The Effect of Semantic Shifts on Cognitive Ability Between the User and Industrial Products

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ABSTRACT

The research dealt with the issue of the effect of semantic transformations on cognitive ability between the user and industrial products, and the first chapter included the research problem represented by the following question: How can semantic transformations in industrial product design systems affect cognitive ability? The research discussed the concept of the impact of semantic transformations and identified the most important obstacles that stand in front of the applications of industrial product design systems in public and private service institutions, making them easy to understand for the user despite their actual impact on the perception of the industrial product, as the semantics are effective communication systems in the form of a language of communication between the product and the user. The aim of the research is to determine the nature of semantic transformations in industrial product design systems. The limits of this study included the electrical and electronic equipment products of (Samsung) manufactured in the year 2021-2022 AD. The industrial products were discussed and their formal elements analyzed in an attempt to discover the model of semantic transformations at the realistic level in light of the concepts that were extracted through the research discussion. The research reached a set of conclusions, the most important of which are: 1- The user derives the possibility of interacting with different types of technological frameworks with diverse capabilities by employing design systems to achieve functional and aesthetic values at the level of the structural composition, and at the level of surface outputs, which are capable of influencing the user at the level of Sensory and emotional perception. 2- The sequential development of semantic transformations in industrial product design systems represents the recipient's experience with the design work itself, which leads to determining the meaning of the work, through the user's role in building the relationships of the formative parts. The user cannot be pushed to infer and arouse his emotions unless his attention is attracted. Firstly, ensure your knowledge of data visualization. 3- Cognitive ability in performance is achieved through simplicity and clarity in the formal structure and its symbolic implications for functions.

1. INTRODUCTION

Semantic transformation is any difference or change in the formal or substantive state from one product to another in a successive manner [1]. The procedural definition of semantic transformation is every transformation that affects and develops design systems, formats, and devices, whether structural, formal or functional, during a specific period of time.

Design System: The system is defined as the way to perform a work or the steps to implement a specific task [2]. The Design system is also defined as a set of components that interact with each other and operate within certain limits for a specific purpose [3].

Knowledge Ability is the scientific and cultural addition from one or more sources, as this knowledge leads to the expansion of human awareness to make him able to address any problem, he faces in the fields of knowledge that he teaches [4].

Perception: A psychological process that contributes to reaching the meanings and connotations of products, people, and situations that the user deals with by organizing, interpreting, and formulating the sensory stimuli related to them in meaningful colleges [5].

The problem of the research lies in the study of semantic transformations and their problems in industrial product design systems. after the digital transformation process and overcoming the problems and obstacles that impede its application in public and private service institutions, which confuse the user from implementing this new system and benefiting from it, as the use of electronic systems has become a requirement and a necessity not indispensable because of the positive results it achieves towards improving performance in public service institutions and raising their competencies, which makes it possible to understand and identify them easily and easily, as the semantic transformation is a communication system through a set of symbolic meanings and connotations employed in the industrial product that expresses a language

of communication with the user, which has effects The research problem was summarized in the following question:

How can semantic transformations in industrial product design systems affect cognitive ability?

The importance of the research emerged in that the process of semantic transformation has become an urgent necessity in developing the necessary practical solutions for the industrial product and overcoming the obstacles facing the user.

The aim of the research:

1- The aim of the research was to determine the nature of the effect of semantic transformations in industrial product design systems on cognitive ability.

2- Disclosure of the creative and innovative aspects of the idea, performance, and creative output (form) through formal transformations of industrial products.

3- Identifying the aesthetic or stylistic systems achieved by the designer in the art of design through formal transformations.

Research Limits: The research is determined by the following:

A. Objective Limit: The research is determined by studying the semantic transformations in the systems of industrial product designs and their relationship to perceptual knowledge.

B. The spatial limitation: the products manufactured by (Samsung) that were launched in Korea and which are suitable for the research objectives.

C. The time limit: the industrial products of (Samsung) manufactured in the year 2021-2022 AD, because the designs of this period represent changes in form and function as well as the tremendous technical development, and in various scientific and intellectual fields.

