

Original Article

Architectural Signage as Visual Governance: Managing Visual Clutter and Institutional Identity in Educational Hospital Environments

Andi Siti Junisa Faradikah¹, Triyatni Martosenjoyo², Syahriana Syam³

^{1,2,3}Department of Architecture, Hasanuddin University, Makassar, Indonesia.

²Corresponding Author: triyatni@unhas.ac.id

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Abstract - Architectural signage in educational hospital environments is often thought of in terms of identification, information and way finding. However, less attention has been paid to the collective visual condition that is generated when multiple signage elements interact with architectural surfaces and surrounding environmental elements. The objective of this study is to analyze and compare the visual and architectural condition of signage in Hasanuddin University Teaching Hospital (RSP Unhas) and RSUP Dr. Wahidin Sudirohusodo in Makassar, Indonesia. The research was carried out using a descriptive-interpretative qualitative method, through systematic field observation, photographic documentation, inventory of signs and cross-case comparison. The analysis was conducted on five dimensions; signage accumulation, visual hierarchy, façade legibility, architectural esthetics and institutional identity. The inventory identified four documented signage elements for RSP Unhas and five for RSUP Dr. Wahidin Sudirohusodo. The findings suggest that visual accumulation or visual clutter is not a function of signage quantity alone. Visual condition is determined by concentration, distribution, repetition, scale, placement, visual prominence, architectural relationships, materiality, and surrounding environmental elements, not visual appearance. The institutional identity sign is a major visual element at the main entrances of both hospitals, however, the variations in placement and context of the environment create different relationships to vegetation, circulation areas, site infrastructure, and architectural elements. The study contributes a visual governance perspective that shifts the analysis from individual signage to collective visual organization in the architectural environment. The findings suggest planning of signage should be combined with architecture, landscape, circulation and institutional identity.

Keywords - Architectural signage, Visual governance, Visual clutter, Architectural aesthetics, Institutional identity.

1. Introduction

Visual quality of healthcare environments is an important architectural consideration because complex healthcare facilities contain multiple physical, informational, and institutional elements within shared visual fields [1-3]. In these environments, visual quality is not only determined by the architectural form and materiality, but also by the organization of graphic and informational elements. Signage is especially important because it has to show information and at the same time be visually coordinated with buildings, circulation spaces and landscape elements [4-6].

Poor coordination of visual elements, differences in scale, contrast, placement, repetition and graphic treatment can create visual competition and reduce the clarity of architectural composition. Therefore, the organization of signage should be considered as a problem of communication, and as a part of architectural visual quality

[7, 8]. The problem is more acute in teaching hospitals, where health care, education, research, administration and public activities are integrated in the same institutional setting. These overlapping functions create different informational needs and can lead to multiple signage systems like institutional identification, service and unit identification, directional signs, regulatory signs, information boards and temporary communication materials.

The combination of these elements creates a complex visual field in which signage needs to simultaneously support information delivery, institutional representation, and architectural coherence. Therefore, the visual condition of signage in teaching hospitals cannot be understood through the performance of individual signs alone, but also requires attention to the accumulation, positioning, repetition and integration of multiple signs within the architectural environment.



Architectural signage has traditionally been studied as a tool for identification, information delivery and wayfinding in complex environments [9-11]. Research on healthcare wayfinding has shown the importance of sign visibility, location, graphic characteristics and the relationship with spatial configuration and environmental conditions. Other studies have examined visual characteristics such as colour, typography, graphics and architectural features in relation to wayfinding and environmental comprehension [12-14]. The studies show the importance of signage as an information system. But signage also takes up physical and visual space in the architecture. It can affect the composition and legibility of façades and the visual expression of an institution through its scale, repetition, materiality, placement and relation to building surfaces [15-17].

Research on healthcare wayfinding and environmental graphic communication has been developed, but an important architectural aspect is not sufficiently explored: the cumulative visual condition that emerges when several signage elements are present in the same architectural field [18, 19]. Most wayfinding studies focus on individual signs, spatial orientation, visibility or provision of information; the architectural consequences of the accumulation of signage, such as repetition, visual competition, obstruction and inconsistent hierarchy, are less discussed [20-22]. Likewise, research on visual clutter has tended to focus on urban, commercial or general built environments rather than on the specific relationship between signage and architectural composition in educational hospitals. This creates a gap between signage as an information system and signage as a part of architectural visual organization [23-25].

