Effect of WhatsApp on critique writing proficiency and perceptions toward learning

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Abstract: This article reports the results of an experimental study on the effectiveness of mobile technology (WhatsApp) in improving the critique writing skills of English as a Foreign Language learners and increasing their motivation for learning. The participants (n = 52) are Average-English proficient learners enrolled in two writing courses given at two English-medium universities. The study employed the factorial mixed methods pretest-posttest control group experimental design whereby two intact Sophomore Rhetoric classes were randomly assigned to control and experimental conditions. The experimental conditions included the integration of the WhatsApp application into the experimental group class, whereas participants in the control group were given the regular Sophomore Rhetoric instruction with no WhatsApp mediation. Descriptive statistics (means and standard deviations) and two Analysis of Covariance (ANCOVA) tests were used to address the questions raised in the study. Qualitative data using 2 questionnaires including open-ended question and quantitative data using Pretests and posttests were collected. Results indicated that the use of the WhatsApp mediation was more effective than the regular instruction in improving the critique writing proficiency of the participants and in increasing their motivation for learning.

ABOUT THE AUTHOR

Ghada Awada holds a PhD with the highest distinction in Applied Linguistics and Education from University Rovira i Virgili—Tarragona, Spain and a PhD in Public International Law and International Relations and Diplomacy with the highest distinction from Hautes Etudes Internationales ET Politiques—Paris with concentration in conflict resolution and crisis management. She is currently a Faculty and Consultant at the American University of Beirut. She is an expert in curriculum design and textbook writing. She also consulted as an expert in curriculum development, textbook writing, teacher education and development with institutions and schools in some Arab Middle Eastern countries. Awada designed professional and Teaching Certification programs focusing on the use of ICT technologies, providing inclusive environments to all learners, English language teaching and instructional strategies and techniques. Ghada Awada’s research interests focus on improving English as foreign language skills and on applications of technology in language teaching and learning.

PUBLIC INTEREST STATEMENT

University instructors teaching at Universities in Lebanon are urged to employ mobile technologies in classrooms in order to improve perceptions toward learning. This article reports the results of an experimental study on the effectiveness of mobile technology (WhatsApp) in improving the critique writing skills of English as a Foreign Language learners and increasing their motivation for learning. The experimental conditions included the integration of the WhatsApp application into the experimental group class, whereas participants in the control group were given the regular Sophomore Rhetoric instruction with no WhatsApp mediation. Results indicated that the use of the WhatsApp mediation was more effective than the regular instruction in improving the critique writing proficiency of the participants and in increasing their motivation for learning.
Subjects: Social Sciences; Education; Language & Literature

Keywords: active learning; collaboration; mLearning; mobile technologies; peer-to-peer interaction; student–faculty interaction

1. Introduction
The ICT tools in general and mobile tools in particular increase the social interactions, cooperation and collaboration among online students (Barhoumi & Rossi, 2013). Mobile educational technologies provide online learners with opportunities to communicate and exchange knowledge (Nelson, Christopher, & Mims, 2009). Some mobile tools help learners construct their learning through the tremendous mobile programs that can be easily installed (Pence, 2007). As such, the learner-centered learning forms the theoretical framework of Mobile learning since it allows learners to adjust the transfer and the access to knowledge to construct their skills and knowledge and to fulfill their educational objectives (Sharples, Lonsdale, Meek, Rudman, & Vavoula, 2007).

Mobile phones also expedite community-centered learning, which enables learners to assimilate learning the learners consider useful due to its significance in impacting the immediate social environment; mLearning fosters learning that is utilizable in achieving socio-economic goals and addressing health or family problems facing the surrounding community (Sharples et al., 2007; Wagner & Kozma, 2005). Bouhnik and Deshen (2014) defines WhatsApp as a smartphone application used for instant messaging. Recently, the application has become extremely popular. The most important benefits of the WhatsApp application is its ability to improve the communication within a group. WhatsApp communication improves the interaction between the teachers and the high school students. In a study investigating the effect of WhatsApp group in improving the interaction among high school learners, Bouhnik and Deshen (2014) asserted that the WhatsApp group the learners used improved interaction; promoted the social atmosphere; fostered dialog, increased sharing among learners and created an enjoyable atmosphere and a profound collaboration with peers.

1.1. Research questions
There is scarce or non-existent research investigating the effectiveness of using the WhatsApp in enhancing the critique writing skills and knowledge of the university students. As such, the researcher has decided to conduct a research project employing qualitative and quantitative methods. A questionnaire consisting of questions was used along with the two achievement tests have been structured and carried out with the learners while using the application in order to communicate with each other and with the instructor. Specifically, the study addressed the following hypotheses:

H1: There is a statistically significant difference between the control group and the experimental group at the 0.05 alpha levels regarding the critique writing test scores of students.

H2: There is a statistically significant difference between the control group and the experimental group at the 0.05 alpha levels regarding the attitudes of students toward learning.

(1) What is the relative effect of using the WhatsApp mediation in comparison with the standard critique writing instruction in improving the critique writing proficiency of EFL university learners?

(2) What is the relative effect of using the WhatsApp mediation in comparison with the standard critique writing instruction in improving the perceptions of EFL learners university toward critique writing?
2. Literature review

2.1. Theoretical framework

The study was framed within the theories of Active learning, Activity, Community Sharing and Learning Communities which posit that the collaboration promotes Learning. WhatsApp learning fosters the online community teaching and learning among learners who collaborate while participating in course activities. As such, the WhatsApp mediation promotes the construction and dissemination of knowledge among the collaborating and interacting learners through collaborative learning activities (Bielaczyc & Collins, 1999). WhatsApp mediation helps the learners to get their inquiries quickly answered while participating in a supportive, interactive, and collaborative community (Rovai, 2002). Activity theory also forms a framework for the present study since the experimental group participants could construct and analyze interactions among the learners who might utilize the expediters which impact their participation in online discussion. Activity theory could assist the researcher to identify key factors that determine students’ needs to involve in online discussion. The researcher employs the activity theory to investigate learner–phone interactions, set a conceptual framework in the field of mobile technologies in general and WhatsApp mediation in particular in an attempt to label and examine the structure, progress and context of the recommended activities facilitated by WhatsApp such as the communication of text messages, visuals, videos and word files.

Community sharing as developed by Engestrom (1987) forms another theoretical framework of the present study. Engestrom reveals that the activity theory incorporates guidelines that facilitate the division of labor between the learning community and the subject. The Community sharing theory seeks out to analyze the social and mechanical aspects of social action (Bertelsen & Bødker, 2003). Community or externalization is reflected as a social environment of the system and a community level of activity theory; all experimental group learners are engaged in the activity system whereby their engagement in learning is based on social communication targeting the construction and sharing of knowledge in an exemplary of a learning community.

The Activity theory with the technological, individual and community levels sets a theoretical framework for the study as well. Activity theory motivates teachers to reintroduce knowledge (Mercier & Higgins, 2013) during the implementation of online cooperative and collaborative learning approaches in online communities and consequently to promote mathematics learning activities. Learners are encouraged and positively focused on engagement in online communities to share knowledge pertinent to mathematics courses. As such, the collaborative learning activities enhanced by the WhatsApp mediation would help the researcher to achieve the cognitive outcomes of the learning activities and knowledge formation pertinent to critique writing. Moreover, the teacher would play a vital role in increasing the effectiveness and managing learners in the online learning activities; the social communication that supports learners construct and share knowledge is realized through the relevant role of the instructor whose failure to be present online would result in a decline in the occurrence of interactive messages in online communities (Lu & Churchill, 2014). Primarily, the activity theory intends to define, investigate and comprehend the mental abilities of individuals and considers the individual learning and the isolation of learners from the community to be an inadequate unit of analysis. The six principles of the Activity theory underscore the significance of the social features manifested in the collaborative learning in an online course. The experimental group participants would be the learners involved in activities, and could be regarded as the individual level and the contextual subjects of the activity theory. The WhatsApp mediation would be the tool deemed as the technological level of activity theory. The communication between communities or among the experimental group participants would be intervened by the WhatsApp mediation that would convey social knowledge. In accordance with the Activity theory, the WhatsApp tool would impact the actor-structure interactions as influenced by culture. The division of labor would impact the ordered structure of activity or the separation of critique writing activities among actors or learners in the system. The rules would be the guidelines of discussion prompted by the experimental group learners operating in the collaborative learning system.
2.2. **MLearning as alternative instructional approach**

Some propose that the uses of mobile phones not only improve access to educational services but also render ease and promote modifications in the nature of education modalities that influence the learning outcomes. In this respect, mLearning forms a continuation of traditional or regular forms of education and promotes alternative learning procedures and instructional approaches the theories of new learning identify as effective for learning. In this sense, mLearning also promotes the use of authentic materials needed for meaningful learning that addresses the real-world problems and incorporates relevant projects to the learner (Kukulska-Hulme & Traxler, in press). Learners in social learning communities would interact through an artifact, such as mobile learning communities, in online discussions that would clearly improve students’ social connections, improve their self-confidence and increase their learning presentation. Approximately 70% learners state that they learn better in online learning communities such as WhatsApp groups or Google + communities or Twitter chats and such learners do learn through lectures that utilize technologies which may have constructive results on teaching and learning. The integration of auditory and visual depictions of knowledge including calculators and audiovisual media, makes learning effective since it enables learners to carry out analysis and problem-solving learning difficulties (Yu, Tian, Vogel, & Kwok, 2010).

2.3. **WhatsApp as active involvement tool in critique writing learning**

There are various learning applications that make learning a pleasant experience in general and many mobile applications in particular foster tremendously learning and are within learners’ reach (Rambe & Chipunza, 2013). WhatsApp is a free downloadable application requiring using a Smartphone to enable the participants to actively get engaged and get involved (Baffour-Awuah, 2015). The WhatsApp could provide the learners with an opportunity to express themselves freely in a non-limited environment thus eliminating the low involvement characterizing the class lectures. Learners could develop technical skills by partaking and utilizing such technology (Rambe & Chipunza, 2013).

The WhatsApp could be a tool used to increase learners’ language skills and could provide learners with opportunity to express themselves in free environments (Rambe & Chipunza, 2013; Riyanto, 2013). WhatsApp technology can also improve learners’ active involvement in the EFL classroom (Baffour-Awuah, 2015). Lauricella and Kay (2013) reveal that the main motives for using instant messaging might be saving time, handling issues, accessibility and easiness of use. Text messaging seems to be the favorite means of communication for learners with respect to communicating with both peers and instructors. It is concluded that both text and instant messaging are useful and practical tools for increasing learner’s communication among peers and teachers in higher education (Bouhnik & Deshen, 2014). The WhatsApp application has four main functions; it motivates the learners, helps students communicate with the peers, sends information, manages the class, enables students to be up to date, saves a lot of time and increases efficiency by reminding students what they have to do and what they have to bring to class.

