

## THE ROLE OF RULES OF COMPOSITION IN ENHANCING ARCHITECTURAL VISUAL LITERACY (RATE OF ARCHITECTURAL VISUAL LITERACY IN ERBIL)

HAMEEDA I. MUSLAT\* and MAHMOOD AHMED KHAYAT\*\*

\*Assistant Lecturer, Erbil, Region of Kurdistan -Iraq

\*\*Architectural Engineering and Sustainability Programme Director, School of Science and Engineering, University of Kurdistan- Hawler , Kurdistan Region –Iraq

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### ABSTRACT

Architecture can be regarded as a system or a language that relies heavily on visual communication to recognize, perceive, and interpret the built environment. This visual language goes beyond the traditional literacy skills of reading and writing, yet it demands visual principles inherent in architectural compositions. Although language and architecture differ in their forms, they converge on common ground of communication. This study aims to determine the rate of literate audiences in architecture, which presents challenges due to the complex and dynamic nature of literacy and the diverse design strategies of architecture. By drawing inspiration from the influential work of Francis D. Ching's book *Architecture: Form, Space, And Order*, this research evaluates how effectively the field of architecture, and its practitioners, engage and communicate with audiences through visual means. This study illuminates the rate of the literate audience by providing a framework applied to selected case studies in Erbil city featuring diverse architectural compositions. The expected results are, first, providing guidelines of principles derived from Ching's work to enrich architectural practices. Secondly, exploring effective visual communication through enhanced visual literacy utilizing these principles. By understanding the audience's ability to read architectural language, this research lays the foundation for future design practices, empowering architects to create communicative built environments.

**KEYWORDS:** Visual Communication, Principles, Rules of Composition, Literacy, Architecture.

### 1. INTRODUCTION

Literacy encompasses the fundamental abilities for reading and writing, which are widely acknowledged and endorsed by numerous international organizations such as UNESCO with its first internationally agreed-upon definition, one which is still often quoted since 1958 concerning the International Standardization of Educational Statistics, it states that "A literate person is one who can, with understanding, both read and write a short simple statement on his or her everyday life." (UNESCO, 2004). Basic literacy is commonly described as the capacity to read, write, and perform basic arithmetic or numeracy, "Many arguments have been raised to look into whether these skills are enough to qualify a person as 'literate' in this ever-changing world." (Olaniyi, 2015). Although literacy has a wide-reaching impact in different situations on social justice, gender equality, and freedom, all of which are shaped by culture, history, language, religion, and socio-economic

conditions (UNESCO, 2004), this paper focuses on the simplified concept of literacy, specifically the fundamental abilities of reading and writing. The act of writing within literacy facilitates the development of intellectual, critical, and analytical abilities underlying a cognitive outcome as discussed by Brian Street in *Understanding and defining literacy* (Fransman, 2005), at the same time, the act of reading engages individuals not in a cognitive process only but also a social and linguistic process that enables them to comprehend and make use of various forms of written texts (Pilgrim & E. Martinez, 2015). The connectivity of reading and writing enhances effective communication, critical thinking, and personal empowerment, making literacy a potent force for individual and social progress. The evolving 21st-century literacy concepts by Pilgrim & E. Martinez encompassing various literacies and digital skills strengthen\_ in the first place\_ the foundation for effective communication "through diverse media, including visual representations which play a

vital role in modern-day learning” (Milner, 2007). In modern education, literacy involves students using diverse forms of communication, such as oral, print, visual, and digital texts, for information exchange through listening, reading, viewing, speaking, and writing. The rise of visual information has transformed the concept of literacy and shifted it from books to screens (Pilgrim & E. Martinez, 2015). The mode of communication that involves visuals is known as visual literacy, which is considered “a fundamental goal of a liberal education in our rapidly changing world.” (Roux, 2009). Although the idea of visual literacy is not new, its roots date back to the 19th century “due to technological invention associated with the use of photographs and other visuals” (Guney, 2019) but the concept, primarily crystallized by John Debes in 1968 with contributions from various disciplines, such as art, education, linguistics, philosophy, and psychology leading to contribute to human knowledge and understand of visual literacy, which consists of visual learning, visual thinking, and visual communication (Pettersson, 1994). However, “The need to learn to read visual images is an urgent one that touches at all levels in our society.” (Oring, 2000) because “pictures exist all around us. They surround us. The economy relies heavily on visual representation and a sense of design, style and ‘feel’. Understanding pictures is a vital life-enriching necessity. Not to understand them is visual illiteracy.” (Bamford, 2013) as John A Hortin in 1980 noted that visual literacy is “the ability to understand (read) and use (write) images and to think and learn in terms of images, ie, to think visually.” (Avgerinou, 2017). It means how to understand concepts, images and screens while visually thinking to learn from images in science courses (Guney, 2019) (Braden, 2001). "For example, graphic novels, a more complex version of the traditional comic strip require visual literacy skills to comprehend both the text and the illustrations used by the author to represent meaning." (Pilgrim & E. Martinez, 2015). “Discussions about the use of images have a long history. Already ancient philosophers used images for visual communication.” (Pettersson, 1994). In 2008, Peter Felton highlighted that “living in an image-rich world does not mean learners naturally possess sophisticated visual literacy skills analogous to textual literacy. Visual

