OPTIMIZATION OF STORE LAYOUTS AND INTERIOR DISPLAY DESIGNS IN INDONESIAN BATIK RETAIL ARCHITECTURE ATMOSPHERE

Nurul Idzi Lutvi Putri[1]*, Eri Naharani Ustazah[1], Mahendra Wardhana[2]
[1]) Department of Industrial Design, Institut Teknologi Sepuluh Nopember, Indonesia
[2]) Department of Interior Design, Institut Teknologi Sepuluh Nopember, Indonesia
*e-mail: putriidzi@its.ac.id

ABSTRACT

The fashion industry has become one of the most influential sectors in Indonesia's economic growth. Batik, as part of the fashion industry, has a sales concept with a retail store system because it is considered to require specific perception stimuli and shopping experiences. In the direct marketing process, one of the most important aspects to consider is atmospheric architecture or environmental atmosphere architecture. Atmospheric architecture involves designing an environment to evoke specific emotional responses in potential buyers, thereby increasing the likelihood of successful product purchases. With the existence of this concept, the atmospheric architecture elements of the environment as decision-making supporters must be studied and optimized. A finding is needed regarding the store atmosphere elements that influence the creation of an optimal shopping ambiance and experience in the batik retail environment. The method used is a qualitative method involving in-depth interviews and photo elicitation. Data processing was carried out using Computer-Assisted Qualitative Data Analysis Software to classify the research findings and was followed by homogeneous validation of the results with the respondents. This finding shows how store layouts and display designs affect sales. It also suggests ways to use these ideas in batik stores to increase product purchases.

Keywords: *Atmospheric Architecture, Batik Retail, Consumer Behavior, Shopping Experience*

INTRODUCTION

After being recognized as the Intangible Cultural Heritage of Humanity by UNESCO, Indonesian Batik, which is made by covering fabric with hot wax to resist dye and create diverse patterns, officially became a cultural identity and a symbol of creativity and spirituality for the Indonesian people (UNESCO Intangible Cultural Heritage, no date). That recognition has spurred the growth of the batik industry in Indonesia, with an increase in the number of business units, workforce, and the production value of batik products (Siregar *et al.*, 2020). In marketing traditional textile products, real-

time customer interactions in retail stores that emphasize the cultural value of the products will create an increase in trust (Chai-Arayalert and Suttapong, 2020; Wiryanto, Husein and Ng, 2024). The direct relationship with customers is what is important to establish in the product marketing process (Natarajan and Murugesh, 2023). The concept of direct marketing in the form of retail stores requires specific perception stimuli and shopping experiences (Siringoringo, Dharmmesta and Sugiharto, 2009). With the presence of stimuli in the elements of the store atmosphere, consumers will receive a push toward purchasing behavior (Shahid *et al.*, 2022; Lindblom, 2023; Le *et al.*, 2024). Environmental setting stimuli (atmospheric stimuli) in a retail setting are categorized into five categories, including external, general interior, layout and design, point-of-purchase and decoration, and human variables (Turley and Milliman, 2000). In the context of product purchases within a retail environment, store layout and interior display play a crucial role in influencing consumer perception (Tlapana, 2021; Oğuzhan and Ultav, 2022; Alawadhi and Yoon, 3026). Store layout consists of space design and allocation, placement of merchandise, grouping of merchandise, workstation placement, placement of equipment, placement of cash registers, waiting areas, waiting rooms, department locations, traffic flow, racks and cases, waiting queues, furniture, and dead areas. Meanwhile, interior display consists of point-of-purchase displays, signs and cards, wall decorations, degrees and certificates, pictures, artwork, product displays, usage instructions, price displays, and teletext (Turley and Milliman, 2000). As an important element in supporting purchasing decisions, understanding the types and selecting elements of store layout and interior display will become a strategy to maximize batik sales in the retail industry (Jang *et al.*, 2018; Khan *et al.*, 2022).

