The Role of Discussion Styles in Developing EFL Persuasive Writing and Critical Thinking Skills of Postgraduate Students

The Researcher
Riham Ahmad Mahmoud Allam

Dr. Zeinab A. ElNaggar
**Professor of Curriculum & Instruction (EFL)
Faculty of Education
Ain Shams University**

Dr. Dalia I. Yahia
**Lecturer of Curriculum & Instruction (EFL)
Faculty of Education
Ain Shams University**

ABSTRACT

This study aimed at exploring the impact of Online Threaded Discussion on developing persuasive writing and critical thinking skills of Master in Business Administration (MBA) and Doctorate in Business Administration (DBA) Students – Faculty of Business, Ain Shams University. Participants were 30 MBA and DBA Students. They were assigned equally to three groups; the *first* face-to-face experimental group which was taught using Fishbowl Discussion Strategy, the *second* experimental online group was taught using Online Threaded Discussion and the *third* experimental blended group was taught using both Online Threaded Discussion and Fishbowl Discussion Strategy. The instruments used in this study were *a pre-post persuasive writing test and a pre-post critical thinking test*. The working LEA program was administrated to the three experimental groups in 2023 at *El Sewedy Electric Group*. The results showed that there was statistically significant overall improvement of students' persuasive writing and critical thinking skills. Implications and recommendations as well as suggestions for further studies were provided.

Key Words: Online Threaded Discussion, Persuasive Writing, Critical Thinking, Egyptian MBA and DBA Students

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Introduction

The third millennium witnesses a continuous change and a rapid development in all areas, notable among these is the huge technological revolution. The dawning of the information age and the rapidly changing technology of the Internet and World Wide Web have created many opportunities as well as challenges for modem educators.

On one hand, Fisher (2008:106) referred that thinking needs a stimulus – such as a story, a problem, or a question. It also needs something to sustain it. What sustain thinking is either inner dialog (thinking to oneself) or dialog with others (thinking aloud).

On the other hand, there is the discussion, wherein two or more people assist one another in finding the answers to difficult questions. That is, it is not enough simply to "learn" facts, to memorize lessons, or to parrot information. For example, in Harrington's point of view (2011:5): to know truly, one should work toward understanding. If the question "what" leads to specify what

one does and does not know, then the question "why" leads one to understand the world in a more full and fundamental manner.

From what has been presented, it is clear that there are three threads. *First*, a new trend that manifests itself in technology which carries challenges for both educators and learners. *Second*, thinking skills which help learners to objectively and rationally select among alternatives, and solve problems systematically. *Third*, discussion that is based on questioning and inquiry. Consequently, there is a necessity to find a strategy that uses discussion as its core to promote students' critical thinking skills and sustain the technological new trend, too.

Statement of the Problem

The research problem can be identified in MBA and DBA Students' poor mastery of the necessary persuasive writing and critical thinking skills. Consequently, this study is an attempt to find an answer for the following main question:

"What is the effect of online threaded discussion and fishbowl discussion strategy on MBA (Master of Business Administration) students & Doctorate of Business Administration (DBA) students' persuasive writing and critical thinking skills?"

In order to answer this main question, the following sub-questions were also answered:

1. What are the required EFL persuasive writing skills for MBA and DBA students?
2. What are the required EFL critical thinking skills for MBA and DBA students?
3. What are the features of designing a program using Online Threaded Discussion, Fishbowl Discussion Strategy and Blended Learning to develop EFL persuasive writing and critical thinking skills for MBA and DBA students?
4. How far is this program effective in developing persuasive writing and critical thinking skills of MBA and DBA students?

Significance of the Study

It is expected that this study would benefit the following categories:

1. Educational Institutions:

It is expected that educational institutions would benefit from this study due to the free operational cost of the Moodle Application compared to other costly applications or educational platforms.

2. MBA and DBA Students:

This category would benefit the most from the study by enhancing their Persuasive Writing and Critical Thinking through the implementation of Online Threaded Discussion which shifts education from being teacher-centered to student-centered and where students' learning becomes the focus of attention.

Delimitations of the Study

This study was delimited to the following:

1. Discussion styles include the following:
  a. Fishbowl Discussion Strategy.
  b. Online Threaded Discussion.
  c. Blended Learning.
2. Three intact MBA and DBA students from El Sewedy Electric. These students were randomly assigned the three experimental groups as follows:
  a. a face-to-face group that used Fishbowl Discussion Strategy,
  b. an online group that used Online Threaded Discussion,
  c. a blended group that used both Online Threaded Discussion and Fishbowl Discussion Strategy.
3. Participants of the study were thirty students divided into three groups, ten students in each group.

Hypotheses of the Study

1. "There will be statistically significant differences between the mean scores of the three experimental groups in the post-administration at 0.05 level of the Pre-Post persuasive Writing test as a whole".

2. "There will be statistically significant differences between the mean scores of the three experimental groups in the post administration at 0.05 level of the Pre-Post persuasive writing sub-skills test".

3. "There will be statistically significant differences between the mean scores of the three experimental groups in the post administration at 0.05 level of the Pre-Post critical thinking test as a whole".

4. "There will be statistically significant differences between the mean scores of the three experimental groups in the post administration at 0.05 level of the Pre-Post critical thinking sub-skills test".

5. "The program has an effect on students' satisfaction in the three experimental groups".

Theoretical Background
1) Online Threaded Discussion
♣ Online Threaded Discussion Nature

One of the communities of practice in Internet-based computer-mediated settings is Online Threaded Discussion (OTD), Asynchronous Discussion or Online Discussion Board. It is one component of the various types of computer-mediated communication venues. Seel (2012: 345) defined OTD as a form of remote teaching and learning approach where learners communicate with each other from a distance in a structured way. It enables leaners to build a virtual learning community, which is defined as a social and mutually supportive network of learners. Collaboration is essential to the process which is based on interactions either among the students or between the students and the instructor.

