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The Value of Design: A Conjoint Analysis of Physical Design Attributes in the District 1, Davao City Coworking Market

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A B S T R A C T

This study explores the preferences of 180 post-graduate students and 180 working professionals towards physical design attributes of co-working spaces within District 1, Davao City, from August 28 to September 20, 2025. Guided by Multi-Attribute Utility Theory and Bitner's Servicescape Model, we examine three dimensions: Ambiance, Space and Function, and Signs, Symbols, and Artifacts. Using 1000minds web software, the PAPRIKA method generated 300 potential trade-offs to evaluate attributes. Purposive and quota sampling revealed that Space and Function was the most preferred attribute (38.8%), followed by Signs, Symbols, and Artifacts (31.5%) and Ambiance (29.7%). Spatial Layout, Signages, and Temperature formed the most preferred combination. Providers must focus on spatial efficiency and environmental comfort to sustain customer loyalty.

INTRODUCTION

In the contemporary international business landscape, structural shifts in remote employment have heightened demand for a "third space" that effectively separates an individual's personal life from their occupational obligations (Moriset, 2013). Coworking spaces have emerged as dynamic, shared environments where diverse cohorts of self-employed and corporate workers come together to execute independent tasks fluidly (Haas, 2025). Globally, localized hubs mitigate negative commuting outcomes, enhancing remote employee motivation, psychological well-being, and continuous productivity (Appel-Meulenbroek et al., 2020; Motamed & Shirvanimoghaddam, 2021). Within collective Asian cultures, these facilities provide critical avenues for strategic physical interaction, bridging professional isolation gaps among digital entrepreneurs (Bouncken et al., 2016). In regional economic sectors such as Singapore and Bangkok, creative spatial layout configurations, site accessibility, and cost-effective pricing indexes emerge as fundamental drivers of user preference (Cheah & Ho, