Jurnal Arsitektur Zonasi

Journal homepage:
https://ejournal.upi.edu/index.php/jaz

Fast-Food Restaurant Kitchen: Spatial Layout, Employee Behavior, And Efficiency

Rachmat Ardi Priambodo[1], Mohammad Ischak[2]*

[1, 2] Magister Arsitektur, Universitas Trisakti, Jakarta, Indonesia
*Correspondence: Email: rachmatardi90@gmail.com

ABSTRACT

Fast-food restaurants in Indonesia face complex challenges in organizing compact kitchen spaces, particularly for outlets operating in food courts with dual service systems. These spatial constraints not only affect work efficiency and staff comfort but also directly impact operational flow and workplace safety in the Back of House (BOH) area. This study aims to analyze the relationship between kitchen spatial configuration and employee behavior using the behavior setting approach, which emphasizes the interrelation between physical space elements and recurring behavior patterns within them. A quantitative approach was applied through Likert-scale surveys, field observations, and spatial documentation conducted at eleven Wingstop Indonesia outlets located in shopping centers. The collected data were analyzed using descriptive statistics to assess staff perceptions of circulation, collaboration, efficiency, and workplace safety. The findings indicate that most respondents hold positive perceptions of well-organized kitchen layouts, where efficient zoning and equipment placement improve movement flow, minimize potential collisions, and create a more comfortable and productive work environment. Adequate workspace and minimal obstructions were identified as the primary factors supporting efficiency, while dual service operations still require further optimization. Overall, this study emphasizes that ergonomic spatial design aligned with user behavior can enhance productivity, safety, and overall work quality in modern fast-food restaurant environments

ARTICLEINFO

Article History:
Submitted/Received 14 Oct 2025
First Revised 27 October 2025
Accepted 22 December 2025
First Available online 1 Feb 2026
Publication Date 1 February 2026

Keywords:
kitchen layout,
fast-food restaurant,
behavior setting,
efficiency

1. INTRODUCTION

Space constraints in fast-food restaurant operations, especially for tenants located in shopping mall food courts, are an increasingly significant issue from both an architectural and operational management perspective. The relatively cramped kitchen area often presents various obstacles: ranging from inhibited staff mobility, non-fluent workflow, to a high potential for operational errors. These various constraints ultimately have direct implications for the quality of service received by consumers, as delays or inefficiencies in the kitchen will impact the speed of food serving at the customer's table (Boafo et al., 2021; Walker, 2021).

In Indonesia, this condition is clearly visible in most fast-food restaurants that operate as food court tenants. On average, they only have a kitchen space with an area of about 20–30 m². This limited space must accommodate all important activities, including raw material storage, food processing, and serving, which are required to be fast and uniform. Not only that, consumer expectations in the current era are increasingly high, especially regarding service speed and consistency of taste and product quality. This makes the management of cramped kitchens an increasingly complex challenge for restaurant managers (ST Sugianto, 2023). In other words, space limitation not only impacts the technical aspects of operations but also customer satisfaction, which is key to the success of fast-food restaurants.

Figure 1. Foodcourt Mall Artha Gading, North Jakarta
(Source: Author, 2023)

Despite this issue truly occurring in the field, academic studies on the direct relationship between kitchen layout and employee work behavior in Indonesian fast-food restaurants are still very limited. However, this issue is important to examine because it concerns operational efficiency and service quality. The main research questions that arise are: how does the spatial configuration and the FOH–BOH zoning division affect circulation patterns, inter-employee interaction, and daily work activities? How does the placement of kitchen equipment impact work comfort and service effectiveness? And to what extent can the behavior setting principle be implemented in the context of limited space to support both productivity and staff work safety? These questions confirm a research gap that needs to be addressed immediately.

If examined further, research on fast-food restaurants in Indonesia has so far focused more on aspects of service and consumer satisfaction (Faradin, 2021), or discussed the interior design of the dining room and the visual identity of the restaurant (Dharmawan et al., 2018; Hidjaz, 2007). This shows that academic attention is still centered on the space directly related to consumers. Conversely, the kitchen space as the main operational center is rarely studied. On the other hand, international research has emphasized the importance of kitchen efficiency in supporting the overall performance of the restaurant. For example, poor kitchen layout slows the workflow while increasing the potential for errors in food serving (Flessas et al., 2015). Walker (2021) also asserts that the application of ergonomic design in the kitchen can increase staff productivity and reduce fatigue. Studies related to food courts reinforce this finding by highlighting the limited kitchen space and service area as crucial factors in

DOI: http://doi.org/10.17509/jaz.v9i1.91143
p- ISSN 2621-1610 e- ISSN 2620-9934

operational success, especially because the dining area is communal, making the private kitchen space even more restricted (Kurniawati et al., 2019).