According to (Moller & Huett 2012: 9) online discussion forum serves as an environmental facilitator or mediator that allows learners to interact with the content and each other. In addition, it permits learners to evaluate and react to what others are contributing. Learners can compare ideas with existing knowledge representations and then synthesize and construct responses. New

knowledge can be presented through analysis and argumentation. Also, (Constantinou, et al., 2009:33) added that online discussion board is a form of Asynchronous Multimedia Collaborative Learning (AMCL). This form of learning combines the richness of multimedia representation and demonstrations, i.e. users can post messages that include videos, audios, images (not only texts).

♣ Online Threaded Discussion Importance

Regarding online threaded discussion importance, many researchers tried to investigate it from different perspectives. Talbott (2020) examined the relationship between online student discussion-board activity and their grades and, consequently, addressed the lack in the literature about this relationship. The participants for this study were 200 online business students randomly selected in math-based business courses at Midwestern University. In this study, student discussion-board posting measured students' involvement, and students' scores, consequently, measured students' output. Regression-analysis of the findings supported the relationship between student postings of certain mathematical-symbol references i.e., for equalities, inequalities, addition, subtraction, multiplication, and division and students' grades although some hypotheses did not have statistical support.

Cole, et al., (2020) conducted two studies over a period of three and one-half years that focused on the role that threaded discussion plays in students' learning. The researchers conducted a series of surveys of graduate and undergraduate students at a private, university in Southwestern Pennsylvania to determine how students viewed the value of threaded discussions in enhancing their ability to learn course material. The two studies examined students' attitudes toward four aspects of threaded discussion: preferred discussion format, perception of their value to learning, perception of their effectiveness as a learning assessment method, and their usefulness as an instructional tool. Results revealed statistically significant differences with regard to a preference for classroom

versus online instruction and the usefulness of threaded discussions to learning.

2) Persuasive Writing

♣ **Persuasive Writing Nature**

Basu (2009: 11) defined persuasive writing as an attempt to convince the reader to perform an action, or it simply consists of an argument or several arguments to align the reader with the writer's point of view. Generally, it uses sound reasoning and solid evidence by stating facts, giving logical reasons, using examples, and quoting experts. Güneş (2013: 17) added that persuasive writing texts are created by specifying, reasoning, expressing opinions, predicting, and justifying the reasons for requests acceptable to others. Also, (Felton & Herko 2004: 673) mentioned that persuasive essays should include elements of argument that often emerge over the course of multiple conversational turns between disagreeing partners. In other words, writers should predict potential objections from a critical audience and address them in advance. They ought to clarify the bounds of their position by defending their claims and acknowledging counterarguments and rebutting them.

♣ **Persuasive Writing and Online Threaded Discussion**

In this digital era, researchers have speculated that there may be a relationship between the use of online discussion and the development of persuasive writing. A study by (Mutiaraningrum & Cahyono, 2015) examined online debate in argumentative writing course by exploring the potentials and challenges. The study involved 48 Indonesian EFL students attending argumentative writing course at the university level. Results showed that potentials of online debate were in the form of time flexibility, learning autonomy and critical thinking. In addition, the study also revealed that emergence of delayed responses, confusion in the implementation on the part of the students, and technical problems dealing with signing up and posting delivery were among the challenges that the students faced.

(Stasaitis, 2016) investigated seventh-grade English-Language Arts students' argumentative writing productions and demonstration of cognitive complexity on a blog site. He also examined the teacher's ability to refine instructional planning strategies that impact student learning. The study was designed around argumentative writing theories that emphasized students' collaborative efforts in an online blogging forum. Two, four-week of instruction guided by data analysis produced a supportive evidence of teachers utilizing integrated writing in their classrooms, primarily teachers using conferences to support students with individualized instruction during the drafting process of writing. Findings revealed that intervention instruction should focus on the ideational epistemology of writing and synthesis in cognitive complexity while giving students the opportunity to collaborate on argumentative blogs.

(Xia et al., 2022) designed tool that helped users improve the persuasiveness of arguments in online discussions through a survey with 123 online forum users and interviews with five debating experts. Then, the researchers built a labeled dataset of fine-grained persuasive strategies (i.e., logos, pathos, ethos, and evidence) in 164 arguments with high ratings on persuasiveness from ChangeMyView,   a popular online discussion forum. After that, they designed an interactive visual system, Persua, which provided example-based guidance on persuasive strategies to enhance the persuasiveness of arguments. The results showed that Persua helped the learners enhance persuasiveness in their arguments more compared to a baseline system.

3) Critical Thinking
♣ **Critical Thinking Nature**

Considering critical thinking definition, (Davies & Barnett, 2015: 99) concluded that critical thinking involves three main cognitive skills. The first is *reasoning*, which comprises the ability to identify and explore evidence using particular generic methods such as

reading, discussion, inference and explanation. A second skill involves *evaluation*, which comprises the skills of interpretation and analysis. A third skill includes the capacity for *reflection* or self-regulation that supports a "disciplined" ability to seek out knowledge and evidence. (Behar-Horenstein & Niu, 2011) also mentioned that critical thinking skills include the ability to challenge one's own thinking and change one's beliefs in response to the evaluation of new arguments that challenge current thinking.

♣ **Critical Thinking and Argumentation**

In his attempt to explain the relationship between critical thinking and argumentation in higher education, (Andrews, 2015, 57) mentioned that the development of argumentation skills is based on the combination of a number of key elements as follows:

1. *disposition* on the part of students to be critical. It means that they should weigh up different points of view; be able to separate claims and propositions from evidence; question received assumptions; hold a skeptical attitude toward facts and assumptions.
2. *disposition* on the part of university professors and lecturers to accept and promote such a critical approach.
3. *knowledge* of some of the theories and models of argumentation that are applicable.
4. *awareness* of the way argument is manifested.
5. disposition of a mutual part between lecturers and students, to "*drill down at the points of dispute*" within a discipline where knowledge is contested.
6. understanding on the part of lecturers and students that *development* of such argumentational skills is expected to take time for students to be equipped with the ability to argue well.