2. LITERATURE REVIEW

A. The semantic transformation in the symbolic meaning system of design forms:

Semantics, the science of meaning, or the science of (semantics), which is one of the branches of the science of symbols, and that includes everything that revolves around the sign or symbol, whether the sign is linguistic or non-linguistic. It cannot be separated from the rest of the language sciences, each of which uses the other, and despite its novelty, the science of semantics was studied by the Greeks, Indians and Muslims.

Semantics or the science of meaning is that branch of linguistics that deals with the theory of meaning or the science that studies the conditions that must be met in a symbol in order for it to be able to carry meaning. Industrial products as symbols for things outside the linguistic circle. Some have called them lexicographical meanings, and the second is concerned with clarifying the meanings of sentences and phrases or the relationships between design units such as morphemes and words, when the design elements play the role of symbols for relationships between design elements [6].

Significance in modern linguistics (structuralism), as in Saussure's, indicates that there is a signifier (utterance) and there is a signified (meaning) or a concept, and the signifier and the signified are two sides of one thing and they cannot be separated, and that the analysis of the signified leads to the analysis of the signified.

Within the interaction of industrial product design systems, the analytical critical study reveals pressing conceptual forces,

which are added in systems of design shapes to psychological, mythological and metaphysical systems. Conscious and cognitive pursuit, to destroy the system of iconic form, and deepen the significance in the system of symbolic meaning of design forms, which is latent in building the dialectical relationship between contents and forms [7].

The system resulting from the design process does not give the final state of the design product, just as there is no single level of the system, but there are several levels of the system. The design system, the design system enters into the structure of the industrial product organized according to a design system that is completed by the recipient according to his needs and according to his job.

For any design institution, it should have a process of transformation and change that enriches its issues, and gains thought development and fertility, and therefore any epistemological development aimed at revealing new fields in reality must result from the human desire to transform and reject what is in circulation and prevailing, of industrial products. , and replacing it with another epistemological level and giving it a greater value than it is, so that the desires of transformation become revolutions in phenomena justified by the human mind, and these revolutions are nothing but transformations that occur in the structure of thought to reflect it on everything related to technology or the ideological method, so it works to disturb the balance between the cognitive constructs to reformulate its system again, and about these crises that occur in the cognitive structure and that lead to revolutions, cognitive thinking emerges as a main active generator for every movement of change and tries to target the transformation of the internal structures of the phenomenon, and reconsiders the axioms and absolutes, to change as a result the foundations of theoretical and experimental thinking equally, because the old design paradigms are replaced by new ones that are contradictory to them, and because any epistemological renewal, with what it entails from a reversal of the prevailing cognitive paradigms or vision to other new paradigms, is a revolution linked to the developments and changes of society [8].

Ahmad [9] believes that each community has its own problems that are not repeated, because changing communities by changing design models transfers them to new problems, not to solving old problems.

The more science progresses and new fields of reality are revealed, the balance is disturbed between all levels of building scientific production, which leads to reformulation of its composition in a new way, and according to the progress reached by the various sciences, so that the law of scientific thought progress becomes growth through severe crises, In the light of the development of scientific thought, many cognitive concepts have transformed, because the research in them is determined within the framework of scientific knowledge alone. Thus, the effect of cognitive semantic transformation is inevitable [10].

The contemporary cognitive ability knowledge rejects the oppositions between perceptions and previous cognitive foundations without destroying their contexts, so it deals with its knowledge structures through critical study to reveal the systems of analysis and composition in it, so that these knowledge systems become a scientific reference in their contemporary stage and are based on what is accumulated from previous practices after researching and excavating them in These constructions are to be corrected (because every cognitive system cannot determine its foundations and

structure except with a group of systems affected by it or the sources of its formation, and it is not possible to intuitively understand an intellectual system whose structure and awareness of the systems of its relationship can be understood, except with its sources that led to its establishment and interfered with its systems) [11]. Accordingly, the research is in the effect of semantic transformations and their relationship to cognitive ability.

Accordingly, the research on semantic transformations and their relationship to perceptual knowledge is a historical intervention that reveals critical epistemological attempts to reach the results of scientific knowledge through an investigation of the stages of transformation achieved in the formation of scientific thought, up to the stage of the scientific mind that is the founder of contemporary scientific knowledge [12].

