The Effect of Using the Brainstorming Method on Developing the Decision-making Skill of First-Grade Intermediate Iraqi Students in Social Sciences

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Abstract:

The present study aimed to investigate the effect of using the brainstorming method on enhancing the decision-making skill of firstintermediate class students in social sciences in Iraq. The study included a random sample of (158) male and female students.They were divided into two groups (experimental group which included 81 members and control group which included 77 members). The researchers designed two tools to collect study data. The first tool is a scale designed to measure decision-making skill. Furthermore, the scale includes (18) paragraphs, each of which included a problem that a decision must be made about, and the second is plans to implement lessons following the brainstorming method.The results reflected that there were differences, of statistical significance, in the development of decision-making skill. Such differences areattributed to the method and in favor of the brainstorming method. The results also reflected that there were no differences, of statistical significance, in the decision-making skill's development. Such differences areattributed to gender. Moreover, there were no differences that can be attributed to the interaction between gender and method. Based on the results, the researchers presented a number of suggestions and recommendations.

Keywords: Brainstorming, decision-making skill, national and civic education, method.

Introduction:

The modern world faces many problems and challenges that began to impose themselves as anoutcome of the huge explosion of knowledge in many political, economic, social, educational and other fields, concepts of thinking and creativity became an inevitable necessity to keep pace with developments, face life situations in a positive way, be able to make decisions and overcome problems that became an apparentfeatureof the present era. Educationalists nowadaysshare one idea that the centralobjective of learning is to improve and enhance the abilities of students,

particularly those who are knownfor the ability to understand and solve problems effectively and in ways that are consistent with the spirit of the era (Benoit, 2015). Modern education emphasizes that education of good quality should be concerned with teaching all the different life skills, including decision-making skills (Arab Regional Symposium, 2012, p. 11).

We are in need more than ever before for new teaching as well as learning strategies that hopefully bring about modern, broad, diverse as well as advanced educational environments that would significantly help students enhance their information, improve their skills, and hold training courses for them in order to make them creative. This is not possible without the presence of a specialized teacher who gives his students the opportunity to contribute to the development of generalizations, formulating them and then testing them by providing them with the appropriate resources and raising their interests. The thinking skill is not different from any other skill, as it improves and develops with teaching, practice and learning (Beyer 2009).Most of the goals of the developed school are to provide students with problem-solving skills and the ability to make decisions, given the scientific, technological and civilizational progress in which we live and the problems it has resulted in in various fields that need creative solutions. This can only be achieved by preparing the individual to face such challenges. Moreover, teaching thinking reduces the focus on the process of teaching the material, relieves the burden on the teacher, and makes more space for learners to participate in the learning process and increase their motivation (Saada, 2007).One of the most important goals of social studies is the intelligent interpretation of facts and events using the brainstorming method toimprove and enhance the skill of decision-making, conflicts as well as issues that have become a feature of our era in which the continuous and effective interaction between man and his environment has increased. The individual can provide an intelligent interpretation of local or global incidents and issues through a conscious and in-depth study of all the conditions of the event or issue (Al-Laqani, 2000), especially since social studies aim to find a good citizen who is aware of his rights and dutiesand the problems experienced by society and participates positively in solving them (Nasser , 2001).

The ability to think is one of the goals that social studies contribute directly to achieving. This is done by using problem solving and creative thinking in teaching, as opportunities abound in each of the units to identify problems and research issues, ask many important questions, search for different information, and express opinions and

ideas in an effective manner (Saada, 1999). Sociology aims to prepare students to be logical and able to examine the given information in an objective way and to have the ability to identify the various problems that society suffers from and think about solving them through practicing different thinking processes.

The social studies curriculum plays an active role in solving the prevailing problems in society by focusing its content and activities on many problems and providing the learners with an opportunity to identify those problems and then discuss them in depth and take specific positions towards them (Saada and Ibrahim, 2004). The social and national education curriculum is the main source of educational experiences that students need to identify situations and make decisions about them (Maree and Al-Hela, 2004). The social and patriotic education curriculum focuses on preparing the conscious student who believes in social, political, economic and cultural change and believes that he lives in a changing, renewed world with conscious thinking, but also contributes to preparing the human being so that he is an active element participating in this change (Atiya and Nafeh, 2001).

