Professional Skepticism as a Mediator between Brainstorming Sessions and Audit Quality: Case of Jordan

Ashraf Bataineh[*]
Al-Huson University College, Al-Balqa Applied University, Irbid, Jordan

ABSTRACT

The study aimed to measure the effect of professional skepticism practice; as a mediator between brainstorming sessions and audit quality at auditing offices and firms in Jordan. The researcher studied the effect of using all brainstorming sessions (open, round-robin, electronic) on improving audit quality in light of professional skepticism practice at every stage of the audit process. The researcher developed and distributed a questionnaire on a random sample of 216 Jordanian auditors practicing the auditing profession for data collection purposes. The study results indicated the effect of brainstorming sessions in light of professional skepticism on improving the quality of auditing, and found that the most influential of them was the round-robin brainstorming with an effect of (0.300), followed by electronic brainstorming with an effect of (0.233), and then open with an effect of (0.224). Accordingly, the researcher recommends that scientific and proficient staffs should reconsider procedures followed in auditing process and develop them to ensure that auditors are obligated to apply brainstorming sessions on all audit items and stages, especially procedures for practicing professional skepticism whenever making an audit of companies' financial statements.

Keywords: Brainstorming, Professional Skepticism, Audit Quality

ARTICLE INFO

Article History:
Received: 14 February 2024
Accepted: 17 July 2024
Available online: 1 April 2025

[*] Corresponding Author: Ashraf Bataineh; Al-Huson University College, Al-Balqa Applied University, Irbid, Jordan; Email: bataineh_ashraf@bau.edu.jo; Tel: 00962795850220.

INTRODUCTION

The auditing profession has become more fundamental and sensitive more than ever, as a result of increasing uncertainties and dynamic economic conditions, where it mainly aims to give credibility and reliability of financial reporting information (Issa & Zeitoun, 2017). Therefore, auditors have many and varied tasks that have an important impact on the decisions made and on future plans being built, where the role provided by auditors can be classified as a strategic, due to its involvement in the analysis of strengths and weaknesses in many aspects, especially financial ones. In addition, the professional reports and judgments provided by auditors carry with them requirements or warnings about a specific activity, department, or financial issue that companies are supposed to take seriously (Rashid & Kawthar, 2018). Therefore, the process of launching professional judgments by auditors requires the existence of sound systematic scientific procedures that will be adopted by them and relied on to ensure the professionalism and objectivity of these judgments, where the process of implementing procedures itself may be insufficient without having a supplementary methods to make an objective professional judgment (Abell, 2010). The brainstorming session is considered as one of these methods that depend mainly on discussion and used to generate creative ideas among auditors, where it's possible for this method; in itself to be one of the most important sources of knowledge and experience for auditors, and consequently will have a reflection on improving the quality of audit process (Shazely & Ashmawy, 2018).

The American standard on auditing (SAS 99) has largely agreed with the international auditing standard (IAS) 240 which stated that the auditing team should participate in discussing the risks and impact of exposing financial statements to major errors resulting from fraud, before going into the data collection stage; in a way that includes the exchange of ideas between members of the audit team conducting brainstorming sessions about this topic. In the same context, SAS 99 items also stressed on the necessity and importance of audit team members to continue discussions during and after the audit planning process, as well as at all auditing process stages through communication and exchanging of collected information (AICPA, 2002; Shazely, 2011; Carpenter, 2007). The report issued by the Public Companies Control Board (PACOB) in 2007 also confirmed that the

audit planning stage should contain brainstorming sessions, to help auditors generate additional good and creative ideas by focusing on the factors that may lead to fundamental mistakes; resulting from fraud and cheating. These sessions help the audit team to clearly identify methods for preparing and committing fraud and deception, and in this direction it even confirms the improvement of professional skepticism level, which is considered as one of the influential issues in the auditing process, provided that main members of the audit team should participate in these sessions (PACOB, 2007; Shazly, 2011). It was clear to the researcher that brainstorming literature improves the practice level of professional skepticism. The brainstorming sessions related to cheating considers one of the consultation arrangements that enhance characteristics and proper level of professional skepticism practices. These sessions should be performed through a skeptical mind; as an attempt to produce suitable values for performing the auditing process that make audit procedures more effective and efficient.

There is a clear and open discussion during brainstorming sessions about emphasizing and focusing on the importance of practicing professional skepticism, where auditing team members should be guided towards maintaining the professional skepticism throughout the auditing process by keeping their mind alert and thinking about how and where fraud can be committed, as well as emphasizing to them during brainstorming sessions to not consider what they have been told by the audit client to be true (Bellovary, 2008). The practice of professional skepticism is supported by training, where brainstorming sessions provide an opportunity for inexperienced auditors to benefit from highly experienced auditors during sessions to identify the type of information that supports their professional skepticism, as well as offering them the opportunity to benefit from these auditors in identifying ways to use and apply professional skepticism appropriately (Saleh, et. al., 2019). Therefore, itis possible to say that improving the professional skepticism level is considered as a key focus of a brainstorming session, which is one reason for auditing standards to demand holding these brainstorming sessions; in a way that emphasizes the importance of adopting an appropriate mind-set for practicing professional skepticism, accompanied by an interrogative mentality and acute assessment of auditing evidences during the audit process.

From the above, it is possible to say that the problem lies in the fact that some auditors cannot issue professional judgments related to the audit process procedures and risks surrounding them; as a result of their failure to discover the key distortions in financial statements, lack of necessary professional care, and the low level of professional skepticism practices, which requires a concerted effort of all relevant parties and at all levels to overcome the shortcomings in audit process. Therefore, it was necessary to search for modern methods that have been proven to be used effectively and successfully in other areas, and brainstorming is one of those methods (Ghali, 2016) which can be used to support and improve the quality of auditing; in light of professional skepticism practice at all stages of the auditing process. Therefore, the researcher identified the problem by answering the following main question: Do brainstorming sessions have an impact on the process of improving audit quality, in light of practicing professional skepticism among auditors working in Jordanian audit offices?