This is particularly the case in educational health care settings in Indonesia, where large hospital complexes are home to health care services as well as academic, training, administrative and public functions [26-28]. The visual environment thus has institutional signs, identification of services, directional information, messages of a regulatory nature and other visual elements, temporary or supporting, which may be found in entrances, facades, circulation routes and outdoor spaces [29]. In the hospital complex of Hasanuddin University in Makassar, these conditions provide an appropriate context to investigate how multiple signage elements engage with architectural surfaces, circulation spaces, landscape features, and institutional identity [30, 31].

The novelty of this study is that the analytical unit is shifted from the individual sign to the collective visual condition of the signage environment. Rather than evaluating signage mainly in terms of its ability to provide information or to assist in wayfinding, the study looks at how different elements of signage relate to each other and to architectural surfaces. The perspective views the accumulation of signage, the visual hierarchy, the legibility of the facade, the architectural aesthetics and the institutional identity as the

intertwined dimensions of the architectural visual organization. In this sense, signage is not understood as an additional graphic layer over completed architecture but rather as a component that participates in the construction, consolidation or subversion of architectural order and institutional representation [32-34].

The study creates five analytical dimensions to systematically explore this relationship [35, 36]. The accumulation of signs is the concentration, repetition and coexistence of several elements of signs in a visual field. Visual hierarchy is about differences in prominence, scale, contrast and the order of primary and secondary information. Facade readability is the measure of the capacity in which the signage assists or hinders the reading of architectural surfaces and building composition [37]. Architectural aesthetics encompasses signage in terms of proportion, materiality, colour, visual order and architectural integration. Institutional identity is concerned with the visual representation of the institution and how names, logos, typography, colour, scale and placement contribute to that. These dimensions provide a common ground for comparing the signage conditions in the two hospital cases [38, 39].

Therefore, this study aims to examine and compare the visual and architectural conditions of signage in Hasanuddin University Teaching Hospital and RSUP Dr. Wahidin Sudirohusodo in Makassar. The research explores the expression of signage accumulation, visual hierarchy, façade legibility, architectural aesthetics, and institutional identity through signage location, scale, repetition, graphic features, and architectural integration. This study aims to develop an architectural interpretation of signage as a form of visual governance through a comparative analysis of two hospital environments, and to identify principles for the coordination of signage within the broader visual organization of educational health care environments.

2. Material and Methods

2.1. Research Approach

In this study, a descriptive-interpretive qualitative approach was used to explore the relationship between architectural signage, visual clutter, architectural aesthetics and institutional identity in educational hospital environments [4, 40]. This approach stemmed from the fact that signage was not only considered an information and identification system but also a visual element in the architectural and spatial context.

The analysis of visual architecture was carried out to investigate the relationship between signage and building façades, circulation areas, entrances, outdoor spaces, landscape elements, visual hierarchy and institutional identity [41]. The analysis was based on five dimensions: accumulation of signage, visual hierarchy, façade legibility, architectural aesthetics and institutional identity. Each

dimension was assessed by observable characteristics recorded during field observation and photographic documentation [42, 43]. The unit of analysis was the individual sign element and its surrounding architectural visual field.

The individual signs were analysed in terms of their physical and graphic characteristics, and their spatial and visual relationships with other signage elements and architectural components. This approach allowed the study to identify the characteristics of each sign and the overall visual condition produced by several signage elements in the same architectural environment.

2.2. Research Location and Study Area

The study was done in two health care educational institutions in Makassar, South Sulawesi, Indonesia, namely Hasanuddin University Teaching Hospital (RSP Unhas) and RSUP Dr. Wahidin Sudirohusodo. The two cases were chosen as they represent complex hospital environments where healthcare, education, administration and public functions are integrated, thus creating diverse signage needs.

Main entrances, building facades, drop-off areas, parking areas, outdoor circulation routes and inter-building spaces were looked at. These areas were selected because the signs in these areas have direct visual relationships with building surfaces, circulation systems, landscape elements, and other visual communication elements.