2.4. **WhatsApp as a social, cultural medium, and collaboration tool**

The meaning of the word “WhatsApp” is derived from the English phrase “What’s up?” which has the meaning of “What’s new?”. The WhatsApp is an instant messaging application which provides users, using Internet connection, with an access to exchange images, videos, and audio, or written messages. The affordability of the application positions WhatsApp as a great alternative to SMS messaging, which can be tremendously expensive when used outside one’s country due to roaming charges; the online collaboration prompted by WhatsApp instant messaging facilitates blended mobile learning. Learners can easily exchange information, have their inquiries quickly answered, construct knowledge and create class participation through WhatsApp instant messaging. Blended learning can be greatly enhanced by the WhatsApp instant messages (Bouhnik & Deshen, 2014).

Riyanto (2013) asserts that WhatsApp can be used as a social and cultural medium whereby learners can communicate with friends while studying and learners can even acquire a new language through exchanging WhatsApp messages. Riyanto (2013) asserts that non-English students
can significantly improve their English skills through exchanging WhatsApp messages with their peers and instructors, and they can enjoy the pleasant experience in a fun atmosphere and in a quick manner. Motiwalla (2007) asserted that the support and the help of the mobile devices provide students with a great social environment within which the learners can enjoy the pleasant experience of learning. Likewise, Litchfield, Dyson, Lawrence, and Zmijewska (2007) underscored the positive impacts of using the mobile devices in learning; consequently, the researcher investigated how learners can utilize the mobile learning in teaching and learning. Moreover, Farmer (2003) expressed concerns about using mobile devices in implementing this ICT tool; surprisingly, Farmer’s study conducted later indicted that using mobile devices was successful for educational and learning contexts (Farmer, 2005).

The WhatsApp has different functions including the instant messages and sending attached images, audio, video files, and links to web addresses. In the period spanning from 2011 to 2013, the application has turned out to be very popular, achieving over 350 million users and was valued as the greatest downloaded application in 127 countries; WhatsApp can be observed as a social system which permits learners to access a plenty of information quickly (Bouhnik & Deshen, 2014). Another study with a purpose to investigate the extent of communication between the teachers and the high school students using WhatsApp and the effectiveness of this communication underscored the significance of the previous studies which examined the effectiveness of the different Instant Messaging (IM) services (Calvo, Arbiol, & Iglesias, 2014). One study demonstrated how high school students, who received academic support in math via IM service, were able to ask questions during the learning process after school hours. It is obvious that an individual connection with the instructor was desirable to the unknown medium; the instructor found out that the learners could assist in a significant and individually personalized method (Hrastinski, Edman, Andersson, Kawnine, & Soames, 2014). More significantly, communicating during and after the lessons via internal SMS system that the university developed fostered the students’ motivation to ask more questions and to participate via IM system (Scornavacca, Huff, & Marshall, 2009). As such, the use of various platforms of Instant Messaging (IM) between the teachers and the learners underscored the improvement of learning (Smit, 2012), the ability of learners to be more active in their assignments (Cifuentes & Lents, 2011) and the feasibility of informal communication between learners (Cifuentes & Lents, 2011; Smit, 2012). Furthermore, the instant messages would create vital interaction between learners and teacher pertinent to course content and individual matters (Cifuentes & Lents, 2011), pleasant experience of communication and belonging to a community (Doering, Lewis, Veletsianos, & Nicholas-Besel, 2008; Sweeny, 2010), interruption of teacher-learner social obstacles (Doering et al., 2008) and learners’ incline to do assignments diligently (Sweeny, 2010). The use of instant messaging also creates a strong bonding between learners and teachers. Learners think more positively about the teachers who encourage the use of instant messaging (Jeong, 2007; Rau, Gao, & Wu, 2008). Moreover, the instant messaging facilities students’ bonding and creates strong friendships (Holley & Dobson, 2008). Students feel more at ease to use instant messaging than using emails (Harley, Winn, Pemberton, & Wilcox, 2007). Furthermore, given the immediacy of the text and instant messages, the email messages are considered less effective in creating good rapport among students on one hand and between students and instructor on the other hand (Lauricella & Kay, 2010).

3. Methodology

The study employed the quantitate and qualitative data collected from critique writing pre and post-tests, perception reflection logs and 2 questionnaires. The last question of the both questionnaires measured the satisfaction of the experimental and control group participants with the overall experience. The experimental group learners mentioned the technical and educational benefits of the WhatsApp mediation. As such, the content analysis of the experimental group reflection logs entailed the operation, low cost, handiness, and immediacy along with the creation of an enjoyable atmosphere and a profound association with peers, which had a constructive effect upon the course of discussion. The content analysis of the control group employed reflection logs was used to describe the participants’ perceptions towards the regular critique writing experience.
Descriptive statistics (means and standard deviations) were used to address the questions raised in the study because the study employed a pretest–post-test control group design. The Google Drive was also used to collect data needed to describe the perceptions of the experimental and control group participants toward the critique writing experience.

