Ergonomic Design Of The Mental And Stereotyped Image As A Source To Guide The Behaviour Of Individuals

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Abstract

The present study tackles ergonomics of designing mental and stereotyped images as a source for guiding the behaviour of individuals. Ergonomics is a science that is concerned with the engineering of things, which is an important concept in designing mental and stereotyped images. The present study also tackles the scientific foundations and starting points for these concepts and the effectiveness of their role in framing and directing the behaviour of the individual within society. The research problem of the present study is represented in the following question; To what extent can the concept of ergonomics contribute to the design of mental and stereotyped images in order to direct the behaviour of individuals?

The present study is divided into three sections. Section one represents the methodology of the present study. Section two presents the theoretical framework, which in turn includes four subsections. It sheds light on the design and the mental and stereotyped image. This section is concluded with the indicators of the theoretical framework. Section three embodies the research procedures, results, conclusions, and references.

Keywords: Ergonomics, Mental Images, Stereotyped Images, Design.

Section One

The Methodological Framework

Problem Statement

Social media platforms and digital websites have become a wide space for collections of advertisements. They have also become processes that directly and indirectly affect the behaviour of individuals, especially the addiction of societies to the daily use of those websites and electronic practices, which made it subject to continuous influence. Many media organizations and Those of a security and military nature are aware of the effectiveness of this matter and the extent of the dangers that an individual in society may be exposed to through it. Such organizations have invested them well to reach their set goals.

Image moulding is among what the individual is exposed to on a daily basis. This forms a stereotyped image in people's minds and consolidates it in some way to result in what is called the mental image, which often represents false impressions about reality.

Before proceeding to address the science of ergonomics, it is important to state the need for the present study and the justifications for its uses of that science within its framework, which starts from the conceptual strategies on which the science of ergonomics is based, which is the engineering of things in accordance with man on the psychological and physiological level. Since the mental image means The presence of the image of the thing or the formation of its image in the mind, it needs mechanisms and concepts that establish and engineer that meaning in accordance with the mechanics of the eye and the brain.

Ergonomics has also been used in various fields such as the design of furniture and its proportionality with the lengths of parts of the human body that results in comfort and luxury for man, as well as in the engineering of human factors, performance, work rules, and psychology, while the term mental image originally dates back to a Latin word (IMAGE) related to the verb (IMITARI), which means simulates or represents. Although the linguistic meaning of the mental image indicates simulation and representation, its physical meaning is reflection or mental impression, but this impression or physical reflection is not a complete reflection, but it is a partial reflection. The image reflected by the mirror does not show only the front side of the reversed shape, while the rest of the angles remain un reflected, so it is a partial reflection and it is a limited perception that a person keeps in his/her mind about a matter. This perception reduces many details in one scene.

Many advertising institutions invest these concepts in their promotional campaigns and advertisements, with the aim of influencing the recipient and the resulting behaviour. It is a product of thinking, which is related to the mind and the brain, so the latter is considered a target for those institutions to win him/her over and change his/her attitudes. Based upon, the problem statement of the present study is revealed in the following question;

To what extent can the concept of ergonomics contribute to the design of mental and stereotyped images in order to direct the behaviour of individuals?

Objectives of the Study

1. Revealing the scientific concepts and starting points of the science of ergonomics.

2. Identifying the concept of mental and stereotyped image.

3. Verifying the role of ergonomics in designing mental and stereotypical images in order to direct the behaviour of individuals.

Significance of the Study

1. The present study provides an understanding of the science of ergonomics that is not thoroughly dealt with by researchers.

2. The present study contributes to making advertisement accomplish its purpose in an effective and real way.

3. The present study improves the discourse dialogue between the sender and the recipient in an attempt to frame the behaviour of individuals.

4. The present study raises the level of performance of the designers of the mental and stereotyped image.

5. The present study contributes to the development of the field of design and advertising in the Faculty of Fine Arts, advertising institutions and related parties.

6. The present study accomplishes the completion of multiple research aspects in the same field.

7. The present study provides a statement of connection and confirmation of the role of design and its effectiveness in the overall facilities of human life.

Limits of the Study

1. The Objective Limits; Directed cartoons that are of a political nature.

2. The Temporal and Spatial Limits; It is possible to display images in multiple and different times and places on the Internet, so the researcher avoided defining them spatially and temporally according to that concept, but he defines them in general on the Internet, as it is the general virtual world that has no limits.