The observation was of signage visible from the main areas of circulation and activity. Documented signage included institutional identification signs, building and unit identification signs, directional and orientation signs, regulatory signs, information boards, and temporary visual communication such as banners and associated displays. Each signage element was recorded and classified according to type, location, physical characteristics, placement, scale, repetition, visibility and relation to surrounding architectural elements.

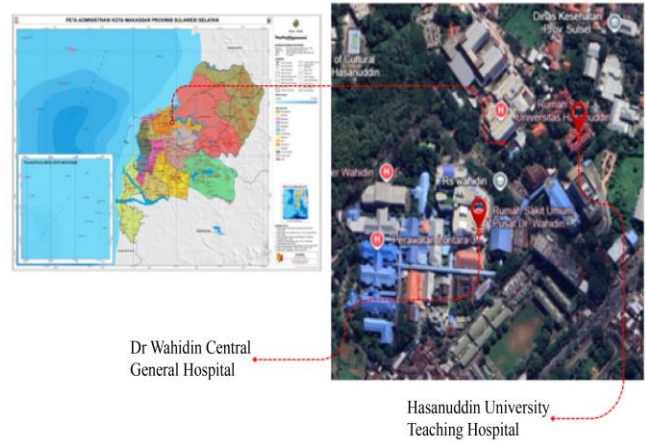


Fig. 1 Geographic location of the research site

2.3. Data Collection and Signage Inventory

Data were collected as primary data through systematic field observation and photographic documentation of signage in the selected areas of the two hospital complexes. Field observation of the architectural environment identified types of signage, distribution, physical characteristics, placement, scale, repetition, and visibility and visual relationships.

The observation was categorised into six aspects: (1) type and function of signage, (2) location and spatial distribution, (3) scale and physical characteristics, (4) repetition and concentration, (5) visual relationships among signage elements, and (6) relationships between signage and architectural or landscape elements. Photographs were taken of representative views of major entrances, building facades, circulation paths, drop-off areas, parking areas and outdoor spaces. A signage inventory was developed to systematically record the signage observed at each hospital complex. The inventory included the type, quantity, location, physical characteristics, placement and visual condition of each signage category. The inventory was structured by observation area to identify concentrations, repetition, and recurring visual relationships between signage elements.

Table 1. Signage inventory of the two hospital complexes

Hospital	Observation Area	Sygnage Type	Number
RSP Universitas Hasanuddin	Main entrance & facade	Institutional identification	2
RSP Universitas Hasanuddin	Circulation, parking & drop-off	Directional/orientation & regulatory	2
RSUP Dr. Wahidin Sudirohusodo	Main entrance & facade	Institutional identification	2
RSUP Dr. Wahidin Sudirohusodo	Circulation, parking & drop-off	Directional/orientation & regulatory	2

Based on the inventory, RSP Universitas Hasanuddin has 4 documented elements of signage in the 2 zones of observation. The 4 elements consisted of 2 institutional identification signs and 2 directional/orientation or regulatory signs. RSUP Dr. Wahidin Sudirohusodo has five documented signage elements consisting of two institutional identification signs and three directional/orientation or regulatory signs. The quantity discrepancy is mostly related to the presence of an additional directional or regulatory signage element on the circulation, parking and drop-off zones of RSUP Dr. Wahidin Sudirohusodo. The inventory data form a descriptive basis for

the later analyses of signage accumulation, visual hierarchy, façade legibility, architectural aesthetics, and institutional identity.

2.4. Analytical Framework and Operationalization

The analysis was based on five dimensions developed from the research framework: accumulation of signage, visual hierarchy, legibility of the façade, architectural aesthetics and institutional identity [50, 51]. To study the two hospital complexes in a consistent manner, each dimension was operationalised by means of observable indicators.

