

Using Students' Reflective Writing Journal To Develop Critical Thinking Skills among Al-Hussein Bin Talal University Students'.

Dr. Khitam Alghazo
Curriculum & Instruction Department
AL Hussein bin Talal University

Introduction

Teachers are nowadays looking at students becoming active thinkers in the classroom .To get them to think and use their minds one must use strategies that help them to do so. One of the ways to get students, to become critical thinkers is through reflective writing. Research has shown that careful structuring of reflective writing and effective feedback can develop students' critical thinking skills (Peirce, 2005; Baker, 1996).

Reflective writing involves a person in active questioning and accepting or rejecting what is experienced or communicated. It involves linking the new information with their prior knowledge and generating new understandings and knowledge as a result. One of the ways to develop critical thinking skills among students is using journals. Student journals are used extensively in university contexts as a means of facilitating reflection, deepening personal understanding and stimulating critical thinking (Ballantyne & Packer, 1995). (Surbeck, Han & Moyer, 1991) Stated that student journals can help students become "better thinkers who probe deeper into both professional literature and their own ... ideas and actions" (p. 27)." (Walker, 1985) showed that student journals are highly rated as a means of facilitating reflection integrating theory and practice (Ballantyne & Packer, 1995), stimulating critical thinking and other higher levels of learning (Hettich, 1990), and examining and evaluating held beliefs and concepts (Wodlinger, 1990).

The aim of the reflective journal is to use the writing process as an effective means to facilitate students' critical thinking about the aspects of course content, issues, and group dynamics. So getting students to write more is the best, and perhaps the easiest, way to enhance critical thinking. Writing forces students to organize their thoughts and think critically about the material.

Many definitions have appeared for critical thinking some of which were (Sawin, 1991) critical thinking is a reflective mental activity focused on taking decisions about

what we believe in and do in certain situations. This kind of thinking involves distinguishing between right and wrong.

(Gerlid, 2004) defined critical thinking as thinking about thinking in the aim of developing it and making its outcomes meaningful and important to the individual (p.7). Like (Lipman, 1991) defines it as a type of thinking that is restricted with principles that have already been agreed upon, self evaluation, sensitive to the text and reflective and aims to mental judgment. (Watson and Glaser, 1991) have suggested the following skills for the critical thinking:

1. Inference: discriminating between true and false inferences drawn from given data.
2. Recognition of Assumptions: stated and unstated
3. Deduction: deciding if given conclusions logically follow various statements
4. Interpretation: determining if conclusions are drawn validly from given data
5. Evaluation of Arguments: distinguishing between strong relevant or weak irrelevant arguments.

Norris and Ennis (1989) define critical thinking as "reasonable and reflective thinking that is focused upon deciding what to believe or do" (p. 176).

A number of psychological and educational studies showed that students being able to think critically would achieve the following (Alatoom et al 2006):

- Makes students more truthful with themselves they will not be afraid to admit that they were wrong, so they acknowledge that they learn from their mistakes.
- Helps students to imagine themselves else where and therefore that helps them understand their point view in an open mind.
- Develops students' abilities to use their minds than their emotions.
- Helps students to take right decisions in their life far from being extreme.
- Encourages students on studying other types of thinking such as reflective and creative thinking.
- Develops students' academic achievement.
- Develops students' abilities on self-learning, and deeply think of all issues.

The educational research emphasizes a number of characteristics of the critical thinker some of which: An open mind towards new ideas and experiences, the willingness to change when being wrong by using convincing evidence, never go into arguments you no nothing about, to know when in need for more information on a

certain thing, to be conscious of the idea that people have different thoughts in their minds, to question everything you don't understand, answering questions that are hard and challenging, to distinguish between realities and assumptions that others form, and the ability to make right decisions (Facione, 1998 Petress, 2004).

As for the classroom environment that helps in developing critical thinking of the students it should contain: asking questions that require analysis and evaluation, respecting other students point views, respecting the discussions during the sessions of thinking, giving effective feedback that helps them give and present thoughts that help in forming rules (Brown, 2000, Muilenburg, & Berge, 2000).

