examined in the interaction framework. Learners' LREs are associated with the mechanism of language learning. (Alwaleedi, 2017; Amirkhiz et al., 2013; Ismail & Samad, 2010). Garcia Mayo (2002) provides an example of the sort of association alleged to occur among form-focused assignments and LREs. She performed five form-focused tasks as part of her study. Learners had been expected to work on the form while doing their projects, which turned out to be true. But she found that even while all the activities were centered on form, some activities nevertheless allowed her to concentrate on form more than others. Hence, she found that the different activities used to stimulate discussion and consideration of language usage had an effect on the levels and varieties of LREs learners could produce.
Other than form-focused tasks, researchers have examined a variety of additional task elements and their associations with student interactions and LRE creation. For instance, Park (2015) studied how they used communication activities to enhance fluency. These tasks comprised one- or two-way inquiry-based tasks, role-playing, and conversation activities. The present study attempts to investigate the suitability of the WhatsApp application for learning vocabulary for speaking proficiency.

Methodology

Interaction analysis is a system used to describe and analyze a teacher and a pupil(s). Interaction analysis has helped in quantifying teacher verbal behavior. This study aims to investigate whether WhatsApp Interaction influences the outcome of Language Learning Episodes (LRE) by adopting Interaction Analysis. SPSS was the statistical analysis tool used in the analysis of data in this study.

The students in the English Vocabulary class were targeted as the population of choice in this study. The entire class was made up of 60 students. A simple random sampling was the sampling method for including part of the target population in this study. A total of 18 students were randomly sampled from the English Vocabulary class. The sampled students were paired up to form 9 pairs. All the 18 students were enrolled in the English Vocabulary class, which they attended, with the rest of the (60 students) twice per week during the study period. The research took place on three days for the class over five weeks, and the sampled students worked in pairs via WhatsApp. The study was based on a previous study carried out by Dobao (2014) focused on vocabulary learning by testing using LREs results. The WhatsApp interaction was based on the survey by Basterrechea and Mayo (2013) on Language-related episodes during collaborative tasks.

Procedure

Data collection began in the third week of learning after the students were already familiar with one another. The general aim of the study was explained to the sampled students at the outset of the study. The data collection took place in 10 sessions and lasted three weeks. Working in pairs, the sampled students were asked to perform vocabulary tasks in each session, and each session was not more than 30 minutes long. The LRES tasks were categorized into pre-vocabulary tasks and post-vocabulary. Verbal interaction was recorded for each pair of students, and scores were awarded accordingly for analysis purposes. The scores were awarded based on the actual scores of the vocabulary tests, both pretest and post-test, and converting the actual scores into a percentage.
Result and Discussion

For each of the three variables considered in this study, the descriptive statistics were carried out and included the number of entries (N=9, for the number of pairs), minimum value, maximum value, mean, and standard deviations. From the values in the descriptive statistics table, it is evident that general increases the LREs scores from pre-vocabulary tests scores and post-vocabulary tests scores. This indicates that WhatsApp interaction had an effect by increasing the score. The stipulated WhatsApp interaction time was 300 minutes (30 minutes for each of the ten tasks). The minimum WhatsApp interaction time was 210 minutes, the maximum WhatsApp interaction time was 272 minutes, and the mean WhatsApp interaction time was 246.67 minutes. The minimum score in the pretest was 54, while the minimum score in the post-test was 74. The maximum score of the pretest was 64, while the maximum score of the post-test was 88. The mean score for the pretest was 65.78, while the mean score for the post-test was 74.67.

Table 1 Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whatsapp Interaction</td>
<td>9</td>
<td>210</td>
<td>272</td>
<td>246.67</td>
<td>21.301</td>
</tr>
<tr>
<td>Pretest</td>
<td>9</td>
<td>54</td>
<td>74</td>
<td>65.78</td>
<td>5.869</td>
</tr>
<tr>
<td>Posttest</td>
<td>9</td>
<td>64</td>
<td>88</td>
<td>74.67</td>
<td>7.874</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pearson's correlation method was used to show the relationship between two or more groups without manipulation. Pearson's correlation method is non-experimental and shows the relationship between what is happening versus adding a variable to determine if incorporated (Black, 1999). Pearson's correlation design is chosen as it is crucial in identifying the most vital relationships between the variables and factors without manipulation (Black, 2012). Pearson's correlation research identifies which variables and factors most strongly correlate with the outcome of what is being measured (Black, 2012). In Pearson's correlation, the values range between -1 and +1, with closer to -1 showing a strong inverse relationship, more relative to +1 showing substantial direct proportionality, and values closer to zero leading to little or no connection between the variables.

