

Investigating the Effect of Concept Mapping in Learning Ethics in Accounting

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Abstract

Introduction: The role, duty and responsibility of professional accountants towards the society, capital owners and other interested parties requires that they observe the general principles of good ethics in all aspects and adhere to the coded and consistent professional conduct. Therefore, the main goal of this research is to find a suitable method for meaningful (long-term) learning of ethics concepts in accounting.

Material and Methods: This research was applied and semi-experimental and was carried out in a quasi-experimental manner. The statistical population was accounting master students, 50 of whom were selected by in access sampling and randomly divided into two experimental and control groups. The instrument was accounting ethics questionnaire and finally the data were analyzed by covariance method.

Results: In this research, traditional teaching methods were compared with alternative methods (use of conceptual diagrams) by comparing the learning rate of two groups of accounting students. The findings of the research indicated that the average scores of the students of the experimental group (who were trained using conceptual diagrams) were significantly higher than the control group (who were trained using the traditional method).

Conclusions: Nowadays, in many cases, traditional teaching methods are not able to understand the complex topics of ethics, and therefore students try to learn these topics like parrots. Conceptualization allows a person to communicate between different aspects of moral issues and to understand the relationship between ideas and constituent parts of thoughts. Therefore, using the conceptual diagram prepared by the lecturer or relevant experts in ethics education can increase the quality and quantity of participation in learning among students.

Keywords: Conceptual Diagrams, Ethics in Accounting, Learning, Conceptualization

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INTRODUCTION

Ethical values can provide a suitable platform for the formation of a society with real prosperity. By using ethics, we can organize communication behavior at individual, organizational, social and international levels. Ignoring ethics will ultimately reduce welfare and reduce the level of quality of life. A subject that is also the ultimate goal of the accounting profession. Ethical and behavioral rules in any profession give us the main guidelines. These guidelines include the main characteristics of the profession, the relations between the activists of that profession and the society, the relations between these activists and also the relations between each member and the professional society [1]. One of the biggest concerns of professional managers is to create a suitable platform for employees who can

provide the best results with honesty, sense of responsibility and commitment to society and their profession and observe ethical principles. Considering the positive results of professional ethics, one of the main success factors in any organization is adherence to professional ethics. The more important professional ethics are from the point of view of managers and workforce, the more successful the organization will be in reaching its goals. This issue is significant in today's era, which puts diverse values in front of managers in the workplace [2-4]. Despite the importance of this topic, until now only academics, philosophers and social critics have addressed the issues of ethics at work and not executive managers. As a result, many of the materials that have been published so far about professional ethics

do not meet the practical needs of managers and leaders of organizations and are not enforceable [5]. While the observance of professional ethics by managers is one of the most important factors in the success of organizations.

Among human characteristics, one can mention is talent for learning. Learning is a change that appears in a person's behavior as a result of experience. The formation and survival of human civilization and culture depends on his/her ability to learn. At the beginning of birth, a human being enters this world with a series of physiological and instinctive abilities and capabilities, and after that, in addition to these abilities, learning also plays a significant role in the formation of his personality. The role of learning is evident in all aspects of a person's life. Family, school and community are parts of a person's life and all of them are related to each other. Learning goes beyond the acquisition of a specific skill or course material and includes emotional development, personality development and human social interaction. One learns what is dangerous, what is lovable, and what is appropriate. In practice, the human infant starts the learning process from the time of birth, and this ability causes the growth and excellence of human society. Learning is a process that, through experience, causes a relatively stable change in human behavior, knowledge or performance.

One of the most successful ways in education is the use of conceptual drawings. A conceptual diagram is a regular presentation of key words, in a way that makes it easier to cover the important topics and concepts of a text and organizes the topics in a meaningful and hierarchical pattern. The use of conceptual diagram gives the learners confidence about the content so that they feel that they have mastered the information enough. For example, by relating the graphic information to previous learning, the new information is easily integrated with the learners' knowledge framework [6]. In a research conducted by some researchers [7], it was found that communication diagrams are preferable to written or oral descriptions in learning. Structured pictures and diagrams seem to be more understandable than words alone and are a clearer way to learn complex topics. A research showed that there is a clear difference between teaching accounting with different tools. Choosing the right tool for accounting education depends on the purpose for which the tool is used and that a combination of different tools can be used to provide better performance. For example, a suitable combination of conceptual images and digital tools.