Definition of Key Terms

1. Ergonomics

It is a science that is concerned with the study of performance improvement systems and the best interaction factors in the work environment and their suitability for the characteristics of human beings and their capabilities (Brider, 2003). Others define it as a specialty that provides basic theoretical understanding of interaction and performance in targeted social and technical systems. It is also the application of this concept with designs in the context of real settings in different fields of knowledge (Wilson, 2000).

It is also defined as an applied science that is concerned with the design and arrangement of things that people use with more interaction and the highest degree of efficiency. It is also called biotechnology and human engineering (merriam-webster.com).

Procedurally, it is a science that emphasizes the engineering of work rules and the need to take into account the characteristics of people and their capabilities in an attempt to design things to achieve interaction and improve performance in the work environment.

2. Mental Images

It is a conceptual representation and coordination of the content of thought (Pylyshyn, 2003). It is also known as an abstract representation or a deep statement that is either true or false. It is often confirmed through language, but in itself, it is not linguistic (Wicker, 1978).

Procedurally, it is what an individual can feel, hear, see, or taste in his/her mind. It is a cognitive process that represents reality through multisensory mental images or representations of perceived things that are remembered from a specific point of view. It is also the ability to create mental representations without a perceptible stimulus.

Section Two

The Theoretical Framework

First: Ergonomics

Its name derives from a Greek word consisting of two syllables, the first (Ergo) meaning work and the second (nomos) meaning laws or rules. However, there are synonymous uses of the word ergonomics such as (Human Engineering), (Human Factors), (Human Factors Engineering), (Human Performance Engineering), (Engineering Psychology), and (Human Factors Psychology). It is concerned with the study of human interaction with the elements of its environment. It gives it its first interests. Some scholars consider it as a science that is concerned with human engineering. It even has a close connection with psychology.

The Concept of Ergonomics

In 2000, the International Association of Ergonomics (I.E.A.) developed a definition in which it describes that specialty that is concerned with understanding the relationship between man and the rest of the elements of the system through the application of theories, principles, data and scientific methods in order to achieve the best level of well-being for the individual at all levels (Tambout, 2017).

In particular, it adopts the study of action and thinking and its repercussions on the action and behaviour of man in his/her mind and movement as well as his/her feeling with the aim of achieving a better performance. It is an applied science that is concerned with the characteristics and capabilities of individuals, taking them into consideration when designing, modifying and organizing things in order to improve the interaction between individuals and their requirements (Lamya, 2012).

Goals of Ergonomics

One of the most prominent goals of ergonomics is to adapt the work of the worker, the work environment, and its conditions in proportion to the work activity based on scientific knowledge regarding the individual and the work. The aim of knowing the elements related to the individual lies in knowing the effects of work on individuals and the reasons that led to that. There are five types of ergonomics, including physical, cognitive, affective, epidemiological, and organizational. Affective or emotional ergonomics, which is more related to this study, is concerned with the effect of different emotions on the way the

individual interacts with his/her surroundings, such as contentment, love, anxiety, frustration, and confusion to determine what a person accepts or rejects (Tambout, 2017).

Second: Mental and Stereotyped Image

Through the performance of its psychological and social functions, the mental image plays a major role in forming and directing public opinion. It is the source of people's opinions, attitudes, and behaviour. It is of two types; the individual experience based image and the what others say based image. It is basically suitable for explaining many influence operations that target the human mind. It refers to a simulation of a sensory experience associated with certain emotions. It is also a recall of what memory has stored or an imagination of what it has realized.

The Concept of Moulding and Shaping the Mental and Stereotyped Image

Man often cannot have an awareness of his/her whole world, so he/she resorts to forming an acceptable image from his/her imagination about that world, which he/she cannot perceive through direct experience, due to the limited time in life and the limited opportunities available for direct personal acquaintance. Hence, the mental image is nothing but a simplified representation for an unreal environment. It is just a common image carried by a group of individuals. It often consists of a simplified, incomplete, or even distorted opinion, in an emotional position about a person, an issue, or an event (Al-Jubouri, 2010).

Despite this, the mental image can be forgotten, modified, or even reconsidered with the passage of time, due to its reliance on imagination in the first place. There is no doubt that the ease or difficulty of change depends on whether or not the public's mental image is firmly established.

