

The Use of the Toulmin Model in a Writing Module to Hone the Critical Thinking Skills of Omani General Foundation Program Students

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ABSTRACT

This study proposed to enquire into the efficacy of a developed writing module in honing the critical thinking skills of Omani General Foundation Program students. The study utilized a pre-test and post-test quasi-experimental design. The study participants included 70 Omani students and 2 English language teachers. Convenience sampling technique was employed to sample the participants who were divided into experimental and control groups. The experimental group embraced 35 students who studied English at the General Foundation Program of higher education institution "A". The control group encompassed 35 students who studied English at The General Foundation Program of higher education institution "B". The control group studied the writing syllabus of institution "B", while the experimental group studied the study module. The critical thinking pre-test was given before module delivery and the post-test was done after the intervention. ANCOVA test was employed to draw a statistical analogy between the mean scores of pre-test and post-test. The findings affirmed that there was a statistically significant mean variance between the control and experimental group's scores in the critical thinking post-test. The module notably honed the experimental group's critical thinking skills.

Key words: Module, Intervention, General Foundation Program, The Toulmin Model, Critical Thinking Skills

INTRODUCTION

Today's EFL classroom is dissimilar to the one we used to have in the past. The world is rapidly changing and EFL learners need to cope with those changes. Today EFL learners pursue different types of relationships with their classmates, teachers, and instructional materials. This is because EFL learners graduate into a world where the necessities of our public, personal, and professional lives are getting more complex (Nissim et al., 2016). Hence, English language teaching must meet and fulfill the demands of a future governed by perpetual development and novelty (Pearson, 2015). There is a common consensus amongst educationalists, scholars, researchers, and teachers about the significance of 21st century English language learning skills (Cox, 2014; Junpho, 2015). The initiation of such skills has made a pivotal advancement in the aims and objectives of education. Consequently, several crucial developmental programs and plans have been designed and conducted to integrate those skills into the teaching syllabus (Pešikan & Lalović, 2017). According to Trilling and Fadel (2009), there are four indispensable and pivotal skills that students have to develop in the 21st century, namely the 4Cs; critical thinking, creativity, collaboration, and communication skills.

The current study aims attention at honing Omani General Foundation Program students' critical thinking skills.

Critical thinking is in this study is defined as the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action (Ennis, 1996). Critical thinking incorporates some dimensions, namely focus, supporting reasons, reasoning, organization, and integration (Facione, 1990). In the EFL writing classroom, critical thinking is germane to students' ability to critically think about their choices of words, paragraphs organization, cohesion and coherence, and essay unity.

PROBLEM STATEMENT

The condition of Omani Foundation Program Students' critical thinking skills calls for concern (Al-Kindi & Al-Mekhlafi, 2017). Research and studies in the field of critical thinking have generally reported that Omani Foundation Program students significantly lag behind their international counterparts in the development of their critical thinking skills (Kumar & James, 2015; Naqvi et al., 2018). The Foundation Program students lack pivotal critical thinking skills such as reasoning, which refers to supporting the argument with reasons, and logical organization of ideas, which refers to the clarity

of the reasonable flow of ideas (Neisler et al., 2016). Further, the foundation students are unable to provide unity between essay paragraphs and cannot provide facts and opinions to support their arguments (Naqvi et al., 2018). Therefore, the present study sought to evaluate the effectiveness of an EFL module designed principally to enhance the critical thinking skills of Omani EFL students. There was a dire need to develop a writing module that meets General Foundation Program students' learning styles and needs and hone their critical thinking skills. The module development in this research utilized the ADDIE model. It is hoped that the current study will be of significance to the EFL teachers, Omani EFL Foundation Program students, and decision-makers of the Foundation Program in Oman.

RESEARCH OBJECTIVES

The present study aimed to develop a writing module to hone Omani Foundation Program students' critical thinking skills. The study was guided by the following objective:

1. To compare the mean of the critical thinking post-test scores of the experimental and control groups.
2. To compare the mean of the critical thinking pre-test and post-test scores of the experimental group.

