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Exploring the relationship between the professional thinking of auditors and ambidexterity with team psychological empowerment

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Abstract

The current study aimed to examine the relationship between the professional thinking of auditors and ambidexterity with team psychological empowerment. The statistical population of the qualitative part of the study includes 15 experts of university professors in the research field selected in a non-random and purposeful sampling method in 2023. Furthermore, in the quantitative part of the study, the statistical population encompasses the Iranian Association members of certified public accountants, who were selected using the available sampling method as 297 people. The data collection instrument included a questionnaire whose structure was confirmed through confirmatory factor analysis in Smart pls software, and reliability was verified using Cronbach's alpha coefficient in SPSS software and composite reliability. To analyze the data, Kolmogorov-Smirnov tests have resorted to the normality test, the Friedman test for prioritizing components and indicators, and the structural equation modelling test for path analysis and model validation in Smart pls software. The relationship between the dimensions and components of professional thinking and ambidexterity, as well as the relationship between the dimensions and components of professional thinking and empowerment, are the most critical findings of the study.

Keywords: professional thinking, psychological empowerment, grounded theory approach
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1 Introduction

Enjoying competent human resources, especially capable managers, can be regarded as one of the essential hopes of most organizations and companies around the world since the dynamism and alignment of organizations with the dramatic and ever-increasing changes in the world of business and work is contingent on efficient managers, and in a more precise sense, thinking managers. The quality of human capital and its use in the labour market indicates that human capital is essential to development in the modern world. Due to recent changes, such as the dynamic nature of the competitive environment, the flattening of organizational structures, the globalization of organizations, and the set

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forth, the organizations' need for competent managers already increases the need for new approaches. If institutions are deprived of creative, thinking, opportunistic, and problem-explainer people, many opportunities will be lost.

Thinking is the background of a person's discernment to reach maturity in decision-making, and the thinking approach is a significant turning point that illuminates what is needed for successful performance. The importance of competency-based approaches in management is increasing daily since these approaches solve many problems concerning traditional methods. A model for professional thinking as a central point for manager competence, planning, organization, integration, and improvement of all aspects of the human resource management system is widely used in the fields of evaluation and selection, promotion, training and development of people, performance management, and employment, and development of career path planning.

Thinking models (i.e., mental models or mindsets) can be used to develop personal development plans, develop training programs, and support decisions about employees such as employment, transfer, and promotion, carry out succession planning, perform performance evaluations, and improve job descriptions. Every institution has experienced continuous growth and sustained success only if managed and guided by a manager or team of thoughtful, efficient managers and leaders. Such studies express a large group of managers' demands and views regarding the competencies significant for success. The results of these studies can be used in decision-making, employment, selection, training, and compensation of employees and integrated with the human resource management strategy.

2 Conceptual foundations and development of hypotheses

DeAngelo [7] defines audit quality as the probability of detecting and reporting misstatements and errors in financial statements. Detecting misstatements and errors might be influenced by the individual characteristics of auditors, including their experience and education level. However, reporting misstatements is contingent on the motivation and willingness of the auditor to report and to behave ethically and professionally, and the type of thinking of the auditor, and it might be influenced by organizational and individual factors and characteristics [2]. Some people see everything as good or bad, black or white. Thinking is different from this type of attitude since it refers to a cognitive style that accepts two opposing ideas in a compromising way. For instance, a situation can have positive and challenging aspects simultaneously. Thinking accepts and embraces contradictions since contradictory dualities are considered integrated parts of a larger whole. Bai et al. [3] state that thoughtful leaders encourage a collaborative rather than a competitive approach to team engagement. Likewise, Hui et al. [11] found that thinkers tend to have mixed feelings [21].

Audit firms operate in an environment with high competition to attract employers. Employers might replace current auditors with more compatible auditors (regardless of individual competence). Enterprises are formed and continue their activities with the aim of monetizing and profitability. Audit firms also need income to continue their activity. Therefore, institutions that use their maximum capacity (managers' thinking) to generate income can be successful. On the other hand, one of the critical concerns of successful enterprises worldwide is collecting educated and intelligent human capital that can create positive changes and developments in relevant organizations. Therefore, equipping and preparing the said resources to encounter the developments and pave the way for positive organizational changes is particularly important. Many philosophers know that empowering human resources is the solution to this problem (preparing human resources to encounter changes and organizational development) and attempt to pave the way for training high-powered employees. Empowerment is the process of empowering people to strengthen their sense of self-confidence and overcome their feelings of impotence and helplessness, which will mobilize people's internal motivations. Empowerment is defined as the development and expansion of individuals' capabilities and competencies to continuously improve the organization's performance [17].