Table 2 Pearson's Correlations

<table>
<thead>
<tr>
<th></th>
<th>WhatsappInteraction</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>WhatsappInteraction</td>
<td>Pearson Correlation</td>
<td>-392</td>
<td>-.854**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.297</td>
<td>.003</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Pretest</td>
<td>Pearson Correlation</td>
<td>-.392</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.297</td>
<td>.140</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Posttest</td>
<td>Pearson Correlation</td>
<td>-.854**</td>
<td>.533</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.003</td>
<td>.140</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>

**, Correlation is significant at the 0.01 level (2-tailed).
Table 2 above of Pearson's correlation shows negative correlations between the WhatsApp interaction time and each pre-vocabulary test and post-vocabulary test. However, there was a weak negative correlation between WhatsApp interaction time and pre-vocabulary test of -0.392. At the same time, there was a strong negative correlation between WhatsApp interaction time and post-vocabulary tests of -0.854.

These results show that the WhatsApp platform can be used successfully to teach vocabulary to students (see table 1). However, longer WhatsApp interaction time negatively affects the students, thus affecting the score as revealed by the Pearson's correlation (see table 2). The recorded WhatsApp interaction time and LRE scores are presented in table 3.

<table>
<thead>
<tr>
<th>WhatsApp interaction time (in minutes)</th>
<th>Pre-Vocabulary Test (%)</th>
<th>Post-Vocabulary Test (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>210.0</td>
<td>68.0</td>
<td>80.0</td>
</tr>
<tr>
<td>248.0</td>
<td>72.0</td>
<td>74.0</td>
</tr>
<tr>
<td>272.0</td>
<td>66.0</td>
<td>64.0</td>
</tr>
<tr>
<td>230.0</td>
<td>74.0</td>
<td>88.0</td>
</tr>
<tr>
<td>258.0</td>
<td>68.0</td>
<td>74.0</td>
</tr>
<tr>
<td>266.0</td>
<td>54.0</td>
<td>68.0</td>
</tr>
<tr>
<td>224.0</td>
<td>64.0</td>
<td>82.0</td>
</tr>
<tr>
<td>263.0</td>
<td>62.0</td>
<td>66.0</td>
</tr>
<tr>
<td>247.0</td>
<td>64.0</td>
<td>76.0</td>
</tr>
</tbody>
</table>

It is evident from the table that the minimum time spent on the WhatsApp interaction is 210, and the maximum time is 272. The results of pre and post-test depict that learners' achievement on vocabulary is significantly improved. It is also vital from the analysis that the interaction appears negative, which indicates the usage of the WhatsApp application for learning purposes.

Conclusion

The results demonstrate negative associations between the time spent on WhatsApp and the time spent on the pre-and post-vocabulary tests in each of the two phases of the study. A mild negative relationship between WhatsApp interaction time and the pre-vocabulary test was found (-0.392). In contrast, an extensive negative relationship between WhatsApp interaction time and the post-vocabulary test was found to exist (-0.854). These findings demonstrate that the WhatsApp messaging platform may successfully teach EFL vocabulary to students in various settings. WhatsApp can be viewed as a medium that students regularly utilize to produce and exchange information about social contact,
communication, and escape. Thus, these findings are consistent with the learning discourse, which has claimed that social media usage would aid EFL Learners in communicating and fostering engagement for developing language learning.

Furthermore, the analysis resulted in minimal differences in the psychological needs for competence and relatedness on autonomous motivation among the two cohorts in the post-test, which was not expected. This less substantial relationship could be mainly attributed to the procedural action taken in this research rather than to WhatsApp itself. The given materials were possibly not challenging the participants' abilities enough to leverage their optimal need of competence. The learners were also perhaps unable to respond to the tasks on WhatsApp appropriately because teachers did not provide feedback on their responses. This finding contradicts Karapanos et al. (2016). They claim that both competence and relatedness are among the most prominent needs in using WhatsApp, which can be demonstrated through various social practices. There is also a need for planning the LREs according to the level of the learning to estimate the real interaction among the students.

The teacher-student and student-student interactions are essential, especially when technology is involved (Khan et al., 2020). The efficacy of an instructor's instruction can be observed by classroom behavior and interaction. This is beneficial to conduct a systematic or objective assessment of the teacher's classroom interaction before integration social media or input method to enhance learning. This would be most prominent for M-learning for developing oral skills. Given the enormous human and time resources required for data collection and interpretation, it may be unrealistic to measure classroom interaction analysis of technological tools without outside support. The present study concludes that WhatsApp can effectively develop language skills for situations like the Covid-19 Pandemic.

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