3.1. Participants
The participants \( n = 52 \) are enrolled in two Sophomore Rhetoric classes at two English-medium universities. The experimental conditions included the integration of the WhatsApp application into the experimental group class whereas participants in the control group were given the regular Sophomore Rhetoric instruction with no WhatsApp mediation. A convenient sample total of 52 EFL learners were randomly assigned to control and experimental conditions. The experimental group sample using the WhatsApp application included males and females; the control group sample included 11 males and 16 females. All the participants are native speakers of Arabic who received the treatment for a period of 4 weeks while receiving critique writing instruction including research skills at a rate of 3 h per week in accordance with the curriculum requirements proclaimed by the Sophomore and Rhetoric university program. A total of 52 students had been assigned the successful fulfillment of the Sophomore Rhetoric course with two fundamental requirements: writing an argumentative synthesis essay and a writing critique. The age of the participants ranged from 19 to 22 years.

3.2. Significance of the study
The study has practical significance in improving the quality of critique essay instruction, which is still under-developed area of research. The Sophomore Rhetoric class studied in this research is intended an advanced writing class for all students of all majors. In particular, the class is for learning critical thinking analysis, critique writing and argumentative synthesis essays. The present study aimed at examining the efficacy of using the WhatsApp educational tool to enable the participants to write a well-organized critique. The Sophomore Rhetoric course adopts a content-based approach in teaching critique writing. Upon completion of the course, the control and experimental participants should improve their proficiency in critique and argumentative synthesis contexts and should develop their critical thinking skills employing the learned structures. More importantly, the present study is significant as there is a scarcity in the studies conducted to investigate the effectiveness of WhatsApp tool in such a university course. The uniqueness of the approach and the use of the WhatsApp tool make the present study significant in the field of teaching writing.

3.3. Instruments
Three instruments were used to collect data and measure the variables of critique writing achievement and perceptions for learning under investigation. Specifically, a teacher-made critique writing rubric as an assessment tool was used to score the pre and posttests. Two questionnaires consisting of predefined questions were used to collect data from 54 respondents \( n = 54 \). The experimental group questionnaire consisted of 12 closed-ended questions and one open-ended question whereas the control group questionnaire consisted of 11 closed-ended questions and one open-ended question whose responses were used to collect the qualitative data reflecting broadly the attitudes and perceptions of the respondents toward the writing class. A Likert scale was used to collect the responses for the closed-ended questions. The critique writings were scored holistically according to the quality of ideas and organization employed in the introduction, summary of the critiqued article, assessment points incorporating the strengths and the weaknesses of the article, personal response and conclusion along with word choice and language mechanics. Three experienced teachers of Rhetoric classes, each with more than five years of in-service teaching of EFL writing were selected to evaluate the pretests and posttests of the participants and unanimously agreed on reporting a score on a scale of 1–10 (Appendix 1).

3.4. Treatment
The treatment lasted for four weeks at the rate of five contact hours of instruction per week. The study participants of both the control and experimental group were asked to write a critique essay
which entailed five main components: Introduction, summary, assessment, personal response and conclusion. The WhatsApp mediation used as of day 1 by the instructor and the participants of the experimental group to improve collaboration and increase critique proficiency. The critique writing of the control group consisted of traditional critique writing which required instruction in the different steps of the critique writing processes. Specifically, through WhatsApp exchanges, the critique writing stages focused on guiding the learners to explore the topic of the article, discuss background information, addressed audiences, thesis statement, strengths and weaknesses of the article, points of agreement and disagreement with the author, generate ideas, write up and present their ideas after revising their written products. Meanwhile, the experimental group participants received instruction integrating the use of WhatsApp group in conducting and implementing each step of the critique writing.

The addressed Technology (ISTE) Standards for Students were as follows:

1. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
2. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
3. Research and information fluency: Students apply digital tools to gather, evaluate, and use information.
4. Critical thinking, problem solving, and decision-making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions.

The treatment conditions (control vs. experimental) were used as an independent variable given that these conditions represent the regular Sophomore Rhetoric instruction and the integration of the WhatsApp application in Rhetoric instruction. The instructor asked on day one of the treatment one of the students to create a WhatsApp group for the class through which students can exchange instant messages with each other and with the instructor. The instructor also made it clear to students that she will be answering all their inquiries related to the class in general and to the steps of writing the critique essay in particular via WhatsApp after class time. The students were asked to write the five parts of the critique essay incorporating introduction, summary of the article, assessment comprising strengths and weaknesses, personal response and conclusion they were given in class. The students started sharing the points pertinent to the following:

1. Introduction
   a. Author’s name
   b. Date of publication
   c. Title of the article
   d. Place of publication if possible
   e. Purpose of writing the article
   f. Background information that pushed the author to write the article
   g. Intended audiences interested in reading the article or addressed
   h. The thesis statement incorporating the topic, attitude of the author and the controlling ideas discussed in the body paragraphs of the article.
(2) Summary

Main ideas + most important supporting details.

(a) Author’s name
(b) Title of the Article
(c) Date of publication
(d) All the main ideas
(e) Most important supporting details
(f) Transitional signals to maintain coherence
(g) Correlative Conjunctions. Ex: not only does Ahamd show up late but also he forgets his critique at home.
(h) Negative inversion. Ex: never (Seldom, hardly, ever) does he show up on time.