From these various findings, it is clear that there is still a research gap in Indonesia. Most previous studies tend to focus on consumer preferences or marketing strategies, even though the kitchen as the center of work activity has a major influence on operational performance. Therefore, this study attempts to fill this void by making the limited-sized fast-food restaurant kitchen the main focus of the analysis. The novelty of this research lies in the effort to integrate the analysis of employee work behavior into an architectural framework based on behavior. In this way, the research not only sees space as a mere physical aspect but also connects it with the patterns of activity and interaction that take place within it.

The concept of behavior setting introduced by Barker (1968) and later expanded by Laurens (2004) provides a relevant theoretical framework for understanding the relationship between the physical aspect of space (milieu) and the recurring behavior patterns (standing pattern of behavior) that emerge in that space (Barker, 1968). In the context of a fast-food restaurant kitchen, the milieu can be seen in the spatial configuration, equipment placement, and the FOH–BOH zoning division (Abioso, 2020). All these elements shape the daily staff workflow and influence their productivity. Several international studies show that kitchens with inefficient spatial configurations often cause activity bottlenecks, disrupt workflow smoothness, and even increase the risk of staff collisions. Conversely, well-structured layouts allow for clear role division (Flessas et al., 2015), minimize disruption, and support effective work interaction without reducing the smoothness of service in the front area (Tangian, 2020; Walker, 2021).

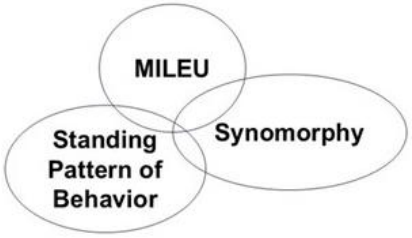

Figure 2. Mileu-Synomorphy-Standing of Behavior Diagram
(Source: Barker, 1968)

Through the application of behavior setting theory, this research emphasizes that space is not just a container for activity, but also a factor that influences how that activity takes place (Wicaksana, 2023). In a limited fast-food restaurant kitchen, spatial design has a vital role in shaping productive behavior patterns. For example, placing cooking equipment close to the serving area can reduce employee travel time, while organized ingredient storage zoning can reduce the potential for errors in the work process. Thus, good kitchen design not only increases efficiency but also creates better comfort and work safety for staff.

This research also provides a practical contribution to the fast-food restaurant industry in Indonesia. The research results are expected to become the basis for kitchen design recommendations that are more appropriate to the context of limited space, both in terms of operational efficiency and work comfort. With the increasing number of fast-food restaurants operating in food courts, the need for practical and applicable design solutions is becoming more urgent. This research is also relevant in answering post-pandemic challenges, where restaurants are required to be more efficient, hygienic, and able to maintain service quality under conditions of limited resources.

Overall, the main objective of this research is to analyze the relationship between the spatial configuration of a fast-food restaurant kitchen and employee work behavior through the behavior setting approach (Laurens, 2004), and to assess its implications for operational

DOI: http://doi.org/10.17509/jaz.v9i1.91143
p- ISSN 2621-1610 e- ISSN 2620-9934

efficiency in limited space in Indonesia. In this way, the research not only expands the academic literature in the field of behavior-based architecture but also offers practical design recommendations that can increase efficiency, comfort, and work safety. This makes the research relevant both theoretically and practically, and provides a real contribution to the development of fast-food restaurant design in Indonesia.

2. RESEARCH METHODS

The research methodology section is designed to systematically outline the entire research process, detailing the sequence of steps undertaken. For this study, the chosen approach is visually represented in a flowchart (Figure 1). This chart clearly maps the progression from the initial problem identification and the establishment of research objectives, through the selection of the approach, location, and study object, right up to the specific methods, instruments, and the data analysis technique that was ultimately utilized.