Therefore, any art must have a process of semantic transformation that enriches its rules and issues, and therefore the process of semantic transformation gives the cognitive ability a development and fertility, and then any design development aimed at revealing new fields in reality must result from the designer's desire to transform and reject what is in circulation prevailing, replacing it with another level and giving it a greater value than it was, so that the desire for transformation becomes an artistic revolution, or in the sense that it is transformations that occur in the structure of knowledge reflected in everything related to the design technique and the way of thinking, to transform as a result the foundations of perceptual knowledge alike, This leads to a reformulation of the design system in a new way. The basis of this transformation is linked to the developments and transformations of society, and it leads to the replacement of old design models with new ones, it works to develop aspects of the user's cognitive ability in accordance with developments in society [13].

As the significance of the form changes according to the diversity of industrial products, each shape in the product has a semantic form that changes according to the significance of the form, as the significance differs according to the image that was able to achieve in the mind of the recipient, and that the relationship between the form and the meaning of the product is determined according to a semantic issue, as the semantic values For shapes lies in the meaning to express the semantic value of colors as well as the semantic value of movement in the design elements, and the semantic value is shown in the product through the employment of symbols, color references, and icons [13].

B. The impact of the real-world cognitive design transformation and its acquisition and development methods:

Knowledge is an objective reflection of the existing reality in philosophical and scientific knowledge. The laws of nature, for example, are the same as they did not change between yesterday and today. This is confirmed by the school philosophical study, but the matter is not in this way scientifically. Contemporary research has shown that knowledge is not identical to itself, as it transforms in principle in every culture, and it can vary within the same culture, according to its types (scientific-natural knowledge is one thing, and human knowledge is another thing, and philosophical knowledge is different from scientific knowledge, and both are different On Literary and Esoteric Knowledge).

The matter becomes more complicated and difficult in the stages of crisis and the transformation of cultures, and in the transitional stages. Knowledge here, as confirmed by the researcher (S.S. Niritina), becomes "gnostic" and "affective."

Since the dawn of ancient Greece, when the process of establishing and designing knowledge began, knowledge was not understood as just a simple reflection of reality. For Plato, knowledge is a reflection of reality, as much as it is an understanding and design of it, and leads to illumination and organization, and to ideas and does not contradict thinking, in The Middle Ages Knowledge was double meaning and morally charged [14].

In the modern era, starting with the sixteenth and seventeenth centuries, knowledge was built so that nature could be controlled and directed. However, in the nineteenth and twentieth centuries, new types of knowledge (human, social, engineering-design, esoteric, and artistic) began to form that differ fundamentally from natural scientific knowledge [15].

As for the present era, that cognitive ability suffers again from the effect of semantic shifts, and it must be established and confirmed again. This is really related, and not in the last place, to the transitional stage of the cultural age, and that the old reality has been removed, but the new reality has not yet been known. In order for it to become possible to know and think, not in a general way or in a traditional way, but in a manner that is compatible and appropriate to the challenges of the age, we have to redesign knowledge itself, and define it again in the context of knowledge. Here we find ourselves in front of a field of options.

Among them is the pursuit of cognitive knowledge traditionally, adapting knowledge to the new reality, and re-appointing knowledge and truth, so that it becomes possible again for the emergence of a unified perception of the world and knowledge. Everyone has the right to think in their own way. As for postmodern theorists, they assert that even the aspiration for compatibility or concord is something that cannot be achieved, and therefore it cannot be put forward as a regulating principle. They are confident that thinking has built itself in the form of many local contacts and dialogues. And no matter how strange it may seem; the philosopher Kant had given a certain justification for such views. Kant says in his book "The Critique of Pure Reason" that "reason", in all its initiatives, must submit itself to criticism, and no restrictions or prohibitions can violate freedom, without causing harm to itself and not bringing bad doubts to itself, and it is linked to this freedom Also, the freedom to express opinions and doubts, which one cannot resolve on his own, for public discussion, without being subject to the accusation of being a dangerous and disturbing citizen.

This freedom stems from the fundamental rights of the human mind, where every individual has his voice, and since any possible improvement and development in our case depends on this mind, this right is a sacred right, and no being has the right to restrict it.