The theoretical importance of this study represented in auditors role to use brainstorming sessions to practice professional skepticism; in order to increase the ability to obtain high-quality evidence for supporting neutral technical opinion. The practical importance consists in testing study hypotheses by conducting a field study that leads to several results, which contribute positively to the improvement of professional skepticism practice through the implementation of brainstorming sessions; at all Stages of the auditing process. In addition, it will provide some recommendations and suggestions to address the practical problems that result from implementing it to improve the level of audit quality and meet the reality of society to trust this profession. In light of the problem, the main objective will be characterized in evaluating the effect of all brainstorming sessions type (open, round, electronic) on improving auditing quality, in light of professional skepticism practice and at each stage of the audit process among auditors working in the audit offices and companies in Jordan.

CONCEPTUAL FRAMEWORK

Brainstorming

Brainstorming is considered as a modern method in creative thinking derived mainly from psychology, which is a new concept in the accounting literature and in modern auditing fields that was introduced in 2002; as a result of the American standard on auditing SAS No. 99, which requires audit team members to debate the possibility of company's financial statements being exposed to major errors from fraud, as well as the possibility of reducing them by generating more good ideas through brainstorming sessions. Li and Vasarhelyi (2018) and Tang and Karim (2019) defined brainstorming as sessions where audit team members discuss in a free and open manner the possibility of company's financial statements to be subject to core misrepresentations resulting from fraud; whether in the form of fraudulent financial reports or embezzlement of assets, as well as visualizing the ways it can be done and ways to hide them. Mcallister et al. (2021) also defined brainstorming as a method for detecting fraud in financial statements, where all members of the auditing team; whether experts or not will participate in the session. It is preferable for sessions to include different types of thinking and cultures; starting from partners to ordinary auditors to exchange ideas about their belief about ways management can hide fraud in fraudulent financial statements.

In regard to the characteristics of brainstorming sessions, Brazel et al. (2010) and Tang and Karim (2019) mentioned them as follows:

1. Increase the ability of audit teams to generate and participate in ideas regarding ways to expose financial statements to fraud and deception.

2. Make all members of audit teams aware about the possibility of fraud and manipulation in financial statements to motivate them on practicing professional skepticism during auditing process stages.

3. Highlight the significance of rational questioning and professional skepticism practices to all auditing team members.

It is possible to say after reviewing the brainstorming literature that it has multiple sessions, which can be divided according to the way ideas are been exchanged or according to number of auditing members to the following types (Beasley et al., 2006; Yagolkovskiy, 2015).

Open Brainstorming

These sessions are considered as one of the methods followed by auditors in the case of discussions that follow specific rules and procedures, where this type of session is based on exchanging ideas and information among participants; in a random or unstructured manner. Therefore, whenever auditors use this method, the importance of their commitment to the principles and rules of brainstorming must be emphasized, since their failure to adhere to it may lead to brainstorming obstacles or process losses, where it's preferable to have someone who does not participate in session to record presented ideas.

Round-Robin Brainstorming

This type of session depends on the exchange of ideas among participating members in an organized or structured manner, where such sessions begin with a period of silence during which each member engages in individual self-brainstorming and after completion members determine and write their ideas, then one member writes all ideas and presents them to the rest of team members on the wall panel to discuss it and build on it. These sessions are characterized by the fact that there is no dominance of one member on the participating team because members work in rotation and have equal opportunities to participate, and therefore there is a downside to this method represented in the potential loss of creativity and spontaneity among members, which usually result in fewer ideas.

Electronic Brainstorming

This type of session is a combination between the open brainstorming and software technology, where sessions begin when a member presents an idea via e-mail, instant messaging, or special brainstorming programs that are presented electronically to the rest of audit team members without identifying the owner of idea. After completing the ideas proposal process, electronic brainstorming programs help these members to discuss and exchange ideas among themselves; in parallel ways without the effects of fear.

Professional Skepticism

It considers one of the main pillars and important elements of the auditing process (Hurtt, 2010) and due to its significance in the audit fields, auditing standards have recognized its importance in professional practice, where the process of exerting professional diligence requires auditors to practice professional skepticism (Ali, 2015). The professional skepticism expresses auditors' judgments and decisions that reflect high estimates of incorrect and reliable information risks (Sharia & Al-Ghazwani, 2017). Nelson (2009) defined it as behaviors that serve auditors increasing assessment of risks related to incorrectness of assurances provided to them by management; in light of available information, while Hurtt (2010) defined it as person's tendency to postpone conclusions and professional judgment until a certain explanation is obtained through sufficient evidence in the audit.

The auditor's practice of professional skepticism considers the main element of the audit process quality, starting from the association with clients and their evaluation during the pre-contracting stage, passing through the practice of professional skepticism; which includes the planning audit process, performing field work, and implementing audit procedures, then evaluating the company's ability to continue, and ending up with the stage of issuing audit report (Geisler, 2004).

Table 1: Characteristics of Professional Skepticism Practice

Characteristics	Requirements	Explanations
Related to examining evidence & information method	Questioning the mind	The philosophy of verification, confirmation, and intellectual questioning of uncertainties towards specific cases that require an increase in the examination scope, as well as curiosity of auditors falls within this characteristic.
	Suspension of judgment	Auditors should not make any judgment until they have the appropriate level of evidence to base thier judgment on, which confirmed by international auditing standards / IAS 240
	Knowledge Search	Auditors must have a general exploratory vision and interest in all aspects of auditing process, and to look for more information, where their lack of knowledge make them less skeptical and more dependent on management estimates.

Related to evaluating evidence & information source	Understanding Personality	Auditors understanding of the personal aspects of those charged with completing what has been collected in form of evidence to understand the motives that led to committing manipulation or opportunities that allow them to commit such act, and also the justifications for conducting the evidence.
Auditor's ability to react when collecting evidence	Self-Confidence	The professional skepticism requires a certain level of self-confidence, self-esteem, recognition for succeeding in their mission, and complete faith about what they are doing.
	Autonomy	Auditors must adhere to their independence and objectivity when practicing professional skepticism and to not be a result of any pressure or its reduction; under any circumstances.