When paraphrasing, “this” and “these” cannot be used and are replaced by “that” and “those”. First and second person pronouns such as “I”, “you”, “we” shouldn’t be used in a paraphrased summary. The summary should be divided into thematic sections.

(3) Assessment

The assessment should be divided into weaknesses and strengths. The assessment should include:

(a) Types of evidence employed
(b) Statement comprising the weaknesses and the strengths of the employed evidence.
(c) Strong means of credibility in a paragraph + explanation
(d) Weak means of credibility in a paragraph + explanation + irrelevant + fallacies + bias
(e) How the style reflects the logic of the author: strong or weak. Figurative language, the structure of sentences, the coherence, word choice and sophistication.

(4) Personal Response

(a) Points of agreement + examples
(b) Points of disagreement + examples

(5) Conclusion

The pre-test and post-test employed the same template and the difference was the article which was the subject of the critique.

Students were instructed to collect the evidence needed to support their critique and to present the evidence in the five components of the critique. Moreover, they used the WhatsApp group to inquire about the steps related to each stage of the critique writing: for example, students were first asked to write a summary of the article that is the subject of the critique. Second, they were asked to conduct literature review to find the reliable and valid sources to use in order to write their support for the assessment. Third, they were asked to send the links of their sources via WhatsApp to get the approval of the chosen sources. Fourth, the participants were asked to write an annotated outline. Fifth, they were asked to write a paraphrased summary of the chosen 3–5 sources. Students were asked to refer to the sources to support their position and to avoid mere paraphrase or summary. Afterwards, participants were asked to read the sources carefully, take a position that defends, challenges, or qualifies, develop an annotated outline, write the critique essay body, write the introduction and conclusion and produce a final edit. The participants used the WhatsApp group to
inquire about each step and to share links of articles, sample outline, critique checklist and rubric. Moreover, they were asked to write 2 drafts of the same critique essay. They used the WhatsApp group to get more understanding of the instructor’s written comments. Above all, the instructor used the WhatsApp group to send them quick reminders about what to bring to class and about what to expect in the upcoming sessions.

3.5. Data analysis

Descriptive statistics (Means and Standard Deviations) were calculated on the pre-test and post-test performance scores of learners in the control and experimental groups. Moreover, two independent sample t-tests were conducted using an alpha level of 0.05 to examine the differences in critique writing pre-test post-test scores preceding and subsequent to the treatment between the groups of learners in the control and experimental groups. The treatment conditions (control vs experimental) were used as an independent variable given that these conditions represent the regular Sophomore Rhetoric instruction and the integration of the WhatsApp application in Sophomore Rhetoric instruction. Similarly, the scores of learners on critique writing were used as dependent variables.

Two Google Drive questionnaires consisting of predefined questions were used to collect data from 54 respondents (n = 54). The open-ended question responses were used to collect the qualitative data reflecting broadly the attitudes and perceptions of the respondents toward the English class. A Likert scale was used to collect the responses for the closed-ended questions. The survey was administered by sending the link through WhatsApp. The ethics of survey research including informed consent and confidentiality and anonymity were observed. The researchers sent along with the survey link a statement explaining the study’s purpose, content, duration, and potential benefits after showing no risks. The researchers also informed the respondents that they do not have to answer all the survey questions. The respondents’ identities were kept confidential as identifiers were not included.

4. Results

4.1. Findings on the effect of treatment on critique writing achievement

An independent-samples t-test was conducted using an alpha level of 0.05 in order to examine whether the experimental group and the control group differed significantly in the pretest scores regarding critique writing achievement. Descriptive statistics indicated no noteworthy difference between the control group (M = 64.46, SD = 3.84) and the experimental group (M = 64.57, SD = 6.83) as indicated in Table 1. Also, there wasn’t a significant difference between the mean value of the experimental group and that of the control group with P(t(50) = 0.94, df = 50) > 0.05 as shown in Table 2. Thus, the Alternative Hypothesis H1: \( \mu_{\text{Control}} \neq \mu_{\text{Experimental}} \) was rejected in favor of the Null Hypothesis H0: \( \mu_{\text{Control}} = \mu_{\text{Experimental}} \) (see Tables 1 and 2).

On the other hand, descriptive statistics of post-test scores revealed a weighty difference in mean value between the control group (M = 76.19, SD = 2.84) and the experimental group (M = 82.65, SD = 3.33) as indicated in Table 3. To examine whether the experimental group and the control group differed significantly in the posttest scores after the mediation of the WhatsApp treatment, another independent-samples t-test was used with an alpha level of 0.05, and it showed that the experimental group outperformed the control group in critique writing achievement with P(t(50) = −7.52, df = 50) = 0.00 and 95% confidence interval ranging from −8.18 to −4.73 (Refer to Table 4). Thus, the Null Hypothesis H0: \( \mu_{\text{Control}} = \mu_{\text{Experimental}} \) was rejected in favor of the Alternative Hypothesis H1: \( \mu_{\text{Control}} \neq \mu_{\text{Experimental}} \).

| Table 1. Descriptive statistics of pre-test scores |
|-----------------------------------------------|
| Group | N  | Mean | Std. deviation |
| Pretest |   |     |                |
| C     | 26 | 64.46| 3.84           |
| E     | 26 | 64.57| 6.83           |
4.2. Findings on perceptions of WhatsApp learning experience

The experimental group participants were 70% females and 30% males (Appendices 2 and 3; Figure 1).