However, the cognitive renewal associated with developments and transformations in a society, with what it entails from a revolution in the prevailing cognitive vision to a new one, and according to Foucault's expression (a transition from an episteme to another episteme) is a renewal that establishes a scientific revolution, the features of the broad semantic transformation since the early Renaissance era have helped in reversing the vision of the cognitive capacity that was prevailing.

The early renaissance era helped revolutionize the prevailing epistemological vision, as well as a comprehensive development in the concepts of science and its new methods, and thus worked on a revolution in the scientific view of the natural world with the separation of science and its complete independence from philosophy.

The beginning of the transition to the stage of the new science was after the scientific revolution that led to a shift in scientific thought at the hands of (Galileo), who contributed to the overthrow of the traditional system of the world by applying the scientific method that depends on observing phenomena and interpreting them in an experimental way and mathematical language (after practical observation is the basis for gaining knowledge the truth) [16].

This transformation led scientists and philosophers in the twenty-first century to change their views on many core issues, after they found that what they had reached in their research and studies differed from their data, which is a reason that could lead to a change in the traditional model and the emergence of a new one. From here, science entered a new phase based on theoretical methodological awareness, as a result of which scientific knowledge developed so that cognitive analysis processes in the contemporary stage could combine the mathematical method and the use of experiments and take both as criteria of truth.

In returning to understanding contemporary knowledge contexts, it is worth emphasizing that today philosophical and human thought poses the following main tasks: Criticizing traditional methods of knowledge and ontology, reorienting scientific knowledge from the study of primordial nature to understanding, perceiving, and designing social and cultural reality. (From knowledge of the natural sciences to "social knowledge" and cultural knowledge), providing ideal mental tools for social knowledge (meaning the formulation of new statements and concepts, thinking strategies, dialogues, etc.), providing assistance in the establishment of a new type of social action, and these new tasks are raised and thus on knowledge as well [17].

The decline of existing knowledge or the emergence of new knowledge opens wide horizons for thinking-encounter and thinking-event. It is usually necessary at this stage to criticize traditional methods of knowledge and perceptions and form new approaches.

Contemporary studies are increasingly getting closer to understanding that the painting shared by man and the world is incorrect. The world today is the technologies, networks, cities and industrial environment that we found, which in turn create us ourselves [18].

The familiar interpretations of design literature are no longer satisfactory today for many reasons. They are replaced by various kinds of theoretical reconstruction: cultural, scientific, psychological, sociological, semantic, and the like. What is important in this field is the technical law, insofar as it is the subject of the design-semantic reconstruction, in other words, the search for the transformation of the design reality and its characteristics, which are conditioned by the change of culture and its characteristics [19].

In the design track, it is possible to talk about planning for the designed subject, the use of design models and other design media (such as design theories, natural-scientific, technical and experimental knowledge), fixing the designed reality, and highlighting the structure (design) and analysis as a direct ontological process in design, both of which depend on different knowledge. Less widespread than in design are the processes of design solutions (steps) and the tracking of material changes arising as a result of such processes. The realization of these processes requires the extensive use of different knowledge and objective perceptions [20].

C. The apparent and implicit cognitive transformation and its reflection in the industrial product:

When we introduce the old to the tendencies of contemporary taste, or when we establish a dialogue and communication in the transformations of design methods throughout history, the old design structure and its operating systems should not be destroyed in their dialectical interaction, and that the art of design is a kind of cumulative transitions in terms of quality, as it falls within human experience and expertise, but it is possible to investigate the tendencies of thought, its interpretations of design systems, and its mythological and psychological structure, by analyzing and constructing systems of relationships in the constructivism of design works, which lead us to the dominant relationships in the constructivism of forms, as indications in the formality of contents, considering design creations as a kind of buildings whose systems operate with a kind of dialectics between the constructivism of thought and the expressive connotations that distinguish design forms [21].

And what results from the values of interaction through a correlation that is generated between the perceived being and the powers of perception in the recipient self, as the building elements in the design achievement are taken aside from both sides of that connection with all the apparent meanings and contents it contains that are clear from the meaning to generate received reflections from the recipient's perception elements To work according to specific systems and successive actors, to reach the behavior that expresses judgment by persuasion. Thus, the understanding of the building elements and their constituent relationships of the design achievement does not stop at the limits of linking the functions with their apparent meanings, but rather goes beyond it to achieve a link that connects to the implicit places of meanings in them; In order for the recipient to embody the clarity of the meaning in its entirety. As the world is going through a period of radical transformations that have contributed to changing most of the traditional design concepts and methods, through this, it created a new climate and economic, political and technological conditions completely different from what prevailed a few years ago. These new situations are characterized by their movement, change and development at an unprecedented speed, as well as their overlapping effects and interactions, which doubles their impact on the overall contemporary human life.

