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Research Article

Innovative Approaches to Design Representation in Civil Engineering

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ABSTRACT

In design and architecture, ‘reality’ exists through sign systems, the structured arrangements of signifying that which previously existed as ideas, beliefs, values, images and events. These representations conform to the philosophical and ideological dispositions that post the philosophical description of the Zeitgeist. An explicit emphasis on representations is characteristic of civil engineering design, which allows for the integration of technological, cultural, and esthetic values and information exchange across the temporal, spatial, and cultural divides. Consequently, it has been identified that, though representation is an important concept in civil engineering, there is no concrete and unambiguous definition of representation in modern civil engineering. This paper fills this gap by providing a theoretical analysis of representation and how it is used in contemporary design professions. From a theoretical viewpoint, the research defines the concept and builds a sound framework to deconstruct and implement representation to a real-life civil engineering model. Representation encompasses imitation and embodiment of prior elements through processes of abstraction or simulation, revealing two key dimensions: generative source (semiotic) and materialization (performed). Representation in civil engineering is present but in two primary dimensions. The first one, which is based on classical procedures, is semantic and realistic, and these works unambiguously express ideologies or technical concepts. The second, non-classical approach, relies on abstraction and subjectivity and here the designs look like an open question – not unique and predetermined by certain context and culture. These dualities place representation as a generative and communicative medium in civil engineering while providing conceptual solutions to structures, city planning and sustainability.

1. INTRODUCTION

Graphic representation is an important aspect of design especially in the process of presenting design concepts. It exists as a means by which meaning-making is accomplished, and through which reality is encountered and represented by designers. A pertinent question arises, it possible to engage with the world, without engaging with representations of that world. Reality can be observed, perceived through the senses but one can only comprehend, interpret and place it into context through the representations. These systems are made up of ordered signifiers and signifieds that enunciate knowledge regarding reality within and through culture and society [1][2]. Representation is therefore not supplementary but an inevitability if meaning has to be produced and disseminated. Accordingly, representation put a face to cultures and through it erect semiotic frames that undergird epistemological formations of people as well as the collective [3].

In design and in civil engineering particularly, representation is the means for comprehending and conveying the interconnection of cultural, historical and functional conditions. They made use of project which helps to construct a link between concept and its instantiation. Nevertheless, no extensive and precise development of the concept of representation is available, especially in the modern civil engineering discipline. Perhaps, this research reveals a lack of clarity regarding representation as a subject of study, kinds of representation, methods, formulas, and mechanisms relevant to the materialisation of the built form. Thus, the formulated research problem is ‘the lack of a coherent and integrated understanding of representation in the civil engineering design process, approaches, forms, and processes’ [4][5].

The objective of this scholarly study is to fill this void through articulating “a specific and coherent vision regarding what representation entails, what forms it takes, the techniques or processes used to achieve them, the means by which they are

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expressed mathematically, and how they are employed in the current practice of civil engineering design." In order to achieve this, the following methodology is used:

1. Providing an extensive theoretical overview of the representation paradigm in design as well as providing an historical as well as cultural and architectural analysis of the topic [6].
2. Proposing an original theoretical construct for representation as a parameter of contemporary civil engineering design, its elements, categories, and uses.
3. To implement the theoretical frame under the chosen civil engineering project to examine how representation works in context and assess the efficiency of the framework.
4. Concluding the results of the application and presenting suggestions for further research.

The present study is divided into two large sectors. The first part therefore entails a theoretical analysis of the concept of representation within the domain of civil engineering concerning emerging trends in design practice. Part two undertakes the process of developing a theory bespoke to representation in civil engineering and, in doing so, applies this to a chosen case. This way, one can evaluate representation at a more fundamental conceptual level, at the level of specific representations used in civil engineering practice, and arrive at conclusions that contribute to a more nuanced thinking about representation in today's civil engineering practice.

Some of the major forms of civil structures include pictures of the Millau Viaduct are shown in Figure 1 below. Hinge and Bracket; cable-stayed; 7 piers; The slender deck across the valley of the Tarn River. In this case, the engineering aesthetics of the viaduct are not only indexical of effective structural support but also of harmony with the place.

