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# The influence of using instagram on EFL learners' critical thinking in language institutes

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## Abstract

This study examined the influence of using Instagram on EFL learners' critical thinking in language institutes. The participants were 98 students (40 males and 58 females) studying English at three branches of a language institute in Iran who were 20–24 years old and shared the same L1 which was Persian. They were selected through purposive sampling. Their proficiency in English was checked by administering DIALANG. Based on their scores on DIALANG, two equal groups were formed as experimental and control. As the pretest, California Critical Thinking Skills Test and California Critical Thinking Disposition Inventory were utilised. Afterward, the experimental group were taught in class and via Instagram, while the control group were taught only in class without using Instagram. The treatment lasted for 12 weeks each week for two sessions each session for 2 h. Then the posttest, which included administering California Critical Thinking Skills Test and California Critical Thinking Disposition Inventory was administered. The two groups got nearly the same scores on the pretest which showed their same proficiency level, but, their performances on the posttest were significantly different and the experimental group performed much better than the control group. This study may have implications for teacher trainers, supervisors, teachers, and textbook writers.

**Keywords:** Media in education, Mobile learning, Social media

## Introduction

According to Van Dijk (2005) language can be utilised to control those with whom there is a conflict of interest; it is a communicative process in which a manipulator controls the targeted individuals known as “Language Manipulation”. Power relations in language manipulation are established through a process of constructing a dominant ideology for which language is the vital medium. Even though language itself does not have power assigned to it, it can be utilised to challenge power, destroy its authority, and to change power distributions. Foreign language learners transfer thoughts, beliefs, and culture of the foreign language to that of their own. Thus, learners need to identify the meaning embedded in discourses to recognise the ideologies and thoughts that are being imposed on them. Learners' lack of critical awareness lets the dominant groups colonise their minds. Consequently, by controlling the mentalities of educated groups of a society, they colonise the country and conquer its culture, identity, and civilisation (Van Dijk,

2005). Vasquez (2014) argued that a curriculum should be critical and guide educators and students to unfold issues of social justice in class by asking critical questions and having discussions. According to the available literature, the democratic or emancipatory essence of critical thinking has been emphasised. In this regard, critical thinking instruction entails transformation and change. Critical thinking should be utilised as a means for disciplinary knowledge acquisition; students need critical thinking skills to understand themselves and act autonomously and critically in new contexts. It could be inferred that critical thinking advocates a critical mode of rationality and argumentation for epistemic benefits (Bailin & Battersby, 2020).

Mobile-assisted language learning (MALL) generally refers to learning language anytime, anywhere regardless of time or space limitations. Laptops, tablets, and smart phones are used for language learning and make the learning process easier for learners. Ubiquitous features of mobile devices have made them suitable for modern education and MALL is supported all around the world (Nanjundan et al., 2020). Recently, many scholars have paid noticeable attention to MALL. They have worked on the possibilities and barriers of MALL, the effect of mobile learning on academia, technologies of MALL, and educational environments. It has been proved that smartphones can be utilised for learning English due to the accessibility of many applications like WhatsApp, Viber, Line, Telegram, and Instagram which could be utilised in this field (Rajendran & Yunus, 2021). By mobile-assisted language learning (MALL), social networking systems (SNS) can be brought into the class which enable learners to interact with an authentic L2 community outside the formal context of education. Technology and critical thinking are the two most important factors of modern education. The utilisation of technology like online learning by using digital platforms could improve learners' critical thinking and develop their reasoning, problem-solving, and decision making (Lopez-Perez et al., 2011); it could also foster collaboration among learners by activities such as online discussions (Foo & Quek, 2019). To the best of our knowledge, in the available literature Instagram has never been utilised for developing EFL learners' critical thinking skills in language institutes. Therefore, with the aim of filling the lacuna, two questions should be answered:

1. Does any significant difference exist between critical thinking proficiency of EFL learners who receive critical thinking instructions in class and via Instagram and EFL learners who receive instructions only in class without using Instagram?
2. What are EFL learners' perspectives on using Instagram for learning English in language institutes?

### **Review of literature**

Critical thinking originates from the Socratic Method. The Socratic Method is a philosophy that advocates correcting illogical thinking (Paul et al., 1997). The Socratic Method advocated evidential reasoning, meticulous investigation of justifications and presumptions, analysing fundamental concepts, and tracing out implications. Plato recorded Socrates' thoughts and followed the Socratic Method by critical thinking. Plato was followed by Aristotle and the Greek skeptics who believed that only trained minds can see through the surface level what exactly exists beyond that (Paul et al., 1997). According