There are ways to develop critical thinking since it goes through a number of stages where the students can be trained on, it starts from unreflective thinker, than challenging beginner thinker, after that the critical thinker, than the advanced thinker and last the teacher thinker and through practice he will become a critical thinker (Paul & Elder, 2001) where he will help in creating student thinkers.

Literature review

Several studies have studied the reflective writing and critical thinking as a means to develop critical thinking skills. A study done by (Chirema, 2006) on the use of reflective journals in the promotion of reflection and learning in post-registration nursing students found that student writing can be used as an evidence for the presence or absence of reflective thinking. Evidence also suggests that journals are a useful tool for promoting reflection and learning.

Another study done by (Boise State Writing Center, 2002) where students were asked to write in their writings about critical thinking what is and what it constitutes and what can it help them in. Results showed that students were able to think critically and transfer the skills they learned from one subject to another and from the classroom to the "real world".

Also a study done by Baker, (1996) on nursing students on using reflective writing journal and its effect on developing students critical thinking skills. The study results showed that it had great value in developing their thinking skills.

(Douillard, 1995) did a study on school students using reflective writing where students were asked to write what they have done over the weekend and results showed that students have benefited from their reflective writing, it have helped them to remember, make connections, connecting their learning to their own experiences, making observations, evaluating their own learning and make thoughtful informed decisions. So they have become thinkers and they have used and developed many types of thinking.

A study done by (Gleichsner, 1994) presented an assignment of writing a critical review of a refereed journal article as a way to develop critical thinking in the classroom. And the writing proved to improve students critical thinking skills.

Another is where (Olsen,1985)Connects writing and thinking processes. Presents a lesson plan to be used at grade-school level that supposedly encourages students to use all levels of thinking knowledge, comprehension, application, analysis, synthesis, evaluation and all parts of the writing process prewriting, precomposing, writing, sharing, revising, editing, evaluation.It is obvoius from the literature that using the reflective writing journal can help develop students thinking at all levels .

From all the studies above it is seen that using students reflective journals can be supported in classrooms by creating opportunities that allow students to think about their learning, their own lives, and the world around them. The process often illuminates problems, misunderstandings, and confusions and helps determine new growth, independence, and responsibility for learning and therefore help develop students critical thinking skills.

Problem of the Study

The problem of this study was due to students not being able to think and develop their thinking skills through the different lectures taught by the researcher at AL-Huseein Bin Talal University, and this could be due to the fact that our students are used to

the text more than really thinking about it. Hereofore the researcher decided to look into this problem deeper and try to help in improving students thinking skills in the areas of inferences, Recognition of assumptions, Deduction, Interpretation and Evaluation of Arguments.

Research Questions

- 1- Is the students reflective Journal an effective tool to be used among university students' to develop their critical thinking skills.
- 2- Can the Watson-Glaser Critical thinking Appraisal be modified to the Jordanian content and be used to measure students thinking skills.
- 3- Are there significant differences in using the Watson-Glaser Critical thinking Appraisal in developing critical thinking skills due to gender?

Purpose of the Study

The Purpose of this study is to use the students reflective writing journal to develop university students critical thinking skills in the five different areas inferences, Recognition of assumptions, Deduction, Interpretation and Evaluation of Arguments.

Importance of the Study

The importance of this study was to show how the students reflective journal can help develop students critical thinking skills in the five different areas inferences, Recognition of assumptions, Deduction, Interpretation and Evaluation of Arguments. Developing students critical thinking skills will help them in their educational context and in the real world. It will get students to think critically about what every issue they face, in other words they will come to a stage where they will explain analyze and evaluate every situation they are in rather than just taking things as is without thinking about them.

Method

Participants

The Participants of this study were (80) male and female students forty male students and forty female students in two sessions taught by the reseracher during the summer semster of 2005-2006 academic year at AL-Hussein Bin Talal University.