LITERATURE REVIEW

Honing students' critical thinking skills has been a crucial part of the English language syllabus since it develops students' competency to evaluate and analyze information and also make their own decisions (Jafari & Ansari, 2012; Khatib & Meihami, 2014; Tai, 2016; Yang, 2014; Yin, 2014) concerning their academic achievement (Nold, 2017). There is a strong connection between critical thinking and L2 writing. Specifically, EFL learners need to acquire critical thinking skills, master them, analyze English texts, and linguistically and culturally build their content (Hyland, 2002). Though critical thinking plays a vital role in the writing process construction, it is still broadly neglected in the writing classroom, which generally aims attention at the teaching of grammar and hinders students from composing effectual essays (Zhang, 2017). Bean (2001) mentions that writing necessitates argumentative or analytical thinking which is distinguished by a hierarchical logical structure and controlling statement. In the same vein, Schafersmen (1991) states that writing requires students to systemize their ideas, think deeply about their topics, logically evaluate their information, and convincingly draw their conclusion. Hence, quality writing is a representation of quality effective critical thinking. Ideas or notions sources can be obtained from various texts which are based on reflection, experience, and observation (Vardi, 1999). Olson (1992) contends that critical thinking incorporates key cognitive skills such as understanding crucial concepts and ideas, differentiating the main ideas and arguments from the subordinate or secondary ones; evaluating their pertinence and then giving reasons; assessing the credibility of information sources, and paraphrasing them before concluding based on justifications made. Engaging students in these activities exercises sharpens their critical

thinking and intensifies it as well. There are numerous models of critical thinking. However, the current study elaborates on the Toulmin Model of Critical Thinking which was used in constructing the study module. Toulmin Model of Critical Thinking (1958) has been widely used to improve students' arguments in the argumentative essay (Darby, 2017; Lin, 2018; Meng, 2016). Argumentative essay writing helps develop students' critical thinking skills (Ahour & Golpour, 2014; Anggraeny & Putra, 2017; Dong, 2015; Dumitru, 2013; Luk & Lin, 2015; Nejmaoui, 2019; Qian, 2015; Qu, 2015; Sa'di & Ahmad, 2019; Saputra & Marzulina, 2015; Widyastuti, 2018). Toulmin categorizes three fundamental parts of an argument: the claim, the evidence or grounds, which support the claim, and the warrant. The claim is the primary point, the thesis, and the controlling idea. The claim can be directly mentioned (usually at the beginning of the essay) but it can be mentioned at the end (particularly for effect) or it may be signified as well. Support is relevant to the reasons which are given to support the claim; they are commonly known as grounds, argument, data, proof, or evidence. To support the claim the writer can use logical reasoning, explanations, examples, expert opinions, and facts. Warrants refer to the presuppositions or assumptions underlying the argument. Warrants are commonly the values and beliefs that are accepted by society. Warrants are generally implied and understood by individuals. Toulmin Model has two additional parts which are connected with the argument in essay writing; the rebuttal and backing. These are considered primary parts of the argumentative essay. Rebuttal shows that when the writer makes an argument, they need to consider other opposing points of view and deal with them fairly. The writer needs to answer questions and objections raised in the audience's minds; if the writer does not do so, their argument can be weakened and subject to counter-argument and attack. Rebuttal can be directed to conflicting claims or interpretations of the evidence. Backing refers to backing up the argument. The warrant sometimes needs to be supported by evidence to make it more logical. Toulmin Model has been used as a framework that is aligned with the various critical thinking steps (Bermani, Safnil & Arono, 2017). The model can be effectively used to help students learn to write an argumentative essay (Leong, 2013). Adopting Toulmin Model in argumentative writing can improve students' ability to evaluate and examine the argument. Since the model incorporates a high level of reasoning skills, it can maximize students' critical thinking skills relevant to depth evaluation (Oliveras, Marquez & Sanmarti, 2013; Bazerman, 2010; Rex, Thomas & Engel, 2010). In the writing classroom, the model encourages students to ask critical questions when they are making arguments or writing them into standard form (Lee, 2006). By asking and answering questions, students improve their analytical skills and learn to be critical when they go through their drafts in the editing stage (Warren, 2010). The model helps students to reassess and edit their writing with critical eyes to determine whether their ideas are connected, there is unity between paragraphs and there are cohesion and coherence in their whole writing (Qin & Karaback, 2010). Toulmin's system of substantive

reasoning has remarkably humanized and simplified the life of the writing teacher and has helped students to present the argument in basically understandable and more comprehensive terms (Kastely, 2002).

