

THE IMPORTANCE OF CONCEPTUAL MAPS IN ACCOUNTING CURRICULUM

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Abstract: This paper provides a model for using conceptual maps in accounting courses. While this notion is commonly used in natural science education, it is less known in accounting education. Conceptual maps are tools that raise significant learning in the classroom. As teachers, we are challenged to change our curriculum and teaching methods. We are going to present a literature review of this concept, identifying its basic principles and strategies of development. Reading them in accounting education academic perspective will allow us to evaluate to what extent is a method that is suitable for teaching and learning in this field. Following Trébucq and Noel (2006), the set of selected information will be the basis of a study applied on some students in Romanian space in order to observe the extent to which the use of conceptual maps to help structuring and strengthening specialized concepts. This work seen as a qualitative research shows that by using conceptual maps we both improve what students learn and develop higher-order skill competencies demanded by the accounting profession. This paper brings the following contributions to knowledge. First it adds to a limited number of education papers that puts conceptual maps in an accounting context. Second, it is the first paper in Romanian context that show how concept maps can be used for both the students and the teachers in accounting education field by promoting self-learning and life-long learning skills. The main conclusion of the study conducted consists in the fact that this concept should be integrated into the Romanian accounting curriculum. Hence we outlined a three-dimensional approach on using conceptual maps advantage for students: first is the fact that reflects their own knowledge at the beginning of an accounting course, second show the progress made during the course and finally helps students to synthesize information gained.

Keywords: Conceptual maps, accounting education, self-learning, skill competencies, curriculum

JEL classification: M41, I24

1. Introduction

Conceptual maps were developed in the 1970s by Joseph Novack and are tools of organizing and presenting knowledge. They rely on the theory of assimilation of new knowledge brought by Ausubel (1968). Acquire new knowledge theory assumes that every learner has a cognitive structure as a prior condition for acquisition of new ideas. On this basis, we find concepts (Novak & Gowin, 1984). A concept is a perceived regularity in events or objects captured, in most cases, by a word. The relations established between concepts are indicated by the lines and connecting words (Novak & Cañas, 2006). In addition, the concepts must be hierarchically arranged, at the top of the map being found the general ones, and the particular ones, on the lower part. The hierarchical structure is different from one field of knowledge to another and depends on the context in which they are considered knowledge. Once completed, they can be expanded to accommodate new concepts, thereby allowing individuals to add new knowledge to the existing ones (Passmore, 2004) and to build "a structure of interrelated concepts with several hierarchical levels, junctions and cross-linking" (Quinn et al., 2003).

It should be noted, however, that the use of conceptual maps is not simple. Since the textual representations are clearly favored in education, familiarization with a new way of knowledge representation based on graphic approach becomes difficult (Basque & Pudelko, 2004). Studies have shown that many types of knowledge confused subjects (Basque et al., 2003), fail to break down sentences in concepts and relationships between concepts or reverses relations (Faletti & Fisher, 1996).

The objective of this study is to provide a model for the use of conceptual maps in accounting courses. Conceptual map is a tool that significantly raises the amount of learning in the classroom. As teachers, we are challenged to change curricula and teaching methods. So knowing that this device has a profound psychological basis, in the documentation phase approach I relate these theories to accounting peculiarities as there are ways of learning that are specific to the economics, and within it is learned in different ways the management, the marketing etc. and other ways the accounting. The stakes, the implications are different, the interrelationships are different, and the issues are different. We intend to present some of the literature review on this issue and identify the principles and basic strategies.

2. Background of the study

Conceptual maps can capture the manner in which an individual perceives relations between things, ideas or people (White and Gunstone, 1992), solving problems he/she faces and use their memory. In the last 10 years, conceptual maps were used as tools to support meaningful learning / teaching eloquent in science and to help students and experts to represent and to visualize knowledge in a structured manner. (Novak, 2002). Through conceptual maps, trainees will be able to outsource their initial knowledge and combine them with new ones to rearrange and internalize the old ones and the new ones (Erdogan, 2009; Lim, Lee, and, Grabowski, 2009; Trundle and Bell, 2010). Akinsanya and Williams (2004) say the conceptual maps are effective tools for students to clarify their knowledge structures. Therefore, they encourage teachers to consider conceptual maps in order to design their course plans.