to Dewey (1933) open-mindedness, responsibility, and wholeheartedness were the three fundamental attitudes for critical thinking. Open-mindedness referred to considering more than one side when investigating an issue. Responsibility referred to thoughtful and careful evaluation of the consequences an action might have. Wholeheartedness referred to the diligence of critical thinkers for finding the truth. Critical thinking relies on an individual's inclination, motivation, and determination and a disposition to involve in reflecting on important issues, solving problems, and making decisions. Zoller et al. (2000) argued that the prerequisite for critical thinking is an individual's disposition to think critically. This influences one's critical thinking ability. Dewey (1910, 1933) emphasised "reflective thinking", which was later being renamed "critical thinking", as a fundamental competence for students. The concept of critical thinking refers to the investigation of the grounds that a belief is built on and their implications (Dewey, 1910, 1933). People need critical thinking to assess the upcoming information, form rational opinions, and draw mindful conclusions (Morales-Obod et al., 2020). Critical thinking is an inseparable part of language education, because language learners need critical thinking to analyse the information they are exposed to all the time. Critical thinking is not acquired naturally. It should be explicitly taught to learners (Bezanilla et al., 2019). The ultimate goal of modern education is to teach critical thinking to learners (Gilmanshina et al., 2021). Even though it is widely accepted that teaching critical thinking to students is an essential goal of education, critical thinking skills have not been taught to the desired extent. To change this situation, a major shift in educational paradigms, public investment in teacher education, and policies on school curricula is required. It is necessary that education policy makers consider disciplines at how to develop students' critical thinking rather than concentrating on individual subjects continuously (Alandejani, 2021; Al-Zou'bi, 2021; Patonah et al., 2021). To deal with the complexity of problems caused by the fast development of technology, learning critical thinking is increasingly required. Thus, educational systems are expected to teach critical thinking to students (Ali & Awan, 2021). Regarding the integration of critical thinking into pedagogical courses, two approaches are mainly discussed: the explicit approach and the implicit approach. The explicit approach advocates the direct teaching of critical thinking principles; on the other hand, the implicit approach does not specify critical thinking instructions. In other words, the explicit approach aims to promote individuals' critical thinking proficiency by clarifying critical thinking skills and dispositions to them. In contrast, the implicit approach does not introduce basic critical thinking concepts to individuals and expects their critical thinking to develop as a result of learning the content (Ennis, 1989). For effective incorporation of critical thinking in educational courses, researchers have strongly advocated the explicit approach, because learning critical thinking is not a product of studying certain subjects (Halpern, 2007). There is also empirical support for the superiority of the explicit approach of critical thinking instruction over the implicit approach. Based on a meta-analysis of over a hundred empirical studies, Abrami et al. (2015) concluded that in spite of obtaining mixed results, the explicit approach of critical thinking instruction was more effective compared with the implicit approach. Similarly, Bensley and Spero (2014) found that explicit teaching of certain critical thinking skills substantially promoted the college students' critical thinking and metacognition. In this study, we adopted the explicit approach for teaching critical thinking. Utilising

Instagram eased the teaching practice since the political analyses presented in Instagram were utilised to uncover the meaning embedded in them. The contents presented in Instagram were implicit in nature but utilised for the explicit teaching of critical thinking by means of the critical thinking instructions delivered by the teacher.

## **Materials and methods**

### **Participants**

Ninety-eight EFL learners studying at three branches of a language institute located in Iran with a limited age range (20–24 years old) including 58 females and 40 males took part in this research. They were selected through purposive sampling and shared the same L1 which was Persian. Two equal groups as control and experimental were formed.

### **Instrumentation**

#### ***Homogeneity test***

The learners' proficiency in English was checked by administering DIALANG. DIALANG assesses reading, listening, writing, grammar, and vocabulary. DIALANG tests learners' proficiency level in 14 European languages. It is only utilised as a diagnosis test and its usage for purposes other than diagnosis is rejected by its inventors. DIALANG provides its users with feedback and reviews their answers to the test items. Users' proficiency level is determined based on the Common European Framework of Reference for Languages (CEFR). Based on CEFR, levels of proficiency are categorised as A1 (Breakthrough), A2 (Wastage), B1 (Threshold), B2 (Vantage), C1 (Effective Operational Proficiency), and C2 (Mastery). The participants were asked to consult <https://dialangweb.lancaster.ac.uk> and take the test. They were required to send the results to the teacher via e-mail. The proficiency level of the participants was C1. Then the learners were assigned to two equal groups as experimental and control based on their scores on DIALANG.

#### ***California critical thinking skills test (CCTST)***

This test is owned and administered by Insight Assessment and available at [www.insightassessment.com](http://www.insightassessment.com). There are 34 multiple-choice items which include 8 distinctive subscales for assessing critical thinking. The subscales are: Numeracy, Deductive Reasoning, Inductive Reasoning, Explanation, Evaluation, Inference, Interpretation, and Analysis. Scores are made based on a propriety formula and range from low to non-manifested, weak development, moderate development, strong development, and superior development. As a part of the pretest and posttest, the test was administered with the aim of evaluating the participants' improvement and figuring out which group could progress more significantly. By comparing the learners' performances on the pretest and posttest, the researchers could discover which group's treatment was more effective.