Therefore, the designer always finds himself persevering in following up and keeping pace with these events and developments, and reconciling the demands of modernity in design and the design capabilities available with the needs and capabilities of the recipient, by adjusting his attitudes in order to suit what he is exposed to in terms of new, difficult or unexpected circumstances and events. This compatibility comes through the designer's awareness and knowledge of the design requirements and their compatibility with the recipient, and the reactions he causes towards them, as it is a relationship based on mutual influence. method and mechanism of action, giving his mental images and concepts an objective existence [22].

As it is through receiving information, analyzing it, understanding its dimensions and the implied meaning in it,

and what can be employed from it, and what this hiring creates in terms of relationships within the body, to come up with a product that carries images with concepts that enrich it in performance, so all of this comes according to a design vision that adopted a number of considerations to come out with that clear vision. From here, the design of industrial products is associated with semantic shifts and human changes at the various levels of intellectual, industrial, economic, social and political knowledge. These connections allow the design of products to fit in form and performance with these variables, affected by them at the level of appearance and at the level of substance, which generated transformations and changes in the form and performance of the industrial product.

Where several changes can occur in the form of the industrial product by shifting or changing the location of one element of its components, by the action of the conditional compressor in terms of functionality and aesthetics because they represent the dialectic of the design act and the relationships of its organization within the design structure consisting of these elements, and it can be said that the design structure of the product is not a product that combines complex relationships, but rather an analytical interaction in which elements are reduced and others are added to it, which makes the structure invisible within the product, revealing itself through expressive connotations in the internal and external structure system, as it is subject to inseparable laws and requirements [23].

So, the overall structure of the product is its defining identity perceived by the user, and it lies in the appearance of its final form, where the shape of the product differs according to the design ideas and systems that the designer adopts in implementing his ideas, as the form determines the position of each of the B-elements and achieves interdependence between them and their relationship to the other [24].

The presence of these considerations is confirmed by controlling the elements and translating them into formal symbols expressive or loaded on the shape that perform deep standards for the designed product, as it provides the user with ease of identification of the product, ease of dealing with it and how to use it, and for this the formal structure is linked to the existence of a specific functional need and the search for appropriate aesthetic solutions For the function of the product, and therefore the formal structure urges the designer to choose homogeneous and consistent structures to compose the structure of the product that bears the functional and aesthetic qualities [25].

3. INDICATORS

A. The design system resulting from the design process does not give the final state of the design product, just as there is no single level of the design system, but rather there are several levels of the system.
B. Any epistemological renewal, including a reversal of the prevailing epistemological paradigms or vision to new paradigms, is a revolution linked to the developments and changes of society.
C. Any design development aimed at revealing new fields in reality must result from the designer's desire to transform and reject what is in circulation and prevail, and replace it with another level and give it a greater value than it was.
D. Formal transformation refers to adaptation to external influences, which gives flexibility and appropriateness in the design system. This term also refers to the occurrence of shifts in the pattern or shape. Transformation is necessary for industrial products to continue and grow and not to remain in a state of dormancy.
E. Today's industrial products are characterized by the complexity and rapid and increasing change in the quantities of their production in the form of smart products, which requires innovative types of industrial companies and establishments that are able to adapt to them and keep pace with their changes and circumstances.
F. The cultural and scientific levels and practical experiences affect the level of cognitive ability with the design systems, just as age, gender, geographic area and environmental factors have a positive and negative impact on the level of knowledge of a certain category over another, so the choice of the common factor among the majority of people in the completion of the knowledge process, which is (Simplicity and objectivity) in order for the majority to be able to understand and interact with it.
G. The semantic transformation is part of the language and is a basis for understanding human nature and conveying cognitive concepts to the mind of the user. The language of the designer is his idea, so the cognitive meanings interact with the user's awareness and understanding of the semantic form.