Through this, the mental image can be distinguished from the stereotyped image, despite the similarity of the function of each of them. The first is done through the person him/herself, that is, it is from the imagination of the individual and is the product of his/her previous experiences. As for the stereotyped image, it is made by a source about an individual or a community. It is done through a process that is called moulding, as shown in Figures (1,2,3).

https://www.youtube.com/watch?v=cuLT346aKf0&ab_channel=KhalilAboAlkol

The United States of America exposed some children to some arithmetic problems in order to teach them mathematics. "If we do not use our nuclear bombs against Russia in the near future, Russia will be determined to direct its nuclear bombs and use them against us. Then, there is a possibility that 60 Americans out of 80 will die, and the rest will be seriously wounded as a result of that attack. So, what is the percentage of the people who will die in our city as a result of the detonation of those Russian bombs?" (Rizq, 1994). The United States of America wanted to form a bad mental image of the Soviet Union among children, establishing the idea that the Soviets are enemies and must be fought in any way. Finally, the mental image results in three elements, including intellectual bias, intellectual intolerance, generalization.

Third: The Relationship between Mental Image and Influence and Intellectual Bias

Persuasion is a process of enhancing or changing attitudes, beliefs, and behaviour. The response is divided into two parts, including after thinking, without thinking. In the first, the response takes place on analysis, questioning, inference, and research into the depths of the allegation. In the second, it takes place unconsciously. This section relies on mental brevity and instincts to get the key to the answer, as well as on simple clues and the attractiveness of the speaker and the reactions of friends' emotions by accepting the evidence (Millaz, 2001).

There is a relationship between belief, attitude, and behaviour. The attitude is the directive or the mastermind of the behaviour. If an individual's belief about an issue is changed, then his/her attitude towards it and then his/her behaviour and actions can be changed by urging thinking and logical analysis and providing sufficient information to take a position or a decision after providing individuals with information in which the illusion mixes with the truth in a way that is difficult for the average person to distinguish (Wannas, 2022) as in Figure (4).

https://www.google.com

Some behaviours arise in individuals as a result of melding images and forming mental and stereotyped images after disturbing their healthy minds to make unsound decisions by influencing their thinking, which results in many things, the most prominent of which is what is called (intellectual bias), which makes the individual think in an uncharacteristic way. Objectively or logically, it necessitates focusing only on everything that supports the ideas of the individual or the group, what they believe in, and what confirms its validity, and ignore everything that contradicts that involuntarily or unintentionally. This is one of the most important manifestations of intellectual bias.

Bias occurs in the simple, educated individual, and even scholars. It also occurs at the level of the individual, the group or the larger society, and even the state and its authority and everything that goes in its orbit, but it cannot be considered a fixed concept. It is rather a set

of concepts that are manifested in the form of texts, perceptions, and representations (Jumaa,2019). In its essence, the intellectual bias is a pattern of thinking that is close to the self and confines itself and locks it in a specific method. It does not approach things except through vision and statements and employs all the data in order to confirm the validity of those beliefs (Ibrahim, 2004).

Fourth: Design, Mental Image, and Stereotypes

Design is a creative work that fulfils its purpose. It is a complete process of planning something and creating it in a satisfactory manner from a functional, utilitarian, and aesthetic point of view at the same time (Shawqi, 2005). It does not mean decorating as some understand it, but it is a matter of great importance in human life because of its role in organizing life and making it more effective and luxurious.

This appears evident in the advertising and promotion processes used in various forms and situations. The designer targets the consumer, trying to entice him/her and persuade him/her in a product, regardless of the product's quality, characteristics, and advantages. The designer neither tells the truth nor lies, so he/she must have the ability to create needs, direct tastes, and look at the product with the eyes of the consumer, not with his/her eye (Bingrad, 2006). The designer must pay attention to the importance of exploration and disclosure of the needs of that consumer as starting points and foundations on which to build all his/her plans.