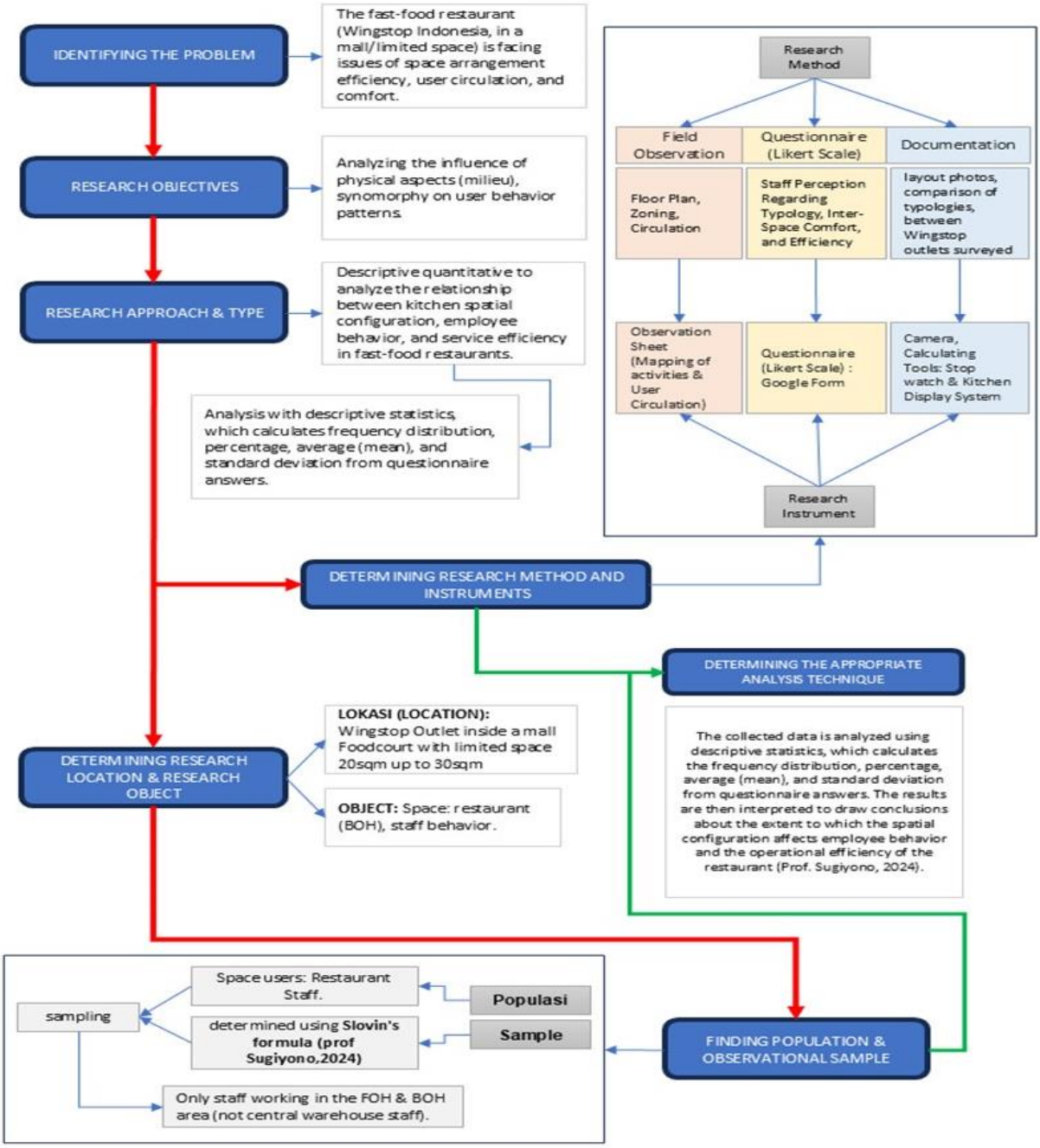

Figure 3. Research Flow
(Source: Author, 2025)

DOI: http://doi.org/10.17509/jaz.v9i1.91143
p- ISSN 2621-1610 e- ISSN 2620-9934

This research began with identifying the problem, namely the issues faced by fast-food restaurants (Wingstop Indonesia case study) located in shopping centers with space constraints. The main problems that arose were low space layout efficiency, limited user circulation, and decreased comfort. Based on these problems, the research objective was focused on analyzing the influence of the physical aspect of space (milieu) and the suitability of the spatial layout pattern (synomorphy) on user behavior, both customers and restaurant staff (Barker, 1968).

To achieve this goal, the research used a quantitative descriptive approach. This approach was chosen to identify and analyze the relationship between kitchen spatial configuration, employee behavior, and service efficiency in fast-food restaurant operations. The analysis was conducted using descriptive statistics, including calculating frequency distribution, percentages, average value (mean), and standard deviation of respondents' answers on the questionnaire (Sugiyono, 2016).