In their part, (Davies & Barnett, 2015: 8) stated that critical thinking in higher education has six distinct, yet integrated and permeable, dimensions: (1) core skills in critical argumentation (reasoning and inference making), (2) critical judgments, (3) critical-thinking dispositions and attitudes, (4) critical being and

critical actions, (5) societal and ideology critique, and (6) critical creativity or critical openness.

Critical Thinking in Online Threaded Discussion

Online threaded discussions have the potential to foster a deep level of critical thinking for many reasons, including the unconstrained time allowed for participants to compose their posts. This allows participants to be more thoughtful and deliberate in researching and composing their ideas and expressing their opinions, enabling participants to produce higher levels of critical thinking compared to the level of critical thinking achieved in face-to-face discourse (Guiller et al., 2008: 197).

In addition, through online forum, students and instructors are able to discuss and share their knowledge and expertise without having a need to attend the face-to-face, ordinary classroom session. This motivated (Bazid & Umar, 2014) to analyze the students' levels of participation and critical thinking, types of action and factors influencing their participation in online forum. A total of 41 postgraduate students undertaking a course in educational technology were involved. The students participated in a weekly online forum. Their messages were analyzed to measure their level of critical thinking. The findings indicated that online forum allowed for social interaction and could be used to measure the students' critical thinking skills.

In their study, (Bernstein & Isaac, 2018) based it on the idea that a 21st-century challenge is to promote meaningful engagement in online courses, and student development of critical thinking skills is an essential aspect of higher order learning. In addition, evaluation of critical thinking in online discussions is often facilitated by the use of rubrics; however, it is not unusual for rubrics to either omit critical thinking as a component of the rubric or to reference it in a vague way. Thus, quantitative and qualitative data were collected from faculty to identify their attitudes about critical thinking attributes as performance measures for evaluation rubrics. Factor analysis revealed that the response patterns clustered for each factor

represented the following themes. First, the patterns demonstrated logic and reasoning (described as offering accurate supporting evidence and strategies and solutions). Second, it determined creative critical thought processes (described as novel perceptions, bias refutation, and alternative-seeking). The researchers concluded that faculty should be used an evaluation rubric that encompasses these two dimensions.

Methodology

1) The Study Participants

The researcher carried out the experiment on MBA and DBA students at El Sewedy Electric (UIC).   A group of 30 Master of Business Administration (MBA) and Doctorate of Business Administration (DBA) were selected from El Sewedy Electric (UIC) in the academic year 2023-2024 (10 students in each experimental group). The researcher taught the face-to-face and the blended groups at their workplace. Students of the three groups shared similar characteristics; all students' age ranged from 45-50 years old. All of them have 10 years of work experience. All students were enrolled in MBA and DBA, English Section. Consequently, the students constituted a homogeneous group in terms of their background, age, and English proficiency.

2) The Instruments of the Study

♣ **Persuasive Writing and Critical Thinking Checklists**
   ❖ *A persuasive Writing Skills Checklist*

The persuasive writing checklist consisted of four main persuasive writing skills; *identifying the topic, skills related to the claim, skills related to counterclaims and rebutting them and skills related to writing organization.*

The *first* main skill is *identifying the topic* composed of three sub-skills:

   ❖ Analyzing the topic from all point of views
   ❖ Stating relevant ideas to the topic
   ❖ Distinguishing between facts and opinions related to the topic

The *second* main skill is *related to the main claim* composed of

three sub-skills:

- ❖ Stating the main claim
- ❖ Generating relevant evidences and arguments to the topic
- ❖ Organizing the evidences and arguments in a persuasive way

The *third* main skill is *related to counterclaims and rebutting them* composed of three sub-skills:

- ❖ Stating other opinions and arguments
- ❖ Stating the arguments on which counterclaims are based
- ❖ Distinguishing the arguments of counterclaims and identify their weaknesses

The *fourth* main skill is related to writing organization composed of three sub-skills:

- ❖ Using a clear style
- ❖ Considering the ethical aspect in presenting the claim and rebutting the counterclaims
- ❖ Considering grammar and punctuation
- ❖ A Critical Thinking Skills Checklist

The critical thinking checklist includes three general critical thinking skills; *recognizing assumptions, evaluating objective arguments and drawing conclusion*.

The *first* main skill is *recognizing assumptions* composed of one sub-skill:

- ❖ Assumptions

The *second* main skill is *evaluating objective arguments* composed of two sub-skills:

- ❖ Analyzing arguments
- ❖ Deduction

The *third* main skill is *drawing conclusion* composed of two sub-skills:

- ❖ Interpreting information
- ❖ Inferences
- ♣ **Persuasive Writing and Critical Thinking Tests**
    - ❖ *The Persuasive Writing Test*

The persuasive writing pre-post test consisted of two different writing tasks. Those tasks intended to measure 12 persuasive writing sub-skills for MBA & DBA students. These sub-skills include stating related ideas to the topic, organizing the evidences and arguments in a persuasive way, distinguishing the arguments of counterclaims and identifying their weaknesses and considering the ethical aspect in presenting the claim and rebutting the counterclaims.

❖ *The Critical Thinking Test*

The critical thinking pre-post test adopted from WATSON-GLASER CRITICAL THINKING APPRAISAL (WGCTA). The test comprised five sections to measure the five sub-skills of critical thinking as follows.