Conceptual diagrams are a useful method to encourage students' learning in the higher education environment in some developed countries. However, the number of studies conducted on "conceptual effects on education" are very limited. As a result, this study examines the issue of "does teaching using conceptual diagrams help students' progress and their attitude towards conceptual diagrams?" Also, in this research, we want to evaluate the usefulness of conceptualization in the educational content of ethics in accounting. The importance of the topic of this research is rooted in the fact that conceptualization in teaching ethics in accounting has received less attention, although it has been widely used in many disciplines. It seems necessary to pay attention to conceptualization because it can help to understand better and deeper the concepts of accounting ethics. It is obvious that expanding the boundaries of any knowledge is not possible without a precise and meaningful understanding of its concepts. Therefore, the purpose of the research is to strengthen the use of conceptualization in accounting ethics education texts by focusing on how conceptualization can improve student learning. According to the objectives of the research and to cover the existing research deficiencies in Iran, the main question of the research is; "Is the rate of learning ethics concepts in accounting using texts based on conceptual diagrams more than the texts of traditional books?" In response to this question, the hypothesis of the research is compiled as follows:

Research hypothesis: the average score of accounting students trained using books based on conceptual diagrams is higher than the scores of students who studied using text-based books.

MATERIAL AND METHODS

This research was applied and semi-experimental type of research and according to the objectives of the research, a quasi-experimental research design (pre-test-test with control group) was used in this study. The statistical population included master students, 50 of whom were selected by available sampling and randomly divided into two experimental and control groups.

The tool for collecting pre-test and post-test data was the accounting ethics questionnaire. This questionnaire examines the professional ethics of accountants. The questionnaire has 29 questions that are set on a Likert scale. The validity of the questionnaire was checked by experts and its reliability was estimated at 0.78 using Cronbach's alpha method. Table 1 shows the results of the reliability test of the questionnaire.

To carry out the research, the sample members were randomly divided into two experimental groups (25 people) and control (25 people). A pre-test was taken from both groups using a questionnaire on ethics in accounting. In the next step, to teach professional ethics, the students of the control group were taught based on the traditional method (text-based book) and the students of the experimental group were taught using conceptual diagrams. In the last stage, the two groups were subjected to a post-test and the results were compared. It should be noted that a conceptual diagram is a graphic, clear, conceptual and visual structure that contains nodes that are connected by lines. Conceptual diagrams can be used as a tool that reflects the relationships between concepts in a person's long-term memory. When creating conceptual diagrams, the focus is on the relationships between concepts. A combination of two concepts connected by a line of communication creates a theorem, which is the smallest meaningful linguistic unit. Data were analyzed by covariance method and SPSS software.

RESULTS

For the descriptive analysis of the variables, the number of people in the control group of 25 people and the experimental group of 25 people were randomly distributed. In order to determine the type of test used for the research hypothesis, firstly, the normality or abnormality of the data related to the hypotheses was investigated through the Kolmogorov-Smirnov test, and then, using the results of this test, an appropriate

Table 1. The results of the reliability test of the questionnaire

| Questions | Cronbach's alpha |
|------------------------------------|------------------|
| Individual values | 0.761 |
| Legal requirements | 0.831 |
| Responsibility | 0.742 |
| Secrecy | 0.784 |
| New styles of financial leadership | 0.825 |
| Total | 0.782 |

Table 2. Kolmogorov-Smirnov test

| | Z value | Sig. | Results |
|-----------|---------|-------|---------------------|
| Pre test | 0.823 | 0.421 | Normal distribution |
| Post test | 0.913 | 0.387 | Normal distribution |