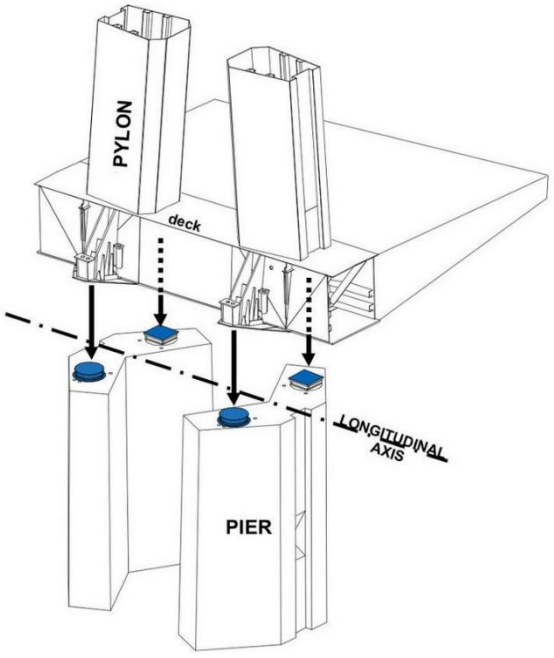

Fig. 1. Structural Diagram of the Millau Viaduct

2. REPRESENTATION CONCEPT

2.1. Representation Linguistically

According to the Cambridge Dictionary, representation may be a sign or picture, a model, or a single viewpoint to present an idea, concept or entity. Representation is how one thing is depicted by another on the grounds of some resemblance [7]. In essence, it is the method of portraying which embraces sense in sundry forms. Linda Hutcheon dissects the term by emphasizing its dual structure: it is compounded by the meaning in its constituent morphemes, where "Re," means "again" or "anew," while "Presentation" means re-playing or re-creating past realities or ideas, in other words, creating them afresh within a modern context [8].

2.2. Representation Idiomatically

The notion is broader than depiction and can be defined as a process of producing copies and mimicking reality and transforming it into art and ideas. Immanuel Kant has always pointed out that representation is always subjective and that requires a constant dialogue between understanding and the imagination. Instead of one dividing and clearly defined set of

rules, this interplay creates common inestimable aesthetics. Meaning of representation as Kant noticed unites the concepts of beauty and employs the general reason which goes beyond the subjectivity of judgement [9].
However, Plato considered representation as “mimesis”, or imitation of actual essences for this reason, Plato classified representation as “subtractions”, or “play-backs” of formal truths. Stated that all material objects in the real world are emblems of unchangeable and eternal essences [10], [11]. Plato classifies representation into two forms to the extent of it, representation is a kind of imitation:

1. Diégésis (Direct Discourse): An integrative style of writing where the author’s voice makes meaningful assignments overt.
2. Mimésis (Indirect Discourse): A type of representation of the concept in which meaning is created when received by the audience, free of the author’s intervention [12], [13].

Plato limited representation as a copy of the eternal ideas, and only Aristotle added a new vision of its creativity. Even for Aristotle, representation was not so much mimetic as ludic, the possibility of representation meaning that the things it represented may not yet actually be real [14]-[15]. This approach draws interest to representation’s potentiality to depict possible potentialities as opposed to actualities.

Representation is intended to turn figures into forms which are palatable to the senses, to reduce the distance between unfamiliar ideas and perceptions, to bring instinct together with reason, and to refine that which exists beyond mental or physical perception or sense. It is seen in spheres of social life including literature, engineering as well as art [16]. It becomes a way of creating a subject while registering the work of Others upon representation [17]. It is more than a mimetic process that allows designers and creators to build stories, images and selves that connect with history and contemporary cultures [18], [19].

2.3. Representation Theories

In its essence representation is a mimetic or performative action in the sense of staging or re-enactment of an earlier event. This concept has given rise to two contrasting theories:

2.3.1. The Mimetic Theory

The Mimetic Theory states that representation works similarly to as a mirror image of reality. In this view, there is an established material method that can be mimicked to obtain a near likeness [20]. In this framework, there is not much difference between the origin of representation and the form that followed immediately afterwards. This approach stems from the tradition of viewing representation as the ability to stay as close to the real model as possible.