According to Novak & Cañas (quoted by Feleagă L., 2013) conceptual maps help students learn, researchers create new knowledge, structure and administrators to better manage their organizations, writers write and the evaluators to assess knowledge. Most studies aim at the educational applications of conceptual maps, as these tools inspire creativity (Chevrier and Charbonneau, 1992) and evaluate the effectiveness of learning (Strahan, 1989). Other studies use conceptual maps as tools for collecting and / or the method of data analysis.

According to Jackson and Troche (2002), they can be regarded as a suitable method for the analysis of responses to open-ended questions and questions referring to a conceptual scheme or a coded scale, in a shorter time and with greater analytical rigor, compared to other techniques. Also, we can identify studies that refer to practical use of conceptual maps. We mention here the development of expert systems, as well as capturing and storing know-how (Coffey and Hoffman, 2003)

Due to the popularity of information technology, the use of computerized maps concept became popular. Several previous studies have shown that students who learned using the computer system conceptual maps have better achievements than those who learned through traditional approaches (Kim & Olaciregui, 2008). Advantages of using the conceptual computerized maps include the ease to make corrections, flexibility and willingness to present the content, to promote interaction between teachers and students (Liu, Chen Chang, 2010; Reader and Hammond, 1994; Shin, Deno, Robinson and Marston, 2000).

Meanwhile, several studies have highlighted the importance of providing prompt feedback to students (Denton et al, 2008; Draper, 2009; Jordan and Mitchell, 2009; Li, Liu and Steckelberg, 2010). Unfortunately, although learning with conceptual maps looked

promising, the researchers pointed out a critical problem in using conceptual maps to support learning; that is, that an additional burden is placed on teachers who must assess individual maps drawn by students currently. Teachers need days or weeks to complete evaluation of the conceptual maps. Therefore, students cannot receive immediate feedback (Ingeç, 2009). Therefore, providing instant feedback and meaningful learning for complex tasks such as the development of conceptual maps has become an important and challenging issue (Denton et al, 2008; Hwang et al. 2010).

To cope with this problem, Wu (2011) developed a study that proposed a concept map oriented computer-based learning approach with real-time assessment and feedback instantly. So, having this immediate feedback, students can reflect and make amendments to conceptual maps. They should not wait for results of the evaluation of teachers before continuing the learning process.

In our country, Feleagă N. and Feleagă L. (2013) examined the relationship between gender and perception of ethics among students. The sample consists of 10 Romanian auditors, operating in one of the Big cabinets. Results demonstrated that men and women have different perspectives regarding how to define the ethics and the importance given to it in everyday life. These are but complementary perspectives, and audit firms can rely on the mixed nature of the teams to create a balance in terms of the degree of relationship and trust, both inside the cabinet and in the relationship with customers.

3. Proposal of a theoretical framework for the implementation of conceptual maps in the process of accounting education

While this notion is commonly used in the process of natural science education, it is less known in the academic accounting system of education. Their approach in terms of accounting education will enable us to evaluate the extent to which this method is appropriate for teaching and learning in this area. Regarding the use of conceptual maps in accounting, Jane D. Maas & Leaby (2005) provided a model for their use. Relying on their classroom experience, they affirm that such an experience was positive and extremely fruitful for the students involved. Similar concerns on this issue can be found to authors such as Irvine HJ (2006), Trébucq and Noel (2006) (2009), Jon Simon (2009).

As shown above in its simplest form, a concept map has the form of two concepts connected by a linking word, for example "Accounting is the language of business" which is a simple map on which a valid claim is made about the concepts "Accounting" and "business language". In this case, the art of outsourcing knowledge through drawings and diagrams in conceptual maps can be presented as follows:



Figure 1 Illustration of a simple concept map

Source: Own Projection

Key components of conceptual maps are interrelationships or the connecting words, two or more concepts linked by words that are regarded as one unit. The connecting words are usually related to action words explaining the meaning of the relationship. In the first stage of developing the skills, the related words may be less important than identifying the concepts. In Figure 1 linking word "is" is connecting the concepts "Accounting" and "business language" in a significant statement. Validity of the networking is also important. Ku (2014) integrates the ideas of conceptual maps in a dynamic model for evaluation of accounting education at secondary vocational high-school level. The results show that this system offers clear benefits for high-school students who learn accounting using traditional methods: paper and pencil. They also recommended a training session for both teachers and students for a successful implementation.

