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Enhancing way finding in a beach resort

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Article Info

Abstract

This study examines the intricate of wayfinding within beach resorts it explores the symbiotic relationship between architectural design, spatial organization and user experience. Grounded in the principles of environmental psychology and architectural theories, the research illuminates key factors influencing effective wayfinding, including spatial layout, signage, landmarks, and sensory cues. Drawing from extensive case studies, namely the Mauna Lani Hotel and Golf Resort in Hawaii and Casa de La Flora Resorts in Thailand. The study provides in-depth insights into real-world implementations of optimal wayfinding strategies. The research not only emphasizes the critical role of clear signage and logical spatial planning but also recommends the integration of digital technologies and inclusive design principles for diverse user groups. Furthermore, the study offers valuable recommendations for future research endeavors, advocating for explorations into cultural nuances, sustainable wayfinding practices, and the economic impact of superior wayfinding experiences. This holistic analysis advances the understanding of wayfinding in resort contexts, paving the way for enhanced guest satisfaction and efficient navigation in large recreational spaces.

Keywords: Wayfinding, Beach Resorts, Spatial Organization, Signage, User Experience, Guest Satisfaction and Cultural Context

1. Introduction

It is an undisputed fact that form follows function (Sullivan, 1896) [14] therefore, it is only satisfactory to explore the relationship between wayfinding, planning and architectural design forms, within the context of its psychological effect on the human mind (Appleyard, 1970) [1] and how architecture is used to achieve a well- balanced functional and aesthetic environments. A beach resort is expected to provide a wide range of activities to meet the diverse entertainment, social, and recreational needs of its visitors. Researchers have suggested that if a setting is too simple, or too easily understood, it might be boring and if it is too complex, it might be confusing (Evans 1980). According to Arthur and Passini (1992) [2], most complex facilities such as complex buildings are very often designed such that they have key wayfinding issues. People frequently find it challenging to navigate even when signs are present, and this happens for several reasons:

1. The sign might be large enough to be visible, but its message lacks clarity, confusing for people who cannot understand it.
2. Signs may exist but go unnoticed due to their small size.
3. People might consciously ignore signs, assuming they are unreliable, prompting them to seek information from others instead.
4. The sign may be easy to see but the content is difficult to read and understand

The frustration and stress induced by manoeuvring through the built environments are burdensome on their own, and getting lost within these spaces only adds to these challenges.
To break the barrier to seamlessly commute in a beach resort, it is therefore important that clear spatial organization principles and the communication of essential information be considered in the planning process.

2. Literature Review
2.1. The principles of wayfinding in design
Wayfinding in design starts with spatial planning, which serves as the foundation element. It sets the context for dictating entrances, exits, circulation systems, and overall space organization. Appleyard (1970) [1] investigates how the layout of streets, buildings, and public spaces influences human behaviour and community cohesion. Emphasizing the impacts in the level of ease or difficulty experienced in comprehending (pedestrian-friendly) and mapping the environment, influencing social interactions, and the overall well-being of users.

Arthur and Passini (1992) [2] argued that people's behaviour should be the basis for the design of an information system and it should therefore contain all necessary information for the guests to gain a proper understanding of the setting. There are crucial elements to be considered when designing information systems in a facility (Bitgood, 2010) [3]. Conceptual/thematic orientation which involves understanding the themes and organization of the facility, influenced by both visitor expectations and on-site orientation systems, or locational orientation, which is about locating places within the facility, aided by maps and direction signs. Circulation refers to how visitors move through the facility, following pathways and making choices. Circulation pathways should be neither overly confining nor excessively long. In essence, it should be optimized to handle the flow of people and enhance the functionality of the spaces (Ching, 2007) [4].

Considering the inter-relationship between these factors cannot be over-emphasized. In essence, orientation influences visitor circulation patterns, and design impacts user orientation (Bitgood, 2010) [3].

"Wayfinding in Architecture" by Passini (1996) [11] explores the intricate science and art of designing spaces that facilitate easy navigation and understanding for individuals. It explains how individuals cognitively map out spaces, emphasizing the significance of visual cues, memory, and decision-making in navigating complex environments. Kevin Lynch's seminal work, "The Image of the City" (1960), explores the psychological and perceptual aspects of urban environments. Lynch's study is centred around five key elements: paths, edges, districts, nodes, and landmarks. Paths are the routes people take and form the backbone of any city. Edges are perceived boundaries, such as rivers or major roads, which create a sense of separation. Districts are areas with recognizable character and identity, often shaped by common functions or socio-economic factors. Nodes are focal points where paths intersect, often bustling with activity, and landmarks are distinctive physical features that help people orient themselves.