Instruments

For this study two Instuments were used,

The Students Refelctive Writing Journal

The students from the beginning of the semster were asked to have a writing journal where they were asked to deveolp questions based on their readings for every leacture and on every class period the students are to write two subquestions in each of the questions they generted from their praperation in order to help them deveolp synthesis,anaylsis and evaluuion skills in other words devolps their critical thinking skills (Peirce, 2005).

The Watson-Glaser Critical Thinking Appraisal Test

The "Watson-Glaser Critical Thinking Test": is a test that aims to assess evaluative and reasoning abilities, including the critical ones. It was published in the U.S.A. in many editions (Watson & Glaser, 1991). For this study the revised version of The Watson-Glaser Critical Thinking Appraisal test that was revised by (Alhmouray and Alwaher, 1998) was used since it applies to the Jordanian environment. The Watson-Glaser Critical Thinking Appraisal test was devised to assess five areas of critical thinking inferences (Items 1-12), Recognition of assumptions " (Item 13-24), Deduction" (Item 25-36), "Interpretation" (Items 37-48), and "Evaluation of Arguments" (Items 49-60). The items consistently require students to examine evidence and to think. The Watson-Glaser Critical Thinking Appraisal is popular to test and develop critical thinking skills (Ennis, 1987).

Reliability and Validity of Instrument

To make sure of the reliability of the Watson-Glaser Critical Thinking Appraisal, it was given to a number of the faculty members in the department of C & I in Alhussein Bin Talal University with different majors statistics and psychology. None of the faculty members gave any comments on adding or deleting anything in the instrument.

And to check its validity in order to achieve the goals of this study, the Watson-Glaser Critical Thinking Appraisal was distributed on a population of fifty (52) students who were not included in the study at hand, and that was done by getting out the cronbach alpha for the different areas used in the instrument and the test as a whole.

Table (1)

Cronbach alpha for the different areas used in the instrument and the test as a whole.

Areas	Cronbach Alpha
inference	0,72
Recognition of assumptions	0,77
Deduction	0,83
Interpretation	0.79
Evaluation of Arguments	0,88
Total	0,93

Research Terms

Students reflective Journal: Is to use the writing process as an effective means to facilitate students' critical thinking about the aspects of course content it also defined as an analytical process in which students record their ideas, examine their data, deal with issues or problems that are raised by it and identify alternative solutions (Ballantyne, & Packer, 1995).

Critical Thinking: It is an on- going concern with the problems inherent in human thinking. It leads to analyzing and evaluating thinking with a view to improving it. It includes analyzing or evaluating information, reflecting upon the meaning of statements, examining the offered evidence and reasoning, and forming judgments about what is given.

Data Collection and Analyses

The data was collected at the beginning of the semester of 2005-2006 by giving students a pre-test on the critical thinking appraisal test. After that from the first lecture students were asked to use a writing journal where they were asked to develop questions based on their readings for every lecture and on every class period the students were to write two subquestions in each of the questions they generated from their preparation in order to help them develop synthesis, analysis and evaluation skills in other words to develop their critical thinking skills (Peirce, 2005). At the end of the semester students were given the Critical thinking appraisal test again in order to check if the students reflective journal has helped them to improve their critical thinking skills by using the SPSS program.

Results

The results of the study aimed at investigating the effect of using the Students Reflective Journal on developing students' critical thinking skills among Al-Hussein Bin Talal University students. To do so a pre-test and a Post test to check the participants means and standard deviation on the critical thinking test was done on the test as a whole and on its five different areas as shown in table one.

Table (2)

Means and Standard Deviation of the participants on the Pre-test and Post test of the Critical Thinking Appraisal Test as a whole and on its' five different areas

Areas	Pre-test		Post test	
	Means	Std.	Means	Std.
Inference	4.4	1.7	4.8	2.3
Recognition	7.5	1.5	8.0	2.2
Deduction	6.2	1.6	7.3	1.5
Interpretation	5.6	2.3	6.8	2.0
Evauiation	7.4	1.7	7.9	1.9
Total	31.3	4.3	35.0	6.4

As shown in table one the means of the participants on the pre-test was (31.3) where as on the post test the mean of the participants was (35.0) and that is staistically significant on alpha (0.05) so it is obvious from the table that the students reflective journal had deveolped the students critical thinking skills on all the five areas and this is consistent with other studies done (Boise State Writing Center, 2002; Douillard, 1995; Gleichsner,1994 and Olsen ,1985) where all these studies have used writing reflctive jornsals in order to help deveolp students crictial thinking skills and all proved to be an effective way to do so. A test was also done to investaigate the significance of crictial think apparisal test on devolping crictial thinking among both genders as shown in table (3).