- ❖ *Inference* which is a conclusion that has been reached by way of evidence and reasoning.
- ❖ *Assumption* which is something that you accept as true without question or proof.
- ❖ *Deduction* is when you start with the assertion of a general rule and proceeds to a guaranteed specific conclusion.
- ❖ *Interpreting Information* is the process of comprehending the information being presented or assigning meaning.
- ❖ *Argument* which is a set of statements, one of which is the conclusion and the others are the premises.

❖ *Persuasive Writing and Critical Thinking Tests validity*

To measure the persuasive writing and critical thinking tests content validity, the first version of the two tests was given to five specialists in the field of Business and EFL to evaluate each persuasive writing task and each critical thinking task in terms of content and level of comprehension measured.

♣ **The Students' Satisfaction of the program questionnaire**

Two questionnaires were set for measuring students' satisfaction of the program; the first questionnaire was addressed to the first experimental group (Face-to-Face Group) while the second

questionnaire was addressed to the second and third groups (Online Threaded Discussion and Blended Group respectively). Both questionnaire consisted of four main sections; The Instructor, Course Content and Assessment Method, Achievement and Students Interaction. Both questionnaires ended with a space for any suggestions.

♣ The Proposed Program

The three groups received the same content. There is no change in the content for the three treatments. However, the first group received training through Face-to-Face Interaction (using Fishbowl Discussion). The second group received training through Online Threaded Discussion while the third group received Blended Learning; that is a mix of Face-to-Face Interaction and Online Threaded Discussion. The program consisted of 5 Modules; International Marketing, Ethics and Environmental, Social and Governance (ESG), Project Management, Public-Private Partnership and Crisis Management. Each Module consisted of 4 sessions and each session lasted for 2 hours.

The program consisted mainly of two parts: *students' book* (Commercial topics studies by the students in their program) and *teacher's guide*. The students' book includes the tasksheets used by the researcher. These tasksheets included activities such as listening comprehension, vocabulary, reading comprehension articles, case studies, and different writing tasks. On the other hand, the teacher's guide shows teachers the procedures of how to teach MBA and DBA students using different discussion styles. While selecting the tasks included in the program, the researcher took into consideration the following criteria. The tasks:

a) Introduced students to new and relevant ideas, and made them think about things they did not think of before.
b) Challenged students' intelligence without making unreasonable demands on their knowledge of English as a foreign language.
c) Motivated students to write their own point of views to convince others.

d) Required students to think critically through the whole program specially when concerned with case studies.

Results and Discussion

The first hypothesis of the present study states:

"*There will be statistically significant differences at 0.05 level between the mean scores of the three experimental groups in the post-administration of the persuasive writing test as a whole*."

One-way ANOVA test was used to study the significance of differences between the mean scores of the three experimental groups in the post- administration of persuasive writing test. The results are shown in table (1).

Table (1)
Comparisons (F-test) between The Experimental Groups on the Post-Administration
of the Persuasive Writing Test as a Whole

Variable	Group	No	Mean Scores	SD	S. Error	F	Sig.
Persuasive Writing	Post Experimental Group 1	10	5.70	1.06	0.33	34.01	0.00
	Post Experimental Group 2	10	8.30	1.06	0.33		
	Post Experimental Group 3	10	9.30	0.95	0.30		
	Total	30	7.77	1.83	0.33		

It is clear from Table (1) that the value of (F) reached (34.01) with statistical significance of (0.00), which means that there are statistically significant differences at the level of significance (0.01) between the mean scores of the three experimental groups in the post- administration of persuasive writing test. While the mean scores of the first experimental group was (5.70), the second experimental group was (8.30), and the third experimental group was (9.30). In light of this result, the first hypothesis can be accepted.

To identify the differences between the three experimental groups in the post- administration of the persuasive writing test, the LSD test was used, and the results were as shown in Table (2).

Table (2)
LSD Results for the Differences between Mean Scores of the Experimental Groups in the Post-Administration of Persuasive Writing Test

Variable	Group (I)	Group (J)	Mean Difference (I-J)	Std. Error	Sig.
Persuasive Writing	Face-to-Face Discussion	Online Threaded Discussion	-2.60	0.46	0.00
		Blended Learning	-3.60	0.46	0.00
	Online Threaded Discussion	Blended Learning	-1.00	0.46	0.04

Table (2) shows that the differences were significant between the three experimental groups, where the mean scores of the third group (Blended Learning) were greater compared to the other groups, and the average score of the second group (Online Threaded Discussion) was greater compared to the first group (Face-to-Face Discussion).

To verify the second hypothesis of the present study which states:
"*There will be statistically significant differences at 0.05 level between the mean scores of the three experimental groups in the sub-skills of the persuasive writing test in the post-administration.*"

One-way ANOVA test was used to study the significance of differences between mean scores of the three experimental groups in the post administration of persuasive writing sub-skills test. The results were as shown in Table (3).

Table (3)
Comparisons (F-test) between The Experimental Groups on the Post-Administration of the Persuasive Writing Sub-Skills Test

Variable	Group	N	Mean	SD	S. Error	F	Sig.
Identify the Topic	Face-to-Face Discussion	10	1.90	0.32	0.10	1.00	0.38
	Online Threaded Discussion	10	2.00	0.00	0.00		
	Blended Learning	10	2.00	0.00	0.00		
	Total	30	1.97	0.18	0.03		

Variable	Group	N	Mean	SD	S. Error	F	Sig.
The Claim	Face-to-Face Discussion	10	1.20	0.42	0.13	45.37	0.00
	Online Threaded Discussion	10	2.60	0.52	0.16		
	Blended Learning	10	2.90	0.32	0.10		
	Total	30	2.23	0.86	0.16		
Counterclaims	Face-to-Face Discussion	10	1.30	0.48	0.15	26.70	0.00
	Online Threaded Discussion	10	2.40	0.52	0.16		
	Blended Learning	10	2.80	0.42	0.13		
	Total	30	2.17	0.79	0.14		
Organization	Face-to-Face Discussion	10	1.30	0.48	0.15	1.23	0.31
	Online Threaded Discussion	10	1.30	0.48	0.15		
	Blended Learning	10	1.60	0.52	0.16		
	Total	30	1.40	0.50	0.09		

Table (3) shows that the differences were significant at the level of (0.01) between the mean scores of the three experimental groups in each sub-skill in persuasive writing. While (F) values were insignificant at 0.05 level for "Identify the Topic" and "Organization skills", it was not significant for both "The Claim" and "The Counterclaims". Considering this result, the second hypothesis can be partially accepted.