In view of the importance of social sciences in consolidating positive thinking among young people, assuming responsibility, encouraging self-initiatives, and investing valuable ideas and opinions, as the emerging social groups provide goals of great value in their lives and embody the problems they face, as it develops in them a spirit of challenge to solve them and face challenges, it was necessary to adopt teaching methods that work to stimulate students' thinking about national issues of interest to the country as a whole (Odat, 2006).

This study seeks to address methods that help in supporting the students' needs, develop their thinking in solving the problems they face, and then transfer them from the state of reception in educational-learning situations to the state of active participation on the other hand, especially if we know that new curricula were designed in Iraq on the basis of the knowledge economy and the needs of students and what they will be able to do. After completing the basic and secondary stages, students are expected to be able to use decision-making skills in an effective manner (Ministry of Education, 2021).

Accordingly, it is necessary to diversify the teaching methods to be directed towards the most important life skills in the learner's personality, such as the potential to solve problems as well as make decisions. Moreover, the development of the individual's potential to solve problems as well as make decisions is an important issue

in the present age, in which the individual has become the maker of many decisions in the overall activities of his life. The results of the research in this field led to a set of models that took upon themselves the development of models for solving problems and making decisions. The research showed the differences and differences in how individuals progress in facing problems and making the appropriate decision (1992, Huitt).

The need has emerged to design curricula based on education and directed to provide students with various and comprehensive life skills within the knowledge economy system in order to prepare them for life and to employ those knowledge and skills to contribute to the development of society and meet personal and public needs through activating the share of activity. Moreover, various life skills are learned such as taking responsibility, dialogue, decision-making and activating the practical and applied aspect in the classroom (Ministry of Education, 2007).

The ability to make decisions is one of the basic skills in various fields of contemporary life. It has become an urgent necessity and one of the most important changes in the social environment (McGinnis & Goldstein, 2003). Decision-making skills are also among the skills necessary for the individual to be able to collect and use information related to community affairs and to participate effectively in decision-making and solving problems facing the community (Al-Najdi, 2001). Decision-making is seen as a kind of reconciliation between the elements and forces that have an impact on the decision. Although the alternative that is chosen does not achieve the complete or ultimate goal, it is considered one of the best solutions that can be reached under the existing circumstances. This means that decision-making is a study of alternatives and selection of alternatives (Majid,2001).

Jarwan (1999) defined the process of decision-making as a process of complex thinking whose main mission is to select the best possible alternatives or solutions which are available to the person in a particular situation with a goal. He saw that the decision-making process includes reaching the desired goal. Beyer (2003)saw that reaching a decision after careful consideration of the options, alternatives and possible outcomes of the decision-making process is in addition to taking into account the individual values and characteristics in which the maker of decisions strongly believes.

Habib (2003) defined the decision-making process as the process of conscious choice between the alternatives available in a situation. He adds that making a decision is functioning on selecting the best available and possible alternatives after thinking

deeply about the outcomes of each alternative or option and their effect on the goals to be achieved. Alternatives and options are selected in light of a set of criteria that have been monitored by the decision maker to help make the right decision. (Al-Ta'I, 2001, p. 44) defined it as "a process of resolving a problem situation that depends on the mental function, that is, it is a cognitive process that involves a series of mental activities such as attention, awareness and initiative in order to achieve the desired goal after defining the required alternative carefully and deliberately".

In short, theprocess of taking decisionshas a set of common denominators, including, an issue or a serious problem that has to be decided, a set of procedures organized as per a logical method that the decision-maker is expected to follow, and the application of a number of mental processes as well as skills when making a decision, and creating a set of alternatives and possible logical solutions that ultimately aim at investigating and solving the problem, and then taking the appropriate decision. The process of decision-making is truly affected by the person's values that maker of deception believes in, and the experience experienced by the individual who plays an important role in making the appropriate decision, and working to evaluate the alternatives and options available to the decision-maker according to criteria that have been relied upon.

