Original Article

Teaching strategies and developed critical thinking disposition: Intrinsic motivation, or group feedbacks?

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ABSTRACT

Aim: With regard to the importance of inner motivation and learning interest of students in the development of intellectual skills, this study compared the effectiveness of collaborative learning model and inquiry the orientation of high school students to think critically. **Methods:** And quasi-experimental design of pretest and posttest. Two experimental groups and the statistics include the entire basic high school male students Fariman city per academic year 2010–2011. **Result:** The results showed that the pattern of influence on the orientation of the inquiry and collaborative learning and critical thinking and its three components, there are significant differences between the two groups studied and model of participatory group that received the recipient of the cooperative learning group had a higher tendency to think critically. Except in the components of engagement ($P > 0.05$) that there was no difference between the two groups the components of creativity ($P < 0.05$) and maturity ($P < 0.000$) groups than in the group receiving a higher level of participation in the inquiry pattern. **Conclusion:** Model of the impetus to inquiry the interior of the learners create, the trend toward collaborative learning to develop critical thinking, it seems more effective.

Key words: Collaborative learning, critical thinking disposition, curriculum, inquiry pattern, teaching

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Introduction

In the present age is unprecedented to think critically. Special national committee to address the quality of education in educational systems lacks the ability to recognize. Want to lug teaching critical thinking in the curriculum as the fourth element of the training grounds (after the reading, writing, and counting) have been.[1] Complex educational problems of Ineffective teaching methods and educational content such as high volume are due importance and status as the only reference to the curriculum for the educational system responsive to the issues involved are more and more apparent.[2] Effectiveness teaching and learning methods and are considered the most influential element in the teaching programs.[3] Furthermore, critical thinking to develop a basic curriculum to be revised and it requires a paradigm shift is reflected in learning outcomes and the knowledge

to their learners and build on their experiences.[4] In fact, in many of the capabilities and skills learners need to pay attention to this important component. Hence one of the most important changes needed in the curriculum, teaching methods are changing. Evidence shows that is a direct correlation between students' approaches to teaching and critical thinking taught in classrooms and programs must maintain a passive and concepts to facilitate the learning of critical thinking as a component in the move.[5]

In fact, the development of critical thinking as a desirable educational outcome[6] requires teaching methods that to help learners improve their ability in critical thinking and the desire to increase the use of these skills But most of the learners are asked to analyze, interpret, evaluate, and make clear the relationship between content, and keep them to the list.[7] Experts in the field of educational psychology to argue that motivation greatly influenced the development of intellectual skills that students which is divided into two types, internal and external stimulation. The use of inclusive teaching methods that stimulates the motivation or off the development of intellectual skills to be thorough. Furthermore, educational systems in the motivational factors for the development of critical thinking skills, it seems undeniable.[8]

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Other scientist believe in providing content (teaching process), if we're teaching students based on asking good questions, the tendency to think critically, they will provide[9] and using teaching methods that is promote critical thinking as the inquiry.[10,11] Because in this way, the question was undeniably one of the activities[12] and arguments presented during the inquiry carried the learners critical thinking involves.[13] This method, as one of the methods rely on the learner, the ways in which the attention of many scholars in the field of education has attracted and applying to impact greatly on the satisfaction of learning and learners are learning[14] inquiry method is to create opportunities for learners to individually and actively involved in the learning.

In fact, active learning is based on questions that ask learners.[15] In this way, students in real situations and solve problems and be ready to collect data and teacher, encouraged her to provide information about various events and through setting and knowledge search, build active and problem-solving process. In fact, the inquiry requires recognition and identification of assumptions and using a variety of explanations and interpretation takes place[12] and require is high levels of cognitive processes such as critical thinking and self-direction.[16] In this model, students in independent research through the identification process, the methods that are used to inquiry this, the tendency to increase the critical thinking.[17] Learners engage in learning opportunities, build their own knowledge.[18]

Pattern was apparent that the use of inquiry as a person-the internal motivation to create a comprehensive can lead to the development of his tendencies to be critical thinking.