To identify the source of the differences between the three experimental groups The Claim and Counterclaims skill in the post-administration of persuasive writing test, the LSD test was used, and the results are shown in Table (4).

Table (4)
LSD Results for the Claim and Counterclaims Skills in the Post-Administration
of Persuasive Writing Test

Variable	Group (I)	Group (J)	Mean Difference (I-J)	Std. Error	Sig.
The Claim	Face-to-Face Discussion	Online Threaded Discussion	-1.40	0.19	0.00
		Blended Learning	-1.70	0.19	0.00
	Online Threaded Discussion	Blended Learning	-0.30	0.19	0.13
Counterclaims	Face-to-Face Discussion	Online Threaded Discussion	-1.10	0.21	0.00
		Blended Learning	-1.50	0.21	0.00
	Online Threaded Discussion	Blended Learning	-0.40	0.21	0.07

Table (4) shows that significant differences between the first group and the other groups for "*The Claim*" where the mean scores of the first group (Face-to-Face Discussion) were smaller compared to the other groups (Online Threaded Discussion, Blended Learning). For "*Counterclaims*", the differences were significant between the first group and the other groups where the mean scores of the first group (Face-to-Face Discussion) were smaller compared to the other groups (Online Threaded Discussion, Blended Learning).

Considering these results, the effect size was calculated using Eta-squared and Omega-squared, and the results were as shown in Table (5)

Table (5)

Effect Size for the Differences between the Experimental Groups in each Skill of the Persuasive Writing Test

Variable	Eta-squared	Omega-squared	Level
Identify the Topic	0.07	0.01	Low
The Claim	0.77	0.75	High
Counterclaims	0.66	0.63	High
Organization	0.08	0.01	Low
Persuasive Writing	0.71	0.68	High

Table (5) shows that there is a high effect size of the difference in the learning style on the mean scores of the three experimental groups in persuasive writing as the value of Eta squared (0.71) and Omega squared (0.68). The highest effect was on the "*The Claim*" skill while the least effect was on the "*Identify the Topic skill*".

The third hypothesis of the present study states:

"*There will be statistically significant differences at 0.05 level between the mean scores of the three experimental groups in the post-administration of the critical thinking test as a whole.*"

One-way ANOVA test was used to study the significance of differences between mean scores of the three experimental groups in the post administration of the critical thinking test. The results are shown in Table (6).

Table (6)
Comparisons (F-test) between The Three Experimental Groups in the Post-Administration
of the Critical Thinking Test as a Whole

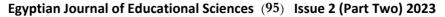| Variable	Group	N	Mean	SD	S. Error	F	Sig.
Critical Thinking	Face-to-Face Discussion	10	28.90	1.52	0.48	36.23	0.00
	Online Threaded Discussion	10	31.30	0.82	0.26		
	Blended Learning	10	33.20	0.92	0.29		
	Total	30	31.13	2.10	0.38		

It is clear from Table (6) that values of (F) reached (36.23) with statistical significance of (0.00), which means that there are statistically significant differences at the level of significance (0.01) between the mean scores of the three experimental groups in the post administration of critical thinking test. While the mean scores of the first experimental group were (28.90), the second experimental group was 31.30, and the third experimental group was 33.20. In light of this result, the third hypothesis is accepted.

To identify the differences between the three experimental groups in the post-administration of the critical thinking test, the LSD test was used, and the results are shown in Table (7).

Table (7)
LSD Results for the Differences between Mean Scores of the Experimental Groups in the Post Administration of the Critical Thinking Test

Variable	Group (I)	Group (J)	Mean Difference (I-J)	Std. Error	Sig.
Critical Thinking	Face-to-Face Discussion	Online Threaded Discussion	-2.40	0.51	0.00
		Blended Learning	-4.30	0.51	0.00
	Online Threaded Discussion	Blended Learning	-1.90	0.51	0.00

Table (7) shows that the differences were significant between the three experimental groups. While the mean scores of the third group (Blended Learning) were greater compared to the other groups, the mean scores of the second group (Online Threaded Discussion) were greater compared to the first group (Face-to-Face Discussion).

To verify the fourth hypothesis of the present study which states: "*There will be statistically significant differences at 0.05 level between the mean scores of the three experimental groups in the sub-skills of the critical thinking test in the post-administration.*"

One-way ANOVA test was used to study the significance of differences between mean scores of the three experimental groups in the post-administration of the critical thinking sub-skills test. The results are shown in Table (8).