Resource: Hurtt, (2010)

Audit Quality

The audit quality considers a main aspect that determines the long-term survival of audit office in labor market, and whenever this office provides high-quality services, it becomes trusted by customers (Al-Tai & Othman, 2017). Also the audit quality indicates auditors' capability to identify key errors and fraud in financial statements and reports and declare them, as well as its role in reducing the asymmetry of information between company's management and shareholders for protecting the interests of shareholders in light of separating ownership from company's management. The quality of auditing process in general should be closely related to information quality in the financial statements (Liao & Suresh, 2016; Cano & Sánchez, 2012), which is usually symbolized by the auditors' degree of obeying to professional standards and codes of conduct during the audit process. In addition, the audit quality is connected with the assurance level provided by auditors about the extent of their opinion on fairness of presenting financial statements, with auditors being independence at all stages of the auditing process.

Several researches have ensured the existence of measurements for auditing quality, which include those related to the audit office; such as office size, office reputation, number of lawsuits filed against it, and extent of office commitment to audit standards. There are measurements related to audit team; such as auditor independence, audit team experience, good

supervision, communication between members of auditing team, while some of them related to the audited company, such as company size under audit, complexity of its operations, and system Internal control of company (Bataineh & Rababah, 2016; Daniels & Booker, 2012; Chen & Zhou, 2005).

LITERATURE REVIEW

This section addresses various studies and efforts of researchers related to brainstorming in the auditing field, as well as efforts of studies and researches related to fields of audit quality and the practice of professional skepticism.

Merham (2021) aimed to highlight role of electronic brainstorming sessions on improving the auditing quality process, in a way that enhanced auditors' intellectual capabilities and increased their proficiencies, during auditors' duty to identify fraud and major biases. Results revealed a statistically significant relationship between objectives of electronic brainstorming sessions and improvement of the auditing quality process, as well as a statistically significant relationship between effectiveness requirements of electronic brainstorming sessions and improvement of the auditing quality process. This study recommended organizations that regulate accounting and auditing profession in Egypt to work on issuing auditing standards and instruments necessary for running electronic brainstorming sessions in auditing offices, and also to spread its significance by implementing them in all stages of the auditing process, opening with making contracts with clients, going through the implementation stage, and ending up with a closing report of the auditing process.

Jumaa (2020) dealt with detecting the role of brainstorming sessions on developing the performance of joint audit process by identifying brainstorming concepts in general and the field of joint auditing in particular. The researcher prepared brainstorming sessions in which audit teams can discover various fraud and error methods, by creating non-traditional ideas that contribute to reaching positive results on the audit process. These ideas would contribute to the development and identification of fraud risks, due to the implementation of a brainstorming strategy that was developed by the Audit Standards (SAS, 99; IAS, 240).

Al-Kaabi and Al-Ani (2020) aimed to measure impact of brainstorming sessions on discovering fraud threats and its role in enhancing the auditing quality process at Iraqi offices. The researcher designed a questionnaire and distributed on a sample of 112 auditors in those offices, where the researcher analysed study variables using the statistical prototypes; such as least squares method and linear regression model. The study reached a number of results; after testing hypotheses and found that auditors' implementation of brainstorming sessions in audit offices improved auditing quality by helping auditors to perform better evaluations of fraud risks. The use of brainstorming sessions in audit planning led to an increase in auditing quality by determining significant errors of fraud and maintaining the financial society confidence in auditing profession. The study recommended that auditors practice brainstorming through planning and implementing of the audit, which increases auditing quality.

Mustafa (2019) aimed to measure and analyse the impact of brainstorming sessions on auditor's study of fraud and manipulation risks in general. The researcher proposed an approach for brainstorming in the auditing field that included a proposed framework for ways to implement the brainstorming for studying risks of fraud, and two proposed descriptive models to measure and analyze variables of this study. The researcher conducted an experimental study for auditors of accounting offices and central auditing organizations. Results showed the substantial impact of brainstorming sessions on professional skepticism level needed to implement the auditing process, study and analyze the fraud triangle and related factors, identify and evaluate cheating risks, and prepare appropriate responses to results of fraud risk assessment.

Saleh et al. (2019) aimed to deduct role of brainstorming sessions on improving the professional skepticism level of external auditor to face risk of client management to auditing process. They conducted a trial study for 60 external auditors who worked in auditing offices of Egypt, and the results showed that brainstorming sessions were the best solution for problem of managing the audit process by clients, where these sessions reduced the negative impact of client's practices on managing the audit process represented in the low level of professional skepticism among auditors; especially less experienced auditors. These sessions improved the level of auditors' professional skepticism and considered an opportunity to train less

experienced auditors and teach them how to use and implement professional skepticism appropriately in the audit process.

Harding and Trotman (2017) aimed to measure the effect of communication between partners on professional skepticism levels in audit provisions and procedures by meeting to discuss fraud brainstorming sessions; through two studies. The first was to measure impact of partner communication on professional skepticism; in case of fraud while the second study was to encourage auditors to have a skeptical professional orientation. Study results showed that auditors provided highest professional skepticism levels whenever clients proposed organisation's standpoint; instead of their personal view as well as emphasizing that internal and external skepticism were more effective in audit procedures; rather than focusing only on the external.

Yaqoub (2016) aimed to discuss brainstorming as a strategy adopted by audit teams to enhance professional judgment about assessment of an enterprise's continuous economic capability, with increasing calls by professional institutes and bodies for its accreditation. To achieve the objectives, the researcher distributed an analytical descriptive questionnaire as a data collection tool, and distributed on a sample of auditors registered at auditors' accreditation bulletin (2016) in Iraq. The research results indicated that using brainstorming strategies enhanced the professional judgment of auditors in assessing company's economic capability and that cultural factors of the Iraqi environment determined types of brainstorming used by auditing teams. Ghali (2016) aimed to suggest an approach for planning and implementing electronic brainstorming sessions that contributes to auditors' development process of creative thinking and the enhancement of their capabilities to issue high quality professional judgments; in light of auditors' responsibility to detect fraud and risks of fundamental distortions, in comparison with the traditional brainstorming. The study results showed that the study sample agreed on the positive impact of using electronic brainstorming sessions; in comparison with traditional ones on improving the auditing process. Results also indicated the existence of a positive effect for using auditing teams to electronic brainstorming sessions on improving their professional judgments quality during the audit stages.