Literacy is an ongoing process of learning where individuals can develop their ability to recognize, interpret, and employ the distinct syntax and semantics of different visual forms.” (Roux, 2009). This skill allows them to navigate the image-rich world more proficiently and gain deeper insights from visual information. Humans have relied on images to make meaningful interpretations and understandings of sophisticated and complex ideas such as mathematical or chemical formulas or the reading of architectural plans (Bamford, 2013). “Learning who, or what's in the picture, the events involved, the interactions between characters, emotions, and how the picture catches the eye's attention. Learn to look deeper and think about what we see through discovery. Visual literacy is also known as visual grammar and visual language” (Laretive, 2017). While traditional literacy focuses on reading and writing, visual literacy extends this understanding to include the ability to read visual information. It complements traditional literacy by allowing individuals to communicate through visual means, where language is no longer limited to written or spoken text. Visual literacy expands the scope to allow people to communicate and express ideas through visual representations of advertisements, social media, websites, and educational materials encountered in visual contexts, including art, design, and architecture where the ability to use visuals effectively enhances communication and promotes engagement with the audience. The everyday language of spoken and written text that people use in their regular communication has been serving as a primary means of communication for human beings and it differs significantly from the language used in different contexts of art, design, and architecture that is called artistic language which transcends traditional linguistic boundaries. “Natural language has many qualities common for all languages, but it differs from the artistic language of various arts (painting, architecture, cinema, ballet etc.)” (Remizova, 2016). This is particularly relevant in the context of architecture, where visual representations play a critical role in conveying design ideas, plans, and concepts. This research paper highlights visual literacy and its transformative impact on architecture and argues that individuals can more confidently interpret and appreciate architectural drawings, plans, 3D

models, and products enabling them to engage more actively and meaningfully with architectural designs. "Architectural design is rich in visual language" (Kiroff, 2002). Architecture is more than visual understanding but means of visual communication by applying design thinking to make messages through drawings, 3D presentations and using appropriate terminology (Pingale, Damugade, & Jirge, 2017). Jacques Lucan in his book *Composition, Non Composition* identified the significance of architectural composition and introduced additional context to the development of the concept in the field of architecture. This emphasis involves two primary approaches to conception, the first is a conception based on regularity using principles of order, regularity, and hierarchy; the other conception is based on equilibrium by achieving balance and harmony. In architecture, Gaudet defines composition as "the combination of parts in a coherent whole", a decent composition is "the achievement of unity" the composition elements and principles are the basis of the composition attributes (Demir, 2019). In this context, the book by Francis D. Ching *Architecture; Form, Space, and Order* provides a more comprehensive explanation of the composition elements that have been used in architectural education and practice during this century. "This book focuses, therefore, on broadening and enriching a vocabulary of design through the study of its essential elements and principles and the exploration of a wide array of solutions to architectural problems developed over the course of human history." (Ching, 2015). It serves as a valuable resource for understanding how these compositional strategies have evolved and influenced contemporary architectural design and thought. This research paper will draw a framework from the influential work of Francis D.K. Ching's on understanding the principles of architectural form and composition.

## 2. LITERATURE REVIEW

Stellingwerff (2001) explores that "Architects are trained to 'read' drawings." (Stellingwerff, 2001) and interact with and interpret the visual information provided by 3D city models by discussing the techniques of public presentation during the design process and how architects use these models as a source of visual information.

One of the key findings of Stellingwerff's study is that architects often prefer a black-and-white representation of the surroundings combined with a coloured design when communicating with clients. This choice indicates their intention to enhance clarity and facilitate the understanding of the design concept. Overall, the study shows how visual literacy plays a role in the architectural design process. Stellingwerff's study reveals unexpected insights, indicating that architects may prefer abstract views in virtual reality models, similar to their experience with abstract drawings. In contrast, when communicating with clients, architects tend to opt for clear and easy-to-understand representations, even if it means displaying the urban context less realistically (Stellingwerff, 2001). Sheikh (2009) explores how shape impacts architectural composition and plays a significant role in how people perceive and engage with the built environment. Geometric shapes are regular and often have well-defined mathematical properties, such as squares, circles, triangles, and rectangles. On the other hand, organic shapes are more irregular, often inspired by natural forms and curves. Geometric shapes may convey a sense of order, stability, and precision, while organic shapes can evoke a more fluid, natural, and dynamic feeling. The distinction between geometric and organic shapes is parallel to visual language. Depending on the architectural concept and the intended message, architects may opt for specific shapes to create a particular visual and emotional impact on the users and the surrounding environment. The paper discusses how architects purposefully choose different shapes of compositions to match their design concepts and messages, as shapes have the ability to evoke emotions and convey distinct meanings. This conversation highlights how architects skilfully use shapes to craft immersive built environments (Sheikh, 2009). Nezhad & Nagahani (2012) study directly relates to visual literacy and visual language. They investigate how different groups of audiences perceive architectural beauty, highlighting the role of visual perception. The study's hierarchy of visual literacy is tied to education and experience, and the differing viewpoints among specialists, designers, and users. The study utilizes both specialized literature analysis and practical approaches, involving theoretical frameworks and users surveys. The research findings reveal

