



A Practical Model to improve the understanding of the information contained in the financial statements using the Visual Arts

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ABSTRACT

Financial reports are the end product of an accounting system that is aiming to provide useful information to users so that they can use this information in making economic decisions to take it. Unfortunately, in order to fulfill this goal in most cases, accountants neglected and presentations of information for the content. The main purpose of this paper is to present a new model for financial reporting that would somewhat increase the capacity to understand the information contained in the financial statements and the report looks to bring a new spirit. In this model is used Foundations of Visual Arts, the psychology of colors, aesthetic intelligence, financial analysts and fuzzy logic. In order to express the theoretical foundations and the introduction and explanation of each of the above combination of physical arts in accounting principles using the fuzzy model, was investigated. Finally is presented a theoretical model which aims to provide performance figures contained in the financial statements based on probabilities, using the principles of visual arts (including color and size) and color psychology. In addition to these financial statements in terms of form presentations to be removed from the case of formal. This method of reporting a new category innovative of accounting and financial reporting system.

Keyword:

Visual arts, aesthetics, psychology of colors, the ability to understand information, financial analysis and fuzzy logic

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INTRODUCTION

Accounting as one of the phenomena of society, the responsibility to provide information in the form of financial reports to its users. Readability and understandability of accounting reports is one of the issues that have been considered recently accounting. Some researchers believe that companies with better performance, understandable and legible reports to offer (Setaieish et al, 2011).

In recent years there is a strong tendency to use behavioral theories in accounting research. No such studies enriched accounting and it from a field of dry and quite tactical. This extensive research in various fields, according to the socio-political role of accounting in organizations and communities to examine the psychological factors that affect the preparation of financial statements has caused that they all accounting and environment interaction on one another. (Hofsted, 1987) In addition to this, to enhance understanding of the financial statements can be used other sciences such as psychology and art.

As mentioned above, one of the ways to increase the ability to understand financial reports from other sciences such as art. Art can be the simplest and most common case, an attempt to create delightfully defined forms. A subset of the arts, the visual arts or Visualization Art that sometimes it is also called, and specifically addressing the person's eyesight.

Emphasizing this is because usually images of objects, the closest and most true indication to understand their properties. So that by seeing the image of an object to understand what features and amenities, while hearing the name or description of the objects, their properties cannot be realized as it should be. As a result, we can say, the ability of human perception, pattern recognition and learning of facts and information, using images and illustrated the increase. (Hoseini Rad, 2013)

As well as the use of the information understandable financial reporting and the qualitative characteristics of decision-making affects so important that it has been able to obtain a good position in the hierarchy of quality properties (Financial Accounting Standards Board, 1980) So that this feature as a bridge between the user and the usefulness of information for decision-making.

This study, in the event of an attempt to provide new and innovative ways to apply using parameters such as financial analysts, trapezoidal fuzzy logic, aesthetics, Foundations of Visual Arts and Psychology of colors in financial reporting, So that using this model can be animated to traditional financial reporting, and to make readers with minimal ability to understand financial matters, to be able to make optimal use of financial reports.

Theoretical

Aesthetic

To describe the aesthetics, it can be said that the relation between art and philosophy have long been on the part of artists and art theorists and from thinkers and philosophers, is considered. In the meantime the other hand, some philosophers have considered philosophy enriches the art according to Art ignore them, On the other hand, some experts in the field of art, such as Barnett Newman, believe that artists "as need art to the theory that birds need to

science ornithological. But some moderate and accepted the contentious regardless of the motives and without trying to eliminate each other, from the reconciliation accordingly and the other with recognition and this is where the confluence of aesthetics and the reconciliation of philosophy and art is born (Ashtaynbavr, 2010).

Visual Arts

Visual arts, arts-based initiative that specifically addresses their vision and hence also referred to as visual arts or visit. In other words concepts that visual elements such as line, point, surface, shape, color, texture, etc. are expressed through the visual arts and received are understandable. Visualization capabilities and scalability, variability, develop imagination, having active elements such as point, line, area, volume, shape, texture, color and qualities such as balance, proportion, harmony and contrast, especially in painting are particulars that Can provide direct and immediate experience around the world, providing images created in the mind and emotional interaction with the environment affect the improvement of human character and behavior (Namee, 1371) In this paper, the color and size as two subsets of Foundations of Visual Arts, to increase intelligibility of the information contained in the financial statements have been used.