70.4% agreed that using the WhatsApp application increases productivity in writing assignment, 18.5% disagreed (Figure 2).

61.5% agreed that using the WhatsApp application makes it easier to do course assignment, whereas 30.8% disagreed (see Figure 3).

42.3% agreed that using the WhatsApp application improves English Writing learning, whereas 53.8% disagreed (see Figure 4).
42.3% agreed that the WhatsApp application is easy to use, whereas 53.8% disagree (see Figure 5).

44.4% agreed that the WhatsApp application is beneficial in terms of learning (27 responses), whereas 44.4% disagreed (see Figure 6).

42.3% strongly agreed to use WhatsApp application to facilitate learning (26 responses), whereas 53.8% agreed (see Figure 7).
44.4% strongly agreed that the WhatsApp application environment enables them to fully interact with others, whereas 51.9% disagreed (see Figure 8).

38.5% agreed and 42.3% strongly agreed that the WhatsApp application environment enables them to easily work in a group with members, whereas 15.4% neither agreed nor disagreed (see Figure 9).

51% strongly agreed and 37% agreed that they do not feel lonely in the WhatsApp application environment, whereas 7.4% strongly disagreed (see Figure 10).
59.3% strongly agreed and 33.3% agreed that in the WhatsApp environment, they obtain encouragement and support from the instructor and peers (see Figure 11).

The majority forming 55% indicated that they use the WhatsApp course group more than three times a week and 66.7% indicated that they stay in the course WhatsApp group each time they access between 20 and 40 min (Figures 12 and 13).

The study surveys can be accessed at Google Drive links. The reflection logs were also qualitatively analyzed to report the perceptions of the learners. As for freely expressing their opinions about the English class, the majority of the responses echoed the great appreciation of the instructor’s teaching style and the usefulness of the class. The responses were the following:
“Very good instructor”, “It is a highly interactive class. A very interesting one”, “The instructor’s methods are up to date” “Very enjoyable and interesting course”, “The instructor is amazingly kind and her teaching ways are great.”

“A very professional doctor and helpful classmates. The class activities are beneficial”, “A fun and useful class full of challenging activities. I liked most the critique assignment”.

Some responses underscored the benefits and the usefulness of the WhatsApp collaboration, and the responses were as follows:

“The Class is very beneficial. It helped me to enhance my writing skills.” “It is the easiest English class and the most useful one.” “The class is full of important writing tasks. The group work facilitated doing the assignments. I liked sharing ideas via WhatsApp.” “I liked this class so much. It is useful and important.” “It is the best class I had. It helped me improve my writing skills and it taught me how to write a critique.” “I liked the class so much for it is very useful.” “It enables the flow of ideas. Its (it’s) very beneficial WhatsApp (WhatsApp) made things easier.” “I liked very much the critique writing and the group work conferences via WhatsApp.”

Another category of responses reflected the vital interaction and the easiness as ensured by the use of the WhatsApp group. For example, a respondent indicated, “It (the course) requires lots of research that is facilitated by the class interaction through WhatsApp.”

“The paraphrasing exercises and the critique writing were not difficult since the WhatsApp collaboration made these assignments easily done.” “Interactive and fun course”.

Some respondents highlighted the enjoyable, fun environment of the class. For instance, a respondent indicated, “Enjoyable and a fun course”. Some responses echoed the burden of the research work needed to fulfill the requirements of the course. For example, a respondent remarked, “its (it’s) an interesting course that requires knowing lots of information.”

“An interesting course, yet it demands a lot of research.” “Interesting course requires research”.

Some respondents echoed the usefulness and the richness of the critique assignment. For example, a respondent remarked, “The course is interesting but requires much work. The critique writing is important.” “The class enriched my writing skills and taught me how to write a critique and how to analyze an article.” “I learned many things in this class. The interesting part is the group assignments.”

On the other hand, the perceptions of the control group participants conveyed less positive attitudes toward the critique writing experience.
43% agreed that using the critique guidelines increased their productivity in writing assignment, whereas 57% disagreed.

41.3% agreed that using the critique checklist makes it easier to do the course assignment, whereas 57.3% disagreed.

33.7% agreed that using the class critique instruction improves their critique Writing experience.

22.7% agreed that the critique instruction is easy to use, whereas 70.2% conveyed their dissatisfaction with the difficulty of the critique writing experience.

53% agreed that critique assignment is beneficial in terms of learning, whereas 47% disagreed.

51% agreed that the use of the class notes facilitates their learning, whereas 43.5% disagreed.

33.8% agreed that the class environment enables them to fully interact with others.

26.5% agreed that the class environment enables them to easily work in a group with their peers, whereas 72.5% disagreed.

52.3% agreed that they do not feel lonely in the class environment, whereas 43.7% disagreed.

45.6% agreed that in the class environment, they obtain encouragement and support from their instructor and peers.

As for the reflection longs, the majority of the control group participants expressed dissatisfaction with the difficulties they encountered to assimilate the steps of critique writing. The reflection logs were as follows:

“The critique essay is a difficult, boring assignment.”; “There were too many things to do.” “I wish they could cancel the critique assignment and give more weight to other writing assignments.” “The checklist and the guidelines were not easy to abide by.”