Decision making is a planning process for solving problems, meaning planning that helps us reach our goals and change our lives for the better. This planning exists within a specific time frame. Thus, it is subject to continuous review by working hard on making the necessary and necessary improvements. In the same context, Boukras (2001) referred to a set of steps that contribute to making the right decisions, namely: setting the goal (diagnosing the problem), collecting information from various sources, listing all the influencing factors (then analyzing the cause of the problem), developing appropriate alternatives. (The available solutions) (Then making the decision) Choosing the most appropriate alternative, flexible implementation, and evaluation.It includes the process of making a judgment on the effectiveness of the decision made. Teachers should enable students to have the skill of decision-making and to avoid some errors in the decision-making process, including: hesitation in the decision-making process, postponing decision-making to the last minute, and failure to know the main cause of the problem. This leads to the initiation of a decision-making process that may have ominous consequences, and a failure to appreciate an informative source. It also contributes to making an incorrect decision, and the incorrectness or accuracy of the

method used in analyzing information, taking the decision and not following up on its implementation (Zureik, 2001).

The brainstorming method is one of the most common methods that help to generate new ideas as solutions to specific problems. This method has become one of the most popular methods of educators' interest in developing creative thinking and solving problems in most subjects, especially in social studies, because of the economic, political, social, environmental and other problems that it entails. Training students on it has become one of the most important goals of social studies (Abu Sarhan, 2000). Jarwan (2002) saw that brainstorming includes an active response to the problem using the mind and is based on creating a list of ideas that can lead to solving the problem.

(Urlich et al. 2003) pointed out that brainstorming is the free movement of ideas, launching ideas or solving creative problems. Brainstorming in the teaching of social studies is based on preparing the study units by dividing them into short problems that challenge students' thinking and require access to multiple ideas within a short period, while giving each student an opportunity to express his opinion and listen to the opinions of others (Khader, 2006).

The brainstorming sessions are based on a set of principles and rules as follows:

First: Deferred criticism: It means that the judgment against ideas should be postponed until a later time so that we do not oppress the ideas of others and let them express them and feel free to express their feelings and thoughts without being criticized.

Second: Freedom of thinking and generating new and innovative ideas, whereby the participants are encouraged by the free release of ideas. The more comprehensive and broader the idea, the better their effectiveness is.

Third: Quantity is required, as the greater the number of ideas, the higher the balance of useful ideas, given that quantitative accumulations lead to qualitative changes.

Fourth: Building on the ideas of others, integrating and developing them, as the participants, in addition to their contributions to their own ideas, guess the ways in which they can transform the ideas of others into more quality ideas or how to integrate two or more ideas into another better one. (Abu Sarhan, 2000; Qatami 2000; Odat, 2006).

In order for the brainstorming session to achieve its goals effectively, it proceeds according to the following steps:

First: Formulating the basic idea of the problem, as the session director presents the problem to the participants and explains its dimensions. He may conduct some

preliminary work, such as presenting some facts, explaining a set of concepts, or presenting figures and illustrations as introductions that help participants understand the problem and actively participate in identifying and solving it, and making sure that the participants have reasonable knowledge of the subject matter of the problem, allowing students to ask questions about the problem and giving them the minimum level of information.

Second: formulating the problem and crystallizing it clearly. This can be done by putting the problem in the form of a question that begins (How could it be…?, what if that happened…?), and thus the problem is identified and subject to further study and research from different angles.

Third: Brainstorming one or more of the questions of the problem that has been crystallized. It is taken into account here to obtain the largest possible number of ideas, so that attention is focused on encouraging the presentation of opinions and ideas in quantitative terms, not qualitatively.

Fourth: Evaluating the ideas that have been reached (Jarwan, 1999).

It is noted that the method of brainstorming is based on providing an opportunity for the free expression of ideas by the learner. Thus, it increases its independence and motivates if it is used in a clear and orderly manner. It is necessary here for the teacher to train students to understand and analyze the problem and identify its basic components before solving it and making a decision about it. The method of brainstorming is useful in facing specific problems, especially when we need new and good ideas, and it also helps in the process of judgment or decision analysis.