Color

Colors are a part of life of beings and especially human. The effect of color on human life is too fancy, just a color effect can be spiritual, work, fatigue, events, art and human perception observed. The color of the main factors determining the way in which humans interact with the environment through means that one of the determinants in the visual arts, especially painting and imaging. Color can transform the uniform space into a place of spirit and fundamental impact on the lives, feelings, works of art and its artists. In a sense, the color can be the richest, most compelling and most efficient element of eternal life and works of arts and Iran. (Mohseni and Nafari, 2000) colors used in this article is Light blue and hundreds whole red and green.

Volume

Objects with three dimensions: length, width and height or depth is called volume. Usually all the material things in nature is volume. Although some of them may have a thickness in addition to the length and width, depth or height, but very little volume that would occupy part of the space. In visual art in three dimensions be extended if a point or a segment move in a different direction, the embodiment of the volume. And therefore the visual arts and material volume may not always tangible but visually exist, in which case it can be said virtual volume (Hossene Rad, 2013).

Color Psychology

All men connected with its surrounding environment. This relationship, sometimes thinking, look at by touching, tasting, hearing, smelling or by seeing. humans see color their surroundings and the colors in their leaves traces, whether positive or negative. This effect may be physical or psychological in psychological dimension is clearer and more importantly.

Psychology of color, newly born science that examines the psychological effects of color on humans. Quran This world

is not bereft of human and taste of this science is of the fourteen centuries ago to his appetites.(Sharefi,2014) Psychology 3 colors used in this study is detailed in the following states.

Red: The color red has the longest wavelength due, stimulating color, physical and strong. It is this feature that is closer than it seems at first to draw attention to herself. That is why at traffic lights and alarms the world of the colors used.

Blue: blue is soothing the mind and basically color such as red rather than a physical effect that effects on the mind. Dark blue stimuli clear thinking and light blue leads to peace of mind and invites to silence. Such as red, blue objects do not seem closer.

Green: When the green in front of the eye, no need to adjust the balance and other things, so the color is rich in comfort. However, they would be creating a balance of colors in the spectrum. Around the world contains a lot of green paint, water and low risk of famine, the most important is the concept of green color to people's confidence.(Color and Imaging Institute,2004)

Visual arts, spectrum and psychology colors

Visual Arts understand the rules and principles governing the events and due to the effects of colors can invent scenarios that affect perception and behavior. Itten1974 It is believed that the color of life, because the world is without color seems dead, colors and have the ability to communicate with their enormous power despite the significant facts of the day. Elliot and Maier2007 Believe that colors can affect the permanent human learning systems, leading to better understanding and easier to get information. The following principles should also be noted that in the psychology of colors.

- 1- The colors can express a process.
- 2 The color effects are impulses (colors to be brace.(
- 3 .Automatic color psychology is to stimulate operators.
- 4 .the meaning and influence of colors is understand.

The ability to understand information

Information deemed to be understandable for ordinary users who have a reasonable knowledge of accounting, they are understandable. And possibly operations and financial events in plain language and common terms describe. An important factor in the understandability of financial information, how to deliver them. This means that the information provided is properly classified. At the same time should provide complex information that can be useful for decision makers under the pretext of difficulty of understanding by some users, regardless of the provider although most complex information simply must try as much as possible be respected (Meshki and Moghadam,2006).

Financial Analysts

The Financial Analysts are the manner in which financial information makes it possible for users to access information when making decisions for economic purposes, it is also a specific way, achieved through existing information systems, poor access to them. So professional skill, has reasonably be provided the necessary information to make decisions. Detailed figures are items in the financial statements has made it necessary to conduct financial analysis are summarized in the form of figures, analysis and

interpretation and increase their ability to exploit(Niko maram et al,2002) In this paper, using financial ratios and financial analysis, vertical analysis, is used.