But many theorists who believe that their study of teaching methods many cognitive and social skills through cooperative learning experiences that will strengthen.[19] This way, the importance of the individual groups, today an important place in the teaching methods to their accounts In collaborative learning, learners with the co-operation and participation in learning and sharing of skills and abilities can improve their.[20] In fact, in this way, learners at different levels of performance in small groups and are working together to achieve a common goal a person's success in helping others.[21] The outputs of collaborative learning are much more than the competition and individual activities.[22] Also states that represent one of the goals of collaborative learning, abstract thinking, and problem-solving team members on individual issues that cannot pay them. Individuals with higher-level of thinking found in the various activities and information and the results are longer than students who complete a solo act.[23]

Furthermore, learners participate in group activities provide the opportunity for learners to talk to each other and analytical skills for learners with an opportunity to make offer Improve attitudes and thought processes that can lead to high levels of lead. Considering the one hand, the critical thinking of learners to educational systems is considered as one of the main missions and comments on the rule of teaching methods led to intellectual stagnation activities are learners. And on the other hand, results of several studies suggest the impact of different teaching methods to enhance the intellectual skills of learners this question is intrinsic motivation that led to the development of critical thinking tend to be learning or collaborative learning? The present study compared the effectiveness of collaborative learning on the inquiry pattern tends to develop critical thinking students took in high school.

Methods

This method, quasi-experimental design of pretest-the test is tested with two groups. The implementation of this model by the teacher to experimental group include: Exposing learners to the problem, gather information to answer the proposed hypothesis, help the learner to test assumptions, organization and classify information, review of current exploration and research and problem-solving. The statistics include all Fariman city high school male students are in school year 2010–2011. The multi-stage cluster sampling was done, to be the beginning of high school boys, high school, and then three of these high grades, two classes were randomly selected to first base. Then, in order to compare the two methods in the class (25 persons) inquiry pattern and the other classes (21 persons) collaborative learning was implemented. Both groups matched by educational practitioners at the beginning of the school year was and students of academic achievement, economic, cultural, social and were homogeneous.

Research tools

One-measure critical thinking disposition Ricketts: The questionnaire includes 33 questions, was a five-item Likert scale from completely agree to disagree completely on, is set. Maximum and a minimum score achieved on this test were respectively 165 and 33 points three sub-scale and creativity, and is an engagement to perfection. Reliability coefficient for each sub-scale were 0.64–0.53–0.82[24] and Cronbakh's alpha coefficient of 76% has been achieved.

Stages of implementation
- Select the groups tested
- Inquiry method and cooperative learning to both teachers

- The pretest to test for both groups
- Inquiry model for collaborative learning and student groups
- Implementation (after-test) for both groups and data analysis.

Results

Table 1 descriptive statistics and trend components of critical thinking to separate the two groups are presented. As shown in table, average test scores in both groups tended to think critically, and its three components are higher than pretest scores.

Furthermore, the pattern of inquiry has received scores higher than the group who were exposed to cooperative learning.

To compare the pattern of the inquiry and the components of critical thinking and collaborative learning on the trend test was used for multivariate analysis of covariance (MANCOVA) the results are reported in Table 2. The statistical hypothesis testing, such as normality of data distribution and homogeneous variances were evaluated prior to hypothesis testing. Someone homogenous variance-covariance of the box test ($P = 0.755$) and homogeneous variance by Levine test ($P > 0.05$) for each dependent variable showed Any violations of these assumptions have been made. The test results MANCOVA

was as follows: There are significant differences between the two groups studied ($F[3,44] = 9.76$, Pillai's trace = 0.40). The tendency to analyze each component of critical thinking as a dependent variable alone using one-way analysis of variance listed in Table 2 indicates that between two groups of the components of creativity ($F[1,46] = 5.47$, $P = 0.02$) and maturity ($F[1,46] = 22.00$, $P = 0.000$), there are significant differences. While the components of engagement ($F[1,46] = 0.90$, $P = 35$) there was no significant difference between the two groups. The test results showed in two components group who had received the inquiry model are higher than the group receiving collaborative learning.