5. Discussion
The results of the present study underscored that using the WhatsApp mediation was more effective than regular instruction in enhancing the critique writing proficiency of learners studying Rhetoric. Similarly, the use of the WhatsApp tool increased the participants' levels of motivation for learning. These findings corroborate those of Bouhnik and Deshen (2014), Lu and Churchill (2014), Yu et al. (2010) and Calvo et al. (2014) which examined the effectiveness of the different Instant Messaging (IM) services. Furthermore, the findings endorse those of Rambe and Chipunza (2013), Baffour-Awuah (2015), Riyanto (2013), Lauricella and Kay (2013), Hrastinski et al. (2014), Scornavacca et al. (2009), Smit (2012), Cifuentes and Lents (2011), Doering et al. (2008), Sweeney (2010), Doering et al. (2008), Jeong (2007), Rau et al. (2008), Holley and Dobson (2008) and Sweeney (2010).

A possible explanation of the effectiveness and positive attitudes is that the use of various platforms of Instant Messaging (IM) between the teachers and the learners underscored the improvement of learning, pleasant experience of communication and belonging to a community, interruption of teacher-learner social obstacles and learners’ incline to do assignments diligently. The use of instant messaging creates a strong bonding between learners and teachers. Learners think more positively about the teachers who encourage the use of instant messaging. Moreover, the instant messaging facilities students’ bonding and creates strong friendships.
The WhatsApp could provide the learners with an opportunity to express themselves freely in a non-limited environment thus eliminating the low involvement characterizing the class lectures. WhatsApp technology can also improve learners’ active involvement in the EFL classroom. A further explanation could be that the instructors are capable to post some assignments on the WhatsApp and ask learners to carry out the tasks by using one of the features of the WhatsApp application. The WhatsApp group creates positive social environment, develops a sense of belonging and community through the WhatsApp groups, creates a dialog between the learners to enable them to share information and operate as a team. Learners can support each other by answering the questions of each other and sharing their findings. Moreover, the WhatsApp group can be used as a learning platform in order to increase the accessibility of learning materials and the completion of learning activities. The WhatsApp allows informal and fast conveyance of links to study materials, unlike any other technologies—using the WhatsApp group to send the study materials ensures that all students get the message, the audio or visual video planned for class or an answer key for an exercise sent after class. The high availability of teachers to the students’ questions can possibly improve the learning process. Many teachers reported that they use the WhatsApp group to answer a lot of questions.

6. Conclusion
The present study has underscored the significance of using the WhatsApp tool to improve the writing proficiency of university students enrolled in a Rhetoric class and to increase their motivation for learning. The easy access to WhatsApp tool along with the low cost and the affordability of this tool make the tool more useful and more efficient than other tools employed by the educational system (Church & de Oliveira, 2013). The WhatsApp tool could be utilized as a discussion forum that would enable instructors and students to initiate discussions that would improve learning and increase motivation. Furthermore, the WhatsApp tool helps to create an anxiety reduced atmosphere that increases the students’ sense of belonging. In light of the finding of the current study, it is recommended to utilize more mobile applications to increase learners’ motivation in learning English writing. As such, it will be vital making mobiles a part of the instruction process. The instructors can communicate with their learners through mobile applications. Likewise, the WhatsApp may be utilized as further means for setting home assignment. Furthermore, using WhatsApp application in teaching listening and speaking might be significant through exchanging files between learners and teachers. As such, the WhatsApp tool could be leveraged to expedite collaboration among learners on one hand and between learners and instructors on the other hand. Furthermore, the WhatsApp tool could optimize students’ learning and increase their motivation for learning. Further research should be conducted to investigate the effectiveness of the WhatsApp tool in exchanging ideas, suggestions and experience among instructors so that instructors could broaden their perspectives of how to improve pedagogical practices and achieve objectives.

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Author details
Ghada Awada1
E-mails: ghadawada@gmail.com, ga76@aub.edu.lb
1 Department of Education, American University of Beirut, Fisk Hall, Room 249, P.O. Box 11-0236, Beirut, Lebanon.

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Appendix 1

Pretest and posttest template directions
Use your annotated article and write a well-developed critique including the parts below. Support your ideas from the passage itself, relevant class readings and/or additional readings of your own and/or your experiences. Pay attention to clear and correct language.

NB: Use headings and include a title.

(1) Introduction (the author’s thesis, background information and your thesis giving your opinion) 15pts

(2) Summary (Give the main ideas of the author only.) 25pts

(3) Assessment (Choose two criteria and give two examples of each.) 25pts

(a) Accuracy of information
(b) Significance of information
(c) Definition of terms
(d) Fair use of information
(e) Fair interpretation of information
(f) Logical fallacies

(4) Personal response (Give your personal opinion and support.) 25pts

(5) Conclusion (Restate your thesis statement and give general comments) 10pts

Appendix 2

Experimental group questionnaire
The study surveys can be accessed at https://docs.google.com/forms/d/1wkx1lC1JT9SkFcvoTSsNt1YYwUqRbfy6njINCyJTw/viewform?c=0&w=1

WhatsApp group use questionnaire

(1) Gender

(a) Female
(b) Male

(2) Using WhatsApp application increases my productivity in writing assignment

(a) Strongly disagree
(b) Disagree
(c) Neither agree nor disagree
(d) Agree
(e) Strongly agree
(3) Using WhatsApp application makes it easier to do my course assignment
   (a) Strongly disagree
   (b) Disagree
   (c) Neither agree nor disagree
   (d) Agree
   (e) Strongly agree