Table 3. Descriptive statistics indicators for evaluating two experimental and control groups

| Test / Status | No. | Mean | SD | Min. | Max. |
|------------------|-----|-------|------|------|------|
| Pre test | | | | | |
| Exp. | 25 | 11.32 | 1.18 | 4 | 15 |
| Control | 25 | 11.14 | 2.15 | 5 | 14 |
| Sum | 50 | 10.96 | 3.01 | 4 | 17 |
| Post test | | | | | |
| Exp. | 25 | 13.65 | 3.14 | 7 | 16 |
| Control | 25 | 12.15 | 1.12 | 6 | 15 |
| Sum | 50 | 12.01 | 3.15 | 5 | 14 |

statistical method was used. The results of the Kolmogorov-Smirnov test are presented in [Table 2](#). According to the results listed in table number (2) and considering that the significance level for both tests is more than 5%, it can be concluded that the data distribution is normal in all years. Using Levine's test, the assumption of homogeneity of variances was checked, and the statistics of the pre-test and post-test of learning were 0.421 and 0.387, respectively and both were greater than 5%. Therefore the assumption of homogeneity of variances was established and it can be claimed that the variances of the groups are homogenous. The mean and standard deviation of learning scores and other descriptive data for the two experimental and control groups in the pre-test and post-test periods are reported in the table below. The mean and standard deviation of the learning scores and other descriptive data for the two experimental and control groups in the pre-test and post-test periods are reported in [Table 3](#).

According to the results of [Table 3](#), in the experimental group, the average scores increased from 11.32 (standard deviation 1.18) in the pre-test to 13.65 (standard deviation 3.14) in the post-test. Similarly, in the control group, the average scores increased from 11.14 (standard deviation 2.15) in the pre-test to 12.15 (standard deviation 1.12) in the post-test. In the pre-test, the scores of the experimental group were slightly higher than the scores of the control group. In the post-test, the scores of the experimental group are more different than the scores of the control group.

Table 4. Covariance analysis of learning variables in teaching ethics

| Source of variable | SS | df. | RMS | F value | Sig. |
|--------------------|------------|-----|----------|---------|-------|
| Modified model | 21948.559 | 3 | 7316.186 | 207.825 | 0.000 |
| Separating | 5179.656 | 1 | 5179.656 | 164.924 | 0.000 |
| Group | 1004.455 | 1 | 1004.455 | 28.492 | 0.000 |
| Pre test | 2.768 | 1 | 2.768 | 0.079 | 0.780 |
| Post test | 9.535 | 1 | 9.535 | 0.270 | 0.605 |
| Error | 1974.223 | 47 | 35.254 | | |
| Sum | 168635.239 | 50 | | | |
| Modified sum | 23922.782 | 49 | | | |

$R^2=0.617$ R^2 adjusted= 0.613

Table 5. Levene's test

| F test | df. | Sig. |
|--------|-----|-------|
| 2.913 | 1 | 0.093 |

Table 6. Analysis of covariance test for the learning variable in the course of ethics in accounting

| Source of variable | SS | df. | RSM | F value | Sig. | η^2 |
|--------------------|------------|-----|-----------|---------|-------|----------|
| Modified model | 21939.023 | 2 | 10969.512 | 315.191 | 0.000 | 0.917 |
| Separating | 5174.231 | 1 | 5174.231 | 148.73 | 0.000 | 0.723 |
| Group | 21938.965 | 1 | 21938.965 | 630.380 | 0.000 | 0.001 |
| Pre test | 2.953 | 1 | 2.953 | 0.085 | 0.772 | 0.917 |
| Post test | 1983.759 | 48 | 34.803 | | | |
| Error | 168635.239 | 50 | | | | |
| Sum | 23922.782 | 49 | | | | |

$R^2=0.617$ R^2 adjusted= 0.614

The results of covariance analysis in [Table 4](#) show that the significance level of the variable of the pre-test research group is equal to 0.605 and more than 0.05. This indicates that the assumption of homogeneity of the regression slope is met.