The research location was determined at Wingstop Indonesia outlets located in the Foodcourt area in shopping centers with a limited area between 20 m^2 to 30 m^2. Meanwhile, the research object is the restaurant space which includes the Back of House (BOH) area, focusing on staff behavior. After knowing the Location and its Limitations, the population can be determined as all Wingstop Indonesia outlets operating in the food court area of shopping centers with a space limitation of 20–30 m^2, totaling 12 outlets in the Jabodetabek area. Considering the relatively small population size, the sample size was determined using the Slovin formula (Sugiyono, 2024) with an error rate (e) of 10% or a confidence level of 90%. So the calculation is as follows:

$$n = N / 1 + N \times e^2$$
$$n = 12 / 1 + 15 \times (0,1)^2$$
$$n = 12 / 1 + 15 \times 0,01 = 12 / 1 + 0,12 = 12 / 1,12$$
$$\underline{n = 10,74}$$

Based on the results of this calculation, the number of samples used in this research is 11 outlets out of a total of 12 outlets that are the population. This number is considered adequate to still represent the condition of the population with an acceptable error rate. Thus, the research is expected to be able to provide an accurate picture of the relationship between the spatial design of the kitchen area and user behavior in the context of limited-space fast-food restaurants. The research respondents were determined from the operational team in each outlet, who work in two shifts. The composition of the operational team consists of:

- 1 Restaurant Manager
- 1 PIC Store (Team Leader)
- 2 Back of House (BOH) staff
- 2 Front of House (FOH) staff

Thus, each outlet has a total of 6 respondents. If multiplied by the 11 outlets that are the research sample, the total number of respondents is 66 people. This number is considered sufficient to describe the perceptions and operational experiences of the staff regarding the relationship between spatial configuration and service efficiency and work behavior patterns in fast-food restaurants.

Three main data collection techniques were used in this research: observation, questionnaire, and supporting interviews. These three methods complement each other to obtain comprehensive data regarding the relationship between the fast-food restaurant layout and user behavior.

DOI: http://doi.org/10.17509/jaz.v9i1.91143
p- ISSN 2621-1610 e- ISSN 2620-9934

1. Field Observasi.
   Conducted directly at 11 Wingstop Indonesia outlets located in the food court area with an area of 20–30 m². This observation aims to map the spatial configuration, staff circulation flow, and activity patterns that occur in the kitchen area (BOH). Through direct observation, researchers can identify how the placement of kitchen equipment, staff movement paths, and space zoning affect operational efficiency and user comfort (Sugiyono, 2016).
2. Questionnaire.
   Distributed to research respondents consisting of the operational team (restaurant manager, PIC store, BOH staff, and FOH staff). The questionnaire instrument uses a Likert scale with a value range of 1–5, which will be input into a Google Form. To measure respondents' perceptions regarding aspects of comfort, efficiency, and space effectiveness. The quantitative data obtained from this questionnaire is then analyzed using descriptive statistical techniques, namely through calculating the average to draw conclusions about the tendency of respondents' perceptions (Creswell, 2014).
3. Documentation.
   Used as supporting data to strengthen the results of observations and questionnaires. Documentation is done in the form of photos of the kitchen layout and service area in each outlet, as well as a comparison of typologies between the Wingstop outlets studied. This method helps researchers record real conditions in the field, as well as provide visual evidence to clarify the variation of spatial layouts between outlets in limited space (Neuman, 2002).
   With a combination of observation, questionnaire, and documentation, this research obtains data that is empirical, measurable, and visually documented. This allows researchers to present a more comprehensive picture of how spatial design affects user behavior and the operational efficiency of fast-food restaurants in limited space.
   The collected data was analyzed using descriptive statistics, namely calculating the frequency distribution, percentage, average (mean), and standard deviation of the questionnaire answers. The analysis results are then interpreted to draw conclusions about the extent to which spatial configuration affects employee behavior and restaurant operational efficiency (Sugiyono, 2016).

3. RESULTS AND DISCUSSION

3.1 Questionnaire Results on Spatial Design and Employee Behavior

The brief research involved a total of 78 participants selected from 11 separate outlets, with each outlet represented by a sample of 6 employees, thereby enabling a rich diversity of opinions. The information required for this analysis was diligently gathered through a questionnaire using a 1—5 Likert scale, where a score of 1 represents Strongly Disagree and a score of 5 indicates Strongly Agree, thus offering detailed insights into the respondents' attitudes. The research instrument utilized for this investigation comprised 16 unique statement items that have been systematically organized into two primary variables, notably:

- Variable (X): This variable pertains to the design of the kitchen area layout, encompassing several important indicators including the configuration of the circulation path, equipment zoning, and the overall availability of designated work areas, as illustrated in sections A—B of the questionnaire.
- Variable (Y): This variable focuses on user behavior, which is further elaborated through various indicators that encompass movement patterns, interaction frequency, the

DOI: http://doi.org/10.17509/jaz.v9i1.91143
p- ISSN 2621-1610 e- ISSN 2620-9934

efficiency of services rendered, and the overall comfort experienced by employees while performing their work duties, as outlined in sections C—D of the questionnaire.