significant differences in the perceptions and preferences of these groups toward the selected buildings. Additionally, it is observed that more people show a higher interest in public architectural works and those with higher visual appeal and advertisement aspects. The other findings of the study showed that the group of architecture professors has the highest visual literacy, and the group of master students of architecture are in the second degree of visual literacy the non-architectural people in the third level. This study presents that visual literacy has a significant relationship to the education and experience of the people. The higher the education, the higher the level of visual literacy (Nezhad & Nagahani, 2012). Alaane (2013) investigate the form as a significant element in architectural composition, shaping the overall architectural work, either in part or as a whole. Alaane study focuses on the remains of Islamic architectural heritage in old Mosul, particularly traditional houses and their facades. The objective of this study is to investigate the rules and mechanisms that contributed to the creation of a unified and visually distinct architectural scene. By understanding these rules and mechanisms, the study aims to uncover the factors that give Mosul's architectural scene its unique and cohesive appearance. Alaane created a database of architectural discussions that focus on the concept of form in architecture, then, make a guideline of the following principles containing balance, repetition, proportion, and scale. The findings of the study reveal that these principles serve as fundamental guidelines in organizing the internal facades of the houses and "The (Iwan) was the most important element due to its size and form which affect in shaping these facades." (Alaane, 2013). In the context of Alaane's research, understanding the principles of architectural form requires a certain level of visual literacy. Al-Muqaram (2014) examined how shape grammar can be used to analyze Islamic architectural designs and how it can be applied to create new, innovative designs inspired by Islamic architecture. The framework conducted in this study included four main elements of the rules of form defined by Stiny and referred to as (I, R, L, and S) which abbreviated form (Initial, Rules\_ generic, Sub-class, Instance, Labels\_ weight, Shapes\_ point, line, plane, volume). The framework has been applied to

eight Islamic palaces, four from the Umayyad era and four from the Abbasid period (M.H.Al-Muqaram, 2014). The study aimed to understand how shape grammar can offer insights into architectural design principles and can enhance visual literacy, allowing the audience to communicate effectively. Remizova (2016) discusses the concept of the compositional language of architecture with a proposal that architecture has its own distinct linguistic of semantic (meaning), morphological (structural), and syntactic (grammatical) structures. The study highlights that many authors have acknowledged the existence of the language of modern architecture. This visual language employs visual elements, such as colours, shapes, and lines, to communicate messages and ideas, and to create a dialogue with the audience, yet "the two main languages of architecture must be distinguished." (Remizova, 2016). The study emphasizes the distinction between two main languages in architecture: verbal language (using professional terms and concepts for communication with technical aspects) and the language of architectural shapes (using shapes, forms, and elements to express design concepts physically). The study raises several questions about architectural language and its nature, such as whether it resembles spoken language, has scientific or literary attributes, and how it has evolved over time (Remizova, 2016). Danica et al. (2018) explore the interplay between form and space in architectural design throughout history, emphasizing the evolution from basic geometric shapes to more complex compositions. The study underscores the role of primary elements like point, line, plane, and basic shapes in influencing spatial formation and architectural aesthetics. These elements have contributed to both conceptual and visual richness in architectural design. The research categorizes elements into conceptual, visual, relational, and practical groups, with various design strategies used to create unity, balance, contrast, rhythm, and proportion. Additionally, the study analyzes contemporary architecture in South Korea and Switzerland to illustrate the impact of conceptual design strategies on architectural expressions. In essence, the research delves into how architectural forms and spaces have been shaped by a variety of elements and strategies over time, contributing to the broader understanding of