Simply put, empowerment is helping people boost their sense of self-confidence and overcome their inability and helplessness, which will create enthusiasm for activity in people and mobilize their internal motivations to carry out the tasks. Thomas and Velthouse [22] hold that empowered employees have more flexibility in controlling and performing their tasks and take more initiative in response to upcoming issues and opportunities to overcome obstacles. In this case, their motivation is strengthened when dealing with issues and problems. In general terms, empowerment is delegating the power of doing jobs to employees. It should be noted that empowerment does not mean disorganization and confusion or shirking managers' responsibility. In addition, it is limited to delegating authority to employees and causes employees to improve their work performance by acquiring knowledge, skills, and motivation [14]. Empowerment is considered from diverse perspectives, the most important of which is psychological empowerment. Psychological empowerment (PE) is a motivational construct that includes the four dimensions of meaning, impact, competence (self-confidence), and the right to choose. Whetten and Cameron [23] added the dimension of trust to the above dimensions according to Mishra and Spreitzer's [15] research.

Conger and Kanungo [6] were the first to investigate empowerment from a psychological perspective and know psychological empowerment as the ability or increase in personal efficiency in performing job tasks. In other words, the psychological empowerment of employees is defined as releasing forces and inner strength of people, setting the stage, and creating opportunities to fulfill the employees' potential, abilities, and competencies. It includes the individuals' perceptions of their jobs and organizational roles.

According to Kirkman and Rosen [13], teams experience empowerment in four dimensions [**?**]:

1. Potency: Team collective belief that they can be efficient;
2. Meaningfulness: The extent to which team members understand the importance of their tasks for themselves and their team;
3. Autonomy: The extent to which team members feel they have freedom in decision-making;
4. Impact: The extent to which team members feel their tasks can influence the team and the organization.

In an investigation, Yazdan-Shenas and Hashempour [24], based on the undeniable significance of human resources in the organization's performance, examined the role of managers' attitudes and mentality in empowering employees from the psychological dimension. He analyzed the dimensions and components of strategic thinking on the psychological empowerment of employees and confirmed the impact of the dimensions of strategic thinking on psychological empowerment.

In another study, Hakak et al. [9] unraveled that inspiring capacity builders, thought stimulators, motivators and encouragers, spreaders of moral atmosphere, supporters of potency, and atmosphere interaction trust builders are the six main mentalities of managers for psychological empowerment of employees. For instance, the mental model of thought stimulators is the dominant mental model of managers who bring psychological empowerment to their employees through developing questioning skills, creating enthusiasm for thinking, positive thinking, and the ability to improve mental health. Since an auditor's professional thinking brings about audit quality, it is necessary that the auditor's professional thinking is improved to meet the needs of the accountant community. In other words, audit quality can increase the transparency of financial statements when reporting to competent authorities, investors, public opinion, and Iranian Association members of certified public accountants who are responsible for providing accounting and auditing services in society. Public opinion is important here to ensure that their deposits are spent correctly. Therefore, the following questions are raised in the present research:

What are the themes and dimensions of an auditor's professional thinking? How do the dimensions and components of the auditor's professional thinking affect team psychological empowerment? Whether higher-order thinking leaders can bring psychological empowerment to their employees.

According to the materials mentioned above, the current research results can act as a facilitator for managers and partners of audit institutions. They can be used as a prescription for institutions to increase leadership power and influence team empowerment.

Han et al. [10] conducted an investigation entitled "Creating team ambidexterity: The effects of leader dialectical thinking and collective team identification". They examined a leader's thinking as an antecedent of ambidexterity at the team level. They collected data by examining three high-tech manufacturing companies in the eastern region of China. In total, 287 employees from 43 work teams participated in their survey. The team members included research and development teams, customer service, technicians, and project teams. Two questionnaires were developed: one to distribute to team members and one to distribute to team leaders. Subordinates rated their team identity with one questionnaire, and team leaders rated their thinking style, team learning, and employee performance with another questionnaire. In general, the response rate was 77.4% and the final sample size was 222 employees who were distributed in 43 work teams. The average age of employees was 32.24 years who worked in the company for an average of 4.49 years (70.3% male). The supervisors were on average 36.91 years old and had worked at the company for an average of 9.95 years (76.7% male).