Problem Statement:

By reviewing the educational literature and previous studies, the researchers noticed a shortage of studies that dealt with the impact of using teaching methods in decision-making in the sociology field, especially if we know that the new social curricula have been developed on the basis of the knowledge economy according to the needs of students in a way that makes them able to use thinking skills and decision-making skills in an effective manner (Ministry of Education, 2021). Hence, this study of deanshi remembrance first question: Are there statistically significant differences (a = 0.05) in developing the decision-making skill of first-grade intermediate students in social studies due to the effect of the method (brainstorming, and regularity)?

The second question: Are there statistically significant differences (a = 0.05) in developing the decision-making skill of first-grade intermediate students in social studies due to the impact of gender (males, females)?

The third question: Are there statistically significant differences (a = 0.05) in developing the decision-making skill of first-grade intermediate students in social studies due to the interaction effect (method, gender)?

Significance of the study:

The importance of the study comes through:

1. The scarcity of previous studies that dealt with this subject, especially since most of the previous studies dealt with the impact of the brainstorming method on developing creative, reflective, innovative, critical thinking skills or the achievement variable.
2. The importance of this study comes in giving the applied aspect (the method of teaching) according to the method of brainstorming in social sciences, which would contribute to improving the level of achievement and following the scientific method of thinking away from the usual methods.
3. The importance of social studies because of its effective role in developing students' life skills and decision-making skills that represents a skill that we should teach students to practice in all areas of life.

Objectives of the study:

1. Investigating the effect of using the brainstorming method on developing the decision-making skill of first-grade intermediate students in social studies on the basis of the method, gender and interaction variables.
2. Enabling teachers to learn how to teach by brainstorming in order to enrich social studies in new ways.

Study limitations:

1. The study is limited to first-grade intermediate students in the Directorate of Education of DhiQar, DhiQar Governorate, for the academic year 2021.
2. Itis limited to teaching one unit of the social educationsyllabus for the first intermediate grade of the second semester in Iraq, entitled "Social Change".
3. Teaching using the brainstorming method is determined through the study plans that have been prepared for the purposes of the study and to test the ability to make a decision. Those tools are prepared by researchers.

Procedural definitions:

Brainstorming: A teaching method that depends on a set of steps that leads to the development of thinking, arousal and stimulation of the mind to generate the largest number of ideas by organizing organized sessions according to the principles of deferred judgment of ideas, releasing the freedom of thinking, producing as many ideas as possible, building on the ideas of others, merging and developing them away from criticism . Its steps are to prepare for the session, formulate and discuss the problem, then reformulate the problem, create an atmosphere for brainstorming and creativity, assign a session rapporteur to write down ideas and motivate students to put forward ideas during a period of time, then the session rapporteur writes down the ideas sequentially. The chair of the session motivates the students to put forward ideas and discusses with the students the proposed ideas for evaluation and classification.

Traditional method: It means the teaching procedures and practices that teachers usually use in their teaching and often depend on explanation, discussion and asking ordinary questions.

Decision-making skill: It is known as the student's potential to make the optimal decision between the alternatives on the study tool by reading the paragraphs so that each of them includes a problem that a decision must be made about. Each statement is followed by several options. Those options represent the problem (the issue) that an appropriate decision should be taken about, as the problem that represents the most appropriate situation is chosen for a decision on the topic at hand, bearing in mind that there is only one correct problem among the options. It is scaled by the mark obtained by the sample member; the student, on the tool that was designed for the study purposes.

Sociology: Thesyllabus of social education for the academic year 2021, which is prescribed by the Iraqi Ministry of Education for the first intermediate grade.

Students of the first intermediate grade: They are students registered in government schools in the Directorate of Education in DhiQar for the academic year 2021.

Variables:

- Independent variables: they include the method and it has two main levels: the group that followed the brainstorming method, and the second: the group that followed the traditional method. It also includes gender variable which has two main levels: male and female. Moreover, the skill of decision-making isan independent variable.

Previous studies:

A variety of studies have been conducted on brainstorming and its impact on achievement in school subjects, including social studies. Several studies have been conducted that dealt with the impact of brainstorming on student achievement and the development of creative and critical thinking, while some variables such as decision-making using brainstorming did not receive such attention. This encouraged researchers to conduct a number of studies, including the following:

Qwaider (2007) did a researchthat aimed to manifest three teaching methods (investigation, cooperative learning, and simulation) that employ current events in the development of eighth-grade students as well as their acquisition of decision-making skills in the subject of national as well as civic education among students of eighthgrade in Jordan. Besides, the study sample included (200) male as well as female students. Moreover, the tools includeda test of achievement as well as a test ofdecision-making skills. It has (40) items. The study revealed that there are differences, of statistical significance, in the acquisition of decision-making skills. This is due to the method of teaching and it was in favor of the investigative method. Moreover, the study proved the presence of differences due to gender. Such differences were in favor of females.It is also due to the interaction between gender and method.