visual literacy in architecture (Danica Stankovic, 2018). Demir et al. (2019) introduce a method to analyse visual attributes in architectural compositions. They view composition elements and principles as design language's nouns and verbs "Syntactically, the composition elements and principles are the basis of the composition attributes. As they are analogous to noun and verb in a design language." (Demir, 2019). The study examines how composition principles apply to overall building design, including plans and elevations. They propose a method involving layers and families of properties such as quality, colour, and texture. Applied to 200 building images, this method uncovers common formal attributes. The outcomes enhance understanding of architectural compositions' visible qualities, providing architects and researchers with a valuable analysis tool (Demir, 2019). This study contributes to the comprehension of how architectural compositions are visually structured, aligning with the theme of visual literacy in architecture. Yousif (2019) provides an overview of the essential components of the built environment through Frank D. Ching's book "Architecture: Form, Space, and Order." This overview asserts that this book can be seen as a fundamental vocabulary essential for every architect and designer "It can and should be considered as the fundamental vocabulary for every architect designer." (Yousif, 2019). Previous studies discussed architectural composition as a complex aspect of design including principles from the initial phase of design to the final product. These studies highlight the shape of architectural forms, focusing on the attributes that emphasize the language of architecture to communicate

effectively, and finally discussing the visual attributes as rules of architectural compositions. However, these studies may not have, first, fully addressed how literate the audience is when it comes to architectural language. This raises the question of the level of visual literacy in architecture and how it affects the communication and experience of architectural compositions. Second, the reviewed studies might lack a comprehensive framework of visual principles, especially in terms of architectural composition. A clearly defined set of visual principles is crucial for guiding architects in creating distinct and impactful designs. Although these studies have covered various aspects of architectural composition, like shape, balance, repetition, proportion, and scale, they seem to have overlooked a thorough exploration of Ching's comprehensive principles. This research aims to fill this gap and enhance the discussion on architectural composition. To enhance understanding for the literate audience, this research builds upon Frank Ching's comprehensive and systematic exploration of architectural principles. The book is divided into seven chapters (Primary Elements, Form, Form and Space, Organization, Circulation, Proportion and Scale, and Ordering Principles). In these chapters, each one is treated as a family, and within each family, there are several subtopics treated as members. However, selecting a set of key principles working as rules from the comprehensive Table 1 will provide valuable data for the study. The table works as a basic knowledge for visual literacy in architecture and is going to structure the questionnaire accordingly.

**Table( 1):-** A comprehensive overview of the key elements and principles in architectural design as discussed in Frank D. Ching’s book Summary of Ching’s book for Architectural Principles. (Ching, 2015)

Family 01- Primary Elements									
Member 01		Member 02		Member 03		Member 04			
<b>Point</b>	Position in space	<b>Line</b>	Length	<b>Plane</b>	Length & Width	<b>Volume</b>	Length, Width, Depth		
	Static		Direction		Shape		Form		
	Centralized		Position		Surface		Space		
	Directionless				Orientation		Surface		
Family 02- Form									
Member 01		Member 02		Member 03		Member 04			
Visual Properties		Relational Properties		Physical Characteristics		Transformation of form			
<b>Shape</b>	Circle	<b>Position</b>		<b>Surfaces</b>	<b>Dimensional</b>		Regular		
	Triangle	<b>Orientation</b>			<b>Additive</b>	Spatial	<b>Dominance</b>	Circle & Square	
	Square	<b>Visual Inertia</b>	Stable			Edge to Edge		<b>Form Articulation</b>	Edges
	Size		Unstable			Face to Face			Corners
	Colour	<b>Primary Solids</b>	Cylinder			Interlocking			<b>Surface Articulation</b>
	Texture		Cone		Centralized	Contrast			
	Scale		Pyramid		Radial	Size			
					<b>Subtractive</b>			Texture	
Family 03- Form & Space									
Member 01		Member 02			Member 03				
Definition of space		Openings in space			Qualities of space				
<b>Horizontal</b>	Base Plane	<b>Within Planes</b>	Centered	<b>Degree of enclosure</b>		<b>Openings</b>	Pattern		
	Elevated Plane		Off-center	<b>View or outlook</b>			Location		
	Depressed Plane		Grouped	<b>Light</b>			Size		
	Overhead Plane		Deep-set						
<b>Vertical</b>	Single plane	<b>At corners</b>	Skylight						
	L-shaped plane		Along one edge						
	Parallel Plane		Along two edges						
	Closure		Grouped						
				Skylight					
				Vertical					
		<b>Between planes</b>	Horizontal						
			Skylight						
Family 04- Organization									
Member 01				Member 02					
<b>Spatial Relations</b>	<b>Space within space</b>			<b>Spatial Organization</b>			Centralized		
	<b>Interlocking spaces</b>						Linear		
	<b>Adjacent spaces</b>						Radial		

