



# An Entropy/TOPSIS Based Model for Financial Prioritization of Professional Ethics Teaching Methods in Accounting

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## ABSTRACT

The collapse of large corporations such as Enron and WorldCom caused much concern about the ethical behavior of accountants among users of accounting service. Ethical behavior in accounting is one of the distinguishing features of accountants, which enable them to make the best decisions for stakeholders. Professional ethics learning plays a major role in the development of ethical behavior. Also, TOPSIS method is a well-known methodology that is applied in a various decision-making problem. On the other hand, in order to determine the importance of criteria, the Entropy method is known as a powerful tool. Therefore, the purpose of this study was to investigate the effect of ethics teaching methods on the development of ethical behavior in accounting. This is done by means of an integrated Entropy/TOPSIS based Model for Financial prioritization of professional ethics teaching methods in accounting. The findings of the study showed that the variables of ethics education, style of teaching ethics and ethics textbook content respectively had a 1, 24 and 55 percent impact on the development of ethical behavior in accounting. The results of this study indicate that an ethical training program in accounting is needed to provide accountants with guidance on ethical issues and the importance of ethical standards.

## 1 Introduction

The expansion of markets globally has significantly increased the ability and role of accountants in providing management advice. The sudden collapse of giants such as Enron and Arthur Andersen and other companies has made the issue of professional ethics more important and more attention in companies. In addition, these scandals have reduced the credibility of the accounting profession. When the circumstances of events, especially financial events, are ambiguous, it happens that accountants are also blame. Part of the answer may lie in the unknowing bias of accountants, a bias that causes people to make unintentional decisions when they have vague information. One of the reasons for these difficulties is the lack of ethical content of the courses in accounting training courses. Brackner believes that "universities are responsible for placing more emphasis on teaching ethics in decision making [31]. Regarding ethics, Katozian [24] says: A set of rules that are necessary for charity and reaching perfection; That is, through morality we gain a measure of what is good and what is bad. He also writes: Moral rules are based on one's conscience, that is, the validity of these rules is guaranteed from within, not from without, while laws are guaranteed by the government. The same can be said of professional standards and ethics. The standards and ethical principles of the profession are within the community

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of accountants, and as a result it is the duty of accountants and professional associations to teach the development of ethical behavior in addition to the scientific competencies and technical skills of accountants. Universities have considered different methods for teaching accounting ethics during a course of study. O'Leary [39] concludes in his research on the usefulness of accounting ethics: Ethics education seems to be beneficial, but the most important challenge is to find optimal teaching methods. McPhail and Walters [35] write: Accountants seem to show a lower level of ethical reasoning than other professional groups, and accounting students have less moral awareness than other students. Also, accounting students do not recognize the broader issues of career-related social responsibilities. Most accounting students think that this profession is an unethical and purely technical activity. According to the above-mentioned issues and the study and review of various researches on the effect of ethics teaching methods on the development of ethical behaviour in accounting, the importance and position of this issue can be understood [17, 21, 24, 49]. This highlights the fact that an accountant, in addition to gaining sufficient mastery of his or her professional profession, must also consider ethical principles. The purpose of this study is to explain the importance and necessity of examining ethics teaching methods on the development of ethical behaviour in accounting in order to finally provide an effective solution to increase attention to this issue by analysing the results obtained.

## 2 Theoretical Foundations and Background

In this section we review the fundamental concepts used throughout the paper.

### 2.1 Ethics and the Development of Ethical Behaviour

Ethics is a set of moral principles and values; Such as rules and regulations, religious teachings, a set of rules of ethics in business and the code of professional conduct in the organization [30]. Ethics studies good and bad traits, good and bad behaviors and norms [8]. Professional ethics is the ethical principles and standards that are developed by organizations based on ethical models and all members of the organization are required to observe these principles that guide their behavior [2]. Salman Panah and Talebnia [44] regarding ethical behavior in the accounting profession state that: Ethical behavior of the profession is a vital factor in shaping the profession.