Another study was conducted by**(Al-Khawaldeh, 2007).** Its mission was to reveal the impact of adopting the issue-based approach in improving and enhancing reflective thinking skills and skills for identifying social problems in the subject of national as well as civic education among tenth graders in Jordan. The study sample consisted of (161) tenth grade students. They were further divided into two main groups;the experimental group (81members) and the control group (80members). The study tools consisted of a reflective thinking test consisting of (8) situations, and a test for identifying social problems, consisting of (31) problems. The study's resultsreflected that there were differences, of statistical significance, between students on the dimensional reflective thinking test. They were in favor of the experimental group and they are attributed to the effect of using the case-based approach.The results also reflected that there were differences, of apparent significance, between students on the social problem identification test. They were in favor of the experimental group students due to the effect of using the case-based approach.

Al-Jallad (2007)did a study that aimed at revealing the impact of using brainstorming on the development of fifth grade students as well as the development of their creative thinking skills. The sample included (28) fifth grade students. They were divided into

two groups: (experimental and included 14 students) who learned by using brainstorming, and (control, which included 14 students) who learned by the usual method. Two tests were used: the first to measure students' achievement, and the second to measure creative thinking skills. The results reflected that there were differences, of apparent significance, between the two study groups in the degree of students' improvement and in the improvement of creative thinking skills concerning the total test score and on the three skills: (fluency, flexibility, and originality) for the experimental group.

Odat (2009) did a study that aimed to reveal the impact of using brainstorming methods, the six hats, and the active lecture on the development and reflective thinking of tenth grade students in the national education subject in Jordan. The study sample included (167) male as well as female students in (6) schools. Atest of achievement consisting of (30) items as well as a reflective thinking test consisting of (6) problems were used, including (10) questions on each problem. The study reflected that there were differences, of statistical significance, in the dimensional reflective thinking test due to the method; for the brainstorming method. Besides, there were no differences, of apparent significance,that can be attributed to gender and the interaction between method and gender.

Al-Dosari (2009) did a study thatattemptedto reveal the impact of the brainstorming and survey method on developing critical thinking in social for secondary school studentsin Qatar. The sample included (60) students. They were divided into two groups, the first (30) students who studied by the investigative method, and the second (30) students who followed the brainstorming method. The study reealed a clear effect of the method of investigation and brainstorming in developing critical thinking skills.

Al Kiyumi (2010)did a study thatattempted to highlight the impact of adopting the brainstorming strategy in the process of teaching history on the enhancement and improvement of innovative thinking among students of first-year secondary school in the Sultanate of Oman. The study sample was limited to (112) students, who were divided equally into the experimental and control groups. The results of the study showed that the experimental group that was taught by brainstorming was superior to the control group that was taught in the traditional way in fluency, flexibility, originality, and overall innovative ability.

(Bissett, 1996)conducted a study that attempted to reveal the connection between creative performance as well as academic achievement in solving scientific problems.

The study sample included (50) seventh-grade students. Two data collection tools were designed and used: the Torrens test for creative thinking, along with the California achievement test. The results reflected that creativity is a significant indicator in solving unstructured (open) problems.

Domyati (1998) did a study thatattempted at measuring the impact of using brainstorming in teaching history on developing skills of thinking among students of middle school in Madinah. The sample included (73) female students. They were further divided into two groups; experimental group control group. The study reflected that the experimental group ultimately outperformed the control group in favor of the brainstorming method.

Matalqa (1998)did a study thatattemptedto unmask the impact of the brainstorming method on creativity among students of eighth and ninth grade in Jordan. The study tool included the Torrens Scale of Creative Thinking. The results reflected that the degrees of improvement in creative thinking (before and after brainstorming sessions) for females were higher than for males.