It can be seen in the above table, after the test, the scores of the experimental group (who used the source of the content of conceptual pictures for learning) and the scores of the control group (who used the traditional textbook based on the text) have a significant difference. There is a difference (significance level less than 0.05).

As a result, it is possible to obtain the average score of ethics in students trained using the method based on conceptual pictures is higher than the scores of students trained in the traditional method (text-based books). Therefore, the hypothesis of the research has been confirmed and it can be stated that the amount of learning in the students of the experimental group was higher than that of the control group.

DISCUSSION

As we know, the boundaries of a knowledge expand in two ways: education and research. Many students and researchers have been active in the field of research, but unfortunately, less attention has been paid to the field of education. This research seeks to expand the frontiers of knowledge through the implementation of new teaching methods and change the traditional methods of education. In fact, the current research seeks to introduce

and replace new methods of teaching accounting ethics in order to facilitate and strengthen students' learning, and it intends to turn the teaching of accounting ethics into a sweet and completely understandable process by replacing innovative and practical methods. This study evaluated the effect of using conceptual diagrams in learning the theoretical framework of ethics in accounting among students of this field. The results of this research showed that the students who studied using a textbook containing conceptual diagrams had a better understanding of ethics in accounting and made more progress in learning compared to their peers who studied using a textbook. In line with the results of this research, some researchers [8-10] proved that, along with other factors, conceptual diagrams can also affect the academic success of accounting students. Also, a researcher [11] showed in his research that there is a significant difference between teaching accounting with different tools.

Based on the results of this research, it can be suggested that in educational centers, a suitable combination of conceptual diagrams and other tools improves the level of learning.

This research emphasizes the attention of society and other accounting researchers on investing in education. Also, based on the results obtained, researchers and those interested in education are suggested to conduct similar research in this field.

It is obvious that the progress and evolution in the teaching of accounting ethics by itself causes expansion and evolution in that knowledge, therefore, higher education institutions and universities are recommended to provide the necessary infrastructure to apply conceptualization in their educational curriculum. Future researches can also be done on how to design conceptual diagrams and the benefits and impact of designing and making conceptual diagrams by students on their learning.

The limitations of using conceptual diagrams and the level of students' interest in it is another issue that can be considered by researchers.

CONCLUSION

The current research was looking for a solution to replace the meaningful learning of ethics, instead of its parrot-like learning among accounting students. Today, the traditional teaching methods are not able to understand the complex topics of ethics in accounting in many cases, and therefore students try to learn these topics like parrots. One of the biggest disadvantages of parrot-like learning is that it is volatile in the long run, and on the other hand, because the understanding is not done correctly, so students will have problems in using those concepts.

Different approaches and viewpoints have been followed throughout history in the process of teaching and learning [12]. The ambiguities and problems of learning and students' behaviors force teachers to change their behavior and teaching style and seek to increase the quality of their teaching. In order to improve the quality of their teaching, they use the results of various

humanities researches and look at their teaching and role with a more general perspective, which has led to the emergence of new teaching methods. One of the new teaching methods that has its roots in constructivist philosophy is teaching by conceptual drawing method. The concept image was created in 1992 during Novak's research program at Cornell University. A central idea in psychology states that learning occurs through making connections between new concepts and topics and existing concepts kept in a conceptual structure with the learner. At that time, it was important that a better idea and method for a better mental understanding of students was found in the form of a conceptual diagram, so that a new tool for conducting research and also many other applications was obtained [13].

The results of the present research showed that, at least in the field of teaching professional ethics to students, conceptualization allows a person to establish a relationship between different aspects of ethical issues and to understand the relationship between ideas and constituents of ideas. Therefore, the use of the conceptual diagram prepared by the lecturer or relevant experts in ethics education can increase the quality and quantity of participation in learning among students.

ETHICAL CONSIDERATIONS

Ethical issues (such as plagiarism, conscious satisfaction, misleading, making and or forging data, publishing or sending to two places, redundancy and etc.) have been fully considered by the writers.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interests.

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