The method of the conceptual maps is versatile and brings added value that can be used in different ways in accounting courses, both in teaching and assimilation. The main idea of this paper is to use conceptual maps to implement this concept in education as a method applied in a specific educational unit, meaning accounting.

The chart below shows the three main points of convergence of the notion of conceptual maps, using this method directly in the classroom, as emerges from figure 2:



Figure 2. Conceptual maps triangle

Source: Own projection, inspired from MaasandLeauby (2005:84)

- as a planning way of teaching knowledge and provide a visual image of what is to learn and how knowledge interconnect between them
- as a way of learning and assimilation by reinforcing concepts learned in a teaching unit
- as a way of evaluation by a conceptual map that emphasizes the perception of this mode of learning

Using preset conceptual maps is good precisely because of accounting educators do not yet have enough experience and enough empirical data and published studies on this topic. This lack of experience is due to the long time that has to be allocated to the learning of this methodology, the effort to teach students to build their own conceptual maps and complex process of integrating these techniques in the teaching.

Using a preset conceptual drawing of maps will allow accounting educators to use a larger resource of time to implement them in the classroom, eliminating the need for each institution to do pioneering work for the same thing, both in terms of teachers and students. This base allows educators to take what directly fits their needs and generates ideas for creating and experimenting with conceptual maps for a purposeful learning. Entering conceptual maps ever since the introduction courses, allow students to develop a skill that can be used throughout the entire educational process and even after school.

3.1. Stages of implementation

In the following, we will try to give a concise picture of how the method of conceptual maps can be implemented and applied in the classroom. We will use some ready-made concept map, as the simplest way of introducing the concept mapping as a method of teaching / learning in accounting. As part of this process in stages, we will analyze how students are learning and are able to apply this technique, precisely because the greatest benefits and best results occur when using conceptual maps they create their own maps themselves.

The aim in using any conceptual maps is to help even further what was already taught by educator during the course. Students learn from many sources and environments, and fail to see the major beneficial impact that can have the use of conceptual maps in learning.

The first stage is to provide some guidance for the next steps, which is extremely important for the success of the exercise of using conceptual maps in the classroom. Thus, it is necessary during the semester for the planning to allocate some time for activities related to conceptual maps. The first step is that one should understand that the use of

conceptual maps takes time. To introduce this method to course, curricula must be prepared in advance. There is the possibility to skip some activities that were already planned or to use some time from the normal activities, in exchange for benefits that can be obtained from this approach. Also, in the curriculum development, we have to identify the key concepts of the module, to be subsequently used in the schematic representation.

A second stage would be to introduce students to the field of conceptual maps and presentation of the benefits you can get from learning the properties of this system. Using a ready-made concept map can provide a better picture at first sight and perspective, so students understand better the purpose and uses of maps, even before experiencing directly through exercise.

A third stage would be to create a concept map through a home-work subject in which students use concepts that are familiar to them, just to not feel limited by uncertainty of knowledge in a particular topic. Now they only need to understand how a conceptual map works by visually-representative and interconnection of schematic key concepts used in a relation. This approach is meant to make students feel comfortable with using drawing and schematic conceptual elements of a map before you go deeper into more complex topics related to accounting.

A home-work would be suitable for **the fourth stage**, only this time it must be chosen a simple concept in the field of accounting. This step enables students to familiarize themselves better with drawing a conceptual map in a familiar area by adding simple maps of accounting. These last two steps are designed to make students understand the conceptual mapping and give them confidence that a theme group on this issue can be achieved.

The fifth stage would be the formation of working groups on a specific topic to reach a unified conclusion. This requires advance preparation for this endeavor by placing the theme structure. The purpose of this exercise is to show a specific structure to the working groups, because students are still inexperienced in making conceptual maps. By identifying key components of the map, they will be able to organize their own thinking and to streamline the preparation mode. Ideally, it should not be placed any structure of the map, but this approach, though giving the most spectacular results, at the beginning, it may present a risk factor for confusion and failure. Therefore, to have a successful educational experience, the placement of structures requirement creates benchmarks for homework.

Mapping enables creativity of the students and expressiveness of conceptual ideas and concepts without having to formalize thoughts and phrases in sentences grammatically correct, as it is traditionally require a written work. Any working themes ask from the students to organize their ideas and to prepare their group map as soon as they start to learn from one another. This leads to better collaboration in knowledge representation and increase the degree of assimilation of what is to be learned. Such, information is facilitated, and also understanding and synthesis before being forgotten. The ongoing learning process equips students with the ability to obtain knowledge and skills that can then be used in many other ways. Some educators use conceptual maps as an evaluation tool, while others use them as a teaching tool or encourage students to use them in learning. Regarding our approach, activities related to the use of conceptual maps help students organize what they know and prepare better than traditionally taught homework, precisely because it facilitates structuring knowledge.