By reviewing previous studies, the researchers found the following:

- Most of the studies that dealt with the effect of using the brainstorming method focused on its impact on developing creative, contemplative, innovative and critical thinking skills, and in academic achievement (Al-Jallad, 2007; Odat, 2006; Al-Dosari, 2005; Al-Kyumi, 2002; Matalqa, 1998). The results of all studies showed the superiority of the brainstorming method and the presence of differences due to gender. Such differences were for females (Matlaqa, 1998). It was proved that there were no apparent differences which are attributed to gender and the interaction between method as well as gender in developing reflective thinking (Awdat, 2006). (Al-Khawaldeh 2007, Al-Quwaider 2007, Awdat 2006) dealt with the topic of national education. (Al-Quwaider, 2007) used a test to measure decision-making skills. (Al-Khawaldeh, 2007) used the case-based approach to identify social problems. The researchers benefited from previous studies in the educational literature and designing the study tool. Thus, the current study is distinguished –as far as the researchers are concerned– that it is the only study that investigated the impact of the brainstorming method on improving students' decision-making skill, which none of the previous studies examined.

Methods and Procedures:

The study sample:

The study sample included (158) male as well as female students from the first intermediate grade in the schools of Nasiriyah city. The schools were chosen by random method, and then from those schools, and by random simple method (8) sections were selected; (4) sections for males, the number of its members is (71) students, and they were ultimately divided into 2 groups (39 members in the experimental group) and (32 members in the control group), and (4) female sections (their total number is 87), and they were divided into two groups (42 female students in the experimental group) and (45female students in the control group), as shown in Table (1).

Table (1): Distribution of the sample as per gender and group

Gender Group	Males	Females	Total
Experimental	39	42	81
Control	32	45	77
Total	71	87	158

Study tools:

The following is a description of the study tools and their steps:

First: Decision-making skill test:

The researchers structured the test by referring to literature related to education and previous studies concerned with the topic of the current study. They benefited in particular from (Al-Quwaider, 2007) in constructing the test. Moreover, they formulated statements, each of which included a problem that a decision must be made about. Each statement is followed by four options. Those options represent the problem (the issue) on which a decision should be made. The respondent has to choose the problem that represents the most appropriate situation to take a decision on the topic at hand, bearing in mind that there is only one correct problem among the options. The number of phrases in their initial form was (20) phrases, each of which was followed by four paragraphs, thus the total number of test items was (80) items**.**

Test Validity:

The test validity was verifiedsimply by showing it to a group of specialists, numbering (11) faculty members in Iraqi universities, supervisors of social studies and some teachers of social studies, to say their opinion concerning the appropriateness of

the test paragraphs, the suitability of the language and the validity and appropriateness of the alternatives. The researchers adopted a consensus (80%) of the arbitrators to accept any paragraph and some modifications were made on the basis of their observations. Moreover, only two phrases were deleted.

Test reliability:

The reliability of the test was calculated by applying it to an exploratory sample including (43) male as well as female students of the first intermediate grade. They were selected from the study community and outside its sample. The reliability was ultimately verified by the internal consistency method as per Cronbach's alpha equation, and the value of the internal consistency coefficient between the test items was (0.87). The researchers consider that the value is appropriate for the mission of the study. Thus, the test in its final form consists of (18) statements, each of which is followed by (four) paragraphs of the type of multiple choice. Thus, the number of test items is (72).

Second: Lessons Implementation Plans:

The researchers prepared lesson implementation plans using the brainstorming method. Study plans, activities, exercises and thought provoking situations in dealing with social problems have been prepared in order to train students to think about problems using the brainstorming method. This procedure aims to give them the ability to make decisions and solve problems they face in their personal lives. The plans were prepared in a brainstorming method, according to the procedural definition, and were presented to a group of arbitrators. Their comments were taken advantage of, then the teachers who taught the experimental group were trained on how to implement the educational situations. The implementation of the lessons took (9) class sessions.

Experiment design: The researchers followed the quasi-experimental approach as follows:

O1 X O2 Experimental group

O O2 Control group

Whereas: (1 = (O) the pre-decision-making test, (O2) = the post-decision-making test, (X) = the experimental treatment.