In the subsequent section that follows, a careful and detailed summary of descriptive statistics that have been meticulously derived from the administered questionnaire will be presented, which is fundamentally based on the methodological framework (Sugiyono, 2016). This comprehensive summary not only includes the average scores and standard deviations but also provides an in-depth interpretation of the responses carefully collected on the Likert scale, specifically relating to the total of 66 respondents seriously sourced from the 11 outlets previously mentioned in this discussion. Furthermore, this collected data has been systematically input into the LISREL 8.8 program, which is a statistical software application used to calculate and analyze the mean and standard deviation (std. dev) (Qomusuddin & Romlah, 2024). Ultimately, this rigorous analysis aims to yield meaningful insights and facilitate a deeper understanding of the respondents' perceptions and attitudes, thereby enriching the overall findings of the research.

Table 1. Summary of Descriptive Statistics

No	Statement	Mean	Std. Dev	Interpretation
A1	The layout of the equipment supports work efficiency.	3.91	0.82	Agree
A2	The circulation flow is well-arranged.	4.03	0.77	Agree
A3	Zonasi fungsi mempermudah bekerja	4.01	0.83	Agree
A4	The work area is sufficient for activities.	4.06	0.81	Agree
B1	Equipment placement minimizes unnecessary movement.	4.04	0.90	Agree
B2	Kitchen design facilitates collaboration.	3.99	0.85	Agree
B3	Spatial arrangement supports work safety.	3.99	0.85	Agree
B4	Optimal spatial arrangement for multiple services/tasks.	3.86	0.82	Agree
C1	Can move freely.	3.72	0.90	Agree
C2	Interaction with colleagues is smooth.	3.86	1.02	Agree
C3	No difficulty moving between work areas.	3.82	0.98	Agree
C4	Faster service due to kitchen arrangement.	3.97	1.06	Agree
D1	Kitchen design reduces work errors.	3.82	1.05	Agree
D2	Feel comfortable working in this kitchen.	3.95	0.99	Agree
D3	Rarely collide/get disrupted while working.	4.00	0.91	Agree
D4	Feel more productive due to the kitchen design.	3.67	1.02	Agree

Source : Survey 2025

Based on the descriptive analysis, all research indicators are in the Agree category (score 3.40–4.19) according to the Likert scale interpretation criteria (Prof. Sugiyono, 2024). This shows that respondents tend to have a positive perception of the kitchen spatial design and its influence on work behavior. The standard deviation value is in the range of 0.77–1.06, including the moderate variation category, which indicates a difference in perception among employees, possibly influenced by the physical condition differences of the kitchen in each outlet (Sugiyono, 2024).

The indicator with the highest score is A4 (Adequate work area) at 4.06 and D3 (Rarely collide) at 4.00, both included in the Agree category. Meanwhile, the indicators with the lowest scores are B4 (Optimal for dual service) at 3.86 and D4 (Increased productivity) at 3.67, which although in the Agree category, their values are lower so they require more attention in the development of kitchen design (Sugiyono, 2016).

DOI: http://doi.org/10.17509/jaz.v9i1.91143
p- ISSN 2621-1610 e- ISSN 2620-9934

Overall, these results show that good kitchen spatial design can increase comfort and reduce obstacles in working, but there is still room for improvement, especially in the efficiency of dual service and increasing productivity.

3.2 Field Observation Results of Layout and Spatial Design and Employee Behavior

The results obtained from the field observations indicate that the spatial configuration of the kitchen in the fast-food company has been carefully crafted to enhance circulation efficiency and distinctly delineate functional zoning. The culinary space is segmented into preparation, processing, and serving areas, with the arrangement of key equipment following a working triangle principle adapted for commercial kitchens. D.K Ching posits that the efficacy of a workspace configuration hinges on the cost-effectiveness of equipment, the fluidity of circulation patterns, and the minimization of movement obstructions—factors largely met in this design, notwithstanding the identification of potential bottlenecks at pathway intersections. From an ergonomic standpoint, the height of the work surfaces, the breadth of the circulation routes, and the placement of kitchen apparatus conform to the guidelines set by NIOSH (National Institute for Occupational Safety and Health), which advocates for the reduction of excessive bending, overreaching, and extreme body twisting (Bernard, 1997).