2.3.2. The Aesthetic Theory

The Aesthetic Theory does not dwell on the sameness of things because it recognizes differences. It assumes that representation is not an imitation of reality through representation in an interpretative depiction of it. On this matter, it defines political representation similarly to the representation in art. For instance, in political situations, elected officials speak and perform in the name of the voters but many times what they do may not be what the voters want, it is what they want and how they conceive it. To the same extent, realistic portrayals are not mimetic in the sense of copying actualities but re-presenting them in terms of taste and affect. According to this perception, Friedrich Schiller asserted that the aesthetic plays a higher version of morality [21-24]. Thus, the representation under the Aesthetic Theory is antagonistic, heterogeneous and divergent rather than harmonious.
The Aesthetic Theory constitutes a countermodel to the Mimetic Theory because it states that representation comes from the dichotomy between the real and the image, not their sameness. This distinction means that there is a difference between the origin and representation and does not consider origin and representation to be interchangeable [25].

2.3.3. Representation in Postmodernism

Postmodernism brought the key shift in the representation theories stating that there are no more concerns with imitation and simulation. It challenged the probability of the existence of an absolute reality something that can be represented as it is. To postmodernism, representation builds reality out of culturally and ideologically prescribed interpretations which may not bear much relation to the real world [12].
In this respect, postmodernism disrupted the traditional understandings of narratorial practices and the assumption that the representation could achieve the ‘real’. As pointed out by Derrida, representation is impossible to avoid as all representation discourse is ideological and contextual [26], [27]. So, postmodernism states that representation does not show an existence but an existence as influenced by ideology; a representational structure rooted in social relations [28].
Poststructuralism thus reversed this relationship outright, claiming that it is the character of signifying practices which determines how the outside world is experienced [16]. That shift supports the notion of representation as the key to changing how we perceive the world.

3. PROCEDURAL DEFINITION OF REPRESENTATION

They interpreted representation in the context of post-Socratic Greek philosophy as meaning imitation, abstraction or mimicry of an original referent – whether semantic, objective or abstract – devoid of inherent signification. They both act as a tools for designers who need to think and communicate their ideas within specific conceptual and organizational structures. Global representation is a restriction of design, which makes the generation of subjects (existence) possible and helps interaction with other people. This process is intrinsically inter-disciplinary, contextual concerning cultural and historical contexts and Zeitgeist.

By representation, the designers work out the parameters of their social horizon and generate a design proposal that deeply relates to the architectural and intelligible characteristics of the historical/cultural moment. It is not simply mimicking but the act of transformation based on preexisting knowledge thereby making design operate within and beyond the cultural text.

Figure 2, the actual and physical relationship between thought and representation. This work emphasizes recursion where on the one hand, though = deep structure represents = surface structure while on the other hand representation = deep structure influences and reconstructs thought surface structure. This reciprocal relationship highlights the importance of mediation in putting concepts into practice while at the same enriching the concept.

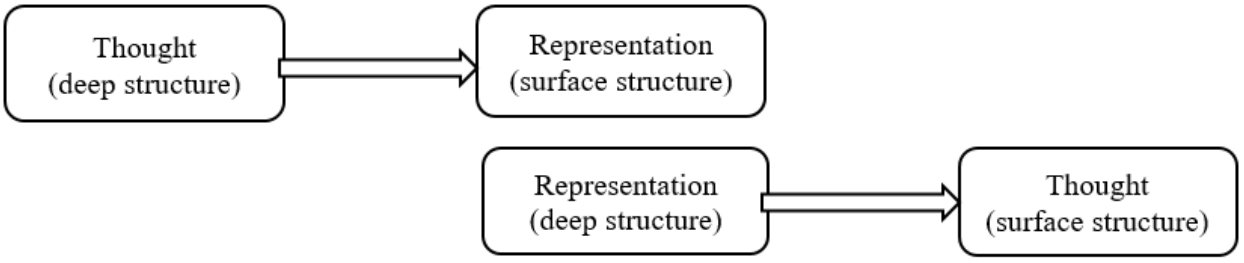

Fig. 2. The reciprocal relationship between thought and representation illustrates the transition from deep structures (conceptual thought) to surface structures (representation) and vice versa.