Spaces linked by a common		Clustered									
<b>Family 05- Circulation</b>											
<b>Member 01</b>											
<b>Circulation Elements</b>	Approach	The distant view	Frontal Spiral								
	Entrance	From outside to inside									
	Configuration of the path	The sequence of spaces	Linear								
			Radial								
	Path space relationships	Pass by space- Edge	Composite								
		Pass through spaces- Node									
		Terminate in a space- Terminations of the path									
Form of the circulation Space	Enclosed										
	Open on one side										
	Open on both sides										
<b>Family 06- Proportion &amp; Scale</b>											
<b>Member 01</b>	<b>Member 02</b>	<b>Member 03</b>	<b>Member 04</b>	<b>Member 05</b>							
<b>Material Proportions</b>	Elasticity	Structural Proportions	Horizontal support	<b>Manufactured proportions</b>	Mass production	<b>Proportioning systems</b>	Theories of proportion	Golden section	Golden rectangle	<b>Types of Proportion</b>	Arithmetic
	Hardness		Vertical support						Regulating lines		Geometric
	Durability							Classical orders	Tuscan Doric Ionic Corinthian Composite		Harmonic
								Modulor	Red Series Blue Series		
								Anthropometry	Human body study		
								Scale	Visual scale Mechanical scale Human scale		
<b>Family 07- Principles</b>											
<b>Member 01</b>											
<b>Ordering principles</b>	Axis	Symmetry	Balance								
	Symmetry	Bilateral (equivalent)	Radial (radiant)								
	Datum	Line									
	Rhythm	Unify movement	Repetition								

### 3. RESEARCH METHODOLOGY

A quantitative method has been inducted for the methodology of this study. This methodology is a form of questionnaire survey that is distributed among respondents. The respondents of this survey are three groups, Students of the Architecture Department, Architects (Practitioners and Academic staff in the department of architectural engineering of several universities), and non-architects. The questionnaire was created using an online Google form and shared with the respondents through a Google Documents link. The questionnaire was structured based on Ching's fundamental principles of architectural composition. It included a total of five projects of different styles. Respondents were asked to rate each question using a five-point scale including Excellent, Good, Moderate, Limited, and Poor.

### 4. RESEARCH OBJECTIVES

This paper attempts to determine the rate of visual literacy among the audience of architecture and to:

- Investigate the level of familiarity with visual principles in architectural compositions.
- Assess the impact of architectural education and experience on visual literacy levels.

### 5. CASE STUDY

The definition of a composition is the arrangement of components to form a whole. The selection of the case study for implementing the questionnaire in this research involves five case studies with different architectural styles. The projects coded as (PS) as shown in table 2.

**Table (2):-** Case Studies (Researcher).

Case Study	PS 01		
Visual Principles	Family 01	Primary Elements	Points are not static but rather dynamic, lines direction is inclined, planes' shapes are pointed in different positions
	Family 02	Form	Visual inertia is unstable, the planes attract the viewer with its shape, size, and scale.
	Family 03	Form & Space	Vertical planes defining the composition and making a closure along side with the openings within the planes
	Family 04	Organization	Adjacent spatial relations
	Family 05	Circulation	Direct circulation from outside to inside
	Family 06	Proportion & Scale	Mechanical scale
	Family 07	Ordering Principles	Asymmetrical
	Style:	Deconstruction	
Case Study	PS 02		
Visual Principles	Family 01	Primary Elements	Clear points positions. Straight Lines, planes, and volume surface
	Family 02	Form	Visual inertia is stable, primary solid with regular geometrical relationship,
	Family 03	Form & Space	Vertical single plane defining the composition with openings adding quality of view to the outside
	Family 04	Organization	grid spatial organization
	Family 05	Circulation	Frontal Approach
	Family 06	Proportion & Scale	Visual scale
	Family 07	Ordering Principles	Symmetry, balance
	Style:	Post Modernism	
Case Study	PS 03		
Visual Principles	Family 01	Primary Elements	Clear points positions. Straight Lines, planes orientation, and volume surfaces
	Family 02	Form	Additive transformational forms, irregular geometrical relationships, edges form articulation with linear pattern
	Family 03	Form & Space	Vertical and horizontal planes defining the composition
	Family 04	Organization	grid spatial organization
	Family 05	Circulation	Frontal distance view Approach
	Family 06	Proportion & Scale	Human scale
	Family 07	Ordering Principles	Colors, balance, rhythm
	Style:	Modern	
Case Study	PS 04		
Visual Principles	Family 01	Primary Elements	Static points. Straight Lines, planes orientation, and volume surfaces



Family 02	Form	Square shape of planes, stable visual inertia, regular geometrical shapes,
Family 03	Form & Space	Clear Vertical planes defining the composition with window wall
Family 04	Organization	grid spatial organization
Family 05	Circulation	Direct circulation from outside to inside
Family 06	Proportion & Scale	Mechanical scale, classic orders
Family 07	Ordering Principles	balance, repetition
Style:	Classic	

**Case Study**

**Visual Principles**



<b>PS 05</b>		
Family 01	Primary Elements	Clear direct points. Lines, planes, and volume
Family 02	Form	Circle & square geometrical collisions, primary solids used, additive clustered forms
Family 03	Form & Space	Horizontal and vertical planes
Family 04	Organization	linear spatial organization
Family 05	Circulation	Linear configuration of the path, entrance from outside to inside
Family 06	Proportion & Scale	visual scale
Family 07	Ordering Principles	Hierarchy, balance
Style:	Religious	