Jaya and Irene (2016) aimed to measure and examine impact of professional skepticism, audit process period, and the use of professional ethics by accountants on the quality of the audit process, by distributing a questionnaire on auditors working at auditing companies and offices in east Jakarta, Indonesia which amounted to (32) economic units and (90) audit offices. Results showed that professional skepticism of auditors may have positive or negative affect while audit period and professional ethics did not greatly impact the auditing quality process in this study.

Coppage and Shastri (2014) aimed to measure and analyze the impact of professional skepticism practice on the audit quality process, by reviewing the professional guidelines in American Auditing Standards that calls for the need of auditors to retain the logic and mentality of professional skepticism during the planning and implementation process of audit work. The study reviewed and analysed weaknesses of failure cases in the audit process; as a result of not applying appropriate levels of professional skepticism, where the study provided some examples of failures in the professional skepticism practice. The study recommended that auditors use professional skepticism practices throughout the audit process, maintain skepticism as critical matter for ensuring effectiveness in detecting fraud, and have the ability to adapt to ever-changing organization, economic, and technology environments by updating their skills continuously.

Hunton and Gold (2010) aimed to study best ways and methods for using brainstorming sessions, which can help auditors in the proper planning of the auditing process; as a best way to detect fraud process with the help of psychology studies to evaluate effectiveness of brainstorming. The study used three methods for brainstorming sessions, the first was nominal group for brainstorming, the second was open discussions for brainstorming, and the third was round-brainstorming sessions. The study results showed that brainstorming sessions of the nominal group and round methods achieved an equal number of unique ideas for detecting risks of fraud and an equal number of hours for planning the audit process, while the brainstorming sessions of open discussion achieved fewest number of ideas and fewer hours for planning the audit process. In addition, the round-brainstorming and nominal group sessions achieved additional attachments to natural surroundings and scheduling of key evidentiary tests more than open brainstorming.

Through the analysis of previous studies, the researcher found that the above-mentioned studies did not link between the impact level of using brainstorming sessions and improving auditing quality and professional skepticism; at all phases of the auditing process, which encouraged the current study to clarify the impact of brainstorming methods (open, round, and electronic) on improving the effectiveness of audit process for all stages; in light of practicing better professional skepticism to facilitate communication, coordination, cooperation, and exchange of creative ideas and knowledge between external auditors which increases the importance of the auditing profession in society.

RESEARCH HYPOTHESES

Based on the above presentation and discussion of previous studies related to study topic and its variables, the researcher developed the following hypotheses:

$H0_1$: There is no mediation effect of professional skepticism between open brainstorming and the audit quality among auditors working in audit firms and offices in Jordan.

$H0_2$: There is no mediation effect of professional skepticism between round-robin brainstorming and the audit quality among auditors working in audit firms and offices in Jordan**.**

$H0_3$: There is no mediation effect of professional skepticism between electronic brainstorming and the audit quality among auditors working in audit firms and offices in Jordan.

METHODOLOGY

Population and Sample

The study population was approximately 449 Jordanian external auditors who practiced the auditing profession in the audit offices (info@ jacpa.org.jo), where the researcher selected study sample in a way that included a random group of people who practiced the auditing profession in the Jordanian audit offices. The researcher distributed 270 questionnaires and

recovered 216 of them suitable for statistical analysis with approximately 80% of the distributed questionnaires.

Data collection

Based on the study problem and its questions, and to identify elements of the problem accurately and in more detail, the researcher developed a questionnaire as a tool to collect data and relied on the statistical package (R-Package) to analysis of data and test the hypotheses (Alrjoub et al., 2023; Bataineh & Alrjoub, 2023), where the study questionnaire included Jordanian auditors who practice the auditing profession in audit offices, in order to survey their opinions about the impact of using brainstorming sessions on audit quality; in light of professional skepticism practice among auditors working in Jordanian audit offices.

Statistical Analysis of Study Data

In order to be able to answer the main study question, that stated: Is there an impact of using brainstorming sessions on improving the quality of auditing; in light of professional skepticism practice among auditors working in Jordanian audit offices? The researcher relied on the implementation rule developed by Baron and Kenny (1986) in order to make an analysis for current study by implementing the intermediate study model to determine impact of brainstorming sessions; of all types (open, round, electronic) as independent variables, auditing quality as dependent, and impact of professional skepticism practice as the intermediate variable. The study model represented through three stages, where the first one contained highlighting the direct effect between each type of brainstorming sessions (open, round, electronic) as independent variables and the auditing quality as a dependent variable through using simple linear regression analysis. The second stage measured impact of independent variables; each variable separately on the intermediate variable; represented in professional skepticism using the simple linear regression analysis, while the third and final stage was to reveal the measurement of the impact for all independent variables and the intermediate variable on dependent variable; represented in audit quality through the use of multiple linear regression analysis, in order to show the statistical significance of indirect effect. The researcher compared tabular value of ($Z\alpha=0.05=1.96$) with the calculated value of (Z)

on R-Package software using the appropriate Sobel test (Sobel, 1982), as well as calculating (R^2) before the introduction of intermediate variable for study model and its dimension to indicate the amount of explanation caused by introducing an intermediate variable on the model.