4. REPRESENTATION IN ARCHITECTURE

Representation is a key concept in architecture, present as an essential component in both imitation and simulation theories of architectural practice. In this connection, the forms are conceived of as receptacles that contain thought and are itself, architectural forms as an image of the eternal and the ideal. This classical concept positions architecture as an organ of conveys messages of an imperative nature that are based on reason and rationality as well as on idealism. In semiotics, here the on between the signifier (the form) and the signified (the idea) is simple and meant to have basic, straightforward meaning to the observer. However, this causes the recipient to only perform a passive part, while the language of representation focuses on plainness and generalization [29,30].

On the other hand, Jacques Derrida questioned this classical idea asserting that architecture is not only a technical ability to embody an idea but the environment that unveiled/creates thought [29]. That is why the new perspective has enabled the recognition of two significant lineages in architectural representation:

4.1. Semantic and Non-Classical Representation

This trend well linked with postmodernism uses typical forms or texts charged with historical and cultural signs but distorts them to make new architectural connections. Postmodernism uses tradition but is also problematic towards tradition as it approaches them not as trans-historical facts, but as constructions. This brings a dialectical tension of calling and distinction into existence, positing traditions as borrowed in reproducing them but providing critique and modifications. For instance, postmodern architecture uses irony, parody and play to address the historical forms while at the same time challenging the authority and relevance of that history [31-33].

As a culture, postmodern architecture is already pluralistic: it takes materials and references from the past, but it also responds to the values of our societies. It uses cultural examples, usually a matter of history and can often be obscure at best or idiosyncratic at worst, to participate in culture and even to disapprove of it. For instance, in New Orleans, works of Charles Moore's, Piazza d' Italia have adopted coils of water and the arches and the fountains are characteristic of the Italian culture but revamped with a modern outlook [34]. This intentional oscillation between the archives and historical re-staging epitomizes the postmodern representation of or, in particular, its pluralist and critical characteristic.

4.2. Syntactical Representation and Poststructuralism

Poststructuralism suggests an absolute departure from self-imposed external norms and cultural exhortations about how people ought to paint their world. They perceive architectural discourse as a free-standing discipline which is not defined by history and cultural specificities. In this context architectural shapes become solipsistic and even if they express reality, they are constructs built within the architecture language paradigm. Thus, the emphasis is not on the referential external reality, but on the internal structures of the architectural form; and on constructing new contexts inside the architectural form, rather than using cultural /historical references [35,36].

This approach suggests the 'something in itself', or the 'free-floating sign' where forms shed their preconceived notional significance and depend on their domestication. It is captured by Peter Eisenman in his notion of 'superposition' whereby the forms of a project or architectural elements are placed one over the other to encode more meaning from the structural presence, the voids and the imprints left by [37]. Consequently, meaning cannot be located in a sign's relation to a referent but only in the interactions between architectural components and the perception of the spectator.

5. ARCHITECTURAL METHODOLOGIES IN REPRESENTATION

Prominent contemporary architects, such as Michael Graves, or Bernard Tschumi, for example, use unconventional strategies in the communication of architectural concepts. Graves, for example, differentiates between two critical aspects of representation:

1. The Architectural Repository: This is the source from which ideas images and concepts are derived. These may derive from other fields such as architecture, nature, art or culture.
2. The Architectonic Aspect: Ideas are more of a tool where the concepts have been organized into systematic forms that make it easier for architects to come up with great architectural forms and shapes. In Graves' fairytale, confrontation is a way of establishing new kinds of relationships within the given systems [38].

Thus, while quoting Robin Evans, Bernard Tschumi engages himself in such techniques as deconstruction of architectural unity, abstraction, and superposition. His strategy is to actively disassemble legal structures while functioning in a space that oscillates between order and entropy. These forms are not meant to have a specific meaning themselves; rather, these forms promote interaction in which the meaning consists of the observer's perception of the structure [39].