**6. RESULTS AND DISCUSSION**

The questionnaire survey was distributed to 90 participants of three groups (Architecture students, Architects, and Non-Architects). Each participant was presented with seven questions related to the fundamental architectural principles of five case studies, each project showcased a different architectural style. From this survey, 62 of the respondents completed the questionnaire, providing responses about their familiarity with these architectural compositions. The Architects group shows a higher response in the Excellent and Good scales, in comparison to both the students and non-Architects groups. This tendency among Architects highlights a deeper appreciation of the architectural principles

illustrated across the presented projects. It's interesting to note that students' responses are more evenly distributed across all five scales, suggesting that there is improvement in terms of how well they recognize architectural principles. The Non-Architects group, on the other hand, offers a wide range of responses, indicating a reasonable level of recognition for some principles. Analyzing the specific scales chosen, it is noteworthy that the Excellent scale is most commonly selected by the students for Family 07 in PS04, followed by the Good scale for Family 05 in PS03. Among Architects, the dominant scale is for Family 04 in PS02, while the non-architects group tends to rate Family 03 in PS02, Family 06 in PS03, and Family 02 in PS05 most highly.

**Table( 3):-** shows the higher rate of each group to each family in each case study using Microsoft Office (Researcher)

Case study	Principles	Students					Architects					Non-Architects				
		E	G	M	L	P	E	G	M	L	P	E	G	M	L	P
PS01	Famil y 01	7.10 %	35.9 0%	35.7 0%	7.10 %	14.2 0%	32 %	44 %	24 %	0 %	0 %	13%	13%	21.7 0%	39.1 0%	13%
	Famil y 02	14.2 0%	50% 0%	21.4 0%	14.4 0%	0%	68 %	20 %	8 %	4 %	0 %	21.7 0%	47.8 0%	26% 0%	4.30 %	0%
	Famil y 03	21.4 0%	42.8 0%	14.2 0%	21.4 0%	0%	48 %	36 %	8 %	8 %	0 %	8.60 %	30.4 0%	30.4 0%	17.3 0%	13%
	Famil y 04	14.2 0%	28.5 0%	42.8 0%	7.10 %	7.10 %	32 %	44 %	20 %	0 %	4 %	4.30 %	13%	34.7 0%	26% 0%	21.7 0%
	Famil y 05	7.10 %	42.8 0%	28.5 0%	21.4 0%	0%	28 %	44 %	24 %	0 %	4 %	4.30 %	30.4 0%	39.1 0%	8.60 %	17.3 0%
	Famil y 06	21.4 0%	42.8 0%	7.10 %	21.4 0%	7.10 %	40 %	44 %	12 %	4 %	0 %	21.% 7	34.7 0%	17.3 0%	17.3 0%	8.60 %
	Famil y 07	42.8 0%	21.4 0%	28.5 0%	0%	7.10 %	52 %	40 %	8 %	0 %	0 %	17.% 3	47.8 0%	21.7 0%	13% 0%	0%
PS02	Famil y 01	28.5 0%	28.5 0%	14.2 0%	28.5 0%	0%	40 %	36 %	16 %	4 %	4 %	8.60 %	26%	17.3 0%	34.7 0%	13%
	Famil y 02	35.7 0%	57.1 0%	7.10 %	0%	0%	60 %	28 %	8 %	0 %	4 %	30.4 0%	47.8 0%	17.3 0%	4.30 %	0%