#### ***California critical thinking disposition inventory (CTDI)***

This test is owned and administered by Insight Assessment and available at [www.insightassessment.com](http://www.insightassessment.com). There are 75 statements in it and should be responded based on a 6-point Likert scale. The test assesses individuals' dispositions toward critical thinking. Seven distinctive subscales are included in this test: Maturity of Judgement,

Inquisitiveness, Confidence in Reasoning, Systematicity, Open-Mindedness, Analyticity, and Truth Seeking. The scores range from 5 to 60 for each subscale. As a part of the pretest and posttest, the test was administered with the aim of evaluating the participants' improvement and figuring out which group could progress more significantly. By comparing the learners' performances on the pretest and posttest, the researchers could discover which group's treatment was more effective.

### **Pretest**

California Critical Thinking Skills Test (CCTST) and California Critical Thinking Disposition Inventory (CCTDI) were administered online. The participants were required to consult [www.insightassessment.com](http://www.insightassessment.com) and take the tests. The participants sent the tests' results to their teacher via e-mail.

### **Educational materials and instructions**

*Control group* The control group received instructions for critical thinking in class without using Instagram. They were studying their coursebooks during the semester which were *Viewpoint (2)* and *Oxford Word Skills (Advanced)*. Moreover, Halpern (2014), *Thought and Knowledge: An Introduction to Critical Thinking* and Corey (2010), *Audio Production and Critical Listening* were taught in addition to the coursebooks. The treatment lasted for 12 weeks each week for two sessions and each session for 2 h. The researchers prepared summaries of each unit of the books and presented them during 30 min in each session. The 30-min-instruction was delivered at the beginning of each session and the rest of time (90 min) was devoted to teaching the coursebooks. The control group were asked to watch some TV channels devoted to news. The channels introduced to them were Euronews, BBC, VOA, CNN, Reuters, Foxnews, and France 24—En. The control group were asked to watch these channels daily on TV to view videos about political and social subjects. Two important political issues that the participants had viewed some contents about prior to the upcoming session would become the subject of classroom discussion. The teacher and all the students would participate in the discussion to identify the strategies used for making and presenting the contents in the channels to have the most influential impact on the audiences' minds. The teacher made use of the summaries of the books which were taught each session to help the students improve their critical thinking.

*Experimental group* The experimental group studied *Viewpoint (2)* and *Oxford Word Skills (Advanced)* as their coursebooks. Moreover, Halpern (2014), *Thought and Knowledge: An Introduction to Critical Thinking* and Corey (2010), *Audio Production and Critical Listening* were taught in addition to the coursebooks. The treatment lasted for 12 weeks each week for two sessions and each session for 2 h. The researchers prepared summaries of each unit of the books and presented them during 30 min in each session. The 30-min-instruction was delivered at the beginning of each session and the rest of time (90 min) was devoted to teaching the coursebooks. The experimental group, who were all Instagram users, were asked to view @euronews, @bbc, @voa, @cnn, @reuters, @foxnews, and @france24\_en on Instagram daily with the aim of watching videos about political and social subjects presented in the accounts and analysing the analyses presented there. Two

important political issues that the participants had viewed some contents about prior to the upcoming session would become the subject of classroom discussion. The teacher and all the students would participate in the discussion to identify the strategies used for making and presenting the contents in the accounts to have the most influential impact on the audiences' minds. The teacher made use of the summaries of the books which were taught each session to help the students improve their critical thinking. Additionally, an Instagram account was created by the teacher and the posts, reels, and stories adopted from some Instagram accounts available in Instagram Explore were re-shared there. The experimental group were required to follow the account and participate in the process and interact with their peers and the researchers. The content was mostly adopted from the accounts active in social and political news and issues, but, they were not as famous as the ones mentioned earlier. Hence, this was not easy for the participants to find these accounts and view what they presented. The teacher eased the process of finding new contents by searching and obtaining these materials and presenting them in the account of the class. The teacher would upload questions in stories and the learners were required to answer the questions by replying the stories. The teacher would read all the messages received and answer them. The responses were also uploaded as stories until all the participants could see their classmates' responses and the teacher's explanations. The teacher also made some videos using *Inshot* application. In the videos the teacher provided some explanations on the videos which were presented in @euronews, @bbc, @voa, @cnn, @reuters, @foxnews, and @france24\_en and the account of the class. It was a way of online learning where students could see their teacher explaining critical thinking instructions in a context other than classroom setting. The teacher also held meetings once a week via Instagram Live and the learners could interact with their teacher and peers by talking in the Live via their cameras or commenting on the Live while others were speaking. The teacher adopted a turn taking strategy and each session was devoted to letting five students attend the Live by their cameras on and interacting with their teacher. The comments under each Instagram Post uploaded in the classroom account provided the users with an opportunity for having discussions. Everybody was supposed to write his/her comments regarding the uploaded post and then the interactions among the learners and the teacher would begin.

### **Posttest**

At the end of the treatments, California Critical Thinking Skills Test (CCTST) and California Critical Thinking Disposition Inventory (CCTDI) were administered online. The participants were required to consult [www.insightassessment.com](http://www.insightassessment.com) and take the tests. The participants sent the tests' results to their teacher via e-mail.