The sixth stage would be the assessment and qualitative assessment of the working groups, without going into too much detail. One of the concerns related to the use of such a group work is related to the topic of reporting to a module level scale. This scale is not structured; it is not made by itself, as if traditional. So, it is important to consider the big picture of the whole group activity based on quality, without going into too many details on the ideas or concepts emphasizing differences of each group or form. One has to consider some aspects of the execution to the end of the theme, or if all group members

participated equally and worked, if the conceptual map gives a clearer picture of the elements of the requirement, if ideas and concepts are valid situations.

A seventh stage would be to obtain a written feedback linked to work on conceptual maps. This approach requires total anonymity just to have an answer as valid as can be. Students should be asked whether they think it was helpful their participation in the working group that helped to focus better on their work and, not least, how this activity could be improved for next working group.

If they comply with these steps, students will be able to understand what it means to use conceptual maps, basically just by following a few simple steps in the non-accountant or accountant field, and will have a positive and educational experience in the working group. Of course, each class will be a different experience, and each educator will enrich his/her experience and their own level of comfort, especially to the extent that it is willing to spend more time on these activities, and this will dictate how much can and how much do students benefit from this approach.

3.2. Advantages versus constraints

While the benefits of using conceptual maps in introductory accounting courses seem obvious, yet there are several limitations that should not be overlooked. There are a limited number of situations in classroom hours that can be covered using course materials. As teachers, we already feel the pressure of the need to include much material from accounting specialists, to update with the increasing complexity of the subject, to add many other skills that our program emphasizes (oral and written communication, research skills, and worksheets).

The biggest constraint implied by the use of conceptual maps as a resource consists of time that trainers are willing to spend on this relevant educational process and development in learning this technique. Obviously, to use this innovative method we must rigorously plan our courses so as to allow more time for reflection during the semester.

Conceptual maps require a certain period of adjustment to the classroom to teach and give visible results. Once students learn with this method, they nevertheless need time to complete the task. To get the most from these skills, they need to be improved and used consistently throughout the course.

Planning and using of this kind of learning activities entails less coverage rates through textual information.

Another constraint arises from the very nature of the activities imposed by the use of conceptual maps. They are an individual and creative process that involves a high degree of seriousness and responsibility of the user. Although it was tried to develop a system of evaluation in this area, however no solution to express a quantitative manner in assessing a conceptual mapping exercise was found. The beauty of this method is given by the fact that each student or each group of students will achieve something different. This is due to the unique way in addressing personal thinking and free and creative approach to the same object / phenomenon. Thus, there may be a certain limitation in the ability of the instructor to accept and feel comfortable with this creative process, although they realize that students will create differently, though validly. In many respects, it is necessary that the instructor to develop more visually oriented abilities and encourage students' skills in creative work. Please note that not every instructor will feel comfortable in the use of this method in terms mentioned above.

4. Conclusion and future works

This approach suggests that the use of conceptual maps on the one hand, improves what students learn and on the other hand, is developing higher order skills qualifications required by the accounting profession.

This paper makes the following contributions to knowledge. First, it is added to a limited number of works that place conceptual map learning in the full accountant learning context.

Second, it is the first work in the Romanian context, showing that the conceptual maps can be used for both students and teachers in accounting education by promoting self-learning and skills for lifelong learning.

After Trébucq and Noel (2006), who had one of the rare initiatives of building conceptual maps in accounting with a connection to creative accounting, we wrote this theoretical approach to underpin a study that will be applied to students in the Romanian space to observe the extent to which the use of conceptual maps help structuring and consolidating accounting concepts. The quality of the work performed by the student will depend on the student's familiarity with this tool. Of course, they must be involved voluntarily, being finally able to produce representations that are products of their own reflections and not asystematic reproduction of the thinking of the teacher. So, our goal is that of bringing the student to acquire autonomy in thinking, critical and creative imagination, to enable him/her to resolve issues.

As next steps, we want the development of a research study to test the usefulness of this system of teaching and learning through conceptual maps among students in Romania.

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