Figure 1. Respondents are Selecting Products at One of the Case Study Locations

From Figure 1 the interior setting of this batik retail store effectively highlights the influence of architectural atmospheric elements in shaping consumer perceptions and shopping experiences. The incorporation of traditional Javanese wooden furniture, intricate carvings, and vibrant yellow walls creates a warm and culturally

immersive environment. The arrangement of batik fabric displays on ornately designed benches and hangers encourages customer interaction and visual engagement. Additionally, the central round table adorned with floral decorations serves as a focal point, enhancing the welcoming and elegant ambiance. Classic chandeliers further contribute to the store's traditional aesthetic while providing sufficient lighting for product appreciation. These intentional design choices align with the concept of environmental atmospheric architecture, which emphasizes creating emotional responses to stimulate purchasing behavior.

Incorporating theories of atmospheric architecture into retail design is essential for improving the shopping experience and influencing consumer behavior (Kotler, 1973). Three main aspects of retail atmosphere: ambient (such as lighting and music), design (such as architecture and layout), and social (such as interactions between staff and customers). Together, these factors greatly affect how customers perceive a retail setting and have a big impact on their purchasing decisions (Baker, Levy and Grewal, 1992; Spence *et al.*, 2014). According to architectural theory, using atmospheric design concepts is crucial to producing areas that elicit the required emotional reactions in addition to their utilitarian uses. This strategy is consistent with the idea of "affective atmospheres," in which the interaction of sensory stimuli and spatial design causes emotions and actions in those inside the place (Anderson, 2009). The findings of this research will consist of elements of store layouts and interior display designs that need to be optimized to maximize the emergence of beneficial behaviors for sellers in the Indonesian Batik retail industry.

THEORY / RESEARCH METHODS

Qualitative data collection methods in implementation research help answer complex questions. Some methods of data collection in qualitative research include interviews with specific individuals and groups, and respondent observation (Hamilton and Finley, 2019). As a qualitative method, photo elicitation is a technique for collecting and incorporating photos into the qualitative research interview process. Interviews with elicitation help the interview process obtain more information and evoke different and deeper types of information. Interviews with the additional use of photos can also evoke reflections to explore experiences and perceptions, thereby reducing areas of misunderstanding (Collier and Collier, 1986; Prasetyo, 2020; Kyololo, Stevens and Songok, 2023). Fashion retail is heavily influenced by fluctuating demand, and factors such as age, income, lifestyle, and culture influence the specification and fragmentation by targeting specific customer groups. The research location was retail stores on Java Island, with the specialty retail category located in two different types of areas: special shopping areas and private areas. The approach taken is to conduct an in-depth interview process in conditions according to the research needs and the place where the research is conducted. In-depth interviews were conducted with 8 respondents for the observation and primary data collection stage and 2 other people as respondents for validation of research data results at the data processing stage, with division based on type of visit and product interest

category. The number of respondents is determined based on the level of data saturation and generalization of data that is repeated on the 8th respondent.

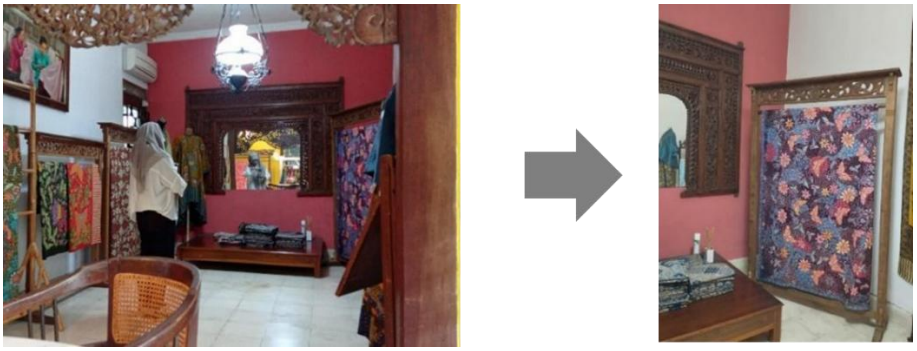

Figure 2. Respondents Photographing Photo Elicitation Spots (left), Photo Elicitation Results (right)

The photo elicitation results (see Figure 2) were subsequently used to deepen the interview process. Additionally, the respondents' photo capture points were analyzed to conduct a study on the composition of settings as part of the research variable elements. Based on the findings and discussions, a mapping of visitor perceptions at the research site was carried out to develop recommendations for the use and arrangement of design elements, as well as perception stimuli. These recommendations serve as environmental aspects in designing the composition of elements that meet customer needs in the retail environment. The research respondents were visitors and customers of the Indonesian batik art fashion retailer in Indonesia who had preferences and consumption styles for batik products.