### **Interview (Appendix A)**

As the final phase of this study, fifteen members of the experimental group were interviewed. These fifteen students were selected based on their scores on the posttest. Five of them were the top five high scorers, the other five ones were average, and the last five ones had scored the lowest in the group. To provide the participants with the opportunity to state their attitudes and express their emotions precisely, the researchers



conducted the interviews in the participants' native language which was Persian; so their English proficiency would not be an obstacle preventing them from declaring their attitudes precisely. Each interview lasted 30 min which was recorded and transcribed verbatim. The teacher translated the interviews into English and the other researcher checked the transcripts to make sure that they were translated appropriately. The focus of the interview was on the participants' suggestions and criticisms of the study.

### Procedure

For doing this research *Nonrandomized Control Group, Pretest–Posttest design* (Ary et al., 2019) was employed. Ninety-eight students of three branches of a language institute in Iran with a limited age range (20–24 years old) including 40 males and 58 females participated in this study. They were selected through purposive sampling and shared the same L1 which was Persian. Based on their scores on DIALANG, two equal groups were formed as experimental and control. Then as the pretest, California Critical Thinking Skills Test (CCTST) and California Critical Thinking Disposition Inventory (CCTDI) were administered online. The participants were required to consult [www.insightassessment.com](http://www.insightassessment.com) and take the tests. The participants sent the tests' results to their teacher via e-mail. The control group received instructions for critical thinking in class without using Instagram. They were studying their coursebooks during the semester which were *Viewpoint (2)* and *Oxford Word Skills (Advanced)*. Moreover, Halpern (2014), *Thought and Knowledge: An Introduction to Critical Thinking* and Corey (2010), *Audio Production and Critical Listening* were taught in addition to the coursebooks. The treatment lasted for 12 weeks each week for two sessions and each session for 2 h. The researchers prepared summaries of each unit of the books and presented them during 30 min in each session. The 30-min-instruction was delivered at the beginning of each session and the rest of time (90 min) was devoted to teaching the coursebooks. The control group were asked to watch some TV channels devoted to news. The channels introduced to them were Euronews, BBC, VOA, CNN, Reuters, Foxnews, and France 24–En. The control group were asked to watch these channels daily on TV to view videos about political subjects. Two important political issues that the participants had viewed some contents about prior to the upcoming session would become the subject of classroom discussion. The teacher and all the students would participate in the discussion to identify the strategies used for making and presenting the content in the channels to have the most influential impact on the audiences' minds. The teacher made use of the summaries of the books which were taught each session to help the students improve their critical thinking. The experimental group studied *Viewpoint (2)* and *Oxford Word Skills (Advanced)* as their coursebooks. Moreover, Halpern (2014), *Thought and Knowledge: An Introduction to Critical Thinking* and Corey (2010), *Audio Production and Critical Listening* were taught in addition to the coursebooks. The treatment lasted for 12 weeks each week for two sessions and each session for 2 h. The researchers prepared summaries of each unit of the books and presented them during 30 min in each session. The 30-min-instruction was delivered at the beginning of each session and the rest of time (90 min) was devoted to teaching the coursebooks. The experimental group, who were all Instagram users, were asked to view @euronews, @bbc, @voa, @cnn, @reuters, @foxnews, and @france24\_en on Instagram daily with the aim of watching videos about

political subjects presented in the accounts and analysing the analyses presented there. Two important political issues that the participants had viewed some contents about prior to the upcoming session would become the subject of classroom discussion. The teacher and all the students would participate in the discussion to identify the strategies used for making and presenting the contents in the accounts to have the most influential impact on the audiences' minds. The teacher made use of the summaries of the books which were taught each session to help students improve their critical thinking. Additionally, an Instagram account was created by the teacher and the posts, reels, and stories adopted from some Instagram accounts available in Instagram Explore were re-shared there. The experimental group were required to follow the account and participate in the process and interact with their peers and the researchers. The content was mostly adopted from the accounts active in social and political news and issues, but, they were not as famous as the ones mentioned earlier. Hence, this was not easy for the participants to find these accounts and view what they presented. The teacher eased the process of finding new contents by searching and obtaining these materials and presenting them in the account of the class. The teacher would upload questions in stories and the learners were required to answer the questions by replying the stories. The teacher would read all the messages received and answer them. The responses were also uploaded as stories until all the participants could see their classmates' responses and the teacher's explanations. The teacher also made some videos using *Inshot* application. In this videos the teacher provided some explanations on the videos which were presented in @euronews, @bbc, @voa, @cnn, @reuters, @foxnews, and @france24\_en and the account of the class. This was a way of online learning where the students could see their teacher explaining critical thinking instructions in a context other than classroom setting. The teacher also held meetings once a week via Instagram Live and the learners could interact with their teacher and peers by talking in the Live via their cameras or commenting on the Live while others were speaking. The teacher adopted a turn taking strategy and each session was devoted to letting five students attend the Live by their cameras on and interacting with their teacher. The comments under each Instagram Post uploaded in the classroom account provided the users with an opportunity for having discussions. Everybody was supposed to write his/her comments regarding the uploaded post and then the interactions among the learners and the teacher would begin. After the treatments ended, California Critical Thinking Skills Test (CCTST) and California Critical Thinking Disposition Inventory (CCTDI) were administered online. The groups were required to consult [www.insightassessment.com](http://www.insightassessment.com) and take the tests. The participants sent the tests' results to their teacher via e-mail. Finally, fifteen members of the experimental group were interviewed (Appendix A). The focus of the interview was on the participants' suggestions and criticisms of the study.