6. REPRESENTATION IN POSTMODERN AND CONTEMPORARY ARCHITECTURE

In the realm of postmodern architecture, irony, ambiguity and self-reference have been employed as methods of deconstructing traditional representations. Postmodern architecture as a free-thinking approach, free of the traditional post-World War II norms provides architects and students a method by which to design for the present, without dictating the future. The disregard of a priori, fixed meanings, as well as the general adoption of assuming arbitrary starting points have now freed the architectural practice from the previous conventional goals [40].

Thus, representation in architecture is not only the imitation or the creation of a replica but a so much more process. It acts as a mediator so that designers can rethink and create based on cultural and intellectual aspects excitedly. Even when going further to the postmodern kind of analysis or the more structural poststructuralism style of analyzing the phenomenon, representation remains a dynamic process that is still very relevant in scripting the paradigms for architectural thinking and designing.

7. DISCUSSION

One of the key aspects of architectural design through all architectural periods and styles is the ornamental purpose of representation – serving as the medium through which one conveys the design. It works as the course of recovering or relating to something past. When the 'something prior' is thought or ideology, it's patterned with phenotype and parading crystal clarity in regards to the vehicle of reference with the recipient who is primarily an interpreter. Such a trend is characteristic of classical architecture, in which the concept of a building design was associated with the ideas of heaven or nature, while modern architecture reflects the technologies and purpose of a building, referring to science and logic. Each of the styles aimed at defining unequivocal truths: they built their references on rationality and ideals and expressed them through architectural forms that at the time were regarded as correct and eternal.

However, the kind of abstraction carried out to its logical extreme in the aesthetic of modernist architecture stripped the architecture of an identifiable public. There are many situations highlighted here for which the conceived forms and layouts create conditions of vagueness and uncertainty that distance the recipients from the architecture and inhibit their capacity to use or interpret it. Postmodernism came about in reaction to such reductionism as it attempted to recreate interaction between forms and the people. It challenged the simplistic, authoritarian 1:1 relationship between a sign and it's meaning rather it offers two different models:

1. Semantic, Non-Classical Representation

This approach employs icons and images based on architecture, their history, culture, and memory in contemporary society. It recontextualises these recognizable shapes to new and frequently paradoxical situations, signifying meaning thoroughly by amplifying and interpreting past texts. This is well illustrated in the works of Michael Graves where oppositional principles were employed to establish a rich architectural story. Graves retained referring to elements of Architectural history and incorporated them into new Constructed frameworks of architectural relations and archetypal forms which in many cases Gardens crossed the dialectical split between the Archetypal and the New.

2. Synthetical, Non-Classical Representation

This approach defines architecture as a space that generates productive thoughts and not only as an embodiment of extrinsic ideas. In this framework, forms are forms of form, abstracted from representation and anchored in semiotic and linguistic terms of reference. This approach therefore dispenses with conventional representation condemning architecture as a mode of producing knowledge. Here, meaning is set free from narrow given contexts and rewrites themselves from structural relations already within the architecture.

Postmodernism's divided strategies show its wider purpose of mediating between form, signification, and the spectator. Postmodernism accomplishes this through irony, ambiguity, and reinterpretation, which broaden the possibilities for architectural representation while also situating it about the other cultures and ideas of its particular era.

8. GENERAL APPLICATION FRAMEWORK

As a result, having deduced a comprehensive account of the concept of representation, this part of the study aims at building a theoretical framework for representation. They are theoretical indicators that have been developed earlier to discuss how they are realised in a selected architectural model to which this framework will be applied. The conclusions and recommendations that come out of this application hope to inform strategies in modern architectural practice.

8.1. Research Hypothesis

In this context, this research has postulated that representation takes place against the background of a prior entity (the origin of representation) on which architectural creation is founded. This can be an idea in its fullest sense with some relevant reference, nowhere near an idea, or perhaps, something in between. The hypothesis goes on the further claim that the connection between this origin of representation and this resulting architectural product is a function of the mechanisms of representation as well as the roles of the producers and consumers of representation.