Looking at a beach resort from this perspective, it would need all of these elements to function properly; aligning architectural design with the cognitive processes to create spaces that are inherently intuitive and user-friendly (Passini, 1996) [11] as well as creating a legible and cohesive urban environment, where the elements of urban environments are well-defined and memorable (Lynch, 1960). Information design plays a pivotal role in guiding people through physical spaces (Mijksenaar, 1997) [9]. Visual communication requires clarity, simplicity, and a user-centred design that aligns with human cognitive processes to enable the conveyance of complex information (Mijksenaar, 1997) [9]. Architects can strategically design buildings and pathways to maintain clear visual sightlines. With this, guests should be able to see landmarks or significant structures from a distance, aiding orientation and wayfinding (Wood, 2004) [16].

Passini (1996) [11] discusses various elements that contribute to environmental legibility (clarity and coherence of the physical environment), including clear signage, architectural landmarks, and logical spatial organization. He emphasizes that an environment's legibility is vital for reducing stress and enhancing a sense of security among users. Not only the physical landscape, but the virtual environment also requires legibility in its capabilities (Mijksenaar, 1997) [9]. The best-designed plans change over time as urban space and building uses change, or buildings are added to, restored, or otherwise modified. They may also change with exterior modifications and larger changes in cultural changes. One solution is to provide information in ways that are easily updated (VanderKlipp, 2006, as cited in Hunter, 2010) [15, 6]. Information design principles apply to websites, user interfaces, and interactive media. Mijksenaar (1997) [9] emphasizes the importance of responsive design, ensuring that information remains clear and accessible across various digital devices.

Ching (2014) [5] explores the art of creating mood and atmosphere within interior spaces. He discusses the impact of lighting, colour schemes, and materials on the ambience of a room, giving insights into how these elements when manipulated and applied to the design of a beach resort can evoke specific emotions and responses, significantly enhancing the guest experience. In this context, the use of distinctive materials and texture signifiers in pathways and surrounding areas is highly advantageous.

People tend to grasp a building's layout relatively quickly with brief exposure. They then proceed systematically towards areas that offer easy access to the rest of the building, relying more on the inherent structure than on external cues like landmarks or signs. (Peponis, Zimring and Choi, 1990, as cited in Hunter, 2010) [6]. Lynch (1960) emphasised how individuals perceive and recall features in urban spaces and as such, systems should be tailored to suit first-time visitors since repeat guests can rely on their prior experiences to navigate the surroundings. Different user groups, including men and women, older and younger individuals, and those with varying abilities, consistently exhibit distinct levels of competencies. (Arthur and Passini, 1992) [2]. Therefore, techniques should not only emphasise the position of entrances, exits, circulation systems, and overall space organization. But also accessibility and usability by people of all ages and abilities, including individuals with disabilities (Steinfeld and Maisel, 2012) [13]. Resort architecture can draw inspiration from local culture and traditions. Traditional architectural motifs not only add to the aesthetic appeal but also serve as cultural wayfinding cues, helping guests connect with the local environment (Lang, 1987) [7].

2.2. The process of planning a layout
In planning a layout, there needs to be a relationship between the circulation systems and the spatial organization to ensure -friendliness. These systems, also termed "Circulation Networks" can be based on scatter-point, grid network and network

2.2.1. Scatter-point network
This system is composed of straight lines and curvilinear connections and is randomly distributed.

2.2.2 Grid network

This system in the built environment is usually orthogonal. It is arranged in a fashion such as to be described by two or three coordinates and can be reached by moving an appropriate distance along a coordinate line.

2.2.3 Hierarchical network

This system assumes units of different values linked, from a higher to a lower order and they are particularly suited to large building settings like health-care facilities, hotels, and resorts).