### **Data analysis**

The teacher was in charge of analysing the data. For answering the research question (1), first, the tests' descriptive statistics were calculated for both groups. Then the Independent Samples t-test and Paired Samples t-test were run to determine the effectiveness of using Instagram on EFL learners' critical thinking. In this study, group membership was the independent variable with two levels (i.e. experimental and control) and the learners'



**Table 1** Descriptive statistics of the experimental and control groups' CCTST (pretest) scores

CCTST	Group	N	Mean	SD
Total score	Exp Group	49	11.30	2.17
	Con Group	49	11.29	2.23
Analysis	Exp Group	49	3.70	1.80
	Con Group	49	3.90	1.22
Evaluation	Exp Group	49	4.20	1.14
	Con Group	49	4.58	1.88
Inference	Exp Group	49	3.40	1.37
	Con Group	49	2.81	0.84

**Table 2** Descriptive statistics of the experimental and control groups' CCTST (posttest) scores

CCTST	Group	N	Mean	SD
Total score	Exp Group	49	13.10	2.37
	Con Group	49	11.33	2.20
Analysis	Exp Group	49	4.95	1.71
	Con Group	49	3.95	0.91
Evaluation	Exp Group	49	4.70	1.57
	Con Group	49	4.53	2.08
Inference	Exp Group	49	3.45	1.18
	Con Group	49	2.85	0.65

scores on the posttest were the dependent variable; additionally, the learners' scores on the pretest were considered as the covariate to partial out their background knowledge of the educational materials. The difference scores of the two groups on (CCTST) and (CCTDI) were evaluated employing the Independent Samples t-test and analysis of variance (ANOVA) which were calculated by utilising the Statistical Package for the Social Sciences (SPSS). For answering the research question (2), fifteen members of the experimental group were interviewed and their assertions were analysed. Each interview lasted 30 min which was recorded and transcribed verbatim. The focus of the interview was on the participants' suggestions and criticisms of the study.

## Results

### Research question (1)

The question this research tried to answer was "Does any significant difference exist between critical thinking proficiency of EFL learners who receive critical thinking instructions in class and via Instagram and EFL learners who receive instructions only in class without using Instagram?". As a part of the pretest, CCTST was utilised to assess the participants' critical thinking skills. Table 1 represents the descriptive statistics of the two groups' marks on CCTST (pretest).

By comparing the total scores of both groups, it could be inferred that the experimental group ( $M = 11.30$ ) scored slightly higher on CCTST (pretest) than the control group ( $M = 11.29$ ). After administering the pretest, the two groups received their treatments

**Table 3** Descriptive statistics of the independent samples t-test for the experimental and control groups' CCTST scores

CCTST	Exp-Con Group	t	p
Total score	Pretest	0.013	0.990
	Posttest	2.089	0.045
Analysis	Pretest	-.519	0.610
	Posttest	2.269	0.030
Evaluation	Pretest	-.940	0.360
	Posttest	0.380	0.699
Inference	Pretest	1.798	0.077
	Posttest	0.930	0.358

**Table 4** Descriptive statistics of the paired samples t-test for the experimental and control groups' CCTST scores

CCTST	Pretest-Posttest	t	p
Total score	Experimental	-2.779	0.020
	Control	-0.300	0.767
Analysis	Experimental	-2.697	0.010
	Control	-0.369	0.696
Evaluation	Experimental	-2.240	0.031
	Control	0.365	0.699
Inference	Experimental	1.088	0.290
	Control	-0.400	0.731

and then the posttest was administered. Table 2 represents the descriptive statistics of the two groups' marks on CCTST (posttest).

To examine the statistical differences between the two groups' marks on CCTST (pretest and posttest), the Independent Samples t-test was employed. Table 3 represents the results of the Independent Samples t-test.

It is obvious that the Total Score and the Analysis subscale mark of the experimental group were substantially greater than the control group on the CCTST (posttest), while the two groups' performances on the CCTST (pretest), in terms of the Total Score and all the subscales were not substantially different.

To determine the statistical difference between the pretest and posttest marks of the experimental group, the Paired Samples t-test was employed. Table 4 represents the descriptive statistics of the Paired Samples t-test.