Fuzzy Logic

The major common tools for modeling, reasoning and computation of definite, certain, well-defined. The certainty of the two is part of the Yes or No, instead of more or less. In conventional binary logic, a statement can be true or false. But thoughts and feelings of humans or get involve concepts that people use words to express them is not enough. If the power of a living language to be compared with a logical language, logical language would be poorer. So, mapping one of the issues and systems using the language of arithmetic or logic not possible(Niakan,2013) Fuzzy logic is considered the easiest to define "fuzzy logic rather than answer a question correctly or incorrectly divided into two parts (the Aristotelian binary logic), originally developed a range in between is the answer. Common examples, there are shades of gray between black and white in color range.(Kordestani and Rahimi,2009) In this paper, color and size on the financial statements are used the trapezoidal membership functions.

Beautiful place of the information


According to the proposed definition of aesthetics in order to extend the range of information can be stated as follows. primary level, where only a trend curves are used to represent information Easier. Basically, this method presents annual financial statements as additional information became known, sometimes in the form of tables and graphs are presented. In Iran presentation of information in the report, which is primarily the function of the Board of Directors on an annual basis and is prepared to provide this information to the General Assembly the same level . Basically, this information is known Infographics. The middle level involves the application of information designed. At this level of information to increase comfort and ease of use art to be employed. For example, for lack of a sense of fatigue and design defects related to case. This Information Design designed to say. The final level degree encompasses the provision of information that it tries to use all-round visual arts in order to enliven the information. At this level of art in order to provide better information is used In other words, the level of shapes, designs and colors and have information content potentially replace text and phrases. This level of visual arts or visual aesthetics is said. This research aims to illustrate the application of the final level of aesthetics in corporate finance reports. Foundations of Visual Arts, which tries to use part of the information content of the financial statements without the transfer of text and phrases. This level of aesthetics is very useful in the environment, but still its original position is not in financial reports and accounting information systems. For example, green leaf Customs and transit of goods means the legal authorization and the absence of a constitutional prohibition to enter or exit of goods, regardless of the type of product is, how is how to transit, and ... another example of the application of the principles of visual arts, the color of the traffic lights. When drivers encounter a red light means that in order to respect the rights of others, to maintain order and respect for commuting and maintain your health, you should stop moving. Therefore red traffic lights have information content is to users(Setayesh et al,2011)

The effect illustrated and use of visual arts on the intelligibility of information

The ability of human perception, pattern recognition and learning of people using images and illustrations of facts and information increases. In other words, the information visible through the visual arts could lead to increased understanding of information. In other words, when the data

illustrated or designed on the basis of a certain color spectrum, will be providing that lead to part of the information content available prior to visualization only with study tables and taxes may be written description in the forms of STI policies, can now be induced using colors to users.

Table 1: spectrum for tax reporting

The volume of interest (5 houses)	Color	Kind of
The greater the number of columns are more color (green)	Whole green	good
Always 5 house is color (aqua)		Normal
The bad greater the number of columns are more color (red)		Bad

Research modeling

In this study, the trapezoidal membership functions are used to stain analysis of financial reports. Trapezoidal fuzzy model used in the study is symmetrical trapezoidal fuzzy. As mentioned in chapter two, trapezoidal fuzzy number is composed of four core boundaries are fuzzy. In this study, the mean and standard deviation analysis of financial reports for each of the foundations of fuzzy. The main research is necessary before the speech model divides done on a

trapezoidal membership functions explained. On the basis of a trapezoidal membership functions, 5 ranges is composed as follows:

1. Fuzzy core (b-c)
2. Right border(c-d)
3. Left brain(a-b)
4. out of range (d-∞+)
5. out of range(-∞-a)

Mentioned range on trapezoidal fuzzy membership function, shown in Figure 1.

$$\mu_A(x; a, b, c, d) = \begin{cases} 0 & x < a \\ 1 - \frac{x-a}{b-a} & a \leq x \leq b \\ 1 & b \leq x \leq c \\ 1 - \frac{d-x}{d-c} & c \leq x \leq d \\ 0 & x > d \end{cases}$$