Path Plot

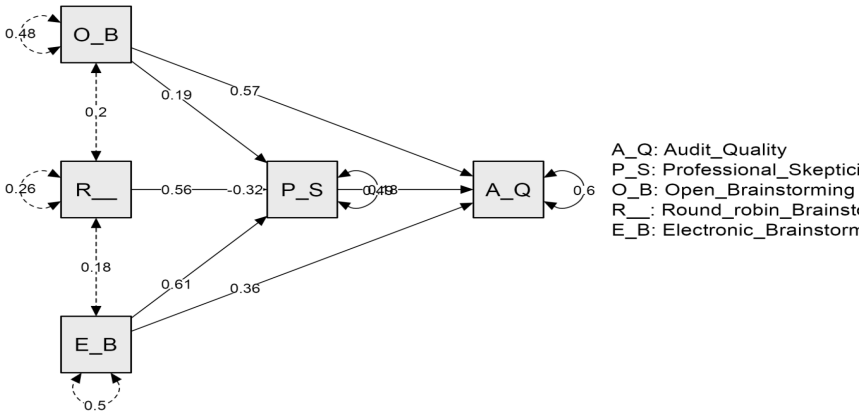

Figure 1: Study Model

In regard to the presentation of hypothesis test results in the study, they are as follows:

$H0_1$ null hypothesis**:** There is no mediation effect of professional skepticism between open brainstorming and audit quality among auditors working in auditing firms and offices in Jordan. Table 2 show the analysis findings of intermediate model by implementing Barron & Kenny stages of intermediate effect for professional skepticism on the relationship between open brainstorming and audit quality in the Jordanian auditing offices.

Table 2: Analysis Results of Intermediate Model Effect between Open Brainstorming & Audit Quality

Stage	Dep- Variable	Regression Coefficient	Direct Effect	Std Error	t	Sig.	Indirect Effect a*b	Z. Value (Sobel test)
1	**Audit Quality**	Constant	1.8820	0.1692	11.125	0.000		
		Open Brainstorming	0.4697	0.0476	9.853	0.000		
2	**Professional Skepticism**	Constant	1.2298	0.2269	5.420	0.001		
		Open Brainstorming (a)	0.6228	0.0639	9.742	0.000	0.2248	3.3023
3	**Audit Quality**	Constant	1.6674	0.1758	9.485	0.000		
		Open Brainstorming	0.1743	0.0496	3.510	0.001		
		Professional Skepticism (b)	0.3611	0.0558	6.469	0.000		

Table 2 shows the results of first hypothesis test through stage (1) it indicated that value of (t) was equal 9.853 at the significance level (0.000), which was less than (α=0.05) level and indicated a direct and significant effect of open brainstorming on the quality of the audit process, and that the regression coefficient value between the two variables (Direct Effect) was equal to (0.4697), with a standard error of (0.0476). In regard to stage (2), (t) value become (9.742) at the significance level (0.001), which was less than (α=0.05) and defined a direct significant effect of open brainstorming on professional skepticism practice, with a regression coefficient value between the two variables of (a=0.6228) at a standard error of (SA=0.0639). In stage (3), values of (t=6.469 t=3.510) at the significance level were (0.001, 0.000) respectively, which are less than (α=0.05) and showed a significant effect of open brainstorming and professional skepticism practice on auditing quality, where the regression coefficient value for professional skepticism practice amounted to (b=0.3611), with a standard error of (sb=0.0558). Therefore, the above results revealed the existence of a partial mediation effect for the professional skepticism practice on relationship between open brainstorming and the auditing process quality, with indirect effect estimated at (a*b=0.6228*0.3611=0.2248) where results indicated that calculated value (z) for Sobel test amounted to (3.3023) and was larger than the tabular ($_{Z\alpha=0.05}$ =1.96) at significance level of (0.05). These results indicated the existence of statistically significant direct effect for the partial median effect of professional skepticism practice on relationship between open brainstorming and the quality of auditing process.

$H0_2$ null hypothesis**:** There is no mediation effect of professional skepticism between round-robin brainstorming and the audit quality among auditors working in auditing firms and offices in Jordan. Table 3 show the analysis findings of intermediate model by implementing Barron & Kenny stages of intermediate effect for professional skepticism on the relationship between round-robin brainstorming and audit quality in Jordanian auditing offices.

Table 3: Analysis Results of Intermediate Model Effect between Round-Robin Brainstorming & Audit Quality

Stage	Dep-Variable	Regression Coefficient	Direct Effect	Std Error	t	Sig.	Indirect Effect a*b	Z. Value (Sobel test)
1	**Audit Quality**	Constant	2.4940	0.2355	10.587	0.000		
		Round-robin Brainstorming	0.3294	0.0748	4.402	0.000		
2	**Professional Skepticism**	Constant	2.2880	0.2208	10.216	0.000	0.3009	5.2726
		Round-robin Brainstorming (a)	0.3467	0.0839	0.4131	0.000		
3	**Audit Quality**	Constant	0.3395	0.0549	6.181	0.000		
		Round-robin Brainstorming	0.7114	0.270	2.992	0.001		
		Professional Skepticism (b)	0.8680	0.0859	10.101	0.000		

Table 3 refers to second hypothesis test results through stage (1), where value of (t) was equal to (4.402) at the statistical significance level (0.000), which was less than (α=0.05) level and indicated a direct significant effect of round-robin brainstorming on the quality of the audit process, and that regression coefficient value between the two variables (Direct Effect) was equal to (0.3294), with a standard error of (0.0748). In regard to stage (2), the value of (t) was (0.4131) at the significance level (0.000), which was less than (α=0.05) and had direct significant impact on professional skepticism practice, with a regression coefficient value between the two variables of (a=0.3467) at a standard error of (SA=0.0839). In step (3), values of (t=2.992 t=10.101) at the level of significance were (0.001, 0.000) respectively, which were less than (α=0.05) and showed a significant effect of round-robin brainstorming and professional skepticism practice on the auditing quality, where the regression coefficient value for professional skepticism practice amounted to (b=0.8680), with a standard error of (sb=0.0859). Therefore, the above results revealed the existence of partial mediation effect for the professional skepticism practice on relationship between round-robin

brainstorming and auditing process quality; with indirect effect estimated at (a*b=0.3467*0.8680=0.3009), where results indicated that calculated value (z) for Sobel test amounted to (3.3023), which was more than the tabular (Zα=0.05 =1.96) at the significance level (0.05). These results indicated the existence of statistically significant direct effect for partial median effect of professional skepticism practice on relationship between round-robin brainstorming and the quality of auditing process.