Table (8)
Differences between the Mean Scores of the Three Experimental Groups in Each Skill in the Post Administration of the Critical Thinking Test

Variable	Group	N	Mean	SD	S. Error	F	Sig.
Inference	Face-to-Face Discussion	10	8.80	0.92	0.29	5.08	0.01
	Online Threaded Discussion	10	9.30	0.67	0.21		
	Blended Learning	10	9.80	0.42	0.13		
	Total	30	9.30	0.79	0.15		
Assumptions	Face-to-Face Discussion	10	5.50	0.71	0.22	1.50	0.24
	Online Threaded Discussion	10	5.90	0.32	0.10		
	Blended Learning	10	5.60	0.52	0.16		
	Total	30	5.67	0.55	0.10		

Variable	Group	N	Mean	SD	S. Error	F	Sig.
Deduction	Face-to-Face Discussion	10	4.90	0.32	0.10	16.07	0.00
	Online Threaded Discussion	10	5.40	0.52	0.16		
	Blended Learning	10	5.90	0.32	0.10		
	Total	30	5.40	0.56	0.10		
Interpreting	Face-to-Face Discussion	10	5.00	0.47	0.15	10.17	0.00
	Online Threaded Discussion	10	5.50	0.53	0.17		
	Blended Learning	10	5.90	0.32	0.10		
	Total	30	5.47	0.57	0.10		
Analyzing arguments	Face-to-Face Discussion	10	4.70	0.48	0.15	20.37	0.00
	Online Threaded Discussion	10	5.20	0.63	0.20		
	Blended Learning	10	6.00	0.00	0.00		
	Total	30	5.30	0.70	0.13		

Table (8) shows that the differences were significant at the level of (0.01) between the mean scores of the three experimental groups in "*Deduction*", "*Interpreting*", and "*Analyzing arguments*" skills. (F) Values were insignificant at the significance level (0.05) for the "*Assumptions*" skill. Considering this result, the fourth hypothesis is partially accepted.

To identify the differences between the three experimental groups in Inference, Deduction, Interpreting, and Analyzing arguments skills in the post-administration of the critical thinking test, LSD test was used, and the results are shown in Table (9).

Table (9)
LSD Results for Inference, Deduction, Interpreting, and Analyzing Arguments Skills in the Post-Administration

Variable	Group (I)	Group (J)	Mean Difference (I-J)	Std. Error	Sig.
Inference	Face-to-Face Discussion	Online Threaded Discussion	-0.50	0.31	0.12
		Blended Learning	-1.00	0.31	0.00
	Online Threaded Discussion	Blended Learning	-0.50	0.31	0.12
Deduction	Face-to-Face Discussion	Online Threaded Discussion	-0.50	0.18	0.01
		Blended Learning	-1.00	0.18	0.00
	Online Threaded Discussion	Blended Learning	-0.50	0.18	0.01
Interpreting	Face-to-Face Discussion	Online Threaded Discussion	-0.50	0.20	0.02
		Blended Learning	-0.90	0.20	0.00
	Online Threaded Discussion	Blended Learning	-0.40	0.20	0.06
Analyzing Arguments	Face-to-Face Discussion	Online Threaded Discussion	-0.50	0.21	0.02
		Blended Learning	-1.30	0.21	0.00
	Online Threaded Discussion	Blended Learning	-0.80	0.21	0.00

Table (9) shows that for "Inference", the differences were significant between the first and third experimental groups where the mean scores of the third group (Blended Learning) were greater compared to the first group (Face-to-Face Discussion). For "Deduction", the differences were significant between the three experimental groups. The mean scores of the third group (Blended Learning) were greater compared to the other groups while the mean scores of the second group (Online Threaded Discussion) were greater compared to the first group (Face-to-Face Discussion). For "Interpreting", the differences were significant between the first group and the other groups. The mean scores of the first group (Face-to-Face Discussion) were smaller compared to the other groups (Online Threaded Discussion, Blended Learning). For "Analyzing Arguments", the differences were significant between the three experimental groups. The mean scores of the third group (Blended Learning) were greater compared to the other groups while the mean scores of the second group (Online Threaded Discussion) were greater compared to the first group (Face-to-Face Discussion).

Considering these results, the effect size was calculated using Eta-squared and Omega-squared, and the results were as shown in the table (10)

Table (10)
Effect Size for the Differences between the Experimental Groups in Each Skill of Critical Thinking Test

Variable	Eta-squared	Omega-squared	Level
Inference	0.27	0.21	High
Assumptions	0.10	0.03	Low
Deduction	0.54	0.50	High
Interpreting	0.43	0.38	High
Analyzing Arguments	0.60	0.56	High
Critical Thinking	0.73	0.70	High

Table (10) shows that there is a high effect size of the difference in the mean scores of the three experimental groups as the value of Eta squared was 0.73 and Omega squared was 0.70. The highest

effect was on Analyzing Arguments skill while the least effect was on the "Assumptions" skill.

The fifth hypothesis of the present study states:

"*The program has an effect on participants' satisfaction in the three experimental groups.*"

To verify this hypothesis, a chi-square goodness-of-fit analysis was performed that looked at the frequency counts of the participants' responses to the items of the two surveys. The goodness-of-fit test compares the expected values to the observed values. Both surveys share the first three items; *the instructor*, *course content and assessment methods* and *achievement*. Consequently, participants' responses to the three experimental groups were calculated for these three items as a whole. Table (11) shows participants' responses who utilized class discussion, online threaded discussion and blended learning.

Table (11)
Participants' Satisfaction with the Instructor
N. Experimental Group 1 = Experimental Group 2 = Experimental Group 3 = 10

No	Statement	Strongly Satisfied/ Observed %	Satisfied/ Observed %	Neutral/ Observed %	Dissatisfied/ Observed %	Strongly Dissatisfied/ Observed %	χ^2
1	My instructor had a thorough knowledge of the subject content	20 66.67%	7 23.33%	3 10%	0	0	15.8
2	My instructor provided opportunities to ask questions	18 60%	11 36.67%	1 3.33%	0	0	14.6
3	My instructor understood my learning needs	19 63.33%	9 30%	2 6.67%	0	0	14.6
4	My instructor made the subject as interesting as possible	20 66.67%	7 23.33%	3 10%	0	0	15.8
5	My instructor communicated the subject content effectively	18 60%	10 33.33%	2 6.67%	0	0	12.8