	Famil y 03	28.5 0%	42.8 0%	28.5 0%	0% 0%	40 %	44 %	16 %	0 %	0 %	8.60 %	56.5 0%	8.60 %	17.3 0%	8.60 %
	Famil y 04	14.2 0%	50% 0%	35.7 0%	0% 0%	24 %	52 %	20 %	0 %	4 %	4.30 %	21.7 0%	30.4 0%	17.3 0%	26% 0%
	Famil y 05	14.2 0%	57.1 0%	28.5 0%	0% 0%	36 %	36 %	24 %	4 %	0 %	8.60 %	34.7 0%	21.7 0%	17.3 0%	17.3 0%
	Famil y 06	14.2 0%	50% 0%	35.7 0%	0% 0%	52 %	28 %	16 %	0 %	4 %	17.3 0%	34.7 0%	30.4 0%	13% 0%	4.30 %
	Famil y 07	64.2 0%	35.7 0%	0% 0%	0% 0%	60 %	32 %	8 %	0 %	0 %	30.4 0%	43.4 0%	13% 0%	13% 0%	0% 0%
PS03	Famil y 01	21.4 0%	50% 0%	14.2 0%	14.2 0%	52 %	32 %	8 %	8 %	0 %	8.60 %	34.7 0%	26% 0%	26% 0%	4.30 %
	Famil y 02	42.8 0%	50% 0%	7.10 %	0% 0%	72 %	16 %	8 %	0 %	4 %	30.4 0%	47.8 0%	21.7 0%	0% 0%	0% 0%
	Famil y 03	28.5 0%	50% 0%	21.4 0%	0% 0%	56 %	28 %	16 %	0 %	0 %	17.3 0%	39.1 0%	17.3 0%	26% 0%	0% 0%
	Famil y 04	14.2 0%	35.7 0%	50% 0%	0% 0%	40 %	48 %	12 %	0 %	0 %	13% 0%	21.7 0%	13% 0%	39.1 0%	13% 0%
	Famil y 05	7.10 %	71.4 0%	14.2 8%	7.10 %	48 %	24 %	28 %	0 %	0 %	13% 0%	26% 0%	26% 0%	26% 0%	8.60 %
	Famil y 06	35.7 0%	42.8 0%	21.4 0%	0% 0%	60 %	28 %	12 %	0 %	0 %	17.3 0%	56.5 0%	21.7 0%	4.30 %	0% 0%
	Famil y 07	50% 0%	42.8 0%	7.10 %	0% 0%	60 %	20 %	20 %	0 %	0 %	34.7 0%	52.1 0%	13% 0%	0% 0%	0% 0%
PS04	Famil y 01	42.8 0%	28.5 0%	14.2 0%	14.2 0%	48 %	32 %	12 %	8 %	0 %	13% 0%	21.7 0%	13% 0%	43.4 0%	8.60 %
	Famil y 02	57.1 0%	21.4 0%	21.4 0%	0% 0%	52 %	28 %	8 %	12 %	0 %	34.7 0%	47.8 0%	13% 0%	4.30 %	0% 0%
	Famil y 03	14.2 0%	64.2 0%	14.2 0%	7.10 %	44 %	28 %	20 %	8 %	0 %	26% 0%	21.7 0%	30.4 0%	13% 0%	8.60 %
	Famil y 04	21.4 0%	28.5 0%	50% 0%	0% 0%	24 %	48 %	20 %	8 %	0 %	17.3 0%	4.30 0%	17.3 0%	43.4 0%	17.3 0%
	Famil y 05	21.4 0%	50% 0%	21.4 0%	7.10 %	32 %	40 %	12 %	12 %	4 %	17.3 0%	21.7 0%	21.7 0%	34.7 0%	4.30 %
	Famil y 06	14.2 0%	64.2 0%	21.4 0%	0% 0%	52 %	20 %	24 %	4 %	0 %	21.7 0%	34.7 0%	30.4 0%	13% 0%	0% 0%
	Famil y 07	64.2 0%	35.7 0%	0% 0%	0% 0%	48 %	32 %	12 %	8 %	0 %	26% 0%	52.1 0%	17.3 0%	4.30 %	0% 0%
PS05	Famil y 01	21.4 0%	35.7 0%	21.4 0%	21.4 0%	48 %	36 %	12 %	4 %	0 %	4.30 %	30.4 0%	39.1 0%	8.60 %	17.3 0%
	Famil y 02	35.7 0%	50% 0%	7.14 %	7.10 %	52 %	32 %	12 %	4 %	0 %	26% 0%	56.5 0%	8.60 0%	4.30 %	4.30 %
	Famil y 03	35.7 0%	14.2 0%	42.8 0%	7.10 %	48 %	40 %	8 %	4 %	0 %	8.60 %	43.4 0%	21.7 0%	13.6 0%	13% 0%
	Famil y 04	35.7 0%	21.4 0%	28.5 0%	14.2 0%	52 %	24 %	16 %	8 %	0 %	4.30 %	17.3 0%	26% 0%	30.4 0%	21.7 0%
	Famil y 05	35.7 0%	14.2 0%	28.5 0%	21.4 0%	52 %	32 %	12 %	4 %	0 %	13% 0%	30.4 0%	17.3 0%	26% 0%	13% 0%
	Famil y 06	28.5 0%	35.7 0%	7.10 %	28.5 0%	60 %	20 %	16 %	4 %	0 %	17% 0%	39.1 0%	17.3 0%	21.7 0%	4.30 %
	Famil y 07	42.8 0%	28.5 0%	28.5 0%	0% 0%	60 %	20 %	16 %	4 %	0 %	17.3 0%	52.1 0%	17.3 0%	13% 0%	0% 0%

The findings highlight the importance of architectural education and professional experience in recognizing and employing fundamental architectural principles. Architects' significantly higher ratings confirm the impact of their specialized training, indicating a higher level of visual literacy in the realm of architecture. These findings suggest opportunities for enhancing visual literacy across different audience groups. Finally, the significance of the most frequently chosen scale for Family 07 across each project is a significant observation. This [hameeda.muslat@su.edu.krd](mailto:hameeda.muslat@su.edu.krd) [mahmood.khayat@ukh.edu.krd](mailto:mahmood.khayat@ukh.edu.krd)

significance highlights the importance of further investigation into the reasons underlying this specific principle which includes (symmetry, balance, rhythm, and movement), potentially revealing deeper insights into participants' perception of architectural principles in this context. The clearer and multiple principles in one composition, the clearer the rate of reading these compositional principles in architecture, i.e., there is a significant correlation between the clarity of principles and the rate of visual literacy.