Results:

To answer the main questions, the arithmetic meansas well as standard deviations of the scores of the sample were extracted: the experimental (which followed brainstorming) and the control one (which followedthe traditional method), males as well as females, on the test of pre and post decision-making skill. The results are reflected in Table (2).

Table (2): Arithmetic means and standard deviations of students' scores in the control and experimental groups, males and females, on the pre and post decision-making skill test

	Gender	Pre-decision-making test		Post-decision-making test	
		Arithmetic mean*	Standard deviation*	Arithmetic mean*	Standard deviation
Control	**Male**	7.38	3.29	12.08	4.04
	Female	6.88	2.31	11.93	3.27
	Total	7.12	2.82	12.00	3.64
Experimental	**Male**	7.18	2.72	13.67	3.06
	Female	6.69	2.39	14.02	2.59
	Total	6.93	2.55	13.85	2.82
Total Sample	**Male**	7.28	3.00	12.89	3.64
	Female	6.78	2.34	13.00	3.11
	Total	7.02	2.68	12.95	3.36

Table (2) obviously reflects that there are clear differences between the mean scores of students on the test of pre-decision-making skill in the experimental as well as control groups. It was also noted that there are apparent differences on the test of pre-decision-making skill between males and females. These differences were statistically adjusted using two-way covariance analysis (Two-Way ANCOVA).Besides, able (2) reflects that there are apparent differences between the arithmetic means of students on the post-decision-making skill test in the experimental as well as control group. The results indicated that the arithmetic meansrelated to the experimental group on the post test was (13.85) and a standard deviation of (2.82), while the arithmetic mean of the scores of the control group concerning the post test was (12.00) and a standard deviation of (3.64). Therefore, there is an obvious difference related to the arithmetic mean between the two groups which is equal to (1.85).The results also indicated that the arithmetic mean of the scores of male students on the post-test was (13.00), with a standard deviation of (3.11), while the arithmetic mean of the scores of female students was (12.89),and a standard deviation of (3.64). This indicates that there is an obviousdifference concerning the arithmetic mean between the two categories of (0.11) .In order to find out whether the differences in the arithmetic means between the

students' scores in the two groups (experimental and control), gender (males and females) and the interaction between method and gender on the pre and post decision-making test are statistically significant at the significance level ($\alpha = 0.05$), with the aim of isolating the differences on the test statistically, the researchers used the two-way ANCOVA test. The results were as in Table (3).

Table (3) The results of the two-way ANCOVA for the scores of students in the control and experimental groups, males and females, on the post-decision-making skill test

Source of variance	Total squares	Degrees of freedom	Square mean	Calculated F Value	Significance level
Mixed (pretest)	649.246	1	649.246	100.548	0.000
Gender	8.967	1	8.967	1.389	0.240
Group(method)	155.65	1	155.65	24.105	0.000
MethodX Gender	2.486	1	2.486	0.385	0.536
Error	987.929	153	6.457		
Total	1775.595	157			

The results in Table (3) showed that there were differences, of obvious statistical significance, between the arithmetic means of students in the experimental and control groups on the post-decision-making skill test. The calculated value of (F) was (24.105), and this value is obviously significant at the significance level ($\alpha = 0.05$).

To determine the value of the differences in the mean scores of students in the control and experimental groups on the post-decision-making skill test, the modified arithmetic means were extracted in order to isolate the effect of the performance of the two groups in the pre-test on their performance in the post-test. The results were as in Table (4).

Table (4): The arithmetic means adjusted for the scores of students in the control and experimental groups on the post-decision-making skill test after isolating the impact of performance on the pre-test.

Group	Average mean	Standard error
Control	11.92	0.29
Experimental	13.91	0.28

The results of the adjusted arithmetic means of the students' scores in the control and experimental groups on the post-decision-making skill test, after isolating the effect of performance on the pre-test, indicated that the differences were obviously in favor of the members of the experimental group, as it obtained an average arithmetic mean (13.91) which is higher than the adjusted arithmetic mean related to the control group, which is (11.92). Thus, the method of brainstorming has affected the development of the decision-making skill of first-grade intermediate students in the subject of social studies.