One of the most serious challenges in gauging the efficacy of various critical thinking approaches is the evaluation of students' critical thinking advancement (Ennis, 2003; Norris, 2000). Despite the availability of some common general-content-based critical thinking evaluation tools, such as the California Critical Thinking Test (Facione, 1990) and the Watson-Glaser Critical Thinking Appraisal (Watson & Glaser, 1980), a subject-specific critical thinking assessment is indispensable and influential for apprising the teachers of the level of critical thinking in a writing context. Amongst the scarce empirical research on teaching critical thinking in writing, some researchers, however, have indeed employed certain evaluations to gauge the enhancement of students' critical thinking skills, basically because of the dearth of suitable evaluation methods. Only a few researchers managed to provide statistical evidence to demonstrate students' critical thinking development; nevertheless, the assessment was employed via utilizing a writing rubric through including certain critical thinking factors. For instance, there is a rubric that integrated some writing requirements (outside sources, description, essay components, essay question, grammar and punctuation, postscript and formatting) and critical thinking (evaluation and interpretation of arguments, application/inference, and recognition of assumptions) (Çavdar & Doe, 2012). Similarly, Franklin, Weinberg, and Reifler's (2014) rubric combined writing standards with critical thinking. Further, Paul and Elder (2001) suggested a good method of assessing students' critical thinking. They stated that thinking critically demands good control of essential intellectual standards which are usually used in evaluating reasoning, precision, accuracy, depth, clarity, logic, breadth, fairness, and significance. Additionally, critical thinking improvement can be assessed by using qualitative data presented in students' drafts of written essays (Moghaddam & Malekzadeh, 2011). Illinois Critical Thinking Essay Rubric (Finken & Ennis, 1993) is deemed one of the most common tests that gauge

students' critical thinking skills in written texts. The test incorporates 6 criteria: conventions, integration, organization, reasoning, supporting reasons, and focus. The criteria gauge the existence of critical thinking in students' writing. Further, the test assesses different language forms in students' writing such as punctuation, paragraph format, spelling, word usage, and sentence construction. In my opinion, Illinois Critical Thinking Essay Rubric is a holistic approach to the assessment of students' critical thinking development for some reasons. First, the model introduces a list of 6 intellectual characteristics which are deemed pivotal for a strong-sense critical thinker. In addition, the 6 intellectual standards of the test perform as criteria for gauging the caliber of thinking. Eventually, Illinois Critical Thinking Essay Rubric provides a comprehensive model which can rigorously assess students' critical thinking abilities as it incorporates many intellectual processes that can be pinpointed and gauged in students' writing production. For these reasons, this test was employed in the present study to gauge students' critical thinking development.

METHODOLOGY

The methodology provides a particularized and rigorous elucidation of the approach utilized to undertake the current study. It gives information on the research design, research participants, selection of participants, research instruments, data analysis, and research procedures.

Research Design

The present study utilized a quasi-experimental design. Marsden and Torgerson (2012) maintain that the most prevalent style in the quasi-experimental design is matching where a control group is selected amid the non-treated population who share similar attributes as the experimental group. Hence, both the control and experimental groups are adjudged identical and the results may be regarded unbiased.