$H0_3$ null hypothesis: there is no mediation effect of professional skepticism between electronic brainstorming and the audit quality among auditors working in auditing firms and offices in Jordan. Table 4 show the analysis findings of intermediate model by implementing Barron & Kenny stages for professional skepticism on the relationship between electronic brainstorming and audit quality in Jordanian auditing offices.

Table 4: Analysis Results of Intermediate Model Effect Between Electronic Brainstorming & Audit Quality

Stage	Dep- Variable	Regression Coefficient	Direct Effect	Std Error	t	Sig.	Indirect Effect a*b	Z. Value (Sobel test)
1	Audit Quality	Constant	2.0499	0.1618	12.6678	0.000		
		Electronic Brainstorming	0.4405	0.0475	9.2704	0.000		
2	Professional Skepticism	Constant	1.8869	0.1690	11.1613	0.000	0.2330	2.7891
		Electronic Brainstorming (a)	0.3264	0.0614	5.3121	0.000		
3	Audit Quality	Constant	0.1598	0.0558	2.8615	0.004		
		Electronic Brainstorming	1.0198	0.1947	5.2358	0.000		
		Professional Skepticism (b)	0.7139	0.0571	12.4824	0.000		

Table 4 refers to third hypothesis test results through Stage (1), where (t) value equal (9.2704) at the significance level (0.000), which was less than (α=0.05) level and indicated a direct and significant effect of electronic brainstorming on the quality of the audit process, and that regression coefficient value between the two variables (Direct Effect) was equal to (0.4405), with a standard error of (0.0475). In regard to stage (2), the value of (t) was (5.3121) at the significance level (0.000), which was less than (α=0.05) and referred to statistical significant direct effect of electronic brainstorming on professional skepticism practice, with a regression coefficient value between the two variables of (a=0.3264) at a

standard error of (S_A=0.0614). In step (3), values of (t=2.992 t=10.101) at the level of statistical significance (0.001, 0.000) respectively, which were less than (α=0.05) and point to a significant effect for electronic brainstorming and professional skepticism practice on auditing quality, where the regression coefficient value for professional skepticism practice amounted to (b=0.7139), with a standard error of (s_b=0.0571). Therefore, the results revealed the existence of a partial mediation effect for the professional skepticism practice on relationship between electronic brainstorming and auditing process quality, with indirect effect estimated at (a*b=0.3264*0.7139 = 0.2330) where results indicated that calculated value (z) for Sobel test amounted to (3.3023), which was higher than the tabular of ($_{Z\alpha=0.05}$ =1.96) at the significance level of (0.05). These results indicated the existence of a significant direct effect for the partial median effect of professional skepticism practice on relationship between electronic brainstorming and the quality of auditing process.

RESULTS AND DISCUSSION

Mainly, this study aimed to measure effect of using all types of brainstorming sessions (open, round, electronic) on improving auditing quality; in light of professional skepticism practice at each stage of auditing process among auditors working in auditing offices and firms in Jordan. The results of analysis for first zero hypothesis $H0_1$ showed a statistically significant effect of intermediate variable (professional skepticism) on the relationship between open brainstorming and auditing quality in Jordanian auditing offices, where the impact degree reached 0.2248, which can be explained in using open brainstorming session ensures that auditors involved in the audit process had a strong idea about rules and principles of open brainstorming, where the result of first study hypothesis agreed with results of previous studies (Hunton & Gold, 2010); (Mustafa. 2019). In regard to second null hypothesis $H0_2$, it showed a statistical significant effect of the intermediate variable (professional skepticism) on the relationship between round brainstorming and auditing quality in Jordanian auditing offices, with an impact degree of (0.3009), which can be explained by the fact that using round-brainstorming sessions by auditing offices under study provided a structured creative group sessions by the auditing team to study the company, plan auditing process, and identify risks they may face during the auditing

process. Round-brainstorming sessions allowed each auditor inside the group to benefit from others' ideas and build new ones, where the result of second study hypothesis agreed with the recommendations of previous studies (Al-Kaabi & Al-Ani, 2020; Hunton & Gold, 2010). In regard the third hypothesis $H0_3$, he results showed a significant effect of the intermediate variable (professional skepticism) on the relationship between electronic brainstorming and auditing quality in Jordanian auditing offices, with an impact degree of 0.2330 which can be explained by the fact that electronic brainstorming sessions for larger groups benefitted from the brainstorming techniques about a specific topic, and also through these sessions it was be possible to archive all ideas electronically; in their original form and then retrieve them later for further thinking and discussion. The result of third hypothesis agreed with previous studies (Ameerhom, 2022; Galy, 2016), and based on the above, researcher approved the rejection of all null hypotheses and confirmed the acceptance of the alternative hypotheses.

CONCLUSIONS

The researcher reached several important results after completing this study, which included that round-brainstorming sessions were most influential on auditing quality; in light of the professional skepticism practice and at each stage of the auditing process among auditors working in auditing offices and companies in Jordan, followed by electronic brainstorming sessions in second place and open brainstorming sessions came third at its impact on auditing process quality, where round-brainstorming sessions achieved more additions to the time period and surroundings of basic evidentiary tests than electronic and open brainstorming sessions. There was a clear emphasis during brainstorming sessions on the influence of professional skepticism practice; at all steps of auditing process by directing auditing team members toward maintaining professional skepticism throughout the auditing process by remaining mindful, thinking about how and where fraud can be committed, and convince them during those sessions to not trust or believe anything they have been told by auditing clients. During brainstorming sessions, discussions were performed which included a skeptical mind; as an attempt to confirm proper professional skepticism level and to create a special culture for performing auditing process that makes its procedures more effective and efficient.