The data processing in this research was carried out by analyzing the results of interviews and photo elicitation using computer-assisted qualitative data analysis software to sort, organize, and analyze the data. This method is used because of its efficiency and ability to enhance the quality of analysis through the coding process of transcripts and images (Røddesnes, Faber and Jensen, 2019). In addition, processing in this way also aims to strengthen the results of data based on the visual interview method in classifying research findings (Regoczi and Shanmugam, 2024). In the photo elicitation process, respondents took three photos showing parts of the retail store that influence purchase motivation, which will be referred to as the positive area and three photos of store sections that do not influence purchasing motivation as negative areas. The research design conducted is as seen in Figure 3.

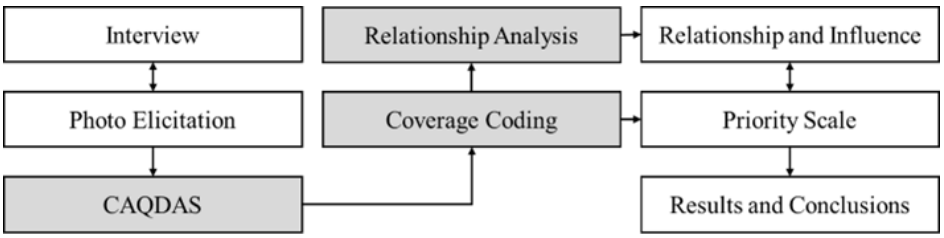

Figure 3. Research Design

The research process began with data collection through interviews and photo elicitation, followed by analysis using CAQDAS for systematic data coding. Relationship analysis and coverage coding were applied to identify significant patterns and connections. A priority scale was then established to evaluate the influence of various factors. In the final stage, the relationships and their impacts were determined, leading to the formulation of results and conclusions. The research was conducted on three Batik retail stores in Java Island categorized as specialty retail, located in two different types of areas, namely special shopping areas and private retail areas. Interviews and data collection processes were conducted with 10 respondents over a period of one month. Respondents are categorized into 2, namely respondents with the condition of first-time visiting the research site and visitors who have visited the research site more than 3 times. In addition, visitor interest in batik *wastra* and the tendency of interest in direct visit activities to the retail area are divided into 2, namely medium-scale interest and high-scale interest. The persona used in this study is a woman aged 25 to 40 years who has knowledge about batik and has previously owned batik products.

RESULTS AND DISCUSSION

Understanding consumer behavior within a retail environment is essential for optimizing store layouts and enhancing the overall shopping experience. Analyzing the activity routes captured during the photo elicitation procedure provides valuable insights into consumer movement patterns and spatial preferences. Respondent portrait points are notations of areas photographed by respondents during the photo elicitation process. The results of the portraits and existing portrait points can create groupings and mapping results of visitor perceptions created through the type of area, elements that compose the composition of the space, and aspects and factors that cause visitor perceptions to be built. The notation is divided into 2 types of photo shooting points by respondents. The green circle indicates the type of photo shooting point is the result of positive photo elicitation. While the red circle indicates the type of photo shooting point is the result of negative photo elicitation.