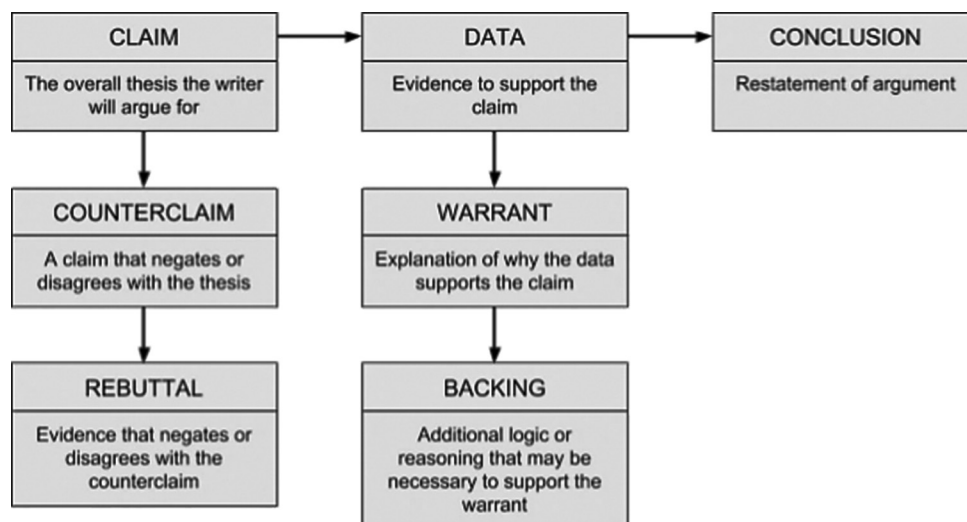


Figure 1. The toulmin model of critical thinking

Sample and Sampling Technique

Convenience sampling technique was utilized to sample the study participants. Convenience sampling technique, which is considered a non-probability of sampling, was used to select the target respondents principally on account of the ready availability of data. Convenience sampling was the optimum sampling technique applicable to the current research as a consequence of the geographical proximity to the researcher (Etikan, Musa & Alkassim, 2016). The total number of students enrolled in the Foundation Program at the two higher education institutions where the study was conducted was 160 students. To calculate the participants needed for the study, the researcher made use of an online sample size calculator. The calculated sample size was 70 students at a confidence interval of 8.76 and a confidence level of 95%. The participants of the present research also included 2 EFL teachers. One teacher taught the control group and the other teacher taught the experimental group. Both the experimental and the control groups' participants studied English at the two governmental higher educational institutions in the Sultanate of Oman. Both institutions teach the same English language course in the Foundation Program. The General Foundation Programme aims to equip Omani students with the knowledge and skills needed to perform capably in their post-secondary and higher education programs. The Programme has been developed in line with Oman Academic Standards for General Foundation Programmes. The Programme incorporates three trimesters, each trimester consisting of 14 weeks and exemplifying a level with associated learning results. The experimental and control groups had analogous demographic data regarding L1, gender, background education, age (above 18), and classroom contact hours in English. Both the groups were Arabic speakers. Each of the two groups incorporated 35 students. The researcher did not interfere in distributing the two groups, but the classroom in each of the two institutions is usually arranged to accommodate between 35 and 36 students. The experimental group involved 20 females and 15 males while the control group incorporated 17 females and 18 males. The study participants were secondary school leavers aged between 18 and 19 years old. The participant's level of English was intermediate.

Research Instrument

This research of quasi-experiential design used two instruments: the pre-test and the post-test. The two tests took the shape of essay writing. The essay was IELTS Academic Writing Task 2 which assessed the writing performance of students in 4 main criteria: coherence and cohesion, task achievement, grammatical range and accuracy, and lexical resource. Each criterion was given a band score between 1.0 and 9.0. The students were required to write 250 words in 40 minutes about "The relationship between culture and technology". To gauge students' critical thinking skills in the pre-test and post-test, the researcher employed Illinois Critical Thinking Essay Scoring Rubric (Finken & Ennis, 1993). This is a standardized international test that assesses

students' critical thinking skills in argumentative essays. The rubric incorporates six criteria, namely Conventions, Focus, Supporting Reasons, Reasoning, Organization, and Integration. Focus refers to the clarity of the written text in terms of the main idea it presents, viewpoint, unifying event, or theme. Supporting reasons refer to the degree to which the sub-points and supporting reasons are accurate, credible, and specific. Reasoning refers to supporting the conclusion for reasons. Organization refers to the clarity of the reasonable flow of notions and the explicitness of the test plan or structure. Conventions mean using standard written English. Eventually, integration refers to the presence of unity in the essay paragraphs. Each of the six criteria was rated on a six-point scale (total scores can range anywhere from 6 to 36 points). The scores are interpreted as follows:

1-3 illustrates that the criterion is absent or in the "developing" stages.

4-6 signals that the criterion is basically or well-developed.

DATA ANALYSIS

Analysis of Covariance (ANCOVA) statistical test was employed to assess the effectiveness of the writing module in enhancing Foundation Program students' critical thinking skills. ANCOVA is a robust test that can intensify the power of the statistical tests (Jennings & Cribbie, 2016; Salkind, 2016; Carter, 2010; Delucchi, 2014). ANCOVA was used to control the critical thinking pre-test scores statistically. Precisely, the pre-test aimed to identify the differences that existed between the two groups before the investigation. ANCOVA then was used to statistically control the pre-test scores (Salkind & Winter, 2017; Salkind, 2016; Jennings & Cribbie, 2016; Delucchi, 2014). The covariate variable can decrease the inconsistency or the variability of the results measures. Hence, ANCOVA was the optimal statistical test to be used in the present research since the pre-test (covariate variable) was controlled.