What is meant by ethical behavior is the emphasis on the fact that the quality of accounting should not only be related to the technical knowledge of the profession, but also the quality of accounting should include the ethical behavior of accountants. Michel Foucault believed that morality is at the discretion of the individual and not a reflection of the rules and regulations defined for him. In fact, Foucault distinguishes between moral rules and moral action, he is more in favor of moral action [29]. Buchan [6] in his research refers to studies on the level of ethical reasoning and writes: Studies have shown that the level of ethical reasoning of professional accountants as well as accounting students is lower than other major and reference groups, probably due to the nature of the profession. As a result of these studies, researchers have proposed the implementation of goal-oriented habits to raise the level of moral reasoning, pointing out that professionals who have higher levels of moral reasoning will act more in accordance with moral judgments. Education and ethics - Thinkers of the philosophy of ethics are faced with two fundamental questions; One group supports the "moral immutability" hypothesis and the other supports the "moral variability" hypothesis. Proponents of the immutability of morality consider the spiritual and genetic background of morality to be inherent and believe that this morality is inherent and inherited and consider the impact of the environment to be very small. Believers in the variability of morality consider morality to be inherently but to a greater extent influenced by environmental factors

[12]. There is no assurance that after this ethics training, students may learn to respond "correctly" and thus choose the right moral practice; And in fact, there is no guarantee that students will choose the right ethical practice when faced with a choice in the real world [15].

Teaching professional behavior to accounting students can be done before or after entering the profession. Postponing this to the post-graduation period, due to the fact that continuous training is not mandatory in most fields of work in this field, can be considered as not receiving training. Teaching ethics to students causes them to face moral problems before entering the profession and prepare themselves to deal appropriately with real-world situations and strengthen their decision-making skills and professional behavior [43]. Many studies have concluded that education has a positive effect on students [38]. Not all students have the same opinion about the positive impact of ethics education. Some disagree with the idea that one semester of an ethics course can change the way they solve moral problems. This view is consistent with the view that values are instilled early in life and is unlikely to change as a result of offering a course in ethics [9].

## 2.2 Methods of Teaching Ethics in Accounting

Money [37] outlines some common elements of ethics education in accounting programs as follows: Helping students identify all the stakeholders that should be considered in decision making, raising ethical awareness, and reviewing examples of codes of conduct are all elements of Are moral education. William and Elson [51] suggest how to organize the course content and training as follows: The lesson using the team-teaching method should include a professor of philosophy and a professor of accounting. The professor of philosophy teaches the first part of the course related to ethical theories in the field of philosophy. If a philosophy professor is not available, guest speakers with a background in philosophy can be used. It is an ethic created by the governing bodies of accounting. The third section includes discussions on ethical issues such as independence, conflict of interest, profit management, insider trading, fraud, and so on. Impact of unethical actions and accountability of accountants even if there are no specific codes. Sanctions and penalties for immoral acts should also be discussed. The fourth and final part of the course includes placing students in real-life situations that they may encounter in the accounting profession. Analysis of ethical issues should include identifying ethical issues, determining breached ethical codes, and discussing ethical reasoning and the decision-making process [51]. One of the problems with adding ethics to accounting ethics is the existence and existence of an accounting curriculum that is already too crowded. The second problem is that a more diverse ethics content requires accounting professors to absorb more information in a field of work that already has a broad knowledge base [50].

## 2.3 Content of Ethics in Accounting Textbook

The content of the ethics textbook in accounting can be described as ethical knowledge, skills and values related to the accounting profession that must be learned. Miller and Becker [36] write in their research: Accounting professors will certainly not include ethics education in the content of their classroom content if they do not agree that the content is appropriate. Given that there are so few textbooks for faculty guidance, it may come as no surprise that speakers who discuss ethical issues often take personal interests as an important factor. In the United Kingdom, there are some accounting professors who have been pioneers in this field and, to varying degrees, have included ethical issues in their teaching [4]. Blanthorn et al. [7] state that: Accounting professors have considered themselves as the most appropriate source for teaching ethics and prefer courses with practical programs to courses with theoretical

content. In terms of the method used to teach ethics, educators support the combined method more than the method of an independent course. Findings show that education has a great role in students' moral learning and that teaching moral issues to students at university age is not too late, although in childhood, family educational experiences have one of the greatest effects on the formation of values. More than 80% of respondents (faculty and staff) believe that they can influence the students they come in contact with on a daily basis [27]. In their research, Lowe et al. [28] attribute one of the causes of accounting crises and the sudden collapse of large corporations to the inadequacy of academic curriculum in ethics education, and conclude that it may be possible for graduates to think before they enter. The complex world of business is affected by the contract.

### 3 Research Background

The results of Royaee and Bayat [40] indicate the importance of ethics education and its positive effect on individual moral behavior in the organization. The results of this study also show that ethical education and moral motivation affect a person's moral behavior in decisions related to the environment and the organization. Based on the research findings, Setayesh [41] concludes that the need to pay attention to ethics and conduct ethics training courses in order to improve the understanding of ethics by employees and managers in the field of finance, is increasingly felt. Dazeh and Garkaz [10] conclude that the relationship between ethical reasoning, thinking, intention and moral desire of certified public accountants indicates that certified public accountants use ethical judgment when making decisions and by expanding and strengthening ethics among accounting students, accountants in the future, community trust and credibility in the accounting profession can be increased. Findings of Sensitive Research Kazempour and Yeganeh [25] show that skilled auditors are more ethically sensitive to the interests of stakeholders, especially managers, and knowledge of the consequences of the decision only affects the moral sensitivity and how to determine the disciplinary sanctions of semi-skilled auditors. Banimahd and Beigi Herchegani [7] show that there is a significant and positive relationship between the orbital relationship and the tendency of Iranian auditors to immoral behavior when faced with moral dilemmas. Hejazi and Masripour [16] concluded that the implicit teachings of professional ethics have no effect on improving the observance of professional ethics by accounting students. Mahdavi and Mousavinejad [32] concluded that the financial managers of government agencies in Fars province have no familiarity with ethical concepts.

To solve ethical problems in their work environment, they follow their personal beliefs more; therefore, teaching ethics and professional ethics is essential for students in this field. Saghafi et al. [43] concluded that addressing ethics issues in accounting is a necessity. The subject matter is not covered in other accounting courses, and the lack of this course in Iranian universities is an irreparable shortcoming. Sarlak [42] concludes in his research that the future of the accounting profession is ethically led by professional accountants and leaders. Tormo-Carbó et al. [48] concluded in their study that those students who had previously taken an ethics course were more inclined to believe that accounting education should include ethical considerations. They showed more interest in learning about it in their curricula. Martinov-Bennie and Mladenovic [34] concluded in their study that presenting students alone with a single framework strengthens moral judgment, but does not increase students' moral sensitivity. Graham [13] shows that students consider ethics education important and prefer an independent ethics course to a course combined with other courses. Miller and Becker [36] conclude in their research that ethics integration efforts based on each course are relatively small and may be insufficient. The results of Issa and Pick [20] show that business ethics education has an impact on students' minds because they are aware of ethical theories and applications in the contemporary business world; Therefore, giving

students this opportunity enables them to become familiar with more important perspectives in their studies. Blanthorn et al. [7] state that accounting professors recognize the importance of ethics education in meeting professional needs. In terms of the method used to teach ethics, professors support the combined method more than the method of an independent course. Madison and Schmidt [33] found in a study that group managers across all institutions agree that ethics education is "extremely important" in both business and accounting curricula. The question that is examined in this study is whether some factors such as teaching ethics in the accounting profession, the method of teaching ethics in accounting and the content of the ethics textbook in accounting affect the development of ethical behavior in accounting or not?

### 3.1 TOPSIS Method

TOPSIS (technique for order preference by similarity to an ideal solution) method is presented in Hwang and Yoon [19]. TOPSIS is a multiple criteria method to identify solutions from a finite set of alternatives (see [3, 23, 18]). The basic principle is that the chosen alternative should have the shortest distance from the positive ideal solution and the farthest distance from the negative ideal solution. The procedure of TOPSIS can be expressed in a series of steps:

(1) Calculate the normalized decision matrix. The normalized value  $n_{ij}$  is calculated as:

$$n_{ij} \cong x_{ij} / \sqrt{\sum_{i=1}^m x_{ij}^2}, \quad i \cong 1, \dots, m; \quad j \cong 1, \dots, n.$$

(2) Calculate the weighted normalized decision matrix. The weighted normalized value  $v_{ij}$  is calculated as:

$$v_{ij} \cong w_j n_{ij}, \quad i \cong 1, \dots, m; \quad j \cong 1, \dots, n.$$

where  $w_j$  is the weight of the  $i$ th attribute or criterion, and  $\sum_{j=1}^n w_j \cong 1$ .

(3) Determine the positive ideal and negative ideal solution.

$$A^+ \cong \{v_1^+, \dots, v_n^+\} \cong \{(\max_j v_{ij} \mid i \in I), (\min_j v_{ij} \mid i \in J)\},$$

$$A^0 \cong \{v_1^0, \dots, v_n^0\} \cong \{(\min_j v_{ij} \mid i \in I), (\max_j v_{ij} \mid i \in J)\}.$$

where  $I$  is associated with benefit criteria, and  $J$  is associated with cost criteria  $\square$

(4) Calculate the separation measures, using the  $n$ -dimensional Euclidean distance. The separation of each alternative from the ideal solution is given as:

$$d_i^+ \cong \left\{ \sum_{j=1}^n (v_{ij} - 0v_j^+)^2 \right\}^{\frac{1}{2}}, \quad i \cong 1, \dots, m.$$

Similarly, the separation from the negative ideal solution is given as

$$d_i^0 \cong \left\{ \sum_{j=1}^n (v_{ij} - 0v_j^0)^2 \right\}^{\frac{1}{2}}, \quad i \cong 1, \dots, m.$$

(5) Calculate the relative closeness to the ideal solution. The relative closeness of the alternative  $A_i$  with respect to  $A^+$  is defined as  $\square$

$$R_i \cong \frac{d_i^0}{d_i^+ \cdot d_i^-}, \quad i \cong 1, \dots, m.$$

Since  $d_i^0 \neq 0$  and  $d_i^+ \neq 0$ , then, clearly,  $R_i \in [0, 1]$ .

(6) Rank the preference order. For ranking alternatives using this index, we can rank alternatives in decreasing order.

The basic principle of the TOPSIS method is that the chosen alternative should have the "shortest distance" from the positive ideal solution and the "farthest distance" from the negative ideal solution. The TOPSIS method introduces two "reference" points, but it does not consider the relative importance of the distances from these points.

### 3.2 Shannon's Entropy Formula

Shannon's entropy (Shannon [46]) has a central role in information theory, and sometimes refers to measure of uncertainty. Shannon's entropy is a well-known method in obtaining the weights for an MADM problem especially when obtaining a suitable weight based on the preferences and DM experiments are not possible (see [47]). The original procedure of Shannon's entropy can be expressed in the following four steps.

**Step 1.** (Normalization). Set

$$r_{ij} = \frac{x_{ij}}{\sum_{i=1}^m x_{ij}}, \quad j = 1, \dots, n$$

**Step 2.** Compute entropy  $E_j$  as

$$E_j = -e_0 \sum_{i=1}^m r_{ij} \ln(r_{ij})$$

Where  $e_0$  is the entropy constant and is considered equal to

$$e_0 = \frac{1}{\ln(m)}$$

**Step 3.** Set  $d_j = 1 - E_j$  as the degree of diversification for ( $j = 1, \dots, n$ ).

**Step 4.** Set

$$w_j = \frac{d_j}{\sum_{j=1}^n d_j}$$

As the degree of importance of attribute  $c_j$ .

## 4 Research Method

The main research questions can be stated as follows. According to the theoretical foundations stated above, three questions have been raised in this regard:

1. What is the effect of ethics education on the development of ethical behavior in the accounting profession?
2. What is the effect of teaching ethics on the development of ethical behavior in the accounting profession?
3. What is the effect of ethics textbook content on the development of ethical behavior in accounting?

The method of the present research is survey-analytical. The statistical population of the research includes experts and experts in the field of accounting, such as members of the accounting faculty, auditors and accountants and senior financial managers of companies and focusing on professors and students of doctoral and master's degree in accounting at Kermanshah Azad University. Based on Krejcie and Morgan [26] table, 384 people were identified as the sample size. Data collection tool was a researcher-made questionnaire. First, for the formal validity of the questionnaire, it was given to seven faculty members in the field of accounting and experts, and based on their opinion, the final questionnaire was modified. The results of the collected opinions of these people indicate that the questionnaire had appropriate content and face validity.

Then Cronbach's alpha coefficient was calculated to determine the correlation of each item with the total score. The results of this coefficient were 0.917 ethics education, 0.908 ethics teaching method, and 0.912 ethics textbook content, which indicated that the questionnaire had the desired reliability. Then, based on Spearman correlation coefficient, linear regression and structural equations, data and model were analyzed using SPSS and Amos software. The conceptual model of research is designed as follows. This research has four variables including the variables of ethics education, ethics teaching method, ethics textbook content and development of ethical behavior. Fig. 1 shows the conceptual model of the research.

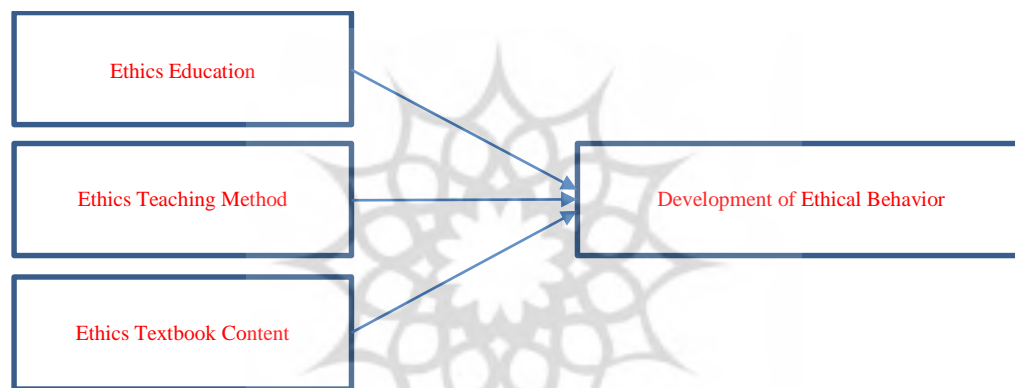


Fig. 1: Conceptual Model of Research

## 5 Research Findings

### 5.1 Descriptive Statistics

A summary of descriptive statistics is provided below. Demographic issues presented include professional educational status and job position. Table 1 shows the frequencies, percentages and cumulative percentages of the respondents' educational status.

Table 1: Educational Status of the Sample Respondents

Degree	Frequency	The Frequency Percentage	The cumulative percentage
Ph. D Degree	11	9/2	9/2
Ph. D Candidate	71	5/18	4/21
Master Degree	59	4/15	7/36
Master Student	173	1/45	8/81
Bachelor Degree	63	4/16	2/98
No Answer	7	8/1	0/100
Total	384	0/100	

Table 2 shows the frequencies, percentages, and percentages accumulated for the occupational status of the sample respondents.

**Table 2:** Job Status of Sample Respondents

Category (job status)	Frequency	The Frequency Percentage	The cumulative percentage
Full time faculty member	29	6/7	6/7
Visiting Professor	61	9/15	4/23
Full-time accounting employee	195	8/50	2/74
Part-time accounting employee	51	3/13	5/87
Employed in non-accounting work	41	7/10	2/98
No Answer	7	8/1	0/100
Total	384	0/100	

### 5.2 Data Normality Test

Kolmogorov-Smirnov test was used to check the normality of the distribution of the questionnaire variables. If the significance level of the test is less than 0.05, the null hypothesis is rejected and it is concluded that the data distribution of the variable is not normal and if the significance level of the test is less than / 0 increases, the null hypothesis is not rejected and it is concluded that the data have a normal distribution. Table 3 shows the results of the Kolmogorov-Smirnov test to check that the data follow the normal distribution.

**Table 3:** Kolmogorov-Smirnov Test Results to Check the Data Compliance of the Normal Distribution

Variable	Number	Mean	Standard deviation	Statistical value of z	The significance level	Result
Ethics training	384	9076/2	93205/0	111/0	000/0	Non-Normal
Methods of teaching ethics	384	1191/3	92346/0	098/0	000/0	Non-Normal
Ethics textbook content	384	1250/3	87912/0	080/0	000/0	Non-Normal

**Table 4:** Spearman Correlation Coefficient

The relationship between ethics education and the development of ethical behavior in accounting	Spearman correlation coefficient	527/0
	Significance level F=0.000	562/164 = F
	Coefficient of determination ( $R^2$ )=0.301	549/0 = R
The relationship between ethics teaching methods and the development of ethical behavior in accounting	Spearman correlation coefficient	660/0
	Significance level F=0.000	725/292 = F
	Coefficient of determination ( $R^2$ )=0.434	659/0 = R
The relationship between the content of the ethics textbook and the development of ethical behavior in accounting	Spearman correlation coefficient	666/0
	Significance level F=0.000	332/310 = F
	Coefficient of determination ( $R^2$ )=0.448	670/0 = R

As can be seen in Table 3, the results of data analysis indicate that the significance level of the Kolmogorov-Smirnov test for all research variables is less than 0.05, so the null hypothesis is not accepted and the distribution of the studied variable is not normal.



### 5.3 Investigating the Effect of Variables

Due to the non-confirmation of the normality of the variables, Spearman correlation coefficient is used to investigate the research hypotheses, followed by linear regression. Considering the level of significance obtained from data analysis which is equal to 0.000 and its comparison with the allowable error rate of 0.05 ( $p < 0.05$ ) is observed with 95% confidence between the method of teaching ethics, the content of the ethics textbook and Ethics education has a significant relationship with the development of ethical behavior in accounting. Therefore, according to the value and sign of Spearman correlation coefficient obtained for each variable, this relationship is positive, so the above research hypothesis is accepted and also according to the coefficient of determination presented in the table of regression coefficients, it is seen that the line equation is obtained. For each variable, 30.1%, 43.4% and 44.8% correctly predict the variance changes, respectively.

**Table 5:** Fit Indicators of the Model for Measuring Variables

Index title	Variable amount of teaching methods	Variable amount of textbook content	Variable amount of training	Optimal range	Result
$\frac{x^2}{df}$	437/3	832/1	232/0	$0 < \frac{x^2}{df} < 5$	Accepted
RMSEA	080/0	047/0	000/0	RMSEA < 0.05	Accepted
RMR	006/0	005/0	001/0	RMR $\geq$ 0	Model is confirmed
GFI	996/0	998/0	1	GFI > 0.9	Model is confirmed
AGFI	100/0	976/0	997/0	AGFI > 0.85	Model is confirmed
NFI	99/0	998/0	1	NFI > 0.90	Model is confirmed
CFI	99/0	999/0	1	CFI > 0.90	Model is confirmed
IFI	99/0	999/0	1	IFI > 0.90	Model is confirmed

As can be seen, the chi-square value for each of the variables is within the desired amplitude range, which is acceptable. The root mean error of approximation squared (RMSEA) for the variable of ethics teaching method is 0.080, the value below 0.05 is very appropriate, but this value is desirable for the other two variables in the range, the value of the index (RMSEA) to zero. The closer it is, the better the fit of the pattern. The value of the root mean square index (RMR) must be equal to or greater than zero, which is the case in the study, so the index has a good fit.

Confirmation of factor patterns is done using several indicators and considering them simultaneously. Goodness-of-fit (GFI), Modified-of-goodness (AGFI), Normalized-fit (Bentler-Bont) (NFI), Adaptive-fit (CFI) and Incremental-fit (IFI) are between 0.90 and one variable. The closer one is, the better the pattern fits. The values of the indicators mentioned in this study are more than 0.9, so the fit is appropriate. According to the obtained results and its comparison with the acceptable range, it can be acknowledged that all the fitness indicators of the above model are in the acceptable range and therefore

the proportion of the collected data with the model is desirable. Therefore, the suitability of the final model of all three variables is confirmed.

### 5.4 Structural Model of Research

The current research employed the following structural model.

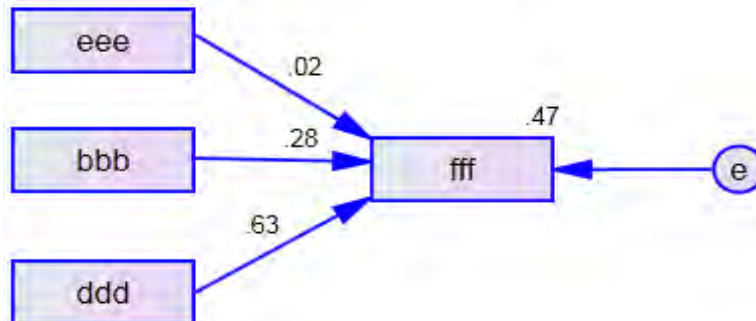


Fig. 2: Structural Model of Research with Standard Coefficient

Overall fit indicators are described in Table 6.

Table 6: General Model Fit Indicators

Fit indicators	Acceptable range	Calculated values
X <sup>2</sup> /df	2>	584/224
RMSEA	05/0>	764/0
NFI	9/0<	334/0
CFI	9/0<	333/0
IFI	9/0<	335/0
RFI	9/0<	332/0-
PRATIO	50/0<	500/0
PNFI	50/0<	167/0
PCFI	50/0<	166/0

Chi-square ratio of the structural model to the degree of freedom is equal to 224/584 and is inappropriate. Adaptive fit indices are all below 90% and unsuitable. The RMSEA index is above 5% and inappropriate. Economic (economic) indicators are often lower than 50% and are inappropriate; Therefore, modifications are needed in the model. The model was modified using Amos correction indices and the errors were correlated with the highest correction index, respectively.

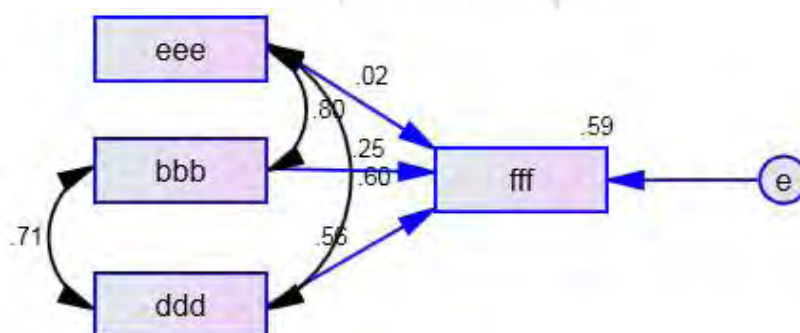


Fig. 3: Corrective Research Model with Standard Coefficient

Fig. 3 shows the research correction model with standard coefficient and Table 7 shows the estimates of the general model. This table shows the effect of independent variables (method of teaching ethics, content of ethics textbook and ethics education) on the variable of developing ethical behavior in accounting. As the results show, these variables have an effect of 24.8%, 55.6% and 1.6% on the development of ethical behavior in accounting, respectively.

**Table 7:** General Model Estimates

			Estimate	S.E.	C.R.	P	Label
Fff	<---	Eee	.012	.043	.286	.775	.016
Fff	<---	Ddd	.462	.039	11.828	***	.556
Fff	<---	Bbb	.197	.050	3.914	***	.248

Regression Weights: (Group number 1 - Default model)

## 5.5 Financial Evaluation Using TOPSIS

In the final stage, that the main criteria are established, we employed the selected criteria to rank the 85 companies listed on the Tehran Stock Exchange. The well-known TOPSIS method is applied. The obtained results are described in Tables 8-10. The name has been stated as their abbreviations to protect the anonymity of the company. The analysis is done based on three scenarios. Due to simplicity, only the top five companies in each scenario are showed. In scenario 1, all the selected criteria are taken into account to make the general evaluation. Table 8 illustrates the results. The company SK has been recognized as the best by considering all criteria.

**Table 8:** General Evaluation

	d+	d-	R	Rank
SK	0.007826	0.019345	0.711971	1
SD	0.010768	0.016907	0.610907	2
SFN	0.010919	0.016513	0.601964	3
SG	0.010987	0.016125	0.59475	4
JD	0.011422	0.016357	0.588815	5

In scenario 2, only the Developmental measurement are taken into account. Table 9 illustrates the results. We can see that again the company SK has been recognized as the best in this scenario.

**Table 9:** Developmental-Based Evaluation

	d+	d-	R	Rank
SK	0.006385	0.017051	0.727567	1
PA	0.00761	0.015492	0.670576	2
SD	0.008101	0.0157	0.659651	3
SA	0.008767	0.016174	0.648505	4
GSB	0.008292	0.014836	0.641455	5

Tables 8 and 9 indicate that in addition to the SK, the company SD has also acceptable performance in scenarios 1 and 2. In scenario 3, only the reflective measurement are taken into account. Table 10 illustrates the results. We can see that the company SHS has been recognized as the best in this scenario.

Tables 10 indicate that the company SFN has acceptable performance in scenarios 1 and 3.

**Table 10:** Reflective-Based Evaluation

	d+	d-	R	Rank
SHS	0.001658	0.011434	0.873367	1
EM	0.002445	0.010606	0.812667	2
SDA	0.003666	0.01117	0.75289	3
SFN	0.003281	0.00989	0.750902	4
KA	0.004023	0.010589	0.724689	5

## 6 Conclusion and Discussion

The aim of this study was to explain the importance and necessity of examining the effect of ethics teaching methods on the development of ethical behavior in accounting. First, Spearman correlation was calculated in order to determine the relationship between the research variables. Then, linear regression analysis was performed to determine the relationship more accurately and the effect of each of the variables. The purpose of ethics education is to create motivation and change that promotes behavioral skills and awareness of one's professional commitments. The results of the first question showed the effect of ethics education on the development of ethical behavior of accounting professionals and this result is in line with the research of Love et al. [28] which showed that one of the causes of accounting crises and sudden collapse of large companies is insufficient teaching materials. Is a university in ethics education and is also in line with the research of Saat et al. [45] which shows that accounting programs are able to develop the ethical level of professional judgment of accountants and practical training has a significant impact on improving that development. Jennings [22] agrees that accounting students should be educated because of the role that accountants play in financial scandals. This conclusion is not in line with the research of Hejazi and Masripour [16].

Hejazi and Masripour conclude in their research that the implicit teachings of professional ethics in the undergraduate course have no effect on improving the observance of professional ethics by accounting students and the reason is the lack of an independent unit of professional ethics in the curriculum. The results of the second question showed that there was a significant positive relationship between the method of teaching ethics and the development of ethical behavior of the accounting profession. Previous research also points to similar results, as the results of Farzin et al. [11] call for the course to be presented as an independent course. Grasso and Kaplan [14] also concluded in their study that accounting students are exposed to higher ethical standards by taking an auditing course (which covers parts of professional ethics). Also, the findings of Armstrong et al. [1] believe that the ability and application of moral virtues increase the likelihood that a person will act according to moral judgments, and it is possible to change the behavioral patterns of individuals using educational tools. These findings are consistent with the findings of Blanthorn et al. [7]. According to Blanthorn, accounting professors prefer courses with practical programs to courses with theoretical content. The results of the third question show the effect of the content of the ethics textbook on the development of ethical behavior in the accounting profession, and this result is in line with the research of Hilbettel and Jones (1992) who concluded that students of ethics classes use the criteria and principles they have learned when making decisions. According to Armstrong et al. [1], the goals of ethics education should include topics such as those that have ethical implications and the development of ethical reasoning skills. The study suggests some directions for future research as follows:

- 1- Identifying the factors affecting the change of accountants' professional behavior using educational tools
- 2- Investigating the effect of ethics education in accounting according to experience, culture, geographical location
- 3- Research in order to provide ethics training before entering the profession by professional associations

On the other side, the current study has some limitations as follows. In studies that use questionnaires, the answers may not be consistent with actual performance. How each person performs in real life may change, so generalizations need to be made with caution. None of the individual factors such as experience, gender, culture, age, geographical location, type of degree and the like are considered in the present study. This can also have potential effects on research results.

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