Mercedes-Benz used insinuation to form a mental image of the recipient when it published an advertisement in which it thanked (BMW) for a hundred years of competition, in which it expressed its boredom at the lack of a competitor in the thirty years preceding that hundred years. Indirectly, customers understand that it is older than its competitor (BMW) by thirty years, as an indication of the age of experience and depth of experience, which increases customers' confidence in it as shown in Figure (5).

https://www.arabi21.com
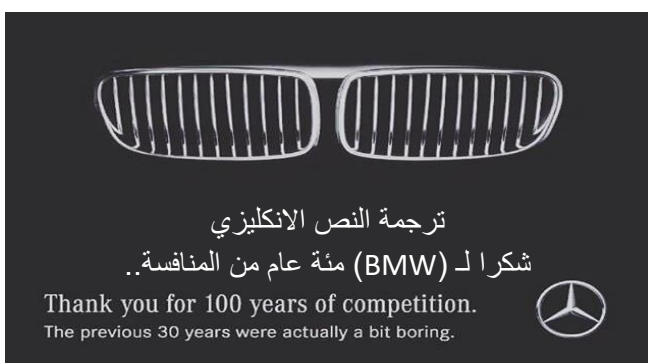
This advertisement is one of the convincing evidences of the quality of (Mercedes), which contributes to the formation of a mental image among the recipients that the most luxurious car brands such as (BMW) are of lower quality than the (Mercedes) car, because this result represents the outcome of analysis and self-discovery for the recipient without coercion, which makes it a sure belief. By nature, man tends to the results that are reached and given absolute reliability.

The (BMW) company also invested in Halloween, in which people used to dress up in the clothes of their heroes. It wrote "Mercedes can dress up in the clothes of its superheroes on Halloween". It published a picture of Mercedes covered by a cover of cloth printed with the shape of (BMW) As shown in Figure (6).

Indicators of the Theoretical Framework

1. The science of ergonomics is concerned with understanding the relationship between man and the rest of the elements of his/her surroundings in proportion to work activity and based on scientific knowledge, as well as studying work and thinking and their repercussions on human action and behaviour in both his/her mind and movement as well as his/her feeling.

2. There are five types of ergonomics, including physical, cognitive, affective, epidemiological, and organizational. The affective or emotional is what is most related to this study.

3. Through its psychological and social functions, the mental image plays a major role in forming and directing public opinion. It represents the source of people's opinions, attitudes, and behaviour.

4. The mental image is of two types; the individual experience based image and the what others say based image.

5. Mental images provide an explanation for many of the influence operations that target the human mind. They refer to a simulation of a sensory experience associated with certain emotions. It is also a recall of what memory has stored or an imagination of what it has realized.

6. The mental image is nothing but a simplified representation of an unreal environment. It is just a common image held by a group of individuals. It often consists of a simplified, incomplete or even distorted opinion in an emotional position regarding a person, an issue, or an event.

7. The mental image is created by the person him/herself, that is, it is from the imagination of the individual. It is a product of his/her previous experiences. As for the stereotyped image, it is made by a source regarding an individual or a society. It takes place through a process called melding and falsifying facts in a way that seems logical.

8. Persuasion is a process of enhancing or changing attitudes, beliefs, and behaviour. The response is divided into two parts, including after thinking and without thinking.

9. There is a relationship between belief, attitude, and behaviour. The attitude is the directive or the mastermind of behaviour. If an individual's belief about an issue is changed, then his/her attitude towards it can be changed, and then his/her behaviour and actions, through

urging thinking and logical analysis and providing sufficient information to take a stand or a decision.

Section Three

The Study Procedures

First: Study Population

The researcher reviewed the available drawings designed from those related to the research population and what is presented in the communication platforms and websites, which are specifically studied in relation to the mental and stereotyped image. Due to the large numbers of the population and the inability to count them, the researcher identified the sample in a way that covers the objectives of the present study.

Second: Study Sample

After the researcher completed the indicators that the theoretical framework of the research concluded, he selected the research sample and classified it according to its type as stated in the limits of the present study. It was intentionally melded according to its topics and importance with its relevance to the objectives of the present study according to the following justifications:

A. The designs chosen in terms of their methods and mechanism of operation give an opportunity to reveal the performance factors in their used designs in light of the engineering of their design foundations.

B. The diversity of the selected models in terms of type and purpose.

Third: Study Tool

In order to obtain the objectives of the present study and reveal the scientific concepts and starting points of ergonomics in designing mental and stereotyped images to identify the concept of mental and stereotyped images and to verify the role of ergonomics in designing mental and stereotyped images in order to direct the behaviour of individuals, the researcher adopted the indicators that the theoretical framework concluded as benchmarks for the research tool.