As represented in Table 4, the statistical difference for the control group's pretest and posttest marks was assessed by running the Paired Samples t-test for the Total Score and the subscale marks of CCTST. No significant difference was found for Total Score of CCTST ( $t = -0.300$ ;  $p = 0.767$  [ $> 0.05$ ]), the subscale score of Analysis ( $t = -0.369$ ;  $p = 0.696$  [ $> 0.05$ ]); the subscale score of Evaluation ( $t = 0.365$ ;  $p = 0.699$  [ $> 0.05$ ]); and the subscale score of Inference ( $t = -0.400$ ;  $p = 0.731$  [ $> 0.05$ ]) as the results of the Paired Samples t-test proved. The statistical difference for the experimental group's pretest and posttest scores was assessed, too. Based on the results of the Paired Samples t-test for

the Total Score and the subscale scores of CCTST, there were substantial differences for the Total Score ( $t = -2.779$ ;  $p = 0.020$  [ $< 0.05$ ]), the subscale of Analysis ( $t = -2.697$ ;  $p = 0.010$  [ $< 0.05$ ]), Evaluation ( $t = -2.240$ ;  $p = 0.031$  [ $< 0.05$ ]), and Inference ( $t = 1.088$ ;  $p = 0.290$  [ $< 0.05$ ]). Therefore, it can be concluded that using Instagram positively influenced the experimental group’s critical thinking skills and they got better scores on the posttest in comparison with the control group.

As the other part of the pretest and to examine the participants’ critical thinking dispositions, CCTDI was also administered. Table 5 represents the descriptive statistics of the experimental and control groups’ scores on CCTDI (pretest).

As shown in Table 5, the experimental group’s critical thinking dispositions were slightly higher in comparison with the control group. Nevertheless, the total critical thinking scores of the two groups were not substantially different ( $t = 0.340$ ;  $p = 0.729$  [ $> 0.05$ ]). Thus, it can be inferred that the two groups had similar critical thinking dispositions.

No substantial difference was seen between the marks of the two groups on the CCTDI (pretest). To examine the difference between the two groups’ marks on the pretest and posttest, the One Way Analysis of Variance (ANOVA) for non-related measurements was used. Table 6 represents descriptive statistics of the pretest–posttest difference scores.

As shown in Table 6, critical thinking dispositions difference marks for the experimental and control groups were  $X = 17.95$  and  $X = 5.100$  respectively. The experimental group’s difference mark was greater. To ensure that the difference between the two groups’ critical thinking disposition scores was significant, ANOVA was run and Table 7 represents its results.

Based on the descriptive statistics presented in Table 7, a substantial difference was observed in terms of the two groups’ pretest–posttest difference scores in critical

**Table 5** Descriptive statistics of the experimental and control groups’ CCTDI (pretest) scores

Group	N	X	sd	t	df	p
Experimental	49	239.01	19.966	0.340	54	0.729
Control	49	237.94	21.260	0.340	54	0.729

**Table 6** Pretest–posttest CCTDI difference scores of the experimental and control groups

Group	N	X	sd
Experimental	49	17.95	15.002
Control	49	5.100	23.007

**Table 7** Variance analysis of difference scores for the experimental and control groups on CCTDI pretest and posttest

	Sum of Squares	df	Mean Score	F	p
Between Groups	2351.862	1	2351.862	7.020	0.010
Within Groups	20,601.056	51	384.011		
Total	22,952.918	52			

**Table 8** Descriptive statistics of the pretest–posttest difference scores for the subscales of CCTDI

Subscales	Group	N	X	sd	t	df	p
Analyticity	Experimental	49	3.910	4.420	3.111	51	0.040
	Control	49	0.880	4.260			
Open-mindedness	Experimental	49	4.410	4.597	3.383	51	0.010
	Control	49	-.280	5.701			
Inquisitiveness	Experimental	49	3.86	4.876	3.477	51	0.036
	Control	49	1.52	4.969			
Self-confidence	Experimental	49	4.69	8.201	3.021	51	0.039
	Control	49	1.95	9.101			
Truth-seeking	Experimental	49	5.39	7.301	3.225	51	0.019
	Control	49	1.41	7.011			
Systematicity	Experimental	49	3.74	8.995	3.095	51	0.043
	Control	49	0.850	6.892			

thinking dispositions ( $F = 7.020$ ,  $p < 0.05$ ). Therefore, it can be concluded that using Instagram positively influenced the experimental group's critical thinking dispositions. Table 8 represents the differences between the experimental and control groups' marks in terms of the subscales of CCTDI.

As shown in Table 8, the two groups' critical thinking dispositions substantially differed at all the subscales of CCTDI and the experimental group got higher scores. Thus, it can be concluded that using Instagram positively influenced the critical thinking dispositions of the experimental group and they improved more than the control group.

### Research question (2)

The research question (2) was "What are EFL learners' perspectives on using Instagram for learning English in language institutes?". With the aim of obtaining qualitative data, fifteen members of the experimental group were interviewed (Appendix A). These fifteen students were selected based on their scores on the posttest. Five of them were the top five higher scorers, the other five ones were average, and the last five ones had scored the lowest in the group. A thematic analysis of the participants' assertions in the interviews revealed five broad themes: (1) using Instagram for teaching listening, speaking, reading, and writing, (2) using Instagram for teaching vocabulary, grammar, and pronunciation, (3) the difficulties they faced when viewing the Instagram accounts and educational material, (4) their improvement in terms of critical thinking, and (5) their improvement in using English both formally and informally. The participants' assertions have been provided here by using pseudonyms.

(1) Using Instagram for teaching listening, speaking, reading, and writing:

Seven of the participants stated that teachers had better utilise Instagram for teaching listening, speaking, reading, and writing. They believed that Instagram could also be used for receiving educational materials relating to critical listening, speaking, reading, and writing.