2.3. Application of principles in beach resort design

Creating a positive guest experience in beach resort design, involves guiding guests effortlessly through the resort's layout. These principles can be applied through:

2.4. Clear signage and graphics

Well-placed and well-designed signage is essential. Signs should use clear typography and symbols, providing directions to key areas like the beach, restaurants, and accommodations. These signs should be strategically positioned at decision points to prevent guests from getting lost (Appleyard, 1970) [1]. As a way of evoking specific responses, signage elements should be designed with a theme that harmonises with the overall resort theme (Ching, 2014) [5]. For instance, using nautical-themed signs in beachfront areas enhances the atmosphere and reinforces the sense of place, aiding in orientation and wayfinding capabilities,

2.5. Use of landmarks

Natural and architectural landmarks provide visual cues. A distinctive building design or a prominent beachfront feature can serve as memorable reference points (Lynch, 1960). These features should be integrated into the design as a way of navigating through the elements of paths, edges, landmarks, nodes, and districts as highlighted in "The Image of the City".

2.6 Pedestrian-friendly layout

Pathways that lead guests from accommodations to the beach, restaurants, recreational areas, and other facilities should be clear and intuitive (Moughtin et al., 1999) [10]. Zoning areas for specific activities ensures a clear organization (Ching, 2014) [5], likewise pedestrian-friendly layouts encourage exploration and create a sense of familiarity among guests (Appleyard, 1970) [1]. The resort's layout should have some logic to it. For example, guest accommodations are typically located closer to the beach, while restaurants and recreational facilities are centrally situated. This logical arrangement aids in natural navigation (Lynch, 1960).

2.7. Sensory

Mijksenaar (1997) [9] highlights the use of sensory perception as a technique. Associating unique scents or sounds with specific places can act as sensory cues, aiding in. For instance, the use of subtle fragrances or ambient sounds near specific areas like restaurants or relaxation spots.

2.8. Colour and theme

The use of consistent colour schemes and design themes throughout the resort can help guests identify different zones. Guests can be guided effectively while also being immersed in the resort's unique ambience (Ching, 2014) [5]. For instance, using vibrant tropical colours near beach-front areas, while spa areas may feature calming tones. This visual consistency helps guests identify different areas and aids in:

2.8.1 Distinctive Pathways

The use of distinct materials and textures to mark important routes. Paved pathways, wooden decking, or mosaic tiles can indicate pathways leading to key areas like the beach, restaurants, or entertainment spots.

2.8.2 Visual Hierarchy

Visually prominent and aesthetically pleasing signage at crucial decision points can emphasise their significance (Mijksenaar, 1997) [9]. Using quality materials and lighting to ensure these signs are easily noticeable, can also guide guests effectively (Ching, 2014) [5].

2.8.3 Lighting and Visibility

Implement strategic lighting along pathways, especially during the evening. Well-lit paths not only enhance safety but also act as visual cues, guiding guests and ensuring they can see landmarks from a distance.

2.9 Vibrant public spaces

Integrating vibrant and interactive public spaces like beachfront promenades or marketplaces in the design. These areas become natural gathering spots, where guests can interact and share tips, promoting social interactions and enhancing the overall experience (Appleyard, 1970) [1]. Adding clear signage and maps in these spaces aids guests to better understand the resort layout.

2.10. Digital

Many modern beach resorts develop mobile apps with interactive maps. These apps allow guests to customize their routes and discover various amenities, making navigation more convenient (Mijksenaar, 1997) [9]. Incorporating accessible features such as voice-guided navigation will also enhance the digital capabilities (Steinfeld and Maisel, 2012) [13].

2.11. Universal design

Consideration for accessibility is vital therefore, incorporating the principles from Steinfeld and Maisel's work, "Universal Design: Creating Inclusive Environments," (2012) into the design of a beach resort can greatly enhance the experience for all guests, including those with disabilities. Some of these principles can be applied specifically in this context through:

2.11.1. Equitable Use and Flexibility

Beach Access: Ensure that beach access points have ramps or beach-friendly wheelchairs available, allowing individuals with mobility challenges to enjoy the shoreline.
Adaptable Furniture: Provide a variety of seating options, including benches with backrests and armrests, making them accessible to people with various needs.

2.11.2. Simple and Intuitive Use

Clear Signage: Implement clear and easy-to-understand signage, guiding guests to different resort areas, and ensuring that everyone, including those with cognitive impairments, can navigate effortlessly.
Visual and Tactile Cues: Use contrasting colours and

textures on pathways to assist guests with visual impairments in wayfinding.