Table 2. Operationalization of the five analytical dimensions

Dimension	Observable Indicators	Focus of Observation
Signage accumulation	Concentration, distribution, repetition, density, coexistence of multiple signs	Presence and clustering of multiple signage elements within the same visual field
Visual hierarchy	Scale, contrast, prominence, position, ordering	Relative visual dominance and differentiation among signage elements
Façade legibility	Obstruction, overlap, interruption, visibility of architectural surfaces	Relationship between signage and the reading of facade composition
Architectural aesthetics	Proportion, materiality, colour, alignment, visual order, architectural integration	Compatibility of signage with building form, façade composition, materials, and landscape
Institutional identity	Institutional name, logo, typography, colour, scale, placement, consistency	Visibility and consistency of institutional representation

Those indicators were qualitative descriptive criteria, not quantitative measures of performance. The analysis was on recurrent visual conditions and relationships between signage, architecture and the surrounding spatial environment. Less emphasis was placed on the effects of individual signs than on the effects of a combination of multiple signage elements on the visual condition.

2.5. Data Analysis and Comparative Procedure

The data analysis was carried out in four sequential steps [52]. First, the signs that were documented were identified and classified by type, function, location and physical characteristics. Secondly, the signage inventory and photographic documentation were reviewed by means of the five analytical dimensions and their associated observable indicators.

Third, we observed repeated visual conditions across the hospital complexes. Fourth, the two cases were analysed for similarities and differences regarding the accumulation of signs, visual hierarchy, legibility of facades, architectural aesthetics and institutional identity [7].

In the analysis of both cases, the same analytical dimensions and indicators were applied to facilitate comparability. We analysed variation in concentration and distribution of signage, visual prominence, repetition, obstruction by the façade, architectural integration and institutional representation.

The analysis of the photographs focused on the spatial position and concentration of signage, visual competition of elements, relative prominence, repetition, obstruction of architectural surfaces, alignment with façade components, and integration with building and landscape elements. Where applicable, photographs were annotated to identify specific analytical conditions such as accumulation, visual competition, hierarchy, façade obstruction and architectural integration. The results were synthesised in a comparative matrix relating the observed conditions of signage to the five analytical dimensions.

The interpretation was based on convergence of field observations, photographic evidence, sign inventory, and cross-case comparison. This process involved integrating architectural signage into the total architectural visual environment, not as a separate graphic element.

3. Results and Discussion

3.1. Current Signage Conditions and Inventory

Field observations noted institutional identification, directional/orientation and regulatory signage within the main entrance, façade, and circulation, parking and drop-off areas of the two hospital complexes. The observation was made according to the criteria established in the Methods, considering the type of signage, location, scale, placement, repetition, visual relationships and integration with architectural and landscape elements.

The documented signage inventory in the selected observation areas of Hasanuddin University Teaching Hospital (RSP Unhas) was four signage elements and five elements at RSUP Dr. Wahidin Sudirohusodo. At the main entrance and façade of both hospitals, two elements of institutional identification have been recorded. Regulatory/directional elements and orientation were associated with circulation, parking, and drop-off zones, with two elements at RSP Unhas and three at RSUP Dr. Wahidin Sudirohusodo.



Fig. 2 Signboard of RSUP Dr. Wahidin Sudirohusodo main gate



Fig. 3 Signboard of RSP Hasanuddin University main gate

Figure 2 Comparison of Identification Signage for Institutions at the Main Entrance of RSUP Dr. Wahidin Sudirohusodo and Hasanuddin University Teaching Hospital 2. The institutional name is the most dominant visual element in the entrance area of both hospital complexes, which is the primary institutional identifier. However, the two sites differ

in their spatial and physical expression. Tanda institusi RSUP Dr. Wahidin Sudirohusodo berada di sepanjang garis depan pintu masuk dan dalam bidang penglihatan yang sama dengan vegetasi dan infrastruktur lokasi sekitar. The institutional signage at Hasanuddin University Teaching Hospital is located in the landscaped entrance area and is visually connected to the main gate and the surrounding vegetation.

Figure 3 shows a more detailed view of the institutional identification signage at the Hasanuddin University Teaching Hospital. The signage features oversized 3D letterforms and a special institutional graphic element. The scale, color contrast and its placement at the main gate make the institutional name visually distinguishable in the entrance environment. The lettering, graphic elements, vegetation, and surrounding architectural elements are arranged to make the signage part of the total visual composition of the entrance, not a standalone graphic.