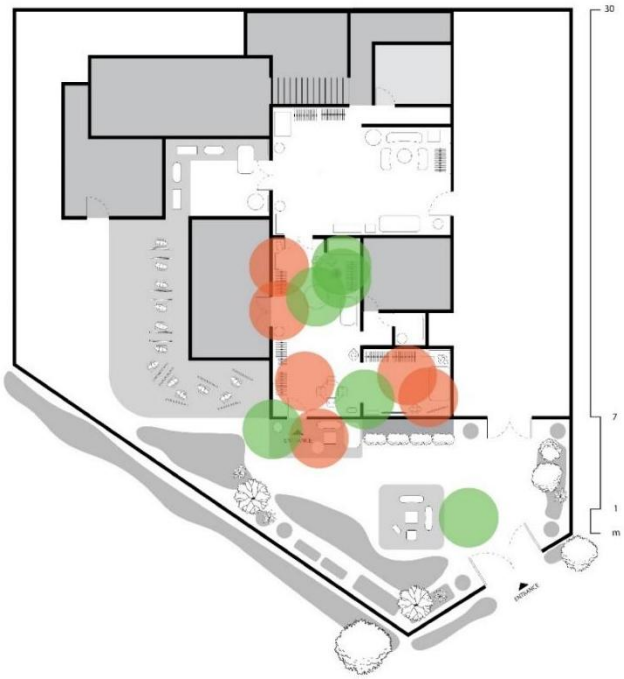

Figure 4. Respondent Photo Point in One of the Retail Areas

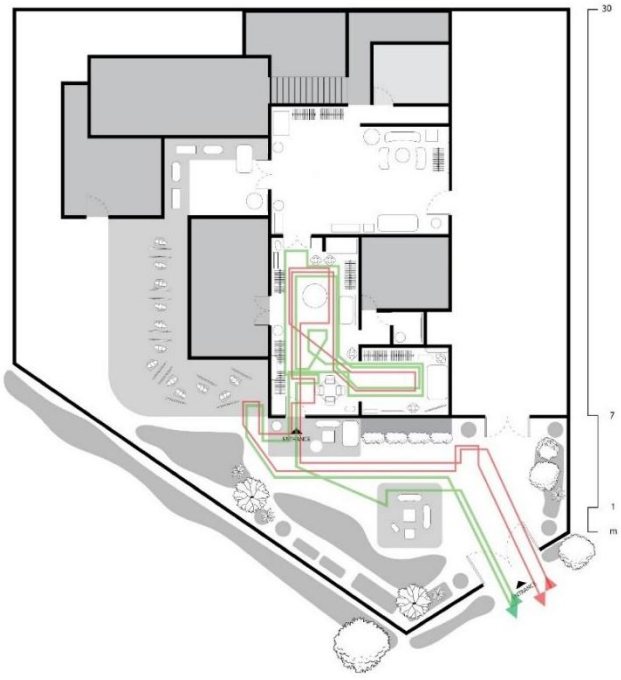

Figure 5. An Activity Route in One of The Retail Areas

Based on the activity route during the photo elicitation procedure, the area with the most visit repetitions and route repetitions occurred in the shopping area. The areas that most dominate the category of positive photo results are the shopping area and the product display area with decorations. Meanwhile, the negative photo area is dominated by the product storage area and the store entrance access area. In Figure 4 and Figure **5**, the visualization of the consumer's route during activities from entering the store, making a purchase, to exiting the store can be seen.

Using the results from the respondents' photos, we then coded the interview transcripts based on different aspects of space, as shown in Table 1. The mapping results of the spatial arrangement that occurred in the entire retail area under study produced several findings, such as the distribution of respondents tending to occur in centralized and linear organizational types with an intimate scale, which generates a sense of familiarity and creates an intimate atmosphere with the arrangement of displays and furniture that are easily accessible to the human body. This is in accordance with the respondent's statement in the description of one of the photo elicitation results, which states, "I like it because I can try and spread the fabric freely, and there is a lot of space in this area so I can move freely and handle various types of fabric."

Table 1. The Coverage Value of the Spatial Setting Element

Spatial Element	Coverage Value	Number of respondents
Product display arrangement	37,00%	6
Supporting furniture	20,84%	6
Clear plot organizer	10,49%	4
Brand information	8,30%	2
Supporting decoration	7,39%	3
Product detail information	6,80%	2
Sufficient lighting	6,22%	3
Instructions section	2,96%	1

With the mapping, the circulation that occurs in encouraging movement in the area is dominated by the influence of traffic flow in creating points to view the area with the arrangement of attractive product displays and clear flow guides. Acceptance through vision with visual stimulus types becomes the medium of stimulus acceptance with the highest percentage, as can be seen in Table 2. This shows that visual elements in visual stimuli at Batik retail stores dominate all research respondents. In the process of receiving these stimuli, the types of stimuli that influence the respondents are product display, space arrangement, layout setting, interior setting display, product and setting texture, graphic information, area crowd noise, product aroma and additional fragrances, and lighting arrangement. One of the interview result statements that supports the scope value of product display arrangement is "The display arrangement of batik products in this retail is very distinctive with a fairly wide distance to provide space and flexibility".