2.11.3. Perceptible Information
Braille and audio information: Provide important information, such as room numbers and restaurant menus, in Braille and audio formats to assist guests with visual impairments.

2.11.4. Tolerance for error and low physical effort
Barrier-free design: Ensure that all pathways, including those leading to recreational areas and dining spaces, are flat, smooth, and free of obstacles, making movement easy for all guests.
Accessible Restrooms: Design restrooms with ample space, grab bars, and accessible features for individuals with mobility challenges.

2.11.5. Size and space for approach and use
Spacious Areas: Design public areas, such as lobbies and dining spaces, with ample space between tables, allowing easy maneuverability for individuals using mobility aids.
In sum, the application of principles in beach resort design is essential for creating a guest-friendly environment. It involves a combination of clear signage, logical spatial planning, distinctive landmarks, and considerations for accessibility. While specific in-text citations and references are not available, the principles mentioned here draw from well-established concepts in environmental design and principles.

3. Research methodology
A descriptive case study research approach was used in studying and understanding the workability in the wayfinding dynamics and its efficiency in beach resorts. This required gathering and presenting information about wayfinding and its inter-relationship with circulation and on-site orientation systems within the resorts. Analyzing the data required a holistic approach to ensure that the requirement for every user

group was accounted for in the wayfinding design to enhance visitor experiences, safety, and economic benefits.

4. Case Study
4.1 The mauna lani hotel and golf resort, Hawaii
Traditionally known as Kalahuipua'a, this ancestral home of Hawaiian royalty is now called Mauna Lani Resort, (mountain reaching heaven). Mauna Lani Bay Hotel is a beachfront resort located 20 minutes north of the Kona International Airport and almost three miles of shoreline to explore. Luxury hotel and tropical resort amenities include five dining venues.

*Source***:** (www.greatgolfand spa.com), 2023

Fig 1: Aerial View of the Mauna Lani Resort Hotel, Hawaii

4.1.1. Site planning and landscaping
The design of the resort follows its natural topography, by integrating the hotel into the natural landscape, using its distinctive features as visual cues to help guests identify different zones as highlighted in The Image of the City, 1960.

*Source***:** (www.greatgolfand spa.com), 2023

Fig 2: A View of the Swimming Pool and Golf Course at the Mauna Lani Resort Hotel

4.1.2. Spatial organization and design
Mauna Lani Resort sits by the oceanfront on a stretch of shoreline on the sunny Kohala Coast of the Big Island of Hawaii. Located 23 miles north of the Kona International Airport, this 3,200-acre resort features 29 oceanfront acres and three miles of secluded shoreline.

Source: www.greatgolfand spa.com, 2023

Fig 3: A view of the Mauna Lani Bay Hotel Atrium and Canoe House Restaurant

Mauna Lani Resort hotel features a large atrium-style lobby with fish, singing birds, and a waterfall, five restaurants and three fish ponds (adhering to the use of vibrant public space as stated by Appleyard, 1970) [1].

Source: www.greatgolfand spa.com, 2023

Fig 4: Mauna Lani Bay Hotel Lobby Showing Artificial Waterfalls

The 343 guest rooms and suites have a tropical ambience featuring contemporary styling using teak, cane and natural fibre furnishing, and all rooms have private lanais/balconies; the use of colour and theme by Ching (2014) [5].

Source: www.greatgolfand spa.com, 2023

Fig 5: Interior of Ocean Front Bungalow and Secluded Bungalows

The most prominent building materials employed are wood, timber, concrete and glass. The use of local building materials like bamboo in cladding was adopted as well as the use of biodegradable materials such as wood for building interiors.

4. Case Study
4.2. Casa de la flora resorts, Khao Lak, Thailand
Casa de La Flora resort is located in Khao Lak, the palm tree beach of Phangnga province. Commissioned in 2008. Located directly on the palm-fringed beach on the shore of the Andaman Sea sits Casa de La Flora resort, an hour's drive from Phuket International Airport in Khao Lak,

Fig 6: View of Beachfront Villa

Evincing a distinct sensitivity to the adjacent landscape and achieving harmony with the local flora in the surrounding environment, offers a contemporary style of architecture and design. With each low-rise villa, guests are introduced to arresting sea views, private pools again, showcasing the use of colour and theme, and distinctive cues as highlighted by Ching (2014) [5] and Lynch (1960)

Public spaces include an infinity-edge pool and Spa La Casa featuring exclusive treatment courses (adhering to the use of vibrant public space as stated by Appleyard, 1970) [1].