Conclusion

Whereas the various theories of psychology the impact of intrinsic motivation and the impact of feedback on the development of cognitive skills tend to include critical thinking, has been emphasized. The present study was to compare the effectiveness of collaborative learning on the inquiry pattern tends to develop critical thinking in secondary school students was conducted. The main findings showed that both methods have had an impact on the development of critical thinking tends to, however, the effectiveness of the inquiry pattern tends to have more critical thinking than cooperative learning. The findings of this study are inconsistent.[14] Their results suggest that cooperative learning versus individual learning has more impact on critical thinking skills. Indeed, the present findings suggest that both the internal motivation and group activities can lead to the development of students' desires to be a high-level thinking skills however, what is thought Motivational force that is created by the success of the individual in his compared with the incentive that the debate is done collectively.

However, the opinion Weiler *et al.* may impact on participatory methods of social and cognitive skills, be denied but it seems to develop and strengthen many skills and cognitive skills, in particular, plays a more important role of internal motivation. The inquiry pattern, inclusive of each model according to the feedback received and based on the success of this process is for him. He created an inner motivation and desire to do more shows of intellectual activities.[25]

Considering these findings can be acknowledged those involved in the educational systems to the curriculum so that the internal motivation, the tendency of learners to develop critical thinking is essential and required to appear. The next result was shown between the two groups (receiving inquiry and collaborative learning model) of the components of creativity and maturity; there are significant

Table 1: Descriptive statistics and trend components of critical thinking in the pretest and posttest groups

Group	Variable	Pretest		Posttest	
		Mean	SD	Mean	SD
Implementation of inquiry pattern	Creative	39.2	6.88	43.84	4.5
	Maturity	28.48	5.67	33.56	4.17
	Engagement	45.64	8.65	50.24	5.23
	Disposition	113.32	12.06	127.64	7.09
Implementation of cooperative learning	Creative	28.38	5.16	38.96	5.77
	Maturity	27.07	4.56	26.73	3.49
	Engagement	45.15	6.27	45.84	4.31
	Disposition	100.61	10.19	111.53	8.6

SD: Standard deviation

Table 2: Results of one-way analysis of variance to compare the trend component of critical thinking in groups

Component	Source	Sum of squares	df	Mean square	F	Significant
Creative	Group	149.37	1	149.37	5.47	0.024*
	Error	27.29	46	1255.59		
Maturity	Group	271.13	1	271.13	22	0.000***
	Error	12.32	46	566.79		
Engagement	Group	15.89	1	15.89	0.903	0.35
	Error	17.6	46	809.86		

***$P<0.000$, *$P<0.05$

differences; while the component of engagement was not significant difference between the two groups. In other words, the group that received inquiry model, the two components in the group receiving the higher-level of collaborative learning we interpret these findings in the inquiry, a method in which the learning needs of special and unique talents to use.

On the other hand, creativity as well as discover new solutions to similar problems.

However, when a student is involved in the inquiry pattern and avoids the attempt to solve the problem, may be new and innovative solutions that will and this makes it more likely to have mental problems, and applying skills and thus he has feeling of accomplishment and maturity. Considering the results of this study should be noted that curricula and teaching methods specifically designed and formulated to be stimulating internal motivation leads to improved learning and thinking skills and encouraging them to be. We can represent the pattern of the inquiry to be emphasized in the classrooms and probably need to use it in all courses, can be used with caution.[26] However, it should be noted that the quality of this model is much more important than its use alone. Perhaps that is incomplete or improper implementation, results and photos to be negative.

On the other hand, if teachers are not fully aware of the psychological principles of learning theories, also likely, inquiry pattern to work with a teacher who does not have any affinity with this model. Finally, the pattern of inquiry and other teaching methods that are based on internal motivation, the tendency to develop the critical thinking involved in the education system the methods of teaching and effectiveness of intellectual skills to learners interested in these areas is recommended.

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