Employee behavior appears to be in harmony with the established environmental design. During peak operational hours, they navigate swiftly with concise verbal communication to maintain workflow, while during off-peak times, the pace is relatively more relaxed yet remains systematic. The practice of utilizing idle moments for ingredient preparation and maintaining cleanliness in the workspace, consistent with the mise en place principle, exemplifies the behavioral adaptation to the spatial configuration and operational requirements. This observation supports the contention that effectively designed environments not only enhance work efficiency but also influence employee interactions and behavioral patterns within those spaces (Bernard, 1997; D. K. Ching, 2010).

As put forth by Waisana, et al (2023) there are three primary discourses that serve as focal points in the compact kitchen design process. This categorization is based on its Primary Zones, which are: the Cooking Zone, the Storage Zone, and the Washing Zone. Given that the kitchen is intrinsically linked to these zones, it plays a critical role (Waisnawa et al., 2023).

The spatial layout aligns with the outcomes from the community analysis and survey, suggesting that efficient kitchen arrangements can elevate comfort and diminish work-related hindrances. Nevertheless, opportunities for augmentation persist, particularly regarding the efficiency of dual-service operations and the reinforcement of productivity, as illustrated below.

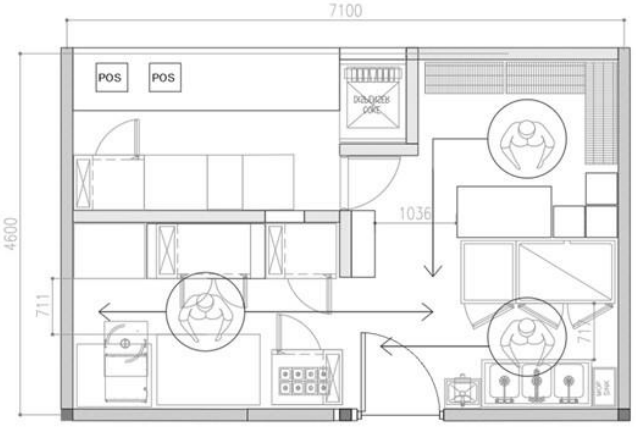

Figure 4. Layout from Observation Results
(Source: Author, 2025)

DOI: http://doi.org/10.17509/jaz.v9i1.91143
p- ISSN 2621-1610 e- ISSN 2620-9934

This specific figure distinctly illustrates the configuration of three distinct yet interconnected work zones within a compact kitchen environment, which has been meticulously engineered to enable the efficient operation of three employees simultaneously during a single shift. On the left side of the kitchen layout, the red zone emerges as a hub of activity, functioning as the area where employees engage in the critical tasks of final preparation, meticulously organizing necessary ingredients, and executing the cooking process (Waisnawa et al., 2023). This zone's strategic positioning near the cash register facilitates a rapid flow of presentation, aligning with the principles outlined in time-motion studies that underscore the importance of minimizing unnecessary steps and movements to boost overall efficiency (Bernard, 1997).

Moving to the blue zone, designated as the washing area, it is situated in such a way that it is sufficiently proximate to the cooking area to support a seamless work transition between the two zones, while simultaneously maintaining an appropriate distance that ensures water splashes or the presence of dirty equipment do not interfere with the essential food production process underway. This particular arrangement harmonizes with the concept of behavior setting, which emphasizes the importance of delineating potentially disruptive functions while remaining within the same "behavioral scope," thereby facilitating effective inter-zone coordination (Barker, 1968).

Conversely, the green zone has been allocated as a compact storage area for raw materials, spices, and equipment, serving as a mini-warehouse. This zone's strategic placement is highly advantageous as it is within optimal reach of the cooking area, following the principles of kitchen ergonomics, which advocate for the formation of working points that create a triangular pattern with an ideal distance of 1.2 to 2.7 meters separating each point (D. K. Ching, 2010).

The integration of these three work areas leads to a smooth and harmonious flow of activities: workers skillfully transport ingredients from the green area, proceed to process them in the red area, and then dispatch dirty equipment to the blue area (Bakri et al., 2004). The pathway connecting these areas, which measures approximately 80 to 90 cm in width, provides sufficient room for two employees during a single shift, ensuring that each employee occupies a position that does not conflict with the others, thereby promoting an effective work rhythm and reducing the likelihood of obstructions that could disrupt productivity (Golshan et al., 2021). The compactness of this area enhances efficiency concerning the number of employees, which ultimately leads to cost reduction across the board.