Table 2. The Coverage Value of Stimuli Sensory

Stimuli sensory	Coverage Value
Visual	65,63%
Voice	15,47%
Touch	14,38%
Odor	4,53%
Taste	0%

The results of the coding along with the coverage in providing impressions and how those impressions are received by respondents indicate that the traditional impression is the most dominant among all impressions regarding the atmosphere of a Batik retail environment. The traditional impression was received by respondents with a value of 21.37% of all other impressions felt. One respondent mentioned that "there are many ornaments that are representative of the concept being promoted (Indonesian Batik retail), which is traditional.". The relationship between architectural atmosphere elements and types of stimuli in generating respondent decisions is formed through the existence of a dependency relationship between element variables based on the type of need and how the relationship is used as a type of stimuli that causes various perceptions to emerge as an initial stage for respondents to assess retail and products to decide on purchases. Table 3 below is the result of the relationship between architectural atmosphere elements and types of stimuli in building respondent perceptions.

Table 3. Types of Architectural Atmosphere Elements and Their Relationship to Responses in Generating Purchase Decisions

Type of Response	Layout and design variables	Point-of-purchase and decoration
Understand more about product specifications and details	- Racks and cases - Grouping of merchandise - Space design and allocation	- Signs and cards - Pictures - Point-of-purchase displays - Price displays - Teletex
Selecting a goal for a purchasing decision	- Workstation placement - Placement of merchandise - Grouping of merchandise - Department locations - Furniture	- Price displays - Teletex - Degrees and certificates - Usage instructions
Experience the nuances of retail architecture more deeply	- Workstation placement - Waiting areas - Placement of merchandise	- Wall decorations - Signs and cards - Pictures - Artwork
Adapting behavior to the retail architectural atmosphere	- Workstation placement - Traffic flow - Waiting areas - Placement of merchandise	- Signs and cards - Point-of-purchase displays

Type of Response	Layout and design variables	Point-of-purchase and decoration
Assessing the quality of service	- Placement of cash registers - Department locations - Placement of equipment - Waiting queues - Space design and allocation - Workstation placement - Racks and cases - Placement of cash registers - Space design and allocation	- Artwork

Table 3 shows the relationships between the elements that contribute to the atmosphere and the shopping experience in a retail architectural setting. These relationships result in positive responses from respondents, influenced by architectural atmosphere elements in the store layout and interior display categories. The findings suggest that placing architectural atmosphere element variables within the Layout and Design Variable category and the Purchase Place and Decoration category, based on the type of response mapped in the results, can enhance the atmosphere and visitor experience, ultimately leading to increased purchases.

Table 4. Types Of Elements and Their Relationship to Responses in Generating Purchase Decisions

Type of Response	Layout and design variables	Point-of-purchase and decoration
Conducting the process of selecting products quickly and accurately	- Signs and cards - Point-of-purchase displays - Price displays - Degrees and certificates	- Workstation placement - Racks and cases - Placement of merchandise - Grouping of merchandise - Placement of cash registers - Department locations
Understanding the product clearly	- Signs and cards - Pictures - Point-of-purchase displays - Artwork - Teletex - Usage instructions	- Racks and cases - Placement of merchandise
Interpreting the meaning of the setting according to retail objectives	- Wall decorations - Signs and cards - Pictures	- Workstation placement - Traffic flow

Type of Response	Layout and design variables	Point-of-purchase and decoration
Engaging in activities according to the goal	- Artwork - Wall decorations - Signs and cards - Artwork	- Waiting areas - Waiting queues - Space design and allocation - Workstation placement - Traffic flow - Department locations - Furniture - Placement of equipment - Space design and allocation