8.2. Theoretical Framework Configuration

The theoretical framework for this study is built around two primary components:

1. The Origin of Representation (Raw Material): This component focuses on where representation comes from or, as it is referred to here, the 'genesis of representation,' asking questions to do with the origin or raw material of representation: is REPRESENTATION an idea; REPRESENTATION itself a semioticization of some other idea?
2. The Act of Representation (Composition or Text): This component identifies the processes by which representation features in the construction of architecture. It comprises the activities of writing, generalization, integration, or re-interpretation within the architectural texts and relationships that are built in them.

These components shall be extended by secondary vocabularies of the indicator, its sub-indicators, and possible values. It will allow for a more complex understanding of how representation works within the selected architectural model, and what further consequences it may have for modern architecture as a discipline. Table 1. It automatically generates a good theoretical disposition for representation in architecture.

TABLE I. THEORETICAL FRAMEWORK FOR REPRESENTATION IN ARCHITECTURE

Main Vocabulary	Secondary Vocabulary	Possible Values	Verification
The Origin of Representation	Types of the Origin of Representation	- Semantic (Objective) - Semantic Abstracted - Non-semantic, non-objective (arbitrary): Events, traces, notations, abstractions, zero-sum texts	O
	Factors Influencing the Selection of the Origin	- Culture (Beyond Representation) - Designer - Beneficiary - Location specifications - Space program - Architectural/functional types or styles - Other factors	O
	References for the Origin and Its Meanings	Architectural References: - Architectural models	O

		- Style - Urban context or fabric - Regulations or laws - Other Non-Architectural References: - Natural - Religion - Art, literature - Myths - History - Subjectivity (designer, receiver) - Abstract (devoid of meaning)	
Representation (Composition, Text)	Function of Representation	Existential: - From intangible to tangible - From unfamiliar to familiar - From nondescript to described - From unknown to axiomatic knowledge Communicative: - With times (history) - With places - With subjects/others Cognitive: - From conception to perception - From perception to conception	O
	References of Representation	Architectural References: - Geometric forms - Architectural forms - Architectural regulations or laws Non-Architectural References: - Natural - Abstract - Biology/organic - Literature/art - Miscellaneous - Abstract references (self-referencing, subjective)	O
	Relationship of Representation to Time and Place	- Linked to continuous linear time/place - Non-linear time/place (multiple/broken) - Abstract of time and space (neither temporal nor spatial, or both) - Multiple and varied	O
	Characteristics of Formal Representation	Apparent and Simple Properties: - Shape - Color - Nature of material Complex and Implicit Properties: - Relationships between parts/whole - Semantic (Deep vs. Surface Structure) - Multiple and varied	O
	Trends in Representation	- Semantic (represents a subject/classical) - Syntactic (devoid of subject/non-classical) - Fusion of semantic and syntactic approaches	O
	Mechanisms of Representation	Classical Mechanisms: - Unity - Order - Harmony - Totality - Repetition - Clarity - Expressiveness - Direct expression Non-Classical Mechanisms: - Deconstruction - Chaos - Irony - Transgression - Intertextuality - Collage/montage - Fragmentation/segmentation - Abstraction - Juxtaposition	O

		- Distortion - Dispersion - Analogy	

9. THE SAMPLE FOR THE APPLICATION

In the present study, to elaborate further on the theoretical framework of representation, an architectural model of the Palace of Culture in Basra, Iraq, designed by the Dewan Al Amara Office in 2012, has been chosen. This project was envisioned to be built out of an idea competition organized by the Basra Governorate in which works and designs were to be completed to achieve the tasks of constructing an icon that symbolizes the old and the new Basra.

9.1. Key Project Features

The Palace of Culture is to play the role of a cultural reference point; the gross area of the project zone is planned to be 15,275 m2, but the allowable built-up area is only 21,000 m2. The building comprises eight floors, housing a wide range of cultural and functional spaces such as:

- Plastic arts exhibitions
- Conference and multi-purpose halls
- Museum, cinema, and public library
- Radio and television studios
- Parking facilities, green spaces, and gardens

In what is being claimed as a ‘disruptive’ design, the focus is on key sustainability and performance metrics together with modern technologies in the integration of lighting and acoustics along with virtual reality systems.