Figures 2 and 3 in tandem offer empirical visual evidence to test the signage conditions identified in the Methods, especially visual hierarchy, architectural esthetics, façade legibility and institutional identity. The photographs suggest that signage features, in terms of scale, placement, color, materiality and spatial relation to vegetation and architectural elements, are contributing factors to the visual condition of the hospital entrance. Based on these observations, Table 1 offers a systematic inventory of signage and a comparative analysis of the accumulation of signage, visual hierarchy, legibility of the façade, architectural aesthetics, and institutional identity.

Table 3. Signage inventory of the two hospital complexes

Hospital	Observation Area	Signage Type	Number
RSUP Dr. Wahidin Sudirohusodo	Main entrance and facade	Institutional identification	2
RSUP Dr. Wahidin Sudirohusodo	Circulation, parking, and drop-off	Directional/orientation and regulation	3
RSP Hasanuddin University	Main entrance and facade	Institutional identification	2
RSP Hasanuddin University	Circulation, parking, and drop-off	Directional/orientation and regulation	2

The inventory, therefore, provides a descriptive basis for the visual analysis that follows. The difference of one signage element between the two cases is not taken as a direct measure of visual clutter.

The visual condition is studied by the interaction of concentration, distribution, repetition, scale, placement, hierarchy and visual competition, according to the analytical framework.

Figure 4 presents the inventory of signage made in the two hospital complexes. At Hasanuddin University Teaching Hospital, there are four signage elements, consisting of two institutional identification signs and two directional/orientation or regulatory signs. Meanwhile, RSUP Dr. Wahidin Sudirohusodo recorded five elements, consisting of two institutional identification signs and three direction/orientation or regulatory signs. One difference of the signage elements is a slightly different distribution of

signage functions in the observed areas. But the amount of signs per se does not determine the level of visual accumulation or visual clutter, which will be explored in the

following analysis through the density, spatial distribution, repetition, scale, visual hierarchy and relation to architectural and environmental elements.

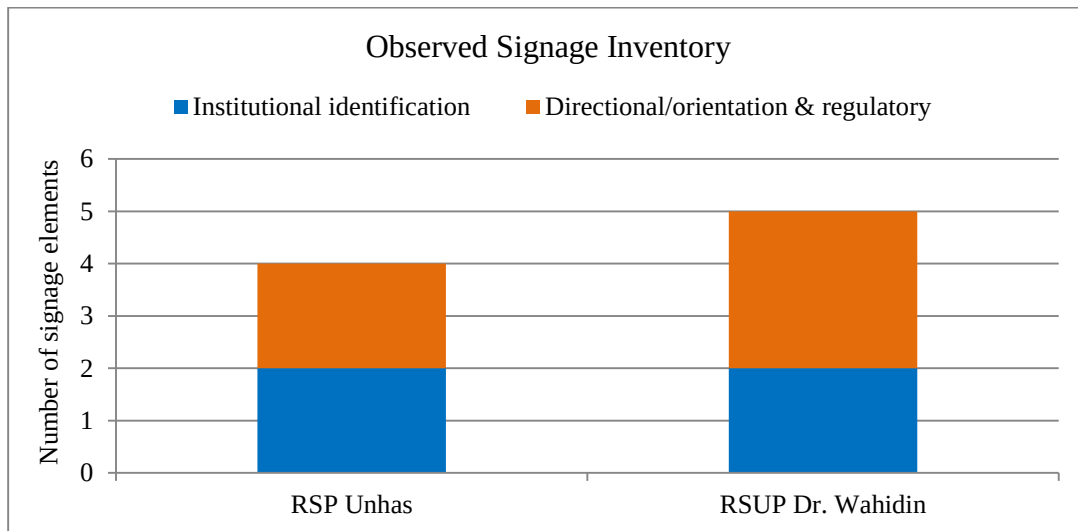


Fig. 4 Observed signage inventory by hospital based on the counts reported in Table 1

3.2. Signage Accumulation, Visual Hierarchy, and Façade Legibility

The field observations are explained by the co-presence of signage and other visible elements in the same visual field and by the accumulation of signage. It includes institutional identification signs, directional and regulatory signs, vegetation, utility infrastructure, fences, circulation and other informational elements. Observation thus sees accumulation as a spatial and visual condition, not just a count of signs.