(4) Using WhatsApp application improves my English Writing learning
   (a) Strongly disagree
   (b) Disagree
   (c) Neither agree nor disagree
   (d) Agree
   (e) Strongly agree

(5) The WhatsApp application is easy to use
   (a) Strongly disagree
   (b) Disagree
   (c) Neither agree nor disagree
   (d) Agree
   (e) Strongly agree

(6) WhatsApp application is beneficial in terms of learning
   (a) Strongly disagree
   (b) Disagree
   (c) Neither agree nor disagree
   (d) Agree
   (e) Strongly agree

(7) I intend to use WhatsApp application to facilitate my learning
   (a) Strongly disagree
   (b) Disagree
   (c) Neither agree nor disagree
   (d) Agree
   (e) Strongly agree
(8) The WhatsApp application environment enables me to fully interact with others.

(a) Strongly disagree
(b) Disagree
(c) Neither agree nor disagree
(d) Agree
(e) Strongly agree

(9) The WhatsApp application environment enables me to easily work in a group with my members.

(a) Strongly disagree
(b) Disagree
(c) Neither agree nor disagree
(d) Agree
(e) Strongly agree

(10) I do not feel lonely in the WhatsApp application environment.

(a) Strongly disagree
(b) Disagree
(c) Neither agree nor disagree
(d) Agree
(e) Strongly agree

(11) In the WhatsApp environment, I obtain encouragement and support from my instructor and peers

(a) Strongly disagree
(b) Disagree
(c) Neither agree nor disagree
(d) Agree
(e) Strongly agree

(12) In general, how often do you use the WhatsApp course group?

(a) Less than once a week
(b) Once a week
(c) Twice a week
(d) Three times a week
(e) More than three times a week
(f) Twice a day
(g) Three times a day
(h) More than three times a day

(13) On average, how long do you stay in the course WhatsApp group each time you access?

(a) Less than 10 min
(b) Between 10 and 20 min
(c) Between 20 and 40 min
(d) Between 40 and 80 min
(e) More than 80 min

(14) Please feel free to express your opinion about the English class.

Your answer

Appendix 3

Control group questionnaire
The study surveys can be accessed at https://docs.google.com/forms/d/13va4Pedxnh2H-qPVfXq-FIXf6EOs2zepV3OCgBr5sKw/edit

Critique assignment questionnaire

Please read each statement and indicate the extent to which you agree or disagree, with 5 being strongly agree and 1 being strongly disagree. Circle your response.

1—Strongly Disagree 2—Somewhat Disagree 3—Neither Agree Nor Disagree 4—Somewhat Agree 5—Strongly Agree

(1) Gender

(a) Female
(b) Male

(2) Using critique guidelines increases my productivity in writing assignment.

(a) Strongly disagree
(b) Somewhat disagree
(c) Somewhat disagree
(d) Neither Agree nor disagree
(e) Somewhat Agree
(f) Strongly Agree
(g) Other
(3) Using critique checklist makes it easier to do my course assignment.

(a) Strongly disagree  
(b) Somewhat disagree  
(c) Somewhat disagree  
(d) Neither Agree nor disagree  
(e) Somewhat Agree  
(f) Strongly Agree  
(g) Other

(4) Using the class critique instruction improves my English Writing learning

(a) Strongly disagree  
(b) Somewhat disagree  
(c) Somewhat disagree  
(d) Neither Agree nor disagree  
(e) Somewhat Agree  
(f) Strongly Agree  
(g) Other

(5) The critique instruction is easy to use.

(a) Strongly disagree  
(b) Somewhat disagree  
(c) Somewhat disagree  
(d) Neither Agree nor disagree  
(e) Somewhat Agree  
(f) Strongly Agree  
(g) Other

(6) Critique assignment is beneficial in terms of learning.

(a) Strongly disagree  
(b) Somewhat disagree  
(c) Somewhat disagree  
(d) Neither Agree nor disagree  
(e) Somewhat Agree  
(f) Strongly Agree  
(g) Other

(7) I intend to use the class notes to facilitate my learning.

(a) Strongly disagree  
(b) Somewhat disagree  
(c) Somewhat disagree  
(d) Neither agree Nor disagree
(e) Somewhat agree
(f) Strongly agree
(g) Other

(8) The class environment enables me to fully interact with others.

(a) Strongly disagree
(b) Somewhat disagree
(c) Somewhat disagree
(d) Neither agree nor disagree
(e) Somewhat agree
(f) Strongly agree
(g) Other

(9) The class environment enables me to easily work in a group with my members.

(a) Strongly disagree
(b) Somewhat disagree
(c) Somewhat disagree
(d) Neither agree nor disagree
(e) Somewhat agree
(f) Strongly agree
(g) Other

(10) I do not feel lonely in the class environment.

(a) Strongly disagree
(b) Somewhat disagree
(c) Somewhat disagree
(d) Neither agree nor disagree
(e) Somewhat agree
(f) Strongly agree
(g) Other

(11) In the class environment, I obtain encouragement and support from my instructor and peers.

(a) Strongly disagree
(b) Somewhat disagree
(c) Somewhat disagree
(d) Neither agree nor disagree
(e) Somewhat agree
(f) Strongly agree
(g) Other

(12) Please feel free to express your opinion about the English class.