9.2. Design Philosophy

The design of these elements is based on Sumerian and Islamic influence incorporated into new construction contemporary designs that will restore the cultural identity of Basra. The project’s underlying concept derives from Arabic calligraphy, representing a fusion of traditional and contemporary elements:

- The architectural surfaces mimic the **dots of Arabic calligraphy**, with dynamic openings that gradually diminish towards the entrance.
- The design features **curvilinear elements** inspired by the pages of an open book, symbolizing knowledge and cultural legacy.
- The main rectangular block reflects a **Sumerian writing tablet**, integrating historical references with modern design.

9.3. Representation in Design

Segmentation makes the facade unintelligible in its representation of heritage and other concepts such as abstraction, and parametric modelling. These strategies emphasize:

1. The architectural exterior design and interior plan again are symbolic references to such things as Arabic script and art and architecture.
2. Dynamic Interaction: This makes the entrance zone symbolic and operational because it governs movement creating an environment that fosters interaction and stimulating thought.
3. Architectural Narratives: They do not directly imitate the historical forms but present critical mediations that imply the conventional historic modes of representation.

9.4. Practical Application

The theoretical framework that was discussed earlier is used in the current work about the chosen architectural model, The Palace of Culture in Basra, to check the potential values of the second vocabulary within the vital representation categories. This application measures the extent to which the chosen architectural model realizes the aforementioned representation concepts.

The detailed analysis dwells on the measures taken to actualize these values in two primary vocatives, namely “The Origin of Representation” and “Representation (Composition, Text).” Table 2, Table 3, and Table 4 provide a summary of the categorization and verification status of the results as presented in this paper. These outcomes put the focus on the correspondence of the architectural model to the modern tendencies in design as culture and art references, mechanistic and formal relations.

TABLE II. VERIFICATION RESULTS FOR "THE ORIGIN OF REPRESENTATION"

Secondary Vocabulary	Possible Values	Verified Cases	Total Cases
Types of the Origin of Representation	Semantic abstracted, Non-semantic, not objective (arbitrary)	2	3

Factors Affecting Selection	Culture (Beyond Representation), Designer, Beneficiary, Location specifications	4	7
References and Meanings	Architectural models, Style, Regulations or laws, Art, Literature, History, Subjectivity, Arbitrary	6	12
Overall Total for "The Origin of Representation"		**12**	**22**

TABLE III. VERIFICATION RESULTS FOR "REPRESENTATION (COMPOSITION, TEXT)"

Secondary Vocabulary	Possible Values	Verified Cases	Total Cases
Representation Function	Existential, Communicative (history, place, subjects), Cognitive (perception to conception)	6	9
Representation Reference	Geometric forms, Architectural forms, Abstract, Literature, Miscellaneous, Self-referencing	6	9
Time and Place Relationship	Non-linear time and place, Abstract of time and space, Multiple and varied	3	5
Formal Representation Characteristics	Apparent (sensory), Complex (relationships between parts and whole, deep structure relationships)	4	4
Representation Trends	Semantic/classic, Synthetic/non-classic, Merging of semantic and synthetic	3	3
Representation Mechanisms	Classical: unity, order, harmony; Non-Classical: deconstruction, collage, irony	2	2
Overall Total for "Representation (Composition, Text)"		**24**	**32**

TABLE IV. SUMMARY OF OVERALL RESULTS

Main Vocabulary	Verified Cases	Total Cases
The Origin of Representation	12	22
Representation (Composition, Text)	24	32
Overall Total	**36**	**52**

10. RESULTS AND DISCUSSION

The application provides detailed insights into the representation framework used in the design of the Palace of Culture in Basra, focusing on the Origin of Representation and Representation (Composition, Text).

10.1. The Origin of Representation

The Palace of Culture's design draws inspiration from ancient references like the Sumerian tablet and Arabic calligraphy point, which are rooted in non-architectural semiotics and non-semantic geometric forms like cuboid rectangles and square axes. These abstractions are a departure from conventional Islamic and local architectural motifs, which are Hollywood-inspired versions of cultural symbols. The choice of representation origin was influenced by cultural background, location constraints, specific requests, and designer and recipient bias. The design integrates cultural aspects with current architectural trends, using cultural surfaces alongside geometric patterns and abstract representations. The concept of self-referential representation allows the design to read classical references without maleficence. This abstraction marks a departure from traditional Islamic and local architectural references, presenting a modern reinterpretation of cultural symbols.