Bagherpour Velashani et al. [2] investigated the effect of internal locus of control on the relationship between the psychological empowerment of auditors and audit quality. The required data were collected and analyzed by all the audit institutions' professional staff members of the Iranian Association of Certified Public Accountants in 2017 and 2018 using standard questionnaires. The research results indicated that the psychological empowerment of auditors has a positive and significant relationship with audit quality. It also showed a positive relationship between psychological empowerment and audit quality when internal locus control of audits increases. In other words, employees with high psychological empowerment and internal locus of control perform the audit with the highest quality. Ilani Hajiklai [12] evaluated the effect of ethical leadership on psychological empowerment and the career development path of employees and found a positive and significant correlation between moral leadership and empowerment and its components.

Royaei et al. [19] investigated the effect of interpretive thinking on the auditor's judgment and decision-making: based on the theory of interpretation level of psychological distance. They investigated how higher-level thinking (abstract thinking) can cause performing an audit task to influence auditors' judgments in subsequent tasks, even when the new task is unrelated to the same employer or the previous work field. The study's results revealed that auditors who adopt an abstract mindset as a result of unrelated previous audit work, compared to their peers who adopt a realistic mindset, provide a lower probability assessment for the occurrence of an event. Broadly, they underscored the systematic influential role of psychological distance in people's judgment. Safdari et al. [20] investigated "The effect of audit firm characteristics on empowerment of managers of companies accepted in Tehran Stock Exchange" in six years from 2010 to 2015. To this end, the information of 124 companies accepted in the Tehran Stock Exchange was analyzed. To test the hypotheses, simple and multivariate regression statistical methods (step-by-step method) and to test the significance of models, F and t statistics were used. The research results confirmed a positive relationship between the four characteristics of the auditor, including the size of the audit firm, the auditor's expertise, the firm's age, tenure of office, and management empowerment.

3 Research methodology

Resorting to the correlation test and the structural equation modeling test, the present study used the questionnaire approved in the first step (extracted from the grounded theory stage and approved by professors and experts) for measuring the auditor's professional thinking and the ambidexterity questionnaire for measuring the institution's ambidexterity, which has been used in many research, such as Spritzer and Mishra [15] questionnaire for measuring team psychological empowerment, which has been used in diverse studies, including Ilani Hajiklai [12] and Rezaei [18].

To test the validity of the research theoretical model and calculate the influence coefficients, the structural equation modeling method was used by PLS software. The current research is a statistical population comprised of certified accountants of Iran, who were obtained using Morgan's formula. As the number of working certified auditors, according to the latest list of the organization, is 1100 partners, according to Morgan's table, the sample size of 297 people was taken into account.

Structural Equation Modeling (SEM) technique is used to analyze the data in the current research. Structural equation modeling is one of the statistical methods to investigate the relationship between several variables in a model. The structural equation model (SEM) was used for data analysis since this model tests the simultaneous relationships between variables. The statistical presumptions, such as normality of the data, sample size, set forth, were considered to use Smart PLS software. In the following, the test and analysis methods used in the research are given with the relevant formula. The following formula shows the method of determining access using the adjacency matrix:

$$\begin{aligned} &A+I \\ &M=(A+I)^n \end{aligned} \tag{3.1}$$

Matrix A is the initial access matrix, the identity matrix, and the final access matrix. The operation of exponentiation of the matrix is done according to Boolean rules:

$$1\times 1=1; \quad 1+1=1 \tag{3.2}$$

3.1 Partial least squares sample size

Partial least squares can also be used when the sample size is very small. Although it is only used for statistical power analysis, Monte Carlo showed that this approach can be used for sample sizes less than 50. H. Vold began to analyze using 27 variables, two latent constructs, and data sets consisting of 10 samples. Nevertheless, considering the sustainability problem when the scale is large, this model still has some limitations.

3.2 Formation of structural self-interaction matrix (SSIM)

In this step, the experts take into account the measures in pairs and answer the pairwise comparisons according to the following. In other words, the letters V, A, X, and O are used according to the following definitions to compare two criteria.

V: The factor of row i causes the factor of column j to be realized.

A: The factor of column j causes the factor of row i to be realized.

X: Both row and column factors make each other happen (factors i and j have a two-way relationship).

O: There is no relationship between row and column factor.