The stimuli that trigger respondents' decisions are formed from the dependency relationship between variable elements based on the type of need and how that relationship is used as a type of stimulus that leads to purchasing decisions. The relationship shown in Table 4 forms the factors that create the atmosphere and shopping experience, which are considered to elicit a positive response in the environment shaped by the elements of store layout and interior display. From the results of the relationship, by maximizing the creation of atmosphere and customer experience, it can be done using elements in the categories of Layout and Design Variables and Point-of-Purchase and Decoration according to the type of response that has been mapped in the relationship results to the type of response to generate purchasing decisions for Indonesian Batik products in the Indonesian Batik retail industry. Understanding consumer behavior along with priorities and factors in store layouts and interior display designs will optimize the emergence of beneficial behaviors for sellers, which will ultimately contribute to the movement to boost the creative economy in Indonesia.

CONCLUSIONS

Area allocation and section grouping in retail, equipped with elements of layout and design variables as well as point-of-purchase and decoration, have an impact on determining the type of visitor behavior. The type of spatial arrangement with centralized organization and linear organization supported by the type of intimate scale creates a sense of familiarity and provides an intimate atmosphere due to the arrangement of displays and furniture that are easily accessible to the human body.

Through the photo elicitation method, layout and design variables and point-of-purchase and decoration have an influence on spots supporting purchase decision-making. The greatest influence is obtained from the arrangement of space design and allocation, placement of merchandise, and racks and cases as elements of the layout and design variable, as well as point-of-purchase display, price displays, and signs and cards as elements of the point-of-purchase and decoration variable.

The traditional impression of the art fashion retail environment received by respondents became the most dominant impression. Maximizing impressions according to customers' needs makes the retail atmosphere's visuals acceptable in line with the customers' goals and perceptions. In addition to prioritizing the visual atmosphere, purchasing decisions through the function and positioning of store layout elements and interior displays in retail can be obtained from the presence of product identity to trigger the emergence of purchasing behavior. Product displays are the most influential supporting element in respondents' decisions to choose products in a retail environment. The influence of store layout and interior display on stimuli in generating purchase decisions among customers can be achieved by incorporating elements of store layout and interior display in retail to assist customers in the process of selecting products quickly and accurately, helping customers clearly understand the products, and enabling customers to easily interpret the intended setting according to retail objectives, which will ultimately lead customers to engage in activities aligned with the goal, namely the purchase of Indonesian Batik products.

This study highlights the significant role of architectural atmospheric elements in optimizing store layouts and interior display designs within Indonesian batik retail environments. By incorporating traditional Javanese design features, such as intricately carved wooden furniture, vibrant yellow walls, and decorative lighting, retailers create a culturally immersive atmosphere that enhances consumer engagement. The strategic placement of product displays and the use of focal elements, like the centrally positioned floral-adorned table, further contribute to a welcoming and visually appealing shopping experience. The findings demonstrate that optimizing store layouts and interior displays based on the principles of environmental atmospheric architecture can positively influence consumer perceptions and purchasing behavior. Retailers can apply these insights to design store environments that not only reinforce brand identity but also evoke emotional connections with customers, ultimately driving sales performance. Retailers in Batik retail can arrange the appearance and presentation of products through the application of visual identity as a marker of the retail entity and support product purchasing decisions. In addition, acceptance through sight with the type of visual stimulation becomes the media for receiving stimulation with the highest influence. Maximizing the arrangement of store atmosphere element variables by collaborating elements in the layout and design variables and point-of-purchase and decoration categories supports the needs of the decision-making process and the regulation of respondent behavior. Prioritizing these factors in the environmental design process can also support decisions, maximize environmental cognition, and facilitate the identification of user needs for the environment. Future research may further explore the application of these strategies across diverse retail settings to develop comprehensive design guidelines for enhancing the atmosphere of Indonesian batik retail architecture.

REFERENCES

Alawadhi, A. and Yoon, S. (3026) 'Shopping behavioral intentions contributed by store layout and perceived crowding: An exploratory study using computer walk–through simulation', *Journal of Interior Design*, 41(4), pp. 29–46.

Anderson, B. (2009) 'Affective atmospheres', *Emotion, Space and Society*, 2(2), pp. 77–81.

Baker, J., Levy, M. and Grewal, D. (1992) 'An experimental approach to making retail store environmental decisions', *Journal of Retailing*, 68(4), p. 445.