4.2.1. Site planning and landscaping
The resort consists of a series of facilities such as a reception lounge, swimming pool, pool bar, beachfront restaurant, spa, fitness, and library. The distinctive theme and use of colour attributed to Ching (2014) [5] can be seen in the VA Slab's metaphorical design takes on the act of 'arising flora', where each concrete versus wood villa reflects as a flora form, emerging from the ground, and blooms to reach the daylight.
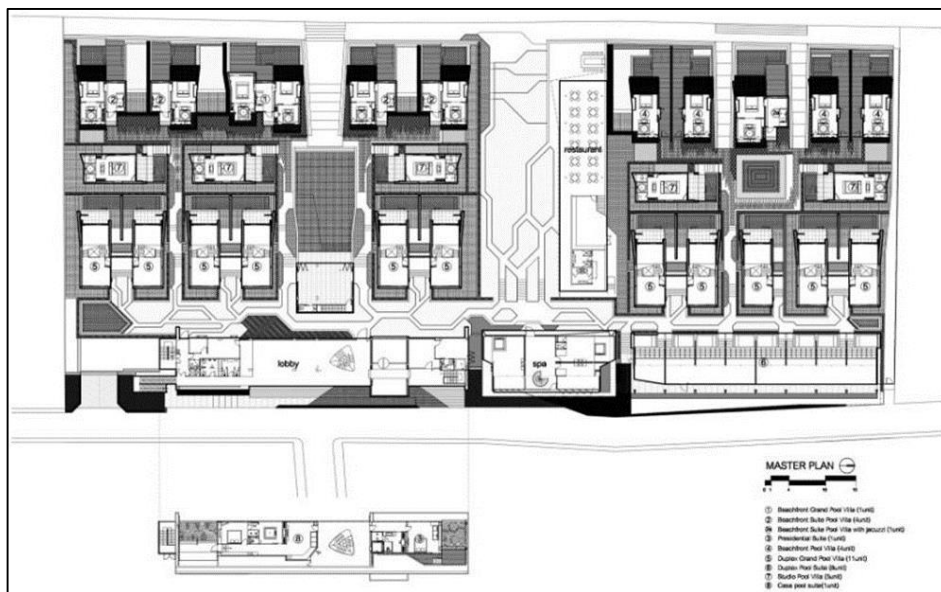
Fig 7: Layout Plan of Casa de la Flora
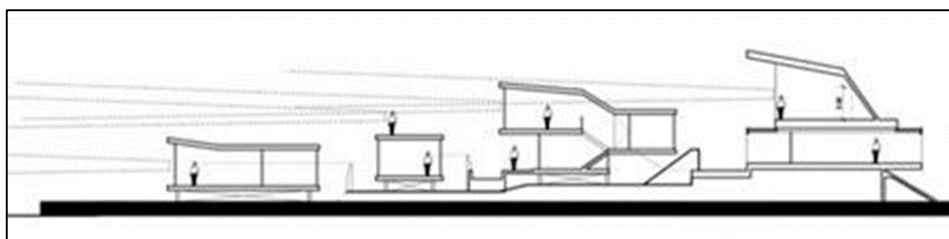
Fig 8: Site Section of Casa de la Flora

4.2.2. Spatial organization and design

The continuity of these lines can be seen also in interior space and interior elements such as built-in beds, coffee tables, and built-in cabinets. Custom-made furniture designed by Anon Parrot Design Studio carries a thematic design that represents an organic form of flora. The same as landscape and hardscape work from a talented designer T.R.O.P., who extends the lines of architecture into a set of charming pathways, pavement blocks to mark important routes (Ching 2014) [5], green walls, etc.

The lighting designer abstractly sets the resort's lighting to provoke the main architectural elements; deviated walls, and tilted roofs, as if the villa cubes are rising above the ground, making identification and wayfinding easier.