B- The resultsconcerning the second question: Are there statistically significant differences (a = 0.05) in developing the decision-making skill of first-grade intermediate students in the subject of social studies due to the effect of gender (males, females)?

The results indicate that there are no obvious differences, of statistical significance, between the arithmetic means related tothe students' responses to the post-decision-making skill test, which can be attributed to gender variable, and the calculated "F" values reached (1.389). This value is not significant at the level (α = 0.05).

C- Results concerning the third question: Are there differences at the significance level (a = 0.05) in the development of decision-making skill among first-grade intermediate students in the subject of social studies due to the effect of the interaction between method and gender?

The results indicated that there were no statistically significant differences between the average scores of students on the post-decision-making skill test due to the interaction between method and gender. The calculated (F) values amounted to (0.385), and this value is not statistically significant at the significance level (α = 0.05).

Discussion:

- Discussing the results related to the answer to the first question: The results showed that there were statistically significant differences (α = 0.05) in the development of the decision-making skill of first-grade intermediate students in the subject of social studies due to the use of the brainstorming method. This means that the brainstorming method contributed to the development of a decision- making skill for first-grade intermediate students in social studies.This result may be attributed to the fact that the brainstorming method helped students to generate new ideas as solutions to specific problems, and it also

helped them to generate ideas that led to the development of decision-making skill and this is consistent with what was indicated in (Jarwan, 2002). This means that the brainstorming method contributed to generating and unleashing ideas among the students in the experimental group who studied according to the brainstorming method more than their counterparts in the control group who studied in the traditional way.Therefore, the process of using it in an organized and clear manner helped students realize and foresee the problems presented, and thus take an appropriate, logical and rational decision about them. This is consistent with (Abu Hatab, 2000) concerning that the method of brainstorming provokes motivation to reach the desired solution. This result is similarto the result of (Al-Jallad, 2009; Odat, 2016; Al-Kiyumi, 2012; Damiati, 2011), which reflected that there were obvious differences for the brainstorming method, but in the variables of achievement and development of reflective thinking.

- Discussing the results concerning the answer to the second question: The results reflected that there were no obvious differences at (a = 0.05) in the improvement of decision-making skill among first-grade intermediate students in the subject of social studies due to gender. This result may be due to the fact that the use of the brainstorming method affected and contributed to the development of the decision-making skill of first-grade students regardless of gender, and that the mental abilities of both sexes were employed in the decision-making skill. That is, it helped in the development of decision-making skills for both genders, males and females.This result can be explained by the fact that the nature of the issues and problems raised the challenge factor for students of both sexes, that is, they gain the attention of both sexes as they are general issues and related to the reality of current events. This result agrees with the result of (Odat, 2006). It also differed with the result of (Matlaqa, 1998), which indicated that the degrees of improvement in creative thinking (before and after brainstorming sessions) for females were higher than for males. The same thing is applied to (Al-Quwaider, 2007), which indicated that there are differences due to gender and in favor of female students.
- Discussing the results related to the answer to the third question: The results reflected that there were no obvious differences (a = 0.05) in the development of the decision-making skill of first-grade intermediate students in the subject of social studies due to the interaction between the teaching method and gender.

This means that the use of the brainstorming method in teaching social studies to first-grade intermediate students is suitable for both males and females in developing the decision-making skill, as it is practically suitable for both males and females. This result is similar to the result of (Awdat, 2006), which indicated that there are no differences due to the interaction between method and gender. It differed with the result of (Al-Quwaider, 2007), which indicated that there are differences due to the interaction between method and gender.

Recommendations:

The researchers strongly recommend the following:

1. The Ministry of Education holds training courses for social studies teachers on the adoption of the brainstorming method and encourages them to employ it in order to develop decision-making skill.
2. Inclusion of decision-making skills in the subject of social studies due to its close connection with the subject on the one hand and with daily life (political, economic and social issues, problems and events) on the other.
3. Involving students and encouraging them to use the brainstorming method and to possess the skill of decision-making through various activities and the employment of current events.
4. Conducting other studies to find out the effect of using other teaching methods in developing the decision-making skill and addressing other variables.
5. Conducting a similar study so that its scope extends to other classes and revealing the relationship between the achievement variables and the ability to develop the decision-making skill.

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