Chai-Arayalert, S. and Suttapong, K. (2020) 'Increasing potential of distribution channels for creative Thai hand-woven textile products in the digital economy', *Creativity Studies*, 13(2), pp. 477–493.

Collier, J. and Collier, M. (1986) *Visual anthropology: Photography as a research method*. UNM Press.

Hamilton, A.B. and Finley, E.P. (2019) 'Qualitative methods in implementation research: An introduction', *Psychiatry Research*, 280, p. 112516.

Jang, J.Y. *et al.* (2018) 'Store design: Visual complexity and consumer responses', *International Journal of Design*, 12(2), pp. 105–118.

Khan, M.A. *et al.* (2022) 'Impact of store design and atmosphere on shoppers' purchase decisions: an empirical study with special reference to Delhi-NCR', *Sustainability*, 15(1), p. 95.

Kotler, P. (1973) 'Atmospherics as a marketing tool', *Journal of Retailing*, 49(4), pp. 48–64.

Kyololo, O.M., Stevens, B.J. and Songok, J. (2023) 'Photo-elicitation technique: Utility and challenges in clinical research', *International Journal of Qualitative Methods*, 22, p. 16094069231165714.

Le, N. *et al.* (2024) 'Multi-Sensory Marketing and Impulsive Buying Behavior: The Role of Impulsive Buying Traits', *Emerging Science Journal*, 8(5), pp. 1764–1782.

Lindblom, A. (2023) 'Sensory Marketing in Retail', in *An Introduction to the Multisensory Nature of Retail Stores*.

Natarajan, K. and Murugesh, V. (2023) 'A Study on Prospects and Challenges of Small Independent Textile Retailers', *SHODHSAMHITA*, 8(11), pp. 37–43.

Oğuzhan, Ç. and Ultav, Z.T. (2022) 'Effects of interior design components on customer shopping behaviors in visual merchandising: The case of a retail furniture store'.

Prasetyo, A. (2020) *Elisitasi Foto: Metode Pengumpulan Data dalam Penelitian Visual*. ISI Press.

Regoczi, D. and Shanmugam, S. (2024) 'Methodological considerations and reflection on using online photo-elicitation techniques to explore students' professional doctorate journey', *International Journal of Research & Method in Education*, 47(3), pp. 246–259.

Røddesnes, S., Faber, H.C. and Jensen, M.R. (2019) 'NVivo courses in the library: Working to create the library services of tomorrow'.

Shahid, S. *et al.* (2022) 'The role of sensory marketing and brand experience in building emotional attachment and brand loyalty in luxury retail stores', *Psychology & Marketing*, 39(7), pp. 1398–1412.

Siregar, A.P. *et al.* (2020) 'Upaya pengembangan industri batik di Indonesia', *Dinamika Kerajinan Dan Batik*, 37(1), p. 374833.

Siringoringo, H., Dharmmesta, B.S. and Sugiharto, T. (2009) 'Model Pengaruh Persepsi akan Toko Ritel Modern pada Pengalaman Berbelanja', *E-Journal Gunadarma*, 1(1), pp. 1–11.

Spence, C. *et al.* (2014) 'Store atmospherics: A multisensory perspective', *Psychology & Marketing*, 31(7), pp. 472–488.

Tlapana, T. (2021) 'The impact of store layout on consumer buying behaviour: A case of convenience stores from a selected township in Kwazulu Natal', *International Review of Management and Marketing*, 11(5), p. 1.

Turley, L.W. and Milliman, R.E. (2000) 'Atmospheric effects on shopping behavior: a review of the experimental evidence', *Journal of Business Research*, 49(2), pp. 193–211.

UNESCO Intangible Cultural Heritage (no date) *Indonesian Batik*. Available at: https://ich.unesco.org/en/RL/indonesian-batik-00170 (Accessed: 21 January 2024).

Wiryanto, R., Husein, A.E. and Ng, H. (2024) 'Analysis of potential and direct sales strategies in the textile sector in the digital era', *Journal of Management Science (JMAS*, 7(3), pp. 431–437.

This Page is Intentionally Left Blank