Source: **http:** //www.housevariety.blogspot, 2023

Fig 9: View of Beachfront Villa

Using natural materials such as wood, stone, and rock partitions (in addition to less-friendly concrete), the designers managed to strike a balance between luxury and simplicity with these rectangular villas. Local flora grows unhindered in the public spaces, around the pool, and at the outdoor restaurant; all of this works to bolster the thematic orientation and circulation mechanisms of the resort (Bitgood, 2010) [3].

5. Discussion

Wayfinding in a beach resort is a critical aspect of design, ensuring that guests can navigate the expansive property with ease and efficiency. Wayfinding principles become crucial in the design of beach resorts to ensure a seamless and enjoyable experience for guests. Implementing effective wayfinding strategies involves thoughtful planning and architectural design to create a cohesive and intuitive wayfinding experience for guests, reducing frustration, enhancing their overall stay, and contributing to a positive perception of the resort.

1. Provision of frequent directional cues throughout the space, particularly at decision points along journeys in both directions.
2. The site should be analyzed before design for access points, taking into account the physical and aesthetic characteristics of the building or site and the image the facility will portray.
3. The design of decision points must be logical, rational and obvious to a sighted user, ensuring the directional cues relate directly to a building or landscape space. Ensure sequencing and that the priority and grouping of message signs are unambiguous.

4. Consider incorporating information in multiple languages or incorporating pictograms when devising a naming protocol.
5. Ensure the physical placement, installations and illumination of signs are suitable for all users.
6. Divide the large-scale site into distinctive smaller parts, or zones of functional use, while preserving a sense of place and connectivity between spaces.
7. Use a sequential, logical, rational and consistent naming protocol for places such as rooms, and recreational and entertainment facilities.
8. Design and implement a 'naming protocol' by choosing a theme for segregating places and spaces. Use names and symbols that can be easily remembered by users from diverse cultural backgrounds. Any naming protocol must be flexible enough to be adapted to changing functions in a building or throughout a landscape or public space. Consistency is a necessity. Using a naming protocol of an alpha-numeric coding system such as 'Room D3.6' should be interpreted as building 'D', level 3 Room 6.

People who get into buildings want to get out of them, sometimes fast. There is a large body of recent research on how people behave when confronted with the dangers of fire and other emergencies. Two areas link this issue to wayfinding: the design and signage of exit routes and the general quality of the wayfinding design of a setting. Resorts can actively seek feedback from guests regarding their wayfinding experience. This can be done through surveys, online reviews, or direct conversations. Analyzing this feedback can lead to iterative improvements in the wayfinding system

6. Conclusion

The study comprehensively explores the art and science of wayfinding in beach resorts, elucidating the significance of seamless navigation for a positive guest experience. It underscores the importance of meticulous spatial planning, integration of sensory elements, thematic consistency, and universal design principles. By incorporating these strategies, beach resorts can enhance not only the functional aspects of their spaces but also create an ambience that resonates with guests, fostering positive emotions and lasting memories. Furthermore, the iterative nature of resort design, informed by guest feedback, ensures continuous improvement, aligning the physical environment with the evolving needs and preferences of its users. This holistic approach not only enhances guest satisfaction but also contributes significantly to the resort's reputation, attracting more visitors and ensuring sustainable success in the competitive hospitality industry.

There are specific areas which in future research can contribute significantly to the aspect of wayfinding, offering innovative solutions and enhancing the overall guest experience in resort environments. These may include;

1. **Cultural context and wayfinding:** Investigate how cultural differences impact wayfinding preferences in resort environments. Understanding how different cultural backgrounds influence navigation can aid in creating universally effective wayfinding systems.
2. **Sustainability and Wayfinding:** Investigate sustainable materials and practices in wayfinding design. How can eco-friendly materials be effectively

incorporated into signage and navigation systems without compromising aesthetics and functionality?

3. **Resort-specific Wayfinding:** Study wayfinding in different types of resorts such as beachfront, mountain, or urban resorts. Analyze how the natural environment and location specifics influence wayfinding strategies and guest experiences.

4. **Cross-disciplinary studies:** Encourage interdisciplinary research involving fields like architecture, psychology, human-computer interaction, and environmental design. Collaborative studies can offer holistic insights into creating optimal wayfinding experiences.

5. **Comparative International Studies:** Conduct cross-country studies comparing wayfinding practices in resorts across various countries and cultures. Understand the commonalities and differences in designing effective wayfinding systems on a global scale.

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