Table 1: Formation of structural self-interaction matrix (SSIM)

	Criterion 1	**Criterion 2**	**Criterion 3**	**Criterion 4**
Criterion 1		V	V	O
Criterion 2			X	A
Criterion 3				O
Criterion 4				

3.3 Adapting the access matrix

The initial access matrix should be examined if $i, j = 1, j, k = 1 \rightarrow i, k = 1$. In other words, if measure A is related to measure B and measure B is also related to measure C, then measure A must be related to C.

3.4 Determining the level of variables

In this step, the set of input (prerequisite) and output (access) measures for each criterion is computed, and then the common factors are detrimined. In this step, the criterion in which the output set (access) is equal to the common set has the highest level of ISM. After identifying this variable or variables, their row and column are removed from the table, and the operation is repeated on other criteria.

3.5 Creating the network of interactions

In this step, the network of interactions is created according to the levels of measures in ISM and their relationships. The first level is chosen as the most impressive level, and the last level is selected as the most influential level.

3.6 Model fit

The overall model fit index (GOF) is computed by the geometric mean of R^2 and the communality average (AVE value):

$$GOF = \sqrt{\overline{Communality} \times \overline{R^2}} \tag{3.3}$$

in this formula, the explained variance index R^2 and the quality of the measurement model are described in the following table: It needs to be noted that the explained variance index is checked for the model's endogenous constructs and determines the extent to which the independent variable could predict or explain the dependent variable.

3.6.1 Cochran's formula

This formula is used to estimate the sample size in qualitative variables. Cochran's formula and its components are demonstrated in the following.

$$n = \frac{Nt^2pq}{Nd^2 + t^2pq} \tag{3.4}$$

N is the total number of statistical population, t is the confidence coefficient, which, if the significance level of the test is equal to 0.5, the value of this coefficient is equal to 1.96, p is the probability of a trait in the population (proportion of population with a particular trait), q is the probability of not having a trait in the population (proportion of the population without a particular trait) $= p - 1$, d is sampling accuracy (the difference between the actual proportion of the trait in the population and the researcher's estimate for the presence of that trait in the population)

$$n = \frac{Nt^2S^2}{Nd^2 + t^2S^2}. \tag{3.5}$$

3.7 Kolmogorov-Smirnov test in SPSS

The following command is run to use Kolmogorov-Smirnov test like the Mann-Whitney test:

$$Analyze \rightarrow \text{Nonparametric Tests} \rightarrow \text{Leagcy Dialogs} \rightarrow 1 - Sample\ K - S...$$

$$D = \max_{1 \leq i \leq N} \left(F(Y_i) - \frac{i-1}{N}, \frac{i}{N} - F(Y_i) \right). \tag{3.6}$$

The Kolmogorov-Smirnov (K-S) test, named after the Russian mathematicians Andrey Kolmogorov and Nikolay Smirnov, is a statistical method for determining the distribution of the sample in a population. The computed test statistic is often denoted by D and reveals whether the null hypothesis is accepted or rejected. If D is greater than the critical value of alpha, the null hypothesis is rejected. The null hypothesis is accepted if D is less than the critical value.

4 Research findings

- Gender

Table 2: Frequency of gender groups

Gender	Frequency	Frequency Percentage	Cumulative Frequency Percentage
Female	23	0.08	0.08
Man	274	0.92	1.00
Total	297	1.00	

As Table 2 demonstrates, 92% of the respondents are male, and 8% are female. The frequency table for gender is illustrated below.

- Age

Table 3: Frequency of age groups

Age	Frequency	Frequency Percentage	Cumulative Frequency Percentage
31 to 40 years	163	0.55	0.55
41 to 50 years	92	0.31	0.86
More than 50 years	42	0.14	1.00
Total	297	1.00	

Among the respondents to the questionnaire, 55% were between 31 to 40 years old, 31% were between 41 to 50 years old, and 14% were 51 years old and above.

- Level of education

Table 4: Frequency of education groups

Level of Education	Frequency	Frequency Percentage	Cumulative Frequency Percentage
Bachelor's degree	104	0.35	0.35
Master's degree and higher	193	0.65	1.00
Total	297	1.00	

Among the respondents to the questionnaire, 35% had a bachelor's degree and 65% had a master's degree or higher.

4.1 Measurement models fit

Reliability: To check the reliability of the research measurement model, the factor loading coefficients, Cronbach's alpha coefficients and composite reliability coefficient are examined.