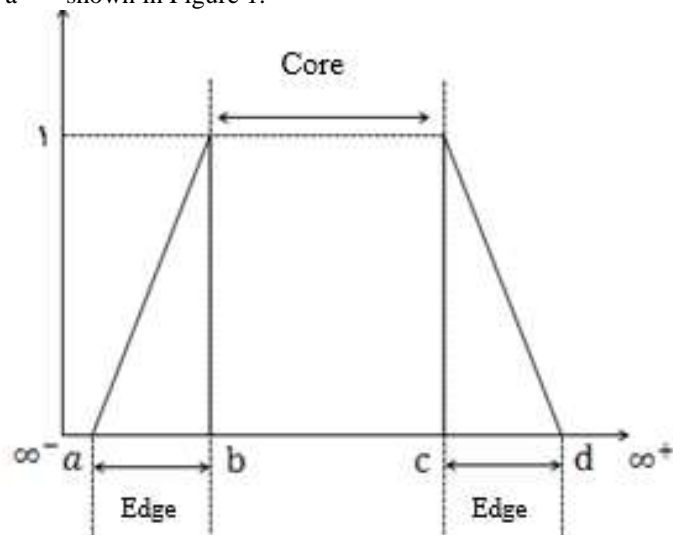


Figure1- View on trapezoidal fuzzy membership function and scope of the study (Famarzyan et al, 2011)
The main models that use is made of the experts and for researchers, as given below:

Formula 1: the model (self-made)

$$c \begin{cases} a = \mu - 3\sigma \\ b = \mu - .5\sigma \\ = \mu + .5\sigma \\ d = \mu + 3\sigma \end{cases}$$

Average: One of the crucial issues in statistics is calculate the value of a large mass concrete presentation of information and statistical data.(Tabibee et al,2013) So, to summarize and present data and a better understanding used of the core index. Average values in addition to the overall level indicator, represents the size of the groups are set which can be determined by comparing them with each set was similar, and thus the relationship between the variables examined(Moheb and Askare,2011) Posts addition to what was mentioned as the industry average and is also used in this study is also being used in the same way.

SD: The bulk of statistical methods to determine the extent and distribution or calculate the correlation of different statistical distributions variables (Tabibee et al, 2013) One of the most important and valid measures of dispersion and variability data, standard deviation and standard deviation of the average reported in the literature (Moheb and Askare, 2011) SD is one of the most important ways to measure the deviation statistical values is in the social sciences. In fact, without the use of standard deviation judgments about data specifications subject is not possible (Tabibee et al, 2013) With so much was that the standard deviation, SD in this study to measure the error rate than the industry average and is used to determine the core and trapezoidal fuzzy boundaries.

Multiplied by the standard deviation in 0.5 kernels due to the smaller and larger phase of its borders. This action due to a more sensitive model to illustrate good and bad conditions. The third reason is that the majority multiplied

by the standard deviation in the data analysis phase of the financial reports for the color and off-limits data to minimize.

For fuzzy color range and color range of 3 green, blue and red is used as follows:

- 1- Nuclear phase: all figures are in the range that has a membership degree 1 and tend to take blue.
- 2- Border-right-left figures with membership degree between 0 to 1 the two ranges based on expert opinion that goes on in this have to be perfect, to have a range of green or red.
- 3- Out of Bounds: The numbers are not in any of the above data are considered out of range and not representing any color with black and membership grade, are shown.

The following figure (self-made) color ranges are as follows:

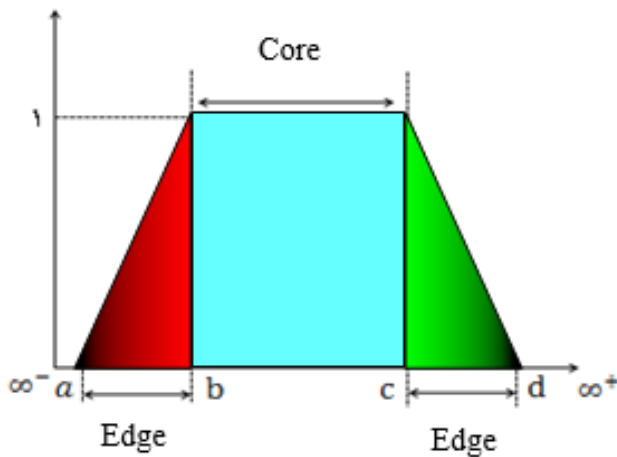


Figure3- Color ranges for figures to more of them the better.