Fourth: Study Methodology

The present study adopts the descriptive analytical approach. This study is done in one section, which includes the theoretical sides and the analytical study.

1. The Theoretical Side

Tracking the ergonomic foundations and starting points used in the designs of mental and stereotyped images directed at a political nature, through the concepts presented by modern and contemporary research and theories, including influence, persuasion, melding images, the collective mind, framing behaviour, eye and brain mechanics, which are supposed to be

based on the designs of mental and stereotyped images to determine the used ergonomic factors that have become an effective contributing cause in guiding the behaviour of individuals.

The fact that design in general is a process based on scientific and artistic principles that are consistent with the mechanics of the senses and the functions of the individual's body in society, and that it is also a planning process that precedes implementation, aiming to produce ideas with a philosophy that suits the need of the times, through what is decided by the concepts provided by scientific theories And recent studies, to set the correct standards for designs in such situations in particular, the researcher conducted a theoretical study in light of the foregoing principles by addressing the premises provided by scientific theories and the concepts that contributed to the advancement of ways of thinking and planning through which the design of mental and stereotyped images is seen to clarify the importance of this concept in the performance of its functional purpose.

2. The Practical Side

The present study is an attempt to reveal the ergonomics of design and its role in shaping mental and stereotyped images, the possibilities of investing it in guiding the behaviour of individuals through analysing a sample of the aforementioned designs, with the help of the "Photoshop" program, which allows and facilitates this in order to verify the concepts that must be adopted In achieving the objectives and functions of these designs.

This included analysing the selected samples to monitor the correct scientific criteria that are based on the concepts of theories and contemporary studies, with regard to designing mental and stereotypical images, in line with making those designs have the ability to direct the behaviour of individuals effectively, through what has been reached and approached by modern and contemporary scientific foundations, principles, and concepts.

Based upon, the study reviews those samples whose structure has been analysed in order to explore and reveal the aforementioned ergonomics of the design as follows:

Fifth: Analysing the Study Samples

Sample (1)

https://www.facebook.com/arabsenlightenment/posts

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aviour Of Individuals

Analysing the Elements of Sample (1)

After analysing the elements of this sample, it was established that it contained eight elements divided into two clouds, each containing texts in the Arabic language, a sword with circular motion lines, with a severed head, a pen, books and an engineering ruler, as well as a picture of a bearded man in an Arab-Islamic dress with angry features.

Description and Analysis

This sample embodies the processes of image melding that target the heritage and belief of the Arab individual due to its importance in the Islamic society, where religion is one of the most important sources of morality and commitment to human dealings. Therefore, the attempt to disintegrate and make foolish this aspect will be important for the hostile institutions that aspire to destabilize the Arab countries by reformulating religion and advertising it in ways that fall short of reality, which are based on falsification and logical illusion. The process of repeating this type of image contributes to the consolidation of mental images for the recipient that have a role in striking all the values of individuals, which would make everything available to him/her. This is done in engineering the image elements in an ergonomic way that addresses the brain logically as follows:

1. Choosing a civilized man. The evidence for that is what he wears in terms of clothes and shaving his beard. The process of merging the tools of science and knowledge with the image of a civilized man is only a process of logical formation for such a man to use the language of dialogue and understanding, which is what normal individuals should be. in the community as shown in this picture.

2. The clergyman was embodied through the costume and the long chin. He was presented in an angry manner just because of his question in order to give him a characteristic of nervousness and lack of understanding. The presence of the sword makes the recipient summon what has been memorized of sayings, conversations, ayahs, and positions that allow the killing process from the unconscious stock. Therefore, the act of beheading is not a new act for this religion or for those who represent it, so they have a legal justification for that. The aim of all this is to show Islam as a religion that is not characterized by flexibility, mercy, understanding, and the language of dialogue. On the contrary, it is portrayed as the religion of terrorism, the religion of exclusion and killing as shown by this stereotyped image.

3. The aim of forming that stereotypical mental image is to blow up the most important social control of the individual, whose oversight effectiveness stems from the heart and faith of the individual from within, without supervision or guidance through the teachings of his religion, which has always urged mercy, harmony, tolerance, cohesion, societal discipline, and the shaking of trust between the individuals and raising doubts about their beliefs in order to facilitate political control over society in one way or another.