4. CONCLUSION

This research demonstrates that the kitchen layout design plays a vital role in enhancing the operational efficiency of fast-food companies, particularly in locations with limited space and the adoption of a dual-service model. Findings from the quantitative assessment revealed that the majority of participants viewed the equipment arrangement, movement flow, and functional zoning positively. All metrics fell within the Agree category according to the Likert scale interpretation criteria (Sugiyono, 2024), indicating that the current kitchen setups effectively support employee productivity. However, it is essential to point out that aspects related to the efficiency of dual service and the potential for productivity enhancement remain areas that require further development, to ensure the design achieves peak performance (Che Ishak et al., 2024; Flessas et al., 2015).

The comprehensive evaluations conducted on-site have successfully substantiated and corroborated the data that was meticulously collected during the previous surveys, thereby enhancing the reliability of the findings presented. The results derived from this analysis

DOI: http://doi.org/10.17509/jaz.v9i1.91143
p- ISSN 2621-1610 e- ISSN 2620-9934

unequivocally affirm that the design and layout of the commercial kitchen were meticulously crafted in alignment with established ergonomic principles and sound spatial organization methodologies, which effectively categorize and delineate tasks into distinct zones dedicated to preparation and cooking, storage, and cleaning (Stipanuk, 2006). This thoughtfully conceived configuration plays a pivotal role in actively diminishing obstacles to movement within the workspace, thereby significantly reducing the likelihood of procedural errors occurring during daily operations, and concurrently fostering an environment that promotes enhanced collaboration and teamwork among the kitchen personnel. The practical application of the ergonomic recommendations put forth by the National Institute for Occupational Safety and Health (NIOSH) (Bernard, 1997), in conjunction with the spatial theories articulated by Fransis D.K Ching (2010) and Solichul HA, Bakri. (2004), is manifest across a variety of physical attributes associated with the kitchen's design, such as the appropriate heights of workstations and the necessary clearances for aisles. As a direct consequence of this meticulous attention to design, the dynamic interplay between the physical environment and the workflows of employees within the kitchen setting demonstrably contributes to the overall well-being of the staff, while simultaneously optimizing and streamlining the output of the food service operation (Abioso, 2020; Laurens, 2004).

In conclusion, the findings from the research indicate that the overall effectiveness and functionality of the kitchen design implemented within fast-food restaurants is not merely reliant on its aesthetic appeal, but rather on the environment’s inherent capacity to promote and facilitate essential elements such as interaction among staff, efficient movement throughout the space, and overall productivity levels within the kitchen area (Che Ishak et al., 2024; Faradin, 2021). The design principles that have been meticulously derived from this comprehensive study can serve as a valuable framework for various stakeholders, including interior designers, restaurant operators, and academic scholars, as they endeavor to create adaptable and flexible layouts that not only conform to specific spatial constraints but also remain in harmony with the dynamic needs and behaviors of users who operate within these environments. For prospective research endeavors, it is strongly recommended that scholars investigate a diverse array of restaurant types alongside differing spatial dimensions, in addition to integrating complementary technologies such as advanced smart kitchen systems, thereby ensuring that the insights generated will be more pertinent to the prevailing trends within the industry and simultaneously contribute to the enhancement of the overall quality of the work experience for employees operating in fast-food restaurant kitchens (Golshan et al., 2021; Laheri et al., 2025).

ACKNOWLEDGEMENTS

The authors express their deepest appreciation and gratitude to the leadership of PT Wiryamanta Sadina as the official franchiser of Wingstop in Indonesia for the support and research permit granted. Thanks are also extended to the employees of Wingstop Indonesia who participated in the observation process, completed the questionnaires, and provided valuable information during the research activities. The cooperation and openness of all parties greatly assisted the authors in obtaining accurate empirical data and enriching the research analysis. Hopefully, the results of this research can provide a real contribution to improving efficiency and work comfort in the fast-food restaurant environment in Indonesia.

DOI: http://doi.org/10.17509/jaz.v9i1.91143
p- ISSN 2621-1610 e- ISSN 2620-9934

REFERENCES

Abioso, W. S. (2020). Synomorph of Behaviour Setting in Architecture Enhance the Green Design. *IOP Conference Series: Materials Science and Engineering*, *879*(1). https://doi.org/10.1088/1757-899X/879/1/012159

Barker, R. G. (1968). *Ecological psychology; concepts and methods for studying the environment of human behavior*.