Table (11) depicts the satisfaction of participants regarding the instructor. None of the participants who used class discussion, online threaded discussion, or both were "Strongly Dissatisfied" or "Dissatisfied" with the statements included in the instructor section. Secondly, 66.67%, 60%, 63.33%, 66.67% and 60% of the participants who utilized the program were "Strongly Satisfied" with the statements, respectively. In the "Satisfied" category, 23.33%, 36.67%, 30%, 23.33% and 33.33% of the participants who utilized the program were "Satisfied" with the statements, respectively. 10%, 3.33%, 6.67%, 10% and 6.67% of the participants were in the "Neutral" category, respectively. The table shows that a large majority of participants who utilized the program were "Strongly Satisfied" with the statements included in the instructor section. The results of the chi-square goodness-of-fit analysis were statistically significant, χ^2 (N = 30) = 15.8, 14.6, 14.6, 15.8 and 12.8, respectively. The statistically significant chi-square result indicated that the participants' responses on the survey were due to their satisfaction that there was some value in the use of the program, and not just due to chance.

Table (12)
Participants' Satisfaction with the Course Content and Assessment Methods
N. Experimental Group 1 = Experimental Group 2 = Experimental Group 3 = 10

No	Statement	Strongly Satisfied/ Observed %	Satisfied/ Observed %	Neutral/ Observed %	Dissatisfied/ Observed %	Strongly Dissatisfied/ Observed %	χ^2
1	The course covered important topics in business	22 73.33%	6 20 %	2 6.67%	0	0	22.4
2	My training developed my problem-solving skills	24 80%	3 10%	3 10%	0	0	29.4
3	As a result of my training, I feel more confident about tackling unfamiliar problems	24 80%	3 10%	3 10%	0	0	29.4
4	The course evoked positive discussions because of its material	26 86.66%	2 6.67%	2 6.67%	0	0	38.4
5	I knew how I was going to be assessed	28 93.33%	1 3.33%	1 3.33%	0	0	48.6

No	Statement	Strongly Satisfied/ Observed %	Satisfied/ Observed %	Neutral/ Observed %	Dissatisfied/ Observed %	Strongly Dissatisfied/ Observed %	χ^2
6	The way I was assessed was a fair test of my skills	28 93.33%	1 3.33%	1 3.33%	0	0	48.6
7	I was assessed at appropriate intervals	27 90 %	2 6.67%	1 3.33%	0	0	43.4
8	I received useful feedback on my assessment	26 86.67%	3 10 %	1 3.33%	0	0	38.6
9	The assessment was a good test of what I learnt	25 83.33%	3 10%	2 6.67%	0	0	33.8

Table (12) highlights the satisfaction of participants regarding the course content and assessment methods. None of the participants who used class discussion, online threaded discussion, or both were "Strongly Dissatisfied" or "Dissatisfied" with the statements included in the course content and assessment methods section. Secondly, 73.33%, 80%, 80%, 86.66%, 93.33%, 93.33%, 90%, 86.67% and 83.33% of the participants of the program were "Strongly Satisfied" with the statements, respectively. In the "Satisfied" category, 20%, 10%, 10%, 6.67%, 3.33%, 3.33%, 6.67%, 10% and 10% of the participants in the program were "Satisfied" with the statements, respectively. 6.67%, 10%, 10%, 6.67%, 3.33%, 3.33%, 3.33%, 3.33% and 6.67% of the participants were in the "Neutral" category, respectively. The table shows that a large majority of participants in the program were "Strongly Satisfied" with the statements included in the course content and assessment methods section. The results of the chi-square goodness-of-fit analysis were statistically significant, χ^2 (N = 30) = 22.4, 29.4, 29.4, 38.4, 48.6, 48.6, 43.4, 33.6 and 33.8, respectively. The statistically significant chi-square result indicated that the participants' responses on the survey were due to their satisfaction that there was some value in the use of the program, and not just due to chance.

Table (13)
Participants' Satisfaction with the Achievement
N. Experimental Group 1 = Experimental Group 2 = Experimental Group 3 = 10

No	Statement	Strongly Satisfied/ Observed %	Satisfied/ Observed %	Neutral/ Observed %	Dissatisfied/ Observed %	Strongly Dissatisfied/ Observed %	χ^2
1	Participation in the program increased my understanding of the subject content	20 66.67%	6 20 %	4 13.33%	0	0	15.2
2	Participation in the program improved my grade in this course	21 70%	5 16.67%	4 13.33%	0	0	18.2
3	Participation in the program increased my score on my exams	20 66.67%	6 20 %	4 13.33%	0	0	15.2

Table (13) depicts the satisfaction of participants regarding their achievement. None of the participants who used class discussion, online threaded discussion, or both were "Strongly Dissatisfied" or "Dissatisfied" with the statements included in the achievement section. Secondly, 66.67%, 70% and 66.67% of the participants who utilized the program "Strongly Satisfied" with the statements, respectively. In the "Satisfied" category, 20%, 16.67% and 20% of the participants who utilized the program were "Satisfied" with the statements, respectively. 13.33%, 13.33% and 13.33% of the participants were in the "Neutral" category, respectively. The table shows that a large majority of participants who utilized the program were "Strongly Satisfied" with the statements included in the achievement section. This means that the program helped with the increase of their scores either in the program or their exams. The results of the chi-square goodness-of-fit analysis were statistically significant, χ^2 (N = 30) = 15.2, 18.2, and 15.2, respectively. The statistically significant chi-square result indicated that the

participants' responses on the survey were due to their satisfaction that there was some value in the use of the program, and not just due to chance.