4. RESEARCH METHODOLOGY

The current research took the descriptive approach in analyzing the sample, because it is "the objective scientific method that expresses one of the methods of systematic research.

Research Society: The research community included industrial products with performance and formal characteristics that are compatible with the subject and objective of the study for the period 2021-2022 AD. The Korean company (Samsung) was approved, and that company was chosen for several reasons, including:
• The difference in the design of the products of that company.
• High demand for it.
• Variation in prices.
• The products of that company are appropriate to the subject and purpose of the research.

Research sample: The researcher chose an intentional sample for the purpose of fulfilling the research requirements according to the optimal form of the original research community and according to what was included in the analysis axes. The research sample was compatible with those axes.

5. DISCUSSION AND ANALYSIS

For the purpose of seeing the previous research proposals in their realistic design context, the following axes can be applied in analyzing the model chosen below, which can serve the intended research objective:
• The level of semantic transformation in the design system.
• The type of transformation in the design system of the industrial product.
• The user's suitability for semantic transformations and their impact on the apparent and latent meanings.

A. The level of semantic transformation in the design system

The patterns of the shapes used in the microwave oven were characterized by their being geometrically regular, as the design of the microwave was in the form of a rectangular parallelepiped, which gave an indication of stability and balance, as the designer adopted in his design a system that achieved the idea of the design work, and the designer tried to communicate the principle of order in the design of the product to the recipient through the functions and shape of the microwave, and through the microwave interface, it contains a touch operating screen that helped to turn off and on, control temperatures, and control the time period (time), and it was located in the front interface.

As for the microwave door, it occupied the front of the microwave oven, as shown in Figure 1. As for the internal space of the microwave, a rotating disk was used to distribute heat evenly on the food. To heat the food, it was equipped with Smart Inverter technology. Neo Chef microwave ovens use a linear supply without interruption of energy to cook food evenly, equal, reheat or defrost. It also features a maximum power of 1200W to cook dishes quickly. Its stable, hexagonal cylinders also provide greater stability with its six points of support, settling the issue of potential spillage when food containers are not perfectly centered.

Figure 1. A model of a smart microwave oven produced by Samsung
http://zamnpress.com/news/17009

The back of the microwave has an interior coating to increase hygiene. The Easy Clean antibacterial coating, eliminating 99.99 percent of harmful bacteria, helps keep your oven clean. The timing screen works to realize the time allotted with the presence of leg positions for the purpose of supporting the microwave, and he used the contrast in the optical values in the touch screen when designing the microwave, and thus he achieved a system that adopted the contrast. Therefore, the semantic transformations in the microwave oven are not only formal or aesthetic, but rather material and performance elements that have an impact on the cognitive ability of the user.

B. Type of transformation in the design system of the industrial product

At the level of the vocal characteristics of the model, these characteristics showed an effective employment value, whether at the level of functionality, highlighting and enhancing its role within the model, and at several levels within the definition of it and the tasks it performs, or at the level of stimulation that can be induced by the recipient, as it has taken within the model a special tone that can be Learn about the function of the microwave.

The kinetic characteristics also played a role within the model and the excitement it could generate through its imaginary and actual levels, within the boundaries of those vertical and horizontal lines composed of smart reflective mirror formations, as it took the dimensions of employing an electronic screen that gives its effective and functional effectiveness, as the designer relied on achieving function and form the aesthetic of the model, the LG brand known for its products, efficiency and ease of use. For this reason, the presence of formal formative semantic transformations was linked to the functional and aesthetic need, as the user's perception of the microwave oven depends on the clarity of the design and the extent of his cognitive ability, as the formal formative semantic transformations represent the important basic feature acquired by the product (microwave oven), which is the essence of communication between the product and the user.