The placement of institutional identification sign at RSP Hasanuddin University is in the zone of entrance, which has a visual relationship with the entrance of the building and vegetation. The institutional sign of RSUP Dr. Wahidin Sudirohusodo is located facing the road. The institutional sign is in the visual field between the vegetation and utility infrastructure. In both cases, the examples demonstrate that signs with the same institutional functions may have different visual relations depending on their placement and context.



Fig. 5 Visual competition between institutional signage and surrounding environmental elements at RSUP Dr. Wahidin Sudirohusodo, The annotated photograph identifies the spatial overlap between the main sign and adjacent visual elements.

Differences of visual hierarchy were noted in scale, position, contrast and visual prominence. In the entrance sequence, institutional identification signs are the primary identification element, and directional and regulatory signs offer secondary information. Their relative prominence to each other is determined by their size, position and contrast with other elements if they are in the same visual field.

Legibility of facades also concerns the spatial relationship between signage and architectural surfaces. A sign placed directly on or near a facade is part of the visual reading of that facade. The scale, placement and alignment with architectural elements reinforce the visual integration. Additional visual layers are added by detached or competing elements. Hence, the conditions observed are consistent with the operationalization of façade legibility through obstruction, overlap, interruption and visibility of architectural surfaces.

The results, taken together, respond to the three dimensions of the analytical framework. Signage accumulation is a matter of concentration and coexistence; visual hierarchy is a matter of relative prominence and ordering; and façade legibility is a matter of the relationship between signage and visibility of architectural composition. The study does not use a numerical clutter index or a user-based performance test. The dimensions are explained.

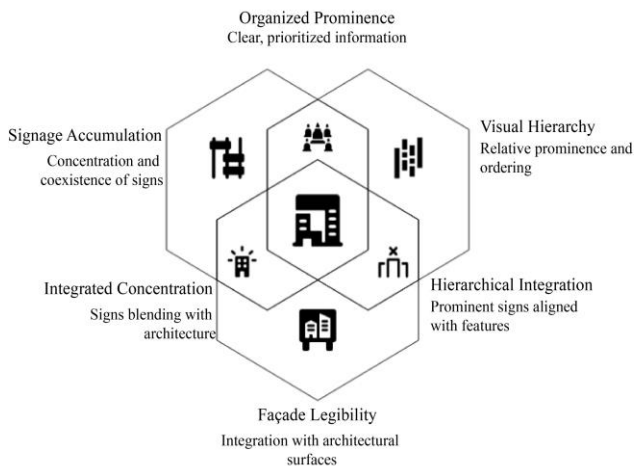


Fig. 6 Synergi in facade legibility, visual hierarchy

3.3. Architectural Aesthetics and Institutional Identity

The architectural aesthetics was examined through the observable features as defined in the Methods: typography, materiality, color, scale, proportion, alignment, placement and integration with the building and landscape. These qualities are understood in relation to the architectural environment and not as separate graphic qualities.

The signage of RSUP Dr. Wahidin Sudirohusodo is composed of three-dimensional letters aligned in a linear manner along the frontage of the site. It is free-standing, so

parts of the landscape around the lettering are visually present. The scale, spacing, treatment of the material and the contrast of the letters create a unique visual element in this entrance environment. These are features of the relationship of the form and materiality of signage to the visual composition of the site.



Fig. 7 Form, typography and materiality form, typography, and materiality of architectural signage at RSUP Dr. Wahidin Sudirohusodo. The photograph highlights the three-dimensional lettering, scale, colour, and relationship between the sign and the surrounding landscape.

The institutional identity was assessed in terms of the institution's name, logo or graphic mark, typography, color, scale, placement and consistency of the visual representation. Both hospitals use strong institutional identity at their main entrances, but the graphic expression and the spatial relation of signs are different.



Fig. 8 Comparison of institutional identification signage at the two teaching hospitals. The photographs show differences in institutional name, graphic treatment, typography, scale, placement, and relationship with the surrounding architectural setting.