4.2 Factor loading measurement

The acceptable value for the factor loading coefficients is 0.4. In the above table, all the values of factor loading coefficients of the questions are greater than 0.4, indicating this measure is acceptable.

Table 5: Factor loading coefficients

Factor	Index	Factor loading
Dimensions and components of professional thinking	PT1	0.60
	PT2	0.63
	PT3	0.56
	PT4	0.56
	PT5	0.61
	PT6	0.62
	PT7	0.56
	PT8	0.62
	PT9	0.73
	PT10	0.53
	PT11	0.63
	PT12	0.57
	PT13	0.53
Ambidexterity	AM1	0.55
	AM2	0.74
	AM3	0.81
	AM4	0.84
	AM5	0.81
	AM6	0.65
Empowerment	EM1	0.67
	EM2	0.57
	EM3	0.71
	EM4	0.76
	EM5	0.75
	EM6	0.65
	EM7	0.72
	EM8	0.66

4.3 Cronbach's alpha, composite reliability

According to the data analysis algorithm in PLS, after measuring the factor loadings of the questions, Cronbach's alpha and composite reliability coefficients are computed and reported, the results of which are shown in the following table.

Table 6: The results of Cronbach's alpha measure and composite reliability of the latent research variables

Latent variables	Cronbach's alpha coefficient ($Alpha > 0.7$)	Composite reliability coefficient ($CR > 0.7$)
Dimensions and components of professional thinking	0.81	0.88
Ambidexterity	0.79	0.86
Empowerment	0.78	0.83

Since the acceptable value for Cronbach's alpha and composite reliability is 0.7, and according to the findings of the above table, these measures have adopted an acceptable value for the latent variables, it can be declared that the research is reliable.

4.4 Convergent validity

The second criterion for assessing the measurement models fit is convergent validity, which studies the degree of correlation of each construct with its questions (indices).

Table 7: Convergent validity results of the latent research variables

Latent variables	Average Variance Extracted ($AVE > 0.5$)
Dimensions and components of professional thinking	0.69
Ambidexterity	0.64
Empowerment	0.67

The acceptable value of AVE is 0.5, and according to the findings of the above table, the latent variables have adopted the appropriate value of this measure, confirming the acceptability of the research's convergent validity.

4.5 Structural model fit

4.5.1 Significance coefficients Z (t_values)

According to Figure 2, the t coefficients for all hypotheses are greater than 1.96, therefore, their significance is ascertained at the 95% confidence level.

4.5.2 R Squares or R^2 measure

The second measure to assess the research structural model fit is the R^2 coefficients related to the endogenous (dependent) latent variables of the model. R^2 is a measure that indicates the effect of an exogenous variable on an endogenous variable, and three values of 0.19, 0.33, and 0.67 are taken into account as the criteria for weak, medium, and strong values of R^2. According to Figure 1, the value of R^2 has been calculated for the endogenous constructs of the research, which confirms the goodness of the structural model fit according to the three criterion values.

Table 8: The results of the R^2 measure for endogenous constructs

Latent variables	**R Square**
Dimensions and components of professional thinking	0.000
Ambidexterity	0.336
Empowerment	0.461

4.5.3 Q^2 measure

This measure determines the predictive power of the model. If the value of Q^2 for an endogenous construct is the three values of 0.02, 0.15, and 0.35, it indicates the weak, medium, and strong predictive power of the concerned exogenous construct or constructs. The results of the above table demonstrate the acceptable predictive power of the model regarding the research's endogenous constructs and confirm the structural model's goodness of fit.

Table 9: The results of the Q^2 measure for the endogenous construct

Latent variables	Q^2
Dimensions and components of professional thinking	0.00
Ambidexterity	0.33
Empowerment	0.38

4.6 Overall model fit

GOF measure: The GOF measure is used to assess the fit of the overall model. The three values of 0.01, 0.25, and 0.36 are considered weak, medium, and strong values of GOF. This measure is calculated using the below formula:

$$GOF = \sqrt{\overline{Communalities} \times \overline{R^2}}$$

The average communal values of the research latent variables obtain commonalities.

Table 10: Communality and R^2 values of the research variables

Latent variables	**Communality**	R^2
Dimensions and components of professional thinking	0.69	0.000
Ambidexterity	0.64	0.336
Empowerment	0.67	0.461

Table 11: Results of overall model fit

$\overline{Communality}$	$\overline{R^2}$	**GOF**
0.66	0.39	0.51

As the value of GOF is 0.51, the goodness of overall model fit is confirmed.