C. The user's suitability for semantic transformations and their impact on the apparent and latent meanings

Rapid and many transformations have taken place in industrial products in recent times as a result of technological and technical development, and among these developments are the applications of artificial intelligence technology that have entered the field of designing industrial products, including the smart microwave oven model, as it is thanks to smart thinking technology, which is an application installed on the smartphone that allows the user to control In the microwave oven and diagnosing its malfunctions through the use of the phone, even if the user is outside the home. This application also allows temperature control, so it can be seen that technological and technical development has contributed significantly to the employment of semantic symbols within the application of smart thinking, and thus each icon has given its functional significance to work on meet user needs. Because through all this, the recipient of the product is selected, in addition to choosing the color that helped determine the mass occupied by the product, the prominence of its color, and giving it an aesthetic appearance. The use of lines in the microwave glass gate and its framing with a material of glass determines the shape of the gate, as the glass helped the employee in the microwave gate allows you to see and monitor the food during heating, as well as the ease of using the buttons on the touch screen provided with the microwave. It is noted that the adoption of the basic shape of the design of the smart cooker on a set of consistent design elements according to a unified structural system led to an easy understanding by the recipient.

Thus, the expressive message of the recipient was achieved, and through the foregoing, the design system of the product contained expressive connotations in the different parts of the product, which achieved visual attraction and thus convinced him of the quality of the product and his acceptance of it. The effect of the apparent formal characteristics showed a great deal of influence through what the model took from an active body that showed modernity in composition and formation in its general form, as well as its departure from monotony in formation.

6. CONCLUSIONS

A.   The user derives the possibility of interacting with different types of technological frameworks with various capabilities by employing design systems to achieve functional and aesthetic values at the level of structural composition, and at the level of surface output, which are able to influence the user at the perceptual and emotional level It contributes to achieving the cognitive ability of the functions provided by the product.

B.   It represents the sequential development of the effect of semantic transformations in industrial product design systems represents the experience of the recipient with the design work itself, leading to defining the meaning of the work, through the role of the recipient in building the relationships of the formative parts, as it is not possible to push the recipient to infer and arouse his emotion unless his attention is first attracted and his knowledge guaranteed. data perception.

C.   Perceptual knowledge in performance is achieved through simplicity and clarity in the formal structure and its symbolic implications for functions, as the use of touch screens, buttons, curved lines and geometric shapes that suggest stability, stability, transparency and reflection is what distinguishes the creative activity of the functional and formal systems of industrial products.

D.   Our perception of the products to which we are exposed affects the nature and mechanism of our reactions, because of perceptual knowledge, the recipient remembers only the aspects that confirm and agree with his ideas, so if the ideas are consistent with the personality of the recipient, he remembers them all.

E.   Perceptual knowledge is achieved between the recipient and the producer through the relationship of formal harmony and the inclusions that are employed in the product on the basis of the cognitive structures clear to the recipient, due to the semantic transformation in the data of the intellectual structures in the design and the creation of new mechanisms that contribute to achieving knowledge in the material and moral sobriety of the achievements that he considers to be the same. Mutual relationship and direct contact with the user and the psychological behaviors that affect the user trading process.

F.   The symbols take their dimensions and values in terms of expression and understanding by the recipient on several levels according to what each of them achieves in terms of the capabilities of speed in his knowledge and perception, so those symbols took their sequence within his preferences, and thus each of them can be included in the product accordingly, that is, it can be raised The ratios of knowledge and perception through the inclusion of symbols according to their preference and in a manner that achieves and is commensurate with the purpose.

G.   The cognitive ability between the user and the industrial products is achieved through the relationship of formal harmony and the inclusions that are employed in the product on the basis of the cognitive structures clear to the user, due to the effect of the semantic transformation in the data of the knowledge structures in the design and the creation of new mechanisms that contribute to achieving the cognitive ability in material and moral sobriety. For industrial products, he considers them to have a mutual relationship and direct contact with the user, and the psychological behaviors they impose affecting the user trading process.

H.   Symbols take their dimensions and values in terms of expression and understanding by the user on several levels according to what each of them achieves in terms of speed capabilities in his cognitive ability, so those symbols took their sequence within his preferences, and thus each of them can be included in industrial products accordingly, that is, it can be Raising the rates of cognitive ability through the inclusion of symbols according to their preference and in a manner that achieves and is commensurate with the purpose.

I.   The technological and technical development contributed to the development of the semantic structure of the industrial product through the intellectual development of the designer and his community, as the technological and technical development allowed him to develop design systems, add new techniques to them, and introduce new systems and semantics. The semantic transformation coincided with the technological and technical development, and then led to the transfer of the mark from one semantic field to another more developed semantic field over time.

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