Before using ANCOVA, the assumptions below were accomplished (Larson-Hall, 2015; Zientek; Nimon & Hammack-Brown, 2016):

- The observation needs to be independent. To demonstrate, the participants could only be control or experimental group.
- Regarding the covariate variables and dependent variables (DV), the level of measurement needs to be 'scale'. In the current research, the dependent variable was the students' critical thinking competency after the intervention. The covariate variable was the critical thinking pre-test. The variable was collected under specific methods and measured at the 'scale' level.
- A random sampling of participants. The research should exemplify a random sampling from the total population. Nonetheless, convenience sampling was the sampling method that was used in this study. To eliminate the impact of sampling error, the researcher precluded and eschewed any form of direct or indirect contact with the participants.

- Dependent variables need to be normally distributed. Since the sample size was less than 50, the researcher used the Shapiro-Wilk test of normality. Nevertheless, a departure from normality did not influence the test since the sample size was large ($n > 30$).
- A linear link has to be found between the dependent variables and the covariate variables. A Scatter plot was used to test the relationship between the dependent variable and the covariate variable.
- Homogeneity of regression slopes. The regression slopes for the dependent and covariate variables should be equal. If the dependent variable intensified (positive), the covariate variable needs to be also intensified (positive).
- Homogeneity of variances was ascertained by using Levene's Test after conducting the inferential test. *F* test was used to discern and pinpoint the interplay between the dependent and covariate variables.

PROCEDURES

The present research was conducted during the second trimester in the 2019/2020 Academic year in two Omani higher education institutions which conduct the Foundation Program. The experimental group studied in higher education institution "A" whereas the control group studied in higher education institution "B". Before delivering the module, the writing pre-test was given to the experimental group by the module teacher, whereas the control group was given the pre-test by the control group teacher. The module in this research included eleven chapters which ran for 44 hours, 4 hours were allotted for each of the 11 chapters. The researcher incorporated argumentative essay writing to sharpen students' critical thinking skills. Students were necessitated to provide arguments and counterarguments to support their viewpoints. Additionally, students learned how to provide supporting examples, facts, and reasoning to support their arguments. To enhance students' writing and critical thinking skills, the module employed The Toulmin Model of Critical Thinking (1958). The control group studied the writing syllabus which was used by higher education institution "B". The time allotted for the syllabus was 44 hours. The writing syllabus incorporated 8 units that aimed to develop students' writing and critical thinking skills. The post-test was given to both groups after delivering the module and completing the writing syllabus.

RESULTS

The results give a comprehensive rundown of the research findings. The results describe the data analysis of descriptive statistics mean scores of the pre-test and post-test to identify the effect of the module on honing the General Foundation Program students' critical thinking skills. The sections below display the results of both the control and experimental groups' pre-test and post-test mean scores. Descriptive statistics are exhibited in section 8.1 while inferential statistical analysis is shown in section 8.2

Descriptive Statistics

Both the experimental ($n=35$) and control group ($n=35$) involved a similar number of participants.

Table 8.1 above presents the means and standard deviations for both the experimental and control groups in the critical thinking pre-test. Table 8.1.1 exhibits the means and standard deviations for the two groups in the critical thinking post-test before and after adjusting the pre-test scores. The experimental group ($M=20.771$, $SD=3.734$) scored considerably higher mean than the control group ($M=15.452$, $SD =3.458$).

Inferential Statistical Analysis

The researcher employed ANCOVA (Analysis of Covariance) to delve into the significant disparities between the two groups' critical thinking pre-test and post-test mean scores.

Table 8.2 above affirms that the critical thinking Post-Test scores were deemed normally distributed since the Shapiro-Wilk significant value was 0.252. The Shapiro-Wilk value for the experimental and control groups was 0.511 and 0.146, respectively.

Figure 8.1 above shows that both the experimental and control groups had a parallel linear relationship between the critical thinking Post-Test scores (dependent variable) and the critical thinking Pre-Test scores (covariate).

Homogeneity of regression slopes between the dependent variable (critical thinking Post-Test) and covariate variable (critical thinking Pre-Test) for the two groups was alike.

Table 8.3 above affirms that no significant interaction between critical thinking Pre-Test and the group was perceived.