Table(3)

Means and Standard deviation of the participants on the Post test of the Critical Thinking Appraisal Test as a whole and on its' five different areas according to gender

Areas	Group	Mean	Std
Inference	Male	4.5	2.0
	Female	5.2	2.5
Recognition	Male	7.5	1.6
	Female	8.5	2.6
Deduction	Male	7.3	1.6
	Female	7.4	1.3
Interpretation	Male	6.5	2.0
	Female	7.0	2.0
Evaluation	Male	7.6	2.0
	Female	8.3	1.7
Total	Male	33.5	4.6
	Female	36.5	7.5

From table (3) there is a difference in the means and standard deviations of both the male and female students on the post critical thinking test. The means for the male students on the post critical thinking is (33.5) and the standard deviation is (4.6) whereas for the female students the mean was (36.5) and the standard deviation (7.5) so the means for the female students is higher than for the male students. And to see if there is a significant difference between the two groups the two-way Ancova was used as shown in table (4).

Table (4)

The Two-way Ancova results to measure the difference between Male and female students on the Post Critical Thinking Test.

Source	Type III Sum of Squares	df	Mean Squares	F	Sig.
Corrected	177.012a	1	177.012	4.50	.037
Intercept	98070.013	1	98070.013	2498.21	.000
Sex	177.013	1	177.013	4.509	.037
Error	3061.975	78	39.256		
Total	101309.000	80			
Corrected Total	3238.987	79			

Table (4) shows significant differences on alpha (0.05) in the students' ability on the post critical thinking test between both genders. Going back to the post means of participants of the study as shown in table (3) it was found that the means of the female group is (36.5) was higher than the means of the male students on a mean of (33.5) and it shows a significant difference on alpha (0.05) for the benefit of the female students. This could be do the fact the female students are usually academically better than male students and this makes their skills in the language better and therefore makes them think critically more than male students.

Discussion of results

The results of this study showed that there is significant differences on alpha (0.05) between both genders, the female and male students in using the reflective writing journal to develop critical thinking skills on their five areas of the test inference, recognition of assumptions, deduction, interpretation and evaluation of arguments in favor of the female. and this agreed with a number of studies such as the one done by (Johnson & Roen, 1992) on complimenting and involvement in peer review according to gender. Results showed that women writers used positive evaluation, intensifiers, and personal

referencing more frequently than men and that the gender of the addressee played a significant role in choosing the strategies in writing. Also as study done by (Pajares & Valiante, 1999) on grade level and gender differences in the writing, self-beliefs of middle school students. The results of his study showed that girls were more competent writers than were boys.

The use of reflective writing journal in this study had played a significant role in developing students critical thinking skills. The effectiveness of the writing journal used in developing students critical thinking skills goes back to a number of factors some of which that the journal was seen as an interesting way to express their ideas and thoughts, also it had got the students to really make use of their preparation for the next lecture, so it destroyed the routine of where students just come without any preparation, here they knew they had to prepare and write down useful thoughts which they can elaborate on.

Conclusion

This study attempted to investigate the effect of using the students reflective journal in developing students critical thinking skills. It has shown that students were every motivated to using their reflective journal, for it gave them the chance to write their ideas and thoughts and to go beyond it. It got them to become aware of their own learning. And therefore they were able to set goals and evaluate their own progress all this made them think, observe, and evaluate. It can also be concluded that reflective writing helps to make thinking visible, enabling students to learn from each other and to gain greater insights.

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