Table (14)
Participants' Satisfaction with Interaction
N. Experimental Group 1 = Experimental Group 2 = Experimental Group 3 = 10

No	Statement	Strongly Satisfied/ Observed %	Satisfied/ Observed %	Neutral/ Observed %	Dissatisfied/ Observed %	Strongly Dissatisfied/ Observed %	χ^2
1	Participation in the online threaded discussion increased my interaction with the instructor	22 73.33%	5 16.67 %	3 10%	0	0	21.8
2	My training helped me develop my ability to work as a team member	23 76.67%	3 10%	4 13.33%	0	0	25.4
3	I think face-to-face communication is important while learning remotely	22 73.33%	5 16.67%	3 10%	0	0	21.8
4	My training improved my skills in written communication	24 80%	3 10%	3 10%	0	0	29.4
5	I am generally satisfied with the distance education system (Moodle Application) presented to me	22 73.33%	5 16.67%	3 10%	0	0	21.8
6	I could connect to the distance education system without any problems	23 76.67%	3 10%	4 13.33%	0	0	25.4
7	Even in case of face to face education, I would like to take one or more lessons with distance education.	24 80 %	3 10%	3 10%	0	0	29.4

Table (14) underscores the satisfaction of participants regarding the interaction. None of the participants who used class discussion, online threaded discussion, or both were "Strongly Dissatisfied" or "Dissatisfied" with the statements included in the interaction section. Secondly, 73.33%, 76.67%, 73.33%, 80%, 73.33%, 76.67% and 80% of the participants were "Strongly Satisfied" with the

statements, respectively. In the "Satisfied" category, 16.67%, 10%, 16.67%, 10%, 16.67%, 10% and 10% of the participants were "Satisfied" with the statements, respectively. 10%, 13.33%, 10%, 10%, 10%, 13.33% and 10% of the participants were in the "Neutral" category, respectively. The table shows that a large majority of participants in the program were "Strongly Satisfied" with the statements included in the interaction section. The results of the chi-square goodness-of-fit analysis were statistically significant, χ^2 (N = 30) = 21.8, 25.4, 21.8, 29.4, 21.8, 25.4 and 29.4, respectively. The statistically significant chi-square result indicated that the participants' responses on the survey were due to their satisfaction that there was some value in the use of the program, and not just due to chance.

4.2 Discussion and Interpretation of the Results:

The results of the present study revealed the possibility of using Online Threaded Discussion in developing MBA and DBA participants' persuasive writing and critical thinking skills.

The statistical analysis indicated that the program proved to be effective as the three experimental groups' performance on persuasive writing and critical thinking tests improved significantly in favor of the post-test at a 0.05 level of confidence. Thus, the researcher could say that the program implemented was effective and accounted for the significant differences between the three experimental groups' mean scores on the post-test on overall persuasive writing and critical thinking test. This progress might be attributed to several factors. These factors will be discussed in detail as follows:

Firstly, common factors that have helped the participants of the three experimental groups progress in overall persuasive writing and critical thinking tests:

The participants of the three experimental groups achieved substantial progress in their persuasive writing and critical thinking performance. This finding can be attributed to many factors. The

proposed teaching approaches adopted throughout the implementation of the program gave the participants the opportunity to reflect. Consequently, the participants utilized higher level thinking skills to formulate their answers. In other words, the additional reflection time allowed online participants to conduct high- level discussions more frequently than face-to-face learners.

Participant-to-participant relationships and instructor-participant relationships are another factor that affected the success of the program. As the course progressed and participants began to develop stronger relationships with each other as partners not colleagues at work, they became more engaged and utilized more profound and in-depth interactions when posting information in threaded discussions. Besides, asynchronous discussions led introverted learners to express and verbalize their opinions openly in a warm and friendly environment.

Secondly, common factors that have helped the participants of the three experimental groups progress in overall content:

The participants of the three experimental groups achieved tangible progress in their overall content after the implementation of the proposed program. This progress can be attributed to different factors. Among these factors were the handouts available at the program which helped the participants improve the content of their writing. These reading handouts enabled participants to collect enough information and ideas necessary for writing. In addition, they helped them see how clear and well-developed content is presented. Moreover, they learned how to present two opposing points of view giving suitable evidence and details.

The discussion also positively affected the quality of the content. Discussion among participants and the instructor before and after writing helped them improve their writing especially content substantially. During these discussions the teacher did not impose her viewpoints and provoked participants to guide each other to see

clearer insights and offer possible suggestions to improve the quality of their writing content.

Thirdly, common factors that have helped the participants of the three experimental groups progress in overall organization:

The participants achieved substantial progress in their overall organization after the program implementation. This progress can be attributed to various factors. Among these factors are the handouts available at the program. These reading handouts helped them indirectly to improve the organization of writing as they observed (a) how the writer uses a concise and precise introduction that aroused readers' interest and that was related to the body of the text, (b) how s/he developed a body that contained one central idea and enough supporting details and examples, (c) and finally how s/he used a conclusion that summarized the main idea given in the body.

Recommendations

Considering the present study results, the following recommendations are made:

- Persuasive writing skills should be enhanced through the integration with critical thinking skills. Persuasive writing has the ability to develop many sorts of thinking, for instance, analytical, deductive and critical thinking.
- Using OTD which helps learners to translate their experiences into a form of a series of linked messages organized topically. All students have a voice in threaded discussion and no one can dominate the conversation.
- The present program can be adopted for teaching persuasive writing and critical thinking to students at university stage, for instance, Faculty of Pharmacy.
- It is recommended that technology should be used at the university stage parallel with face-to-face interaction.

Suggestions for Further Studies

- Further research needs to continue to assess student learning outcomes and student perceptions of these outcomes as they are critical to gaining a better understanding of the potential of online threaded discussion.

- Future studies should also include opportunities for qualitative data collection, as well as quantitative data collection. A mixed methods approach will provide opportunities for clarification and verification of findings through triangulation of the data.

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