Bernard, B. P. et al. (1997). *NIOSH : Elements of Ergonomics Programs: A Primer based on Workplace Evaluations of Musculoskeletal Disorders.*

Boafo, J., Sarku, R., & Obodai, J. (2021). *Food Studies From the Kitchen to Fast Food Restaurants The Changing Culture of Food in Urban Ghana*. *10*. https://doi.org/10.18848/2160-1933/CGP

Che Ishak, F. A., Kang, S. S., Mohd Fikeri, N. A. S., Ab Karim, M. S., & Mohamad, S. F. (2024). Restoring Restaurant Design and Layout: Towards Safer Dining Out Experience. *Journal of Advanced Research Design*, *116*(1), 1–12. https://doi.org/10.37934/ard/116.1.112

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Sage Publications.*

D. K. Ching, F. (2010). *Architecture: Form, Space, and Order*.

Dharmawan, V., Conytin, F., & Rachmaniyah, N. (2018). Kajian Perilaku dan Interior Restoran Cepat Saji di Pusat Perbelanjaan. *Jurnal Desain Interior*, *3*(2), 27. https://doi.org/10.12962/j12345678.v3i2.4597

Faradin, Z. (2021). *ELEMEN INTERIOR SEBAGAI BRAND IDENTITY RESTORAN CEPAT SAJI DI KOTA MALANG*.

Flessas, M., Rizzardi, V., Tortorella, G. L., Fettermann, D., & Marodin, G. A. (2015). Layout performance indicators and systematic planning: A case study in a Southern Brazilian restaurant. *British Food Journal*, *117*(8), 2098–2111. https://doi.org/10.1108/BFJ-01-2015-0012

Golshan, H. H., Motalebi, G., & Behzadfar, M. (2021). The Relationship between Spatial Configuration and Social Interaction in Tehran Residential Areas: Bridging the Space Syntax Theory and Behavior Settings Theory. *International Journal of Architectural Engineering & Urban Planning*, *31*(4), 2021. https://doi.org/10.22068/ijaup.31.4.539

Hidjaz, T. (2007). *DESAIN INTERIOR DAN PERILAKU PENGUNJUNG DI RUANG PUBLIK*.

Kurniawati, T., Irawan, B., & Prasodjo, A. (2019). Analisis Pengaruh Kualitas Pelayanan, Harga, dan Brand Image Terhadap Kepuasan Konsumen Restoran Pizza Hut Cabang Jember. *E-Journal Ekonomi Bisnis Dan Akuntansi*, *6*, 147. https://doi.org/10.19184/ejeba.v6i2.11159

Laheri, Z., Ferris, I., & Soon-Sinclair, J. M. (2025). The rise of dark kitchens: Characteristics and operational challenges. *International Journal of Gastronomy and Food Science*, *40*. https://doi.org/10.1016/j.ijgfs.2025.101142

Laurens, J. M. (2004). *Arsitektur dan Perilaku Manusia*. GRASINDO. https://books.google.co.id/books?id=Ltvj89G2AP4C&printsec=copyright&hl=id#v=onepage&q&f=false

Neuman, L. (2002). *Social Research Methods Qualitative and Quantitative Approaches*. https://doi.org/doi.org/10.2307/3211488

Sugiyono. (2024). *Cara Mudah Menyusun : Skripsi, Tesis, dan Disertasi*. ALFABETA.

Qomusuddin, I. F., & Romlah, S. (2024). *Analisis Data Kuantitatif Dengan Program Lisrel 8.8*.

ST Sugianto. (2023). *Latar Belakang Restoran cepat saji*.

Stipanuk, D. M. (2006). *Hospitality Facilities Management and Design*. Educational Institute of the American Hotel and Motel Association.

Sugiyono. (2016). *METODE PENELITIAN KUANTITATIF, KUALITATIF DAN R&D*.

Tangian, D. (2020). *MODUL FOOD SERVICE 1*. https://repository.polimdo.ac.id/2850/1/Modul%20Food%20Service%201%20Pelayanan%20di%20Restoran.pdf

Waisnawa, J., Kerdiati, K. R., Darmastuti, P. A., Studi, P., Interior, D., Rupa, S., & Desain, D. (2023). *Jurnal Patra | DESAIN RUANG DAPUR BERDASARKAN TIGA ZONA UTAMA (STUDI KASUS PROYEK DESAIN RUANG DAPUR DI STUDIO INTERIOR JAYADI-SIGN)*.

Walker, J. R. (2021). *The Restaurant: From Concept to Operation Buku* (9th ed.). JOHN WILEY & SONS. https://archive.org/details/restaurantfromco0000walk_h8n8/mode/2up

Wicaksana, I. M. S. D. (2023). *ANALISIS KRITERIA TERCIPTANYA BEHAVIOR SETTING PADA KEGIATAN PERKULIAHAN DI RUANG STUDIO ARL 2.2*.

DOI: http://doi.org/10.17509/jaz.v9i1.91143
p- ISSN 2621-1610 e- ISSN 2620-9934