*Ali: In my opinion, teachers should use Instagram for teaching listening, speaking, reading, and writing, too. I liked critical thinking instructions and also like to*

*receive critical listening, speaking, reading, and writing instructions. Instagram is a very good tool for delivering educational material to learners for all language skills.*

(2) Using Instagram for teaching vocabulary, grammar, and pronunciation:

Seven of the participants declared that teachers should make use of Instagram for teaching vocabulary, grammar, and pronunciation. They said this way of education would be easier and more effective because it constantly keeps learners in touch with the educational materials and English language.

*Kaveh: I think teachers can use Instagram for teaching vocabulary and grammar. I usually use Instagram a couple of hours a day and teachers sharing educational materials via Instagram provides me with the opportunity to constantly review my previous lessons and learn the new ones. This really eases leaning.*

They had difficulty understanding native speakers' pronunciation and accent. But, after viewing the Instagram accounts and the account of the class, their listening skill improved. Their pronunciation improved as well. They no longer had difficulty comprehending native speakers' speaking and could even make improvements to their accent.

*Artin: My pronunciation and accent improved after using Instagram for learning English. I always had difficulty understanding native speakers' speaking which I believe was due to their accent and pronunciation. By using Instagram, my listening skill improved which consequently led to the improvement in my speaking skill. I wish I had used Instagram for learning English a long time ago.*

(3) The difficulties they faced when viewing accounts and the educational materials:

All of the participants stated that they faced difficulties at the start of the treatment. They said that they were confused about how to manage their learning and make the most of their opportunities. They said that it was hard for them to understand native speakers' speaking due to their use of new vocabulary, complicated grammatical structures, pronunciation, and their accents. They also had difficulties understanding the political analyses presented in the accounts they were supposed to visit. But, when talking about the Instagram account created by the teacher, they all admitted that the contents presented there were more comprehensible. The reason was the fact that the teacher prepared and presented the contents which pertained to the units of the textbooks taught at the language institute. The participants had background knowledge in this regard and were familiar with the contents. In addition, the teacher was perfectly aware of the participants' English proficiency level; when preparing the contents, he knew what to select to be in line with the learners' knowledge and needs.

*Sepideh: At the start of the treatment, I felt kind of confused in using Instagram for learning English. Additionally, it was difficult for me to learn from the Instagram accounts that I was supposed to visit. Since the political analyses were complicated and the language used for discussing them was complex too. It was hard for me to understand native speakers' speaking. The situation was much better when viewing the Instagram account created by our teacher.*

Despite all the difficulties they faced at the beginning of the treatment, they could improve and adapt to the new learning method. They could take advantage of the opportunities provided for them and were pleased with the treatment in the end.

(4) Their improvement in terms of critical thinking:

All of the participants believed that using Instagram was very effective for improving their critical thinking. They all praised the selection of the Instagram accounts that were introduced to them and all of them stated that prior to participating in the study, they had very little knowledge about the concept of critical thinking. They declared that receiving critical thinking instructions in class and studying the books which were introduced were effective in introducing the concept of critical thinking to them; but, without using Instagram, they could not improve as much as they did. Furthermore, they stated that viewing posts, stories, reels, and lives on Instagram was very interesting to them and encouraged them to learn as well as easing the process of learning for them. They had also enjoyed reading the comments posted in the accounts and liked to comment on the posts and declare their ideas and perceptions. They also said that they had been able to interact with other users and the interactions had made the experience even more exciting to them. However, the participants believed that the selected accounts had a similar focus in terms of content and suggested that introducing more Instagram accounts with more varied contents could be so much better. They also criticised the contents presented in the Instagram account of our class and believed that the efforts which were made to make the contents varied were not enough.

*Saba: I knew a little about the concept of critical thinking; but, after receiving the instructions in class, my knowledge increased a lot. I liked the books which were introduced and appreciate our teacher's efforts regarding the way the course was planned. I enjoyed having classroom discussions with my peers, but, I believe using Instagram played a very important role in developing and improving my critical thinking. However, the contents of the Instagram accounts that we consulted and even that of our own class were kind of monotonous. I was sometimes bored and I believe the educational materials should be more varied and interesting.*

(5) Their improvement in using English formally and informally:

Eight of the participants believed that the way they received the instructions helped them identify the differences between formal and informal English language use. When listening to experts being interviewed, the participants could learn how to speak English formally in those kind of formal conversations. Moreover, they could learn informal English language use by listening to people having casual conversations and interviews. Consequently, the participants' listening proficiency improved and so did their speaking skill. They also had the chance to become familiar with cultural differences and improve their cultural knowledge.