The design merges cultural heritage with contemporary architectural practice through a combination of factors such as cultural context, site-specific requirements, and subjective inputs from both the designer and recipient. The design's representation, ranging from cultural symbols to abstracted forms, reflects a dual approach of classical semantic grounding and modern abstract execution. Its representation embodies a self-referential quality, allowing it to interpret classical references beyond direct imitation, distilling elements into 'types' that can be reinterpreted based on cultural and personal content, preventing over-interpretation.

10.2. Representation (Composition, Text)

The Palace of Culture is a design that combines classical and non-classical approaches, preserving its cultural roots while adapting to postmodern forms. The design demonstrates a complex relationship with time and place, incorporating abstract geometric figures that represent universal time and space. The rectangular volume design combines classical aesthetics with non-classical effects like abstraction and segmentation, balancing tradition with innovation. The design's order and fragmentation highlight the architecture's ability to balance tradition with innovation.

The findings confirm the hypothesis that representation in architecture relies on something previous to represent, but the

results challenge the notion of a singular representation trend. Instead, the design exemplifies a pluralistic approach, where diverse references, orientations, and mechanisms coexist. The design begins with recognizable cultural elements, such as the Sumerian tablet and Arabic calligraphy, and abstracts them to allow for individual interpretation. This process ensures that the representation is open-ended and infinite, encouraging recipients to construct their meanings based on their cultural and intellectual backgrounds.

The Palace of Culture successfully navigates between classical and modern representation trends, fostering a balance between cultural heritage and contemporary abstraction. The recipient's active role in interpreting the architecture highlights the potential for representation in architecture to serve both functional and interpretative purposes. This example underscores the ability of modern architectural practice to merge tradition and innovation, creating designs that are both rooted in history and open to future reinterpretation.

11. CONCLUSIONS

Representation is the first and most important concept of design; it consists of ideas, beliefs, values, content images, notes, events or effects. It operates at two levels: The referent or the origin of representation and the branch through which representation is passed. It can be Diégésis or Direct Discourse where the representation is apparent and direct, and it coincides in the design with the designer and her vision, and Mimésis or Dramatic Style where the representation is more obscured, indirectly and avoids any interference from the designer in the design creating process. There are two primary directions of representation in architecture: Classical is objective and semantic, it conveys ideology or thought clearly and accurately, while non-classical uses arbitrary starts to depict occurrents, impressions, notations, or glyphs with no symbol indexical signs, so the receiver can decipher the representation based on his tradition. This makes architecture not only a means for generating thought, that is, a way of thinking but not a way of communicating thoughts. Evocations from heaven, nature science, technology and arts and the variety of depicted garments all pointed to the exterior through ideal forms that classical architecture treasured. Non-classical architecture deals with constructed experience, interprets [s] everything as a hermeneutic process and makes meaning available for endless interpretation. Postmodernism dismisses the framework and its ideas where representation is linked with ideology and denies traditional representations. Postmodernism and post-structuralism once again reversed the signification of the real world and regarded representation systems as how this world is envisioned. This shift marks a paradigm change in the way representation works and produces meaning by regulating signification and interpretation, developing the constructed environment and architecture knowledge horizon.

12. RECOMMENDATIONS

1. Expanding the Study of Representation Concepts: The research highlights the necessity to expand the study of general notions and approximations to representation. It may expand on other aspects of the idea that had not been so salient before and reach out to formulate other forms of the theory that would provide a better understanding of the subject as it applies in Architectural applications.
2. Balancing Representation Trends: The first representational trend (semantic representation) relies on a direct (1:1) signification or the social contract bond between the sign and the thing signified. This all tends to promote authoritarian and dogmatic readings; These impose stability (Doxy)., while the second (non-representational syntactic) acknowledges abstraction, with infinitive and subjective representation, leading to nihilism. This large body of research calls for the seeking out and subsequent creation of a middle ground between these two approaches to reinforce a representation paradigm that is, at once, fluid and anchored – that encourages the creation of a new and yet maintains relevance and contextual applicability.

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