Sample (2)

Description and Analysis of Sample (2)

This sample embodies a process of image melding, which attempts to create strife between sects and popular unrest by doing a partial reflection of the image of reality. It sheds light on part of the truth. This image includes creating a kind of ideological connection between the one sect in both states, especially since the formation of the flags in the form of a land and a gate, a meaning that may be the basis for revolution, discontent, or even despair with those who lead the country, because it carries important political meanings, such as that whoever draws the political map of the country is not the country's leaders.

Sample (3)

https://www.alwatanvoice.com

Analysing the Elements of Sample (3)

After analysing the elements of the image, it was found that it contains twenty elements. The background in desert colour represents one of those elements, three phrases in black and one in red in Arabic, and four elements embodied in familiarity with the image of the official who sits behind the desk and books, as well as two elements that form the trash can and the files inside it, and one element The last embodiment of the dollar coin, and the image of a person wearing a brown suit running over the coin, and seven figures standing in front of the office divided into five men of different and multiple ages and two women, one of whom is elderly and the other is middle-aged.

Description and Analysis of the Sample (3)

At first glance, it seems that this type of image is concerned with administrative corruption and bribery, that is, it is critical in this regard, but the purpose behind it is political, and its aim is to stir up individuals within society. The selected elements of characters, colours, movement positions, and local costumes are all engineered in a way that works on excitement. The obesity that appears in the form of the official indicates satiety and luxury. The elegant dress indicates wealth and abundance of money, which is reinforced by the presence of the dollar currency and its access to it in the form formulated in the picture.

In addition, lining up people in a way that is dominated by fatigue, boredom, and weakness, and those ages that would remind the recipient of his mother, wife, condition, or even his father, have a role in arousing the recipient's anger. The manifestation of ergonomics is evident in this scene, either passing the man who took the dollar as a crossing or a bridge To reach the official, it is provocative behaviour for the general public, especially since the background of the image, which has an earthy colour, gives rise to a feeling of heat, dust, and the deterioration of the situation in the place, in addition to the phrase contained (spend your needs in dollars), as well as the trash that indicates the neglect of the files submitted for those who do not pay the bribe, which is an invitation to the moral decay of the individual, as he has no choice but to practice these disgraceful acts in order to go about his affairs.

All the phrases and movements selected in this stereotyped picture of reality have been subject to a well-thought-out and engineered structural system, in a way that works to deviate the individual and provoke him, thus to cause a disruption in the general social system, either to facilitate control over it or to urge revolution and revenge, or even to ignorance and retreat, including contributing and supporting the lack of progress in the so-called (the third world countries).

Results

1. Stereotypes include conceptual strategies that negatively program minds.

2. Stereotypes create a mental image based on incomplete logic in achieving persuasion.

3. Stereotypical images seek to strike at what individuals believe in order to change their attitudes in order to direct their behaviour.

4. The stereotyped and mental images include an ergonomic methodology in the engineering of topics and the elements they contain, represented by expressions, colours, fashion, the subject and the idea, in a manner that is consistent with the mechanics of the eye and the brain, in achieving its goals.

5. Stereotyped images depend on the recipient's own analysis and deduction, since people tend to choose.

6. Stereotyped images adopt the principle of moving away from positive thinking as the problem is repeated and spreads of the same type.

7. The stereotyped images and the resulting mental images work to excite the recipient and push him/her towards a specific behaviour.

8. Stereotypes are not based on direct advocacy, but on analysis, comparison and approach.

9. Stereotyped images seek political goals, regardless of their different formulations and subject areas.

10. Pictures are more informative than texts and they have the ability to communicate more than fifty-two words in one look without any clarification, so they are considered one of the most important elements of the stereotypical scene.

Conclusions

1. Ergonomics is one of the most important factors on which mental and stereotyped images are based. It includes the methodology of subject engineering and its elements.

2. The ergonomic approach gives mental and stereotyped images the possibility of directing the behaviour of individuals because of its ability to stimulate, influence, and persuade the recipient.

3. The ergonomic approach is appropriate to eye and brain mechanics in mental and stereotyped images.

4. Mental images are dependent on the melding and stereotyping of reality, by repeating that formal template, to become a solid conceptual virtual reality.

5. The ergonomic approach gives stereotyped images the possibility of influencing and changing the behaviour and attitudes of individuals through imperfect visual illusion.

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