Table 4 below created using SPSS shows

important differences in how the three groups responded. By using the ANOVA test, this table provides p-values that indicate variations in how each group experiences these architectural principles. In simpler terms, the p-values help us see that the way people rate these architectural designs can be influenced by their background and experience. It's like how different people might interpret a painting in their own unique way

based on their life experiences. What's particularly interesting is that the table points out specific cases where the groups seem to read the designs differently. For instance, there are noticeable differences in how the groups approached family 07 in case study PS 01, family 02 in PS 02, family 02 and family 07 in PS 03, and families 02, 03, 05, and 07 in PS 04, as well as families 02 and 07 in PS 05.

**Table (4):-** Showing Mean by ANOVA Test (Researcher).

Case Study	Principles	Mean			Total Mean (Audience)	ANOVA
		Students	Architects	Non-Architects		P value
PS 01	Family 01	2.86	1.92	3.26	2.63	0.001
	Family 02	2.36	1.48	2.13	1.92	0.004
	Family 03	2.36	1.76	2.96	2.34	0.001
	Family 04	2.64	2.00	3.48	2.69	0.001
	Family 05	2.64	2.04	3.22	2.61	0.001
	Family 06	2.50	1.80	2.57	2.24	0.043
	Family 07	2.07	1.64	2.30	1.98	0.052*
PS 02	Family 01	2.43	1.96	3.17	2.52	0.003
	Family 02	1.71	1.56	1.96	1.74	0.220*
	Family 03	2.00	1.76	2.61	2.13	0.008
	Family 04	2.21	2.04	3.39	2.58	0.001
	Family 05	2.14	1.96	3.00	2.39	0.002
	Family 06	2.21	1.72	2.52	2.13	0.015
	Family 07	1.36	1.48	2.09	1.68	0.008
PS 03	Family 01	2.21	1.72	2.83	2.24	0.001
	Family 02	1.64	1.48	1.91	1.68	0.191*
	Family 03	1.93	1.60	2.52	2.02	0.003
	Family 04	2.36	1.72	3.17	2.40	0.001
	Family 05	2.21	1.80	2.91	2.31	0.001
	Family 06	1.86	1.52	2.13	1.82	0.022
	Family 07	1.64	1.60	1.78	1.68	0.704*
PS 04	Family 01	2.00	1.80	3.13	2.34	0.001
	Family 02	1.64	1.80	1.87	1.79	0.766*
	Family 03	2.14	1.87	2.57	2.20	0.092
	Family 04	2.29	2.12	3.39	2.63	0.001
	Family 05	2.14	2.16	2.87	2.42	0.059
	Family 06	2.07	1.80	2.35	2.06	0.119*
	Family 07	1.36	1.80	2.00	1.77	0.074
PS 05	Family 01	2.43	1.72	3.04	2.37	0.001
	Family 02	1.86	1.68	2.04	1.85	0.385*
	Family 03	2.21	1.68	2.78	2.21	0.002
	Family 04	2.21	1.80	3.48	2.52	0.001
	Family 05	2.36	1.68	2.96	2.31	0.001
	Family 06	2.36	1.64	2.57	2.15	0.012
	Family 07	1.86	1.64	2.23	1.90	0.091*

A fundamental observation that arises from this study is that a project's readability is correlated with how clearly it expresses its architectural principles. When a project effectively showcases its principles, it becomes more accessible to readers. This suggests that the visual presentation of architectural elements and the cognitive process of appreciating architectural compositions are tightly connected. These results highlight the importance of visual communication in the field of architecture as well as its crucial

contribution to a greater appreciation of architectural arrangements and design intentions.

## 7. CONCLUSION

Being visually literate means having an awareness of the built environment that people experience in their daily lives. In the field of architecture, there are numerous architectural products that can be explored to assess the level of visual literacy among the audience. In this study, the focus is on exploring the rate of visually

literate audiences in architecture by concentrating on the basic principles that surround audiences. The study's conclusion emphasized the crucial relationship between the clarity of architectural principles and the rate of visual literacy. It highlighted that a project's effectiveness in presenting its principles enhances its readability and accessibility as a way of communication. It is obvious that visual literacy is significantly influenced by architectural education and experience. As we navigate a world that is getting increasingly rich in the built environment, mastering visual literacy is crucial. The study successfully answered the research question and provided valuable information about the interaction between architectural principles and visual literacy among different audience groups.

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