Table 8.1. Group means and variability for critical thinking pre-test scores

Group	N	M	SD
Experimental	35	7.60	2.37
Control	35	7.14	2.92

With 100% valid cases without missing data

Table 8.1.1. Unadjusted and adjusted group means and variability for critical thinking scores

Group	N	Unadjusted		Adjusted	
		M	SD	M	SE
Experimental	35	20.771	3.734	20.771	0.609
Control	35	15.452	3.458	15.452	0.609

Pre-Test scores in the model were evaluated at the values of 7.3714

Table 8.2. Normality measures of critical thinking post-tests data distribution

	Shapiro-Wilk	
	Statistic	Sig.
Critical Thinking Post-test	0.693	0.252
Experimental group	0.972	0.511
Control group	0.954	0.146

The significant value was more than 0.05

The result obtained from this approach showed that 0.633 was the significant interaction level; thus, violation of the assumption did not arise.

According to Table 8.4 above, with an alpha level of .5, the p-value of critical thinking post-test was 0.272 which was more than .05; accordingly equal variances could be assumed. Therefore, the assumptions of homogeneity of variances for the experimental and control groups' critical thinking post-test were fulfilled.

Based on the above Table 8.5, the result of the Independent Samples t-test with the assumption of identical variance confirmed that there was no significant difference in the critical thinking Pre-Test scores between the experimental and control groups ($t(68) = .718, p = 0.475$). Therefore, it could be assumed that critical thinking Pre-Test scores were equal for the two groups before the intervention.

The current study aimed to investigate the significant difference in the critical thinking Post-Test scores between the experimental and control groups after the intervention. ANCOVA statistical test was used to find out the significant difference in the critical thinking post-test scores. The differences in the scores of critical thinking Pre-Test among the students in the two groups were controlled.

Table 8.3. Test between-subjects effects critical thinking post-test as dependent variable

	SS	df	MS	F	Sig.
Group	29.33	1	29.33	2.239	0.000
Critical Thinking Pre-Test	16.446	1	16.446	1.257	0.266
Group* Critical Thinking Pre-Test	3.016	1	3.016	0.231	0.633
Error	24437.000	66	13.084		
Total	38474.000	70			

Adjusted R Squared=0.352 and computed using alpha value=0.05

Table 8.4. Levene's test of equality of error variances^a

	F	df1	df2	Sig.
Critical Thinking Post-Test	1.225	1	68	0.272

Design: Intercept+Critical Thinking Pre-Test+Group

Table 8.5. T-test for equality of means of critical thinking pre-test as test variable

	t	df	Sig.
Critical Thinking Pre-Test	0.718	68	0.475

Critical Thinking Pre-Test Scores for both experimental and control groups

Table 8.6. Ancova for critical thinking post test as a function of group, using critical thinking pre-test as covariate

	df	MS	F	Sig.	Partial Eta Squared
Critical Thinking Pre-Test	1	14.302	1.257	0.279	0.016
Group	1	460.633	0.231	0.000	0.352
Error	67	3.536			
Total	70				

Adjusted R Squared=0.352 and computed using alpha value=0.05

As can be seen in Table 8.6 above, the empirical findings divulged that students' critical thinking Pre-Test scores (covariate variable) did not have an effect on their post-test scores (dependent variable) with $F(1, 67) = 1.106$ and $p = 0.279$. After controlling for the student's pre-test scores, a significant difference in the post-test scores existed between the experimental and control groups ($F(1, 67) = 36.615, p < 0.05$). The partial Eta Squared value showed a medium effect size (partial eta squared = 0.352), according to Cohen's guidelines (1960) (e.g., 0.2 indicates small effect, 0.5 indicates medium effect, and 0.8 means large effect). This medium effect size suggested that the variance in the students' critical thinking post-test scores could be justified principally by the independent post variable, which was the group classification. The group was set apart by the intervention of the module.

Table 8.7 above reflects the means and the standard deviations for the experimental and control groups in the critical thinking Post-Test scores, before and after adjusting the Pre-Test scores. ANCOVA results above indicated that the experimental group ($M=20.771, SD=3.734$) scored considerably higher mean than the control group ($M=15.452, SD=3.458$). There was a significant difference in the critical thinking post-test scores between the experimental and control groups after the intervention.