4.7 Testing research hypotheses

The PLS software is used to test the research hypotheses in this part.

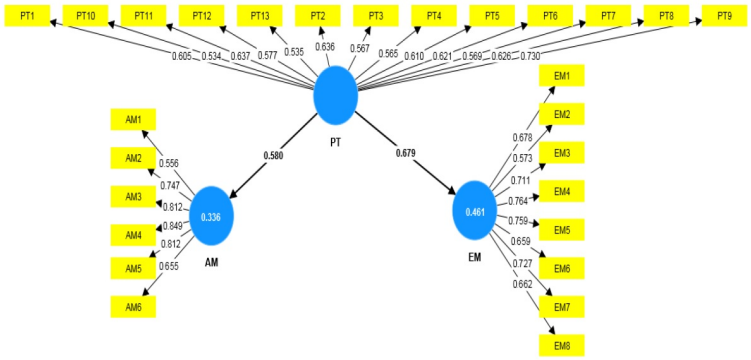

Figure 1: Structural model of the research with the factor loading coefficients

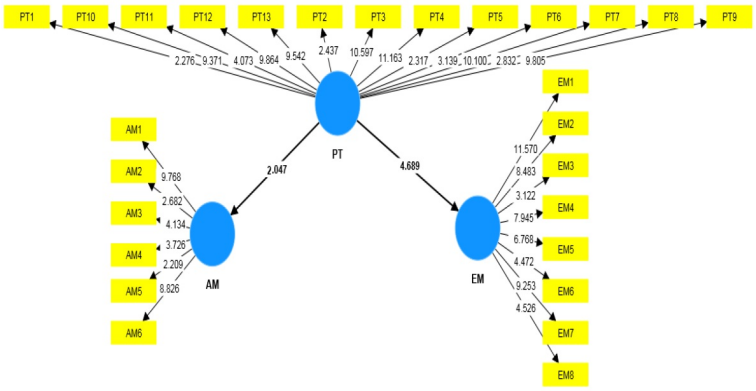

Figure 2: Structural model of the research with significance statistics

Table 12: Results of the direct relationship and significance coefficients of the model hypotheses

Path	Sign	Path coefficient	Significance value	Test result
Dimensions and components of professional thinking- - - Ambidexterity	PT—AM	0.58	2.04	Approved
Dimensions and components of professional thinking- - - Empowerment	PT—EM	0.67	4.68	Approved

4.8 Research hypotheses

First hypothesis: A relationship exists between the dimensions and components of professional thinking and ambidexterity.

Table 12 shows that the path coefficient between the dimensions and components of professional thinking and ambidexterity is 0.58. The t-statistic of this coefficient is also 2.04, which is greater than the significance threshold of 1.96. Thus, the first hypothesis of the present research is confirmed: there is a relationship between the dimensions and components of professional thinking and ambidexterity.

Second hypothesis: There is a relationship between the dimensions and components of professional thinking and empowerment.

According to Table 12, the path coefficient between the dimensions and components of professional thinking and empowerment is 0.67. The t-statistic for this coefficient is 4.68, and its value is above the significance threshold of 1.96. As such, the second research hypothesis, that is, the relationship between the dimensions and components of professional thinking and empowerment, is confirmed.

5 Discussion and conclusion

Professional thinking is one of the most delicate and controversial topics in practice. It is an essential concept in the audit of financial statements and an essential element in improving audit quality and auditor judgment. It is

one of the factors that auditors can use to fulfill their role in the audit process better. When the auditor conducts the audit professionally, his biased judgments are reduced, and the audit quality increases dramatically. Suppose the auditors do not undergo professional thinking. In that case, the effectiveness of their performance will be hindered since one of the significant apprehensions and concerns of investors is that financial reports have precise and reliable information that plays a crucial role in predicting, judging, and making informed decisions for users. The process of applying professional thinking in auditing at the level of work and auditing institutions plays a vital role in enriching the literature of this field.

The current study expands the concept of professional thinking in auditing and completes the discussions raised in this area. Although some previous investigations have also addressed the different characteristics of professional thinking, none of the internal and external studies have studied the professional thinking of auditors. The other significant points of the current research are the specific context of Iran and considering professional thinking in auditing on a broader dimension.

Personality traits indeed refer to the intrapersonal dynamic structure of each person, which encompasses hereditary causes and social environment. These components might influence the person's behaviour and personal thoughts in the social environment. Similarly, the professional thinking of auditors depends on the auditor's characteristics (personality traits, personality type, inherent characteristics, self-belief, intrinsic motivations, culture, ethnicity, and gender of the auditor), the moral beliefs and cognitive factors (perception, beliefs, attitude, inquiry mind), the cognitive errors (overconfidence), the adherence to fundamental principles (honesty, impartiality, and professional competence and due care) and knowledge, the skills and the experience.

According to the results of the present study, auditors with professional thinking show more professional behaviours and can recognize contradictory evidence when reviewing audit files (debts and inventories). Auditors who have higher self-confidence and mental stability show more persistence and obstinacy in their positions against the employer's management.

Accounting ethics make auditors more conservative, and they are likely to perform tasks more thoughtfully. In addition, when auditors behave with ethical standards, they make more conservative judgments—the more improved the professional ethics, the more influential the auditing process. Therefore, implementing professional ethics will develop the auditor's professional thinking as the auditor in the audit process will intellectualize carefully and have a deep view even beyond those issues. The personal characteristics of the auditor (such as the tendency of the auditor to have an inquisitive mind or to have doubts in advance) are predictors of the judgment arising from his or her professional thinking. Some recent studies have investigated the change in an auditor's mental pattern as one of the possible mechanisms to increase professional thinking.

The researchers concluded that increasing the salience of auditors' professional identity increases professional thinking by making them question professional norms and values. Parley considered the role of metaphor in changing auditors' mental patterns. Ultimately, they found that having auditors read a story containing a metaphor that focuses on the potential best practices of information providers makes auditors think more professionally when completing an audit task. Other factors, such as personality backgrounds, beliefs, situations, tendencies, and the framing or wording of tasks, can change auditors' mental patterns or approaches and lead to more or less professional thinking. The auditors' behavior disorder denotes the auditor's actions that provide non-standard auditing opportunities.

These behavioural disorders prevent the audit process from collecting reliable audit evidence, which causes the auditor to make poor professional decisions. Thus, no influential audit will take place. Along the same lines, perception is a process by which people regulate and interpret their thoughts and conceptions about their job and specialized profession, thereby giving them the impression that this issue can result from information processing of one's occupation. To note an example, due to the belief that financial statements are presented along with fraud, the person attempts to examine the reports through conservative procedures, and this issue is only because of the person's perception of the possibility of fraud in the financial statements by the company. However, perception and thinking can be very different from objective reality. People often have different perceptions of the same thing.

It is declared that people's behaviour depends on their perception of their expertise and profession (and not reality). Some studies have identified and examined the potential judicial tendencies that may lead to the judiciary partiality of the auditor. These judicial tendencies can be classified into four groups of psychological biases: confirmation seeking, overconfidence, reliance, and availability. The auditor's tendency to overestimate the actual amount of ability to do work, precise risk assessment, or other decisions and judgments indicates overconfidence. This bias can be an unconscious tendency that results from the auditor's personal motives. Such a tendency can influence the auditor's effort to be impartial. However, overconfidence can sometimes lead to the auditor's inability to identify conflicting viewpoints or evidence. In general, many people believe they are more successful than others in the same profession.

Similarly, optimism can also be seen in risk assessment, which often causes people to underestimate the risk they might face. Some illogical optimism can be traced to a person's overconfidence in his abilities. People usually overestimate their ability to make accurate decisions. In general, overconfidence can lead to less attention to the subject and objective of the audit, less consideration of management's reporting preferences, viewpoints, and choices, and insufficient attention to the nature of the audit techniques and alternative strategies; all these can appear in the form of inappropriate professional thinking actions.

Having a lot of knowledge and practical skills is a definition of professional skills that is efficient in providing appropriate expert judgments and puts a person on the path of creative thinking. Because many auditing tasks need objective criteria, professional skills such as experience, expertise, and independence for the auditor's professional thinking are necessary to compensate for this deficiency. Empiricism in the auditing and accounting profession refers to acquiring trial and error and knowing the scope of the business, which can help improve performance and provide reports with fewer contradictions. Expertise indicates a person's knowledge capacity and scientific and professional capabilities in auditing, which helps him or her make appropriate and efficient decisions. Due to their high skill capability, people with expertise usually occupy a larger market share than others, and their performance is always important as a competitive advantage. Professional thinking is related to the training and experience of auditors, and auditors need an appropriate level of competition to apply professional thinking in auditing. The American Accounting Association (AAA) defines independence, impartiality, and professional skepticism as the pillars of quality audit. This association believes that the auditor's effective decision-making process improves the three mentioned factors, which ultimately strengthens the auditor's ability to increase and document professional judgments during the audit process. Auditors can improve their professional judgment skills by applying an effective decision-making process to guide their thinking in the right direction and be self-aware of trends, pitfalls, and judiciary partiality. Due to social sensitivities and issues such as agency costs, auditors, despite their independence and impartiality, should have a skeptical view when examining companies' financial statements. This is because the violation of this issue creates a gap between social beliefs and shareholders' expectations and will damage the professional competence of auditing.

The profession's cautious attitude toward explicitly expressing professional thinking in professional standards may be more related to the inherent nature of auditing. Even without emphasizing this issue, the auditor should raise questions and doubts during the evidence-gathering process. An auditor must have professional thinking or an inquiry mind to be qualified to lead the audit. Today, there is a need for new leadership models and styles that corresponds with knowledge and higher-order thinking. Taking knowledge requirements into account, the researchers have proposed transformational leadership. Today, in this regard, having a thinking approach establishes the ground for innovation and discovery [8]. Studies have shown that the lack of team empowerment among the members of the organization leads to an increase in costs in the production of knowledge and the lack of dissemination of the best working methods within the organization, and makes the organization incapable of solving its problems; Thus, considering the unique position of auditing institutions and their upcoming issues, adopting a team empowerment strategy can help the managers of these institutions; That is why, following team empowerment, one can control his or her current activities and, at the same time, seek to meet the current demands efficiently and expand the abilities to predict and adapt to future changes. In their research, Donate et al. [8] concluded that transformational leadership increases the characteristics of the senior management team in the organization and facilitates the effectiveness of the social integration of the senior management team. They found that thoughtful leaders have directly influenced innovation and knowledge management in the organization. Although knowledge is essential to create innovation, the presence of a thoughtful leader can create innovation in the organization and implement knowledge management, which in turn can improve the organization's performance in innovation.

Baškarada et al. [4], in their research, identified three organizational mechanisms (training, performance management, and knowledge management) that leaders rely on to promote exploitation and five behaviors (commitment, vision, risk-taking, empowerment, and acquisition) that leaders rely on to promote discovery. These mechanisms and behaviors are compatible with the transactional and transformational leadership styles, respectively. Coleman [5] understood that managers' leadership style and skills can influence the improvement and promotion of team empowerment. In their research, Mohammadi et al. [16] found that transformational leadership style has a positive and significant influence on organizational ambidexterity and entrepreneurial consciousness and that organizational ambidexterity has a positive and significant influence on entrepreneurial consciousness. Alneadi et al. [1] concluded in their research that knowledge-based leadership has a direct and indirect effect on organizational performance. The development of knowledge-based leadership influences the improvement of employees' innovative behavior, which, in turn, increases organizational performance.

The current research attempted to make suggestions based on the scientific materials and methods, the related literature, and the findings of the particular research questions. It should be noted that the suggestions presented

were the selected and the most important ones. If other research questions were in the findings or mentioned in the discussion of the conclusion, they were kept from being mentioned again. According to the results of the current research, the following suggestions are presented:

- Improving the adequacy of the proposed research model: Examining the concepts and categories of the model and their relationships is very beneficial in increasing the generalizability of the model, using survey research at the level of the stock market.
- Auditors' personality traits have a significant effect on their decision-making process. The combination of over-introspection and optimism causes people to over-rely on their knowledge, consider themselves superior to the circumstances and events, and not consider possible risks. Such people overreact to unexpected and sudden events and news.

The research results show that auditors relatively undergo the two qualities of over-introspection and optimism. On the other hand, since the personality traits of people and, consequently, auditors are constant over time and at the same time, they might show different behaviors, it is suggested that auditors' reactions (taking into account the two mentioned qualities) towards environmental news, events, and happenings with an emphasis on political, economic, and corporate dimensions to be carried out in a mixed-method research and cross-sectional survey. Furthermore, a comparison between the emerging behavior of auditors over time and their personality traits and thinking should be made.

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