*Zeynab: After using Instagram for learning English I could recognise the differences between formal and informal English language use. There were many precious points that I had never paid attention to. Communication skills could be perfectly taught via Instagram since learners have the chance to witness the way native speakers interact in various social situations.*



## Discussion

This research aimed to examine the influence of using Instagram on EFL learners' critical thinking in language institutes. The question that this study tried to answer was "Does any significant difference exist between critical thinking proficiency of EFL learners who receive critical thinking instructions in class and via Instagram and EFL learners who receive instructions only in class without using Instagram?". The two groups' close mean scores on the pretest showed their same level of proficiency in critical thinking. But, on the posttest they had different mean scores which could be considered as the evidence supporting the superiority of the instructions that were taught to the experimental group. The experimental group's critical thinking proficiency improved significantly and they performed more successfully on the posttest compared with their counterparts in the control group. Comparing the two marks of the control group, it could be inferred that their performance slightly improved on the posttest. Perhaps they had practiced critical thinking skills independently after taking the pretest and became interested. Moreover, attending their classes and being taught based on a traditional approach certainly contributed to their improvement. Additionally, taking the pretest helped them gain experience and consequently perform better on the posttest. Nevertheless, they could not perform as well as the experimental group on the posttest. Based on the results of this study, utilising Instagram improved the experimental group's critical thinking skills and dispositions. Thus, Instagram can be utilised as a means for delivering critical thinking instructions and practicing it as well as motivating and encouraging learners to think critically. The second research question was "What are EFL learners' perspectives on using Instagram for learning English in language institutes?". The experimental group had positive perceptions of the study. The participants believed that the treatment of the study was effective for promoting their critical thinking. They were also satisfied with using Instagram in educational courses. However, the participants criticised the focus of the research project and believed that Instagram had to be used for teaching all the language skills, but we had narrowed down the scope of the study and restricted it to critical thinking to get the specific results we had in mind. The teacher tried to train the experimental group the best way possible, however, the participants might have some criticisms about teacher's competency. Maybe we could ask for their opinions during the treatment and by listening to them the teacher could improve his teaching practice. The researchers selected the instructional materials on their own. Perhaps knowing the students' interests and ideas in this regard could help the researchers provide the learners with the educational materials they would enjoy. In terms of working with Instagram, the researchers focused on the accounts which were devoted to political subjects. The Instagram accounts they selected were all devoted to news which might not have been very pleasant to the participants. The teacher tried to present attractive and interesting contents in the Instagram account created for the class; but, the efforts were not enough to satisfy the students very much. Based on the findings of this study, it could be concluded that the researchers had to talk with the participants about instructional matters before and during the conduction of the study. Maybe that way the researches could achieve more fruitful results and the learners would be more satisfied as well. Despite all the criticisms and negative points that the researchers identified, the participants generally had positive perceptions of the study. The findings of this study were in line with

Erarsalan (2019) who found that the students had positive attitudes toward employing Instagram for pedagogical goals. Likewise, Gonlul (2019) found that the students' overall opinions about utilising Instagram were positive and they virtually regarded Instagram as a good mobile learning tool. They also considered Instagram as an easy and convenient way of improving communication skills. Contrary to our findings, Gonlul (2019) reported that the participants had relatively negative attitudes toward using Instagram for improving grammar knowledge or overcoming structure-related mistakes because of the prevalence of the informal language used on Instagram. In addition, they believed that Instagram was not an optimal mobile language learning tool for contents or skills that are cognitively demanding.

## Conclusion

The period of time during which we conducted our study was short. We suggest that future studies be conducted during a longer period of time. Moreover, the time devoted to delivering instructions via Instagram can be enhanced by increasing the number of online sessions and the time devoted to each session. This study was restricted to the context of language institutes; we suggest that future studies be conducted in pedagogical contexts of ESL/EFL other than language institutes. Learners at higher or lower proficiency levels from our participants can be selected as participants, too. However, care should be taken that the educational materials used for the conduction of the study should be appropriate for their English proficiency level. Even choosing Instagram accounts for the participants' consultation should be checked in advance in order not to be unsuitable for them. In case of creating a classroom account, the content should be presented with careful consideration of the participants' proficiency in English. In this study, we did not investigate the role of gender in the experimental group's progression in critical thinking after receiving the treatment. Future studies can investigate the role of gender in ESL/EFL learners' improvement after receiving critical thinking instructions via Instagram. Furthermore, we did not investigate the role of our participants' gender in forming their perceptions' of receiving critical thinking instructions via Instagram. Future studies can investigate the role of the participants' gender in forming their perceptions of receiving critical thinking instructions via Instagram. Additionally, teachers can be considered as participants as well to know their ideas and experiences of using Instagram or other mobile applications for teaching critical thinking.

## Appendix

### Semi-structured interview

1. How was learning by Instagram?
2. How did using Instagram affect your language skills?
3. Did Instagram ease or complicate the learning process?
4. How was learning critical thinking by Instagram?
5. What did you learn by using Instagram in terms of language use?

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**Author contributions**

MZ designed the study, performed the statistical analyses, wrote the first draft of the manuscript, administered and rated the homogeneity test (DIALANG), taught the experimental and control groups, and administered the pretest and posttest and analysed their results. NY commented on the first draft of the manuscript. The authors have accepted responsibility for the entire content of this manuscript and approved its submission.

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All data generated or analysed during this study are included in this published article.

**Declarations****Competing interests**

The authors declare that they have no competing interests.

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