Description of each color and how to use them in the programming model is given.

Reference

Abdul Majid Hosseini Rad (2013). Foundations of Visual Arts, Tehran, Iran publishing textbooks.
 Color and Imaging Institute, (2004), The Psychology of Color (color effect system), sponsored by careful research to test theories Angela Wright.
 Hofstede, Geert, (1987). The cultural context of an accounting in business, an accounting and culture, American Accounting Association, 1-11.124.
 Helweg-Larsen R, Helweg-Larsen E, (2007). Business visualization, a new way to communicate financial information, Emerald Group Publishing Limited, Vol. 8, No. 4. pp 283-292.
 Elliot A, and Maier M, (2007). Color and Psychological Functioning, Current Directions In Psychological Science, Association for psychological science, Vol,16, Number 5.
 Itten, Johannes, (1974). The Art of Color, The Subjective Experience and Objective Rationale of Color, 1st Edition, John Wiley & Sons.

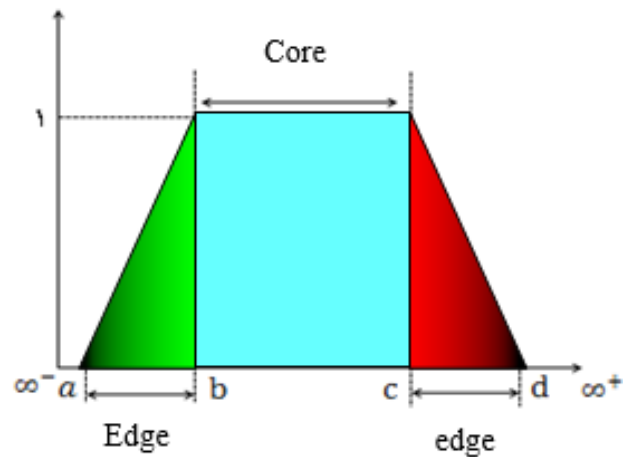


Figure2- Their color ranges to varieties that less is better.

Illbagi, Elham (2001). Artist and social reality of the current Iranian society, with an emphasis on the visual arts, master's thesis, Tarbiat Modarres University.
 Kurdistan Gholam Reza, Rahimi M., (2009). Application of Fuzzy Logic in accounting and financial decisions, the auditor Magazine, Issue 47.
 Moheb Ihsan, Askari B, (2011). Practical application of statistics in scientific method, Shiraz, Ahvaz Islamic Azad University.
 Mohseni, H, Nafari B., (2000). General information Arts, Tehran, publisher of chastity.
 Meshki Mahdi, Moghadam, Abdolkarim, (2006). Intermediate Accounting 1, Tehran, Payam Noor University Press.
 Nami G., (1992). Foundations of Visual Arts, Tehran, Toos Publications.
 Niakan Leyli, (2013). The use of fuzzy logic, neural networks and genetic algorithms in the insurance industry, Insurance Research, Case Report No. 19.

Nikomaram Hashem, Fereydoon Roodposhti ,Heybati,F. (2002). Fundamentals of Financial Management, Volume 1, Tehran, Press cashmere.

Shtanbaver, mania, (2010). Reflections about the aesthetics and philosophy, the newspaper the Nation.

Setayesh MH, jamalian Poor (s) and Jamali Zainab M., (2011). A model to enhance the understanding of the information contained in the financial statements using the Visual Arts, Proceedings of Ninth National Congress of Accounting, University of Sistan and Baluchestan.

Sharif Ali, (2014). The color of the Quran, Hadith and psychology, two extension Qur'an and Science Journal, Issue 14.

Tabibi Syed Jamal Uddin, Mohammad Maleki, Delgoshaei B., (2013). Composing dissertations, essays, research projects and scientific papers, Fourth Edition, Tehran, Diba.