The brainstorming sessions generate more good ideas about auditing process of financial statements and it's a way to fundamentally and quickly gains and exchange experience between auditors, as well as helping auditors to improve auditing process planning. Professional skepticism was supported through brainstorming sessions by training, where all types of brainstorming sessions provides the opportunity for inexperienced auditors to benefit from highly experienced auditors during sessions to recognize the type of information that supports their professional skepticism, and also gives them the opportunity to benefit from these auditors in identifying ways to implement professional skepticism appropriately. Brainstorming sessions motivated auditing teams to think strategically by generating new creative ideas that help them to work together on finding solutions to the problems that face auditing process.

RECOMMENDATION

The researcher established a set of recommendations; in light of the results and the most important included the need to implement brainstorming sessions whenever auditors practice their profession; in order to develop their creative thinking, find solutions to problems, facilitate the auditing process, and understand methods and procedures to develop their skills by putting forward alternative ideas. The need to advise practitioners of the accounting and auditing profession in Jordanian environment to practice brainstorming sessions at all stages of auditing process (planning, implementation, reporting), because it's possible to modify the auditing plan based on the good creative ideas that result brainstorming sessions.

Also, the need of interested bodies and organizations in auditing the profession to hold seminars and specialized workshops for auditors to introduce brainstorming sessions, and their objectives, importance, rules, and stages to them, and also possibility of using them in stages of auditing process. The auditing teams need to document brainstorming sessions, because it helps junior auditing team members to benefit from the proficiencies of more experienced team members. The need to pay attention to researches that dealt with brainstorming sessions in the auditing field and put them into practice, in order to increase the efficiency and effectiveness of auditing profession in Jordanian environment.

The researcher believes that using brainstorming methods in the auditing field did not take its appropriate time, effort, or place in researches and studies of the Jordanian environment, where researchers can address a number of topics in future studies related to the problem of the current study. The most important represented in conducting more future studies about measuring the impact of brainstorming sessions (open brainstorming, round brainstorming, electronic brainstorming) on supporting auditors' response to skepticism, cheating, and disclosure risks, as well as measuring the impact of brainstorming sessions on supporting auditors' response to detect crimes of money laundering.

REFERENCES

Abell, M. L. (2010). Assessing Fraud Risk, Trustworthiness, Reliability, and Truthfulness: Integrating Audit Evidence from Multiple Sources, Doctoral dissertation, Virginia Tech.

Ali, A. (2015). Evaluation of the characteristics of auditors' professional skepticism on the strength of negotiating relationship between auditors and their clients. *Journal of Commerce & Finance, Faculty of Commerce, Tanta University, 1*(1), 416-483.

American Institute of Certified Public Accountants (AICPA): 2002, October, SAS No. 99: Consideration of Fraud in a Financial Statement Audit (AICPA, New York, NY).

Al-Kaabi, J. & Al-Ani, S. (2020). The Effect of Brainstorming on audit Quality and its Reflection on Detecting the Risk of Fraud. *Journal of Economics and Administrative Sciences 122*(26), 501-516.

Alrjoub, A., Bataineh, A. & Al Bataineh, I. (2023). Impact of knowledge management on accounting information quality in light of electronic publishing at the Jordanian insurance companies. *International Journal of Process Management and Benchmarking, 14*(3), 356–377.

Al-Taie, B. & Othman, A. (2017). The Impact of Professional Skepticism Characteristics on Audit Quality. *Journal of Economic & Administrative Sciences, 108*(24), 597-618.

Ameerhom, J. (2021). The Role of Electronic Brainstorming Sessions on Improving Audit Quality: A Field Study. *Journal of Commercial Researches, Zagazeig University, Faculty of Commerce, 43*(1), 69-113.

Baron, R.M. & Kenny, D.A. (1986). The moderator–mediator variable distinction in social psychological research, conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182.

Bataineh, A., & Alrjoub, A. (2023). Impact of ERP systems on the internal auditing effectiveness in light of governance mechanisms: Evidence from Jordan. *International Journal of Process Management and Benchmarking, 13*(4), 571-585.

Bataineh, A., & Rababah, A. (2016). Comprehensive Income and Net Income, Which is more powerful in predicting Future Performance. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 6*(2), 114-120.

Beasley, M. S., Jenkins, J. G., & Sawyers, R. B. (2006). Brainstorming to identify and manage tax risks. *Tax Adviser*, *37*, 158-162.

Belden, S., Fister, T. & Knapp, B. (2005). Dividends and Directors: Do Outsiders Reduce Agency Costs?" *Business and Society Review, 110*(2), 171-180.

Bellovary, J. L. & Johnstone, K. M (2008). Descriptive Evidence from Audit Practice on SAS No. 99 Brainstorming Activities. *Current Issues in Auditing, 1*(1), 1–11.

Brazel, J. F., Carpenter, T. D., & Jenkins, J. G. (2010). Auditors' use of brainstorming in the consideration of fraud: Reports from the field. *The Accounting Review, 85*(4), 1273-1301.

Brooch, Z, & Al-Hashemi, J. (2012). The Role of governance mechanisms in reducing Financial and administrative corruption, a working paper presented to the National Forum on: Corporate Governance as a Mechanism of Reduction from Financial and Administrative Corruption. Algeria, University of Mohamed Khaydar.

Burton, P., Gurrin, L. & Sly, P. (1998). Extending the simple linear regression model to account for correlated responses: An introduction to generalized estimating equations and multi-level mixed modeling. *Stat Med, 17*(11), 1261-1291.

Cano Rodríguez, M., & Sánchez Algeria, S. (2012). The value of audit quality in public and private companies: Evidence from Spain. *Journal of Management & Governance, 16*, 683-706.

Carpenter, T. D. (2007). Audit Team Brainstorming, Fraud Risk Identification, and Fraud Risk Assessment: Implications of SAS No. 99. *Accounting Review, 82*(5), 1119-1140.