The study to aimed compare the mean of the critical thinking pre-test and post-test scores of the experimental group after the intervention. Paired sample t-test was

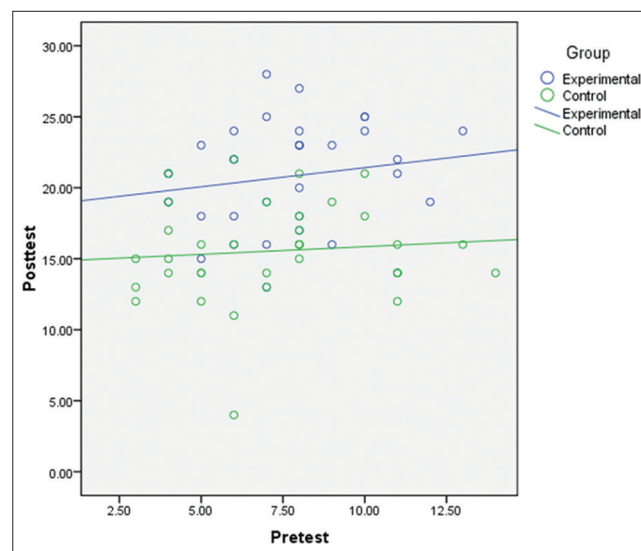


Figure 8.1. Scatter Plot Graph of Critical Thinking Post-Test Scores by Critical Thinking Pre-Test Scores for the Experimental and Control groups

used to find out the significant difference in the critical thinking post-test scores. As can be seen in Table 8.8 above, the pre-test scores reveal that the experimental group obtained a mean score of (7.60) in the pre-test while they obtained a mean score of (20.77) in the post-test with a significant difference. Concerning data variability from the point of central tendency, the standard deviation of the experimental group's critical thinking pre-test (SD=2.37) and the post-test (SD=3.73) are big revealing significant variance between the experiment group's performance in the two tests. The paired t-test(34)= -19.15, p=.000 < 0.05 indicates that there is a statistically significant mean difference between the experimental group scores in the critical thinking pre-test and post-test.

DISCUSSION

The present study proposed to enquire into the efficacy of a developed writing module in honing the critical thinking skills of Omani General Foundation Program students. To this end, the study used a pre-test and pot-test which were administered to both the experimental and control groups. The current study had two principal objectives. It aimed to compare the mean of the critical thinking post-test scores of the experimental and control groups and to compare the mean of the critical thinking pre-test and post-test scores of the experimental group. On the one hand, the statistical results confirmed that there was a significant difference between the experimental and control groups after the intervention. The statistical results affirmed that the experimental group scored significantly higher than the control group in the critical thinking post-test which accentuates the effectiveness of the module in enhancing the experimental group's critical thinking skills. The researcher used the Toulmin Model of Critical Thinking (1958) which was introduced explicitly in the module. The Toulmin Model of Critical Thinking promoted students to think critically about their choices of words, paragraphs organization, cohesion and clarity, and also the purpose and topic of writing. The finding of this

study confirms previous studies findings (Ahour & Golpour, 2014; Anggraeny & Putra, 2017; Dong, 2015; Dumitru, 2013; Luk & Lin, 2015; Nejmaoui, 2019; Qian, 2015; Qu, 2015; Sa'di & Ahmad, 2019; Saputra & Marzulina, 2015; Widyastuti, 2018) which claimed that argumentative essay could contribute to honing students' critical thinking skills. On the other hand, the statistical results confirmed that there was a significant difference between the experimental group's critical thinking pre-test and post-test scores after the treatment. The statistical results confirmed that the experimental group scored significantly higher in the critical thinking post-test. The Toulmin Model of Critical Thinking helped students to think critically about the various stages incorporated in the writing process. In the pre-writing stage, for instance, students learned to think about the appropriateness of their ideas and their relevance to the writing topic. In the writing stage, students learned to logically maintain paragraph unity, cohesion, and coherence and also properly organize the paragraphs in the essay. Hence, the Toulmin Model of Critical Thinking contributed to honing students' critical thinking skills. It can be implied that the teaching approaches selected by the researcher helped to develop students' critical thinking skills. Those teaching approaches were appropriately introduced through various writing activities in the module.