The juxtaposition suggests that institutional identity is expressed through both graphic content and spatial location. The visual character of the sign is determined by the typography, color, scale and placement, with the name of the institution providing direct identification.

The institutional representation is more visually explicit in cases where identity elements are visually distinguishable in the context of an entrance, and the relative visual prominence of the sign is reduced when surrounding elements overlap the sign.

These observations support the fifth analytical dimension, but do not generalize the findings to unmeasured user perception. No user survey or behavioral test was performed in this study, thus, claims regarding recognition, navigation performance, confidence or user experience are not considered as measured outcomes.

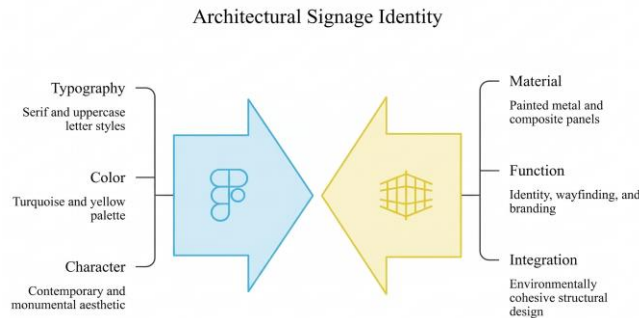


Fig. 9 Analytical framework for signage identity considering typography, materiality, functionality and environmental integration

The results show therefore that visual quality depends not only on individual graphic characteristics. Form,

typography, materiality, scale and integration with the environment together determine the visual hierarchy of signage and its success in becoming a part of the architectural setting.

3.4. Comparative Findings and Visual Governance

The cross-case comparison reveals a common spatial organization with the institutional identity at the main entrance and façade, and directional and regulatory signage related to circulation and parking and drop-off zones. The visual condition of the signage at the two hospitals is dependent on the context of the surrounding architecture and environment. The difference is a major one in the relation of the institutional signage to its visual field. The sign of this institution is located in the entrance zone of RSP Unhas, visually related to the building and vegetation.

The institutional sign at RSUP Dr. Wahidin Sudirohusodo is more directly related to the roadside, but seen with vegetation and utility infrastructure. The comparison demonstrates that the visual condition of signage is related to its placement and environmental context.

Table 4. Comparative analysis across the five analytical dimensions

Dimension	RSP Unhas	RSUP Dr. Wahidin Sudirohusodo
Signage accumulation	Institutional signage concentrated in the entrance zone; directional/regulatory signs associated with circulation areas.	Institutional signage at the roadside entrance; directional/regulatory signs distributed in circulation, parking, and drop-off areas.
Visual hierarchy	Institutional identification functions as the primary visual element within the entrance field.	Institutional identification is prominent but shares the visual field with surrounding environmental elements.
Façade legibility	Signage is visually associated with the entrance, façade, and vegetation.	Roadside signage has a strong presence; vegetation and utility infrastructure form additional visual layers.
Architectural aesthetics	Signage is visually related to the entrance architecture and landscape.	Three-dimensional lettering, scale, materiality, and linear placement form a distinct visual element within the landscape.
Institutional identity	Institutional name and graphic characteristics provide identification at the entrance.	Institutional name, typography, scale, and placement provide identification in the roadside entrance context.

The comparative matrix links the field evidence directly to the five dimensions developed in the Methods section. The comparison does not provide numerical scores, but it does reveal common visual conditions and the variations in the relation of signage to architecture and the environment surrounding it.

The results address the research gap identified in the Introduction by shifting the focus from the performance of a single sign to the collective visual condition created by multiple signage and environmental elements. There is evidence that signs cannot be assessed solely in terms of their information function. Its visual condition is also influenced by concentration, scale, placement, hierarchy, façade relationship, materiality and institutional representation.

Hence, visual governance in this study is not merely about increasing or decreasing the amount of signs; it is about the coordination of such relations. The five dimensions provide an analytical framework for analyzing the placement of signage in the architectural environment. The dimensions are: accumulation, i.e. concentration and coexistence of visual elements; hierarchy, i.e. relative dominance of elements; façade legibility, i.e. relationship with architectural surfaces; architectural esthetics, i.e. visual integration; and institutional identity, i.e. visibility and consistency of institutional representation.

This interpretation is consistent with the qualitative descriptive-interpretive design of the study. The findings are the product of field observation, photographic

documentation, sign inventory and cross-case comparison. The present manuscript does not include any user-based evaluation, nor does it provide a verified dataset from expert interviews. That is, it does not claim any measured effects on navigation, recognition, perception or user experience, nor does it report any themes from experts that cannot be documented.

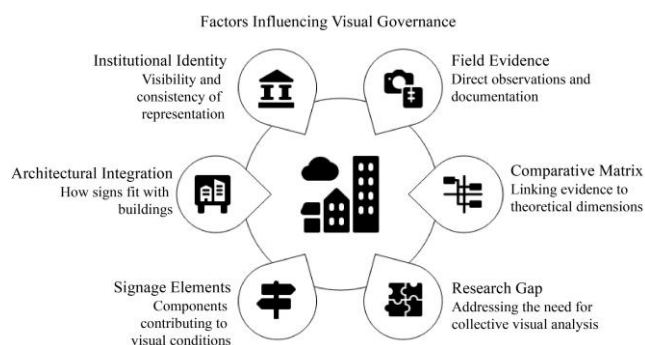


Fig. 9 Analytical Factors Influencing Visual Governance

4. Conclusion

The present study shows that architectural signage in educational hospital environment is not only a system of identification, information and wayfinding but also a part of the architectural visual environment. The comparison between Hasanuddin University Teaching Hospital and RSUP Dr. Wahidin Sudirohusodo indicates that visual condition of signage is formed by its relationship with building facades, entrances, circulation areas, landscape elements and other visible components. The sign design should then be seen as an integral part of the architectural and environmental organization and not as a distinct graphic element. The results indicate that the number of signage elements is not enough to define visual clutter. The documented inventory found four signage elements at Hasanuddin University Teaching Hospital and five elements at RSUP Dr. Wahidin Sudirohusodo. However, this discrepancy in numbers does not necessarily prove the difference in visual clutter. The visual condition is influenced by the amount and placement of signage, repetition, scale, placement, visual hierarchy, façade obstruction, architectural integration and competing environmental elements. The results indicate the significance of investigating signage as a whole, in its visual relationships, in the architectural environment. The main contribution of this study is the development of a visual governance perspective based on five interconnected analytical dimensions: signage accumulation, visual hierarchy, façade legibility, architectural esthetics and institutional identity. This system shifts the analytical focus from the performance of a single sign to the collective visual environment created by multiple signage elements and their relation to architecture. In this framework, accumulation is the concentration and coexistence of visual elements; hierarchy is relative visual prominence and ordering; façade legibility is the relationship

between signage and architectural surfaces; architectural esthetics is proportion, materiality, color, alignment and integration and institutional identity is the visibility and consistency of institutional representation. This approach directly addresses the research gap presented in the Introduction, where signage is regarded as part of the architectural visual organization rather than an information system only.

The findings also have implications for signage planning and management in educational hospital settings. The coordination of signage as part of architectural planning and environmental graphic design should consider: placement, scale, typography, materiality, visual hierarchy and relationship to façades, landscape, utilities and temporary information. Such coordination may encourage a more direct relation to the informational needs and the architectural composition itself, rather than looking at signage as a layer to be applied after the building is complete. However, this research is limited to qualitative observation and photo evidence at two hospital complexes in Makassar. It does not have user metrics, behavior tests, or validated expert interviews. The framework proposed here is therefore not intended as a general measure of signage performance. The framework can be applied to other hospital settings in future research and combined with user-based, behavioral or quantitative methods to examine the broader applicability.

The research shows that architectural signage as a whole is not an informational accessory, but an element of architectural quality and an element of institutional representation. Visual governance is a model of coordination of signage and architecture, whereby critical information is easily perceptible and understandable, without prejudice to visual coherence, façade legibility, architectural esthetics or institutional identity.

Conflicts of Interest

Competing interests The authors declare that they have no competing interests in relation to the publication of this work.

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