Chen, K. Y., Lin, K. L. & Zhou, J. (2005). Audit quality and earnings management for Taiwan IPO firms. *Managerial Auditing Journal, 20*(1), 86-104.

Clarke, T., (2004). Cycles of crisis and regulation: The enduring agency and stewardship problems of corporate governance. *Corporate Governance, 12*, 153-161.

Coppage, R. & Shastri, T. (2014). Effectively Applying Professional Skepticism to Improve Audit Quality. *CPA Journal, 84*(8), 24-30.

Easterbrook, F. (1984). Two Agency-Cost Explanations of Dividends. *American Economic Review, 74*(4), 650–659.

Daniels, B. W., & Booker, Q. (2011). The effects of audit firm rotation on perceived auditor independence and audit quality. *Research in Accounting Regulation, 23*(1), 78-82.

Geisler, C. S. (2004). The effects of group affiliation and expectation formation on skepticism and confidence: implications for auditing.

Ghali, A. (2016). A proposed approach for planning and implementing electronic brainstorming sessions with the aim of improving professional judgments quality of auditing team: an exploratory study in the Egyptian environment. *Journal of Accounting Research, Tanta University, Faculty of Commerce, Department of Accounting, 1*, 427-495.

Harding, N. & Trotman, K. T. (2017). The Effect of Partner Communications of Fraud Likelihood and Skeptical Orientation on Auditors' Professional Skepticism. *Auditing: A Journal of Practice & Theory, 36*(2), 111-131.

Hunton, J. E. & Gold, A. (2010). A field experiment comparing the outcomes of three fraud brainstorming procedures: Nominal group, round robin, and open discussion (retracted). *The Accounting Review, 85*(3), 911-935.

Hurtt, R. K. (2010) Development of a scale to measure professional skepticism. *Auditing: A Journal of Practice & Theory, 29*(1), 152-156.

Issa, S. & Zeitoun M. (2017). The Impact of Auditors' Level of Professional Skepticism practices on the Soundness of their Judgment on Key Misstatements in the Financial Statements: An Empirical Study. *Alexandria Journal of Accounting Research, 1*(1) 291-380.

Jaya, T. E. & Irene, C. (2016). Skepticism, Time Limitation of Audit, Ethics of Professional Accountant and Audit Quality (Case Study in Jakarta, Indonesia). *Review of Integrative Business and Economics Research, 5*(3), 173-182.

Jumaa, A. A (2020). The Role of Brainstorming on Developing Joint Review Performance. *Journal of Business Studies & Researches, Binha University, 40*(2), 25-45.

Liao, P. C. & Radhakrishnan, S. (2016). The effects of the auditor's insurance role on reporting conservatism and audit quality. *The Accounting Review, 91*(2), 587-602

Li, Q., & Vasarhelyi, M. (2018). Developing a cognitive assistant for the audit plan brainstorming session. *The International Journal of Digital Accounting Research, 18*(1), 119-140.

Mcallister, M., Blay, A. D., & Kadous, K. (2021). Fraud brainstorming group composition in auditing: The persuasive power of a skeptical minority. *The Accounting Review, 96*(3), 431-448.

Mustafa, M. (2019). A proposed approach to measuring the impact of brainstorming sessions on strengthening auditor's response to cheating risks; an empirical study. *Accounting Thought, Ain Shams University, Faculty of Commerce, Department of Accounting & Auditing, 23*(2), 1-47.

Public Company Accounting Oversight Board, PCAOB, (2007). Observations of Auditors' Implementation of PCAOB Standards Relating to Auditors' Responsibilities with Respect to Fraud. Release No. 2007-01. Washington, D.C.: PCAOB.

Rashid, N. & Kawthar, B. (2018). The Effect of Using Brainstorming in Rationalizing Professional Judgment of Auditors to Assess Company Continuity. *Kirkuk University Journal for Administrative & Economic Sciences, 8*(2), 462-506.

Saleh, R., Hindawi, H., Al-Jamhoudi, I. & Mubarak, R. (2019). The role of brainstorming sessions on improving auditor's professional skepticism level to face the risk of client management of auditing process. *Journal of Contemporary Business Studies, Kafr El-Sheikh University, Faculty of Commerce, 6*, 629-660.

Saleh, S. (2019). The role of e-brainstorming programs on improving joint audit quality. *Scientific Journal of Business & Environmental Studies, Suez Canal University, Faculty of Commerce in Ismailia, 10*(3), 661-685.

Sharia, F. & Al-Ghazouani, R. (2017). The Extent of Libyan External Auditor's Compliance with International Standard on Auditing/ 240 on Fraud. *Journal of Financial & Economic Researches, Faculty of Economics, University of Benghazi, Libya, 1*(2) 1-30.

Shazely, M. & Ashmawy, K. (2018). Integration between electronic brainstorming and collective intelligence and its impact on auditing team performance: A theoretical study. *Journal of Commerce & Finance, Tanta University, Faculty of Commerce, 1*, 158-186.

Shazely, M. (2011). Analysis the brainstorming process role of auditing team on improving the ability to detect fraud and its reflection on audit risks. Thesis submitted for a master degree in accounting, Faculty of Commerce, Cairo University.

Sobel, M.E. (1982). Asymptotic intervals for indirect effects in structural equations models, in Leinhart, S. (Ed.): *Sociological Methodology*, pp.290–312, Jossey-Bass, San Francisco.

Tang, J., & Karim, K. E. (2019). Financial fraud detection and big data analytics– implications on auditors' use of fraud brainstorming session. *Managerial Auditing Journal, 34*(3), 324-337. https://jacpa.org.jo/.

Yagolkovskiy, Sergey R. (2015). Stimulation of individual creativity in electronic brainstorming: Cognitive and social aspects. *Journal Social Behavior and Personality, 44*(5), 181-198.

Yaqoub, I. (2016). Using the brainstorming strategy to enhance professional judgment of auditors in assessing the continuity of economic unit; a study sample of auditors' opinions in Iraqi environment. *Journal of Administration & Economics, 109*(2), 178-194.