IMPLICATIONS

The current research carries two forms of implications; implications for practice and implications for research. Initially, The present study sought to evaluate the effectiveness of an EFL module in enhancing the critical thinking skills of Omani EFL students. Module development has received little investigative attention in the Arab world in general and in Oman in Particular. The vast majority of Omani educational institutions, for instance, provide students with international textbooks which do not take into account students' learning needs and preferred learning styles and thus fail to catch their attention and arouse their curiosity to deepen their understanding of various learning tasks (Ahmed & Abouabdelkader, 2016; Al Ajmi & Holi, 2014; Al-Mahrooqi & Tuzlukova, 2014). Thus, module development can be a pivotal leap towards the development and evaluation of learning materials in Oman in particular. As for implications for research, the present study utilized Toulmin Model to hone students' critical thinking skills. Toulmin model can be used in critical writing to enhance students' competence to examine and assess the argument. The Toulmin Model can be an alternative to maximize students' critical thinking

Table 8.7. Unadjusted and adjusted group means and variability for critical thinking using pre-test scores as covariate

Group	N	Unadjusted		Adjusted	
		M	SD	M	SE
Experimental	35	20.771	3.734	20.771	0.609
Control	35	15.452	3.458	15.452	0.609

Pre-Test scores in the model were evaluated at the values of 7.3714

Table 8.8. Paired samples t-test of experimental group critical thinking pre-test and post-test

Experimental Group	Mean	N	Standard Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig.(2-tailed)
					Lower	Upper			
Pre-test	7.60	35	2.37	0.40					
Post-test	20.77	35	3.73	0.63					
Paired Samples test	-1.31		4.06	0.68	-14.58	-11.77	-19.15	34	0.000

skills in-depth evaluation, as this model incorporates a higher level of reasoning skills. Using a warrant can be one of the methods to evaluate the argument by examining the logical relationship. The model can help students to evaluate how the various parts of an argument contribute to the whole; construct a convincing argument step by step and analyze an argument with a linear structure, where a notion leads to another.

RECOMMENDATIONS

This specific type of study could yield more comprehensive findings if the intervention and the post-test phase could be carried out longitudinally. This study was only conducted for about three months, and the post-test was only administered once, which was straight after completing the intervention. Thus, a delayed post-test and longitudinal study might be able to confirm further the effectiveness of the module in enhancing students' critical thinking skills.

Although the present study has yielded significant findings to validate the potential advantageous effects of the module in enhancing the critical thinking skills of Omani General Foundation Program students, future studies should recruit a larger number of participants. Furthermore, future similar studies should be reproduced by incorporating culturally and geographically diverse groups. The results would be more reliable and generalizable if participants come from different Omani cities, ages, proficiency levels, or even races.

CONCLUSION

The present study compared the mean of the critical thinking post-test scores of the experimental and control groups and compared the mean of the critical thinking pre-test and post-test scores of the experimental group. The statistical results confirmed that there was a significant difference between the experimental and control groups after the treatment. The statistical results affirmed that the experimental group scored significantly higher than the control group in the critical thinking post-test which accentuates the effectiveness of the module in enhancing the experimental group's critical thinking skills. Additionally, the statistical results confirmed that there was a significant difference between the experimental group's critical thinking pre-test and post-test scores after the treatment. The statistical results confirmed that the experimental group scored significantly higher in the critical thinking post-test. The present study advances the knowledge in the field of improving students' critical thinking skills particularly in the Sultanate of Oman. Research and studies in the field of critical thinking have generally reported that Omani Foundation Program students dramatically lag behind their international counterparts in the development of their critical thinking skills (Kumar & James, 2015; Naqvi et al., 2018). To address this gap the present study employed The Toulmin Critical Thinking Model in the writing module which significantly contributed to honing General Program students' critical thinking abilities. The Model enabled students to think critically about the various stages embedded in the

writing process. In the pre-writing stage, for example, students learned to think about the appropriateness of their notions and their pertinence to the writing topics. In the writing stage, students learned to logically maintain paragraph unity, cohesion, and coherence and also appropriately organize the paragraphs in the essay. The Model also helped students to provide supporting examples, facts, and reasoning to support their arguments. Further, the current study generated several rudimentary and valuable insights into the contributions of the module in improving students' critical thinking skills. The module significantly enhanced the General Foundation Program students' critical thinking competencies. Overall, the qualitative evidence from the study supports the effectiveness of the study module. Hence, the researcher believes that it is feasible to conclude that developing a writing module among foundation program students can improve their critical thinking abilities. Our curriculum developers must give recognition of the significance of the writing module. Academics and educational practitioners should explore further developing writing modules to improve students' skills. Nevertheless, due to certain limitations, future intensive empirical research into the realm of developing writing modules to improve students' critical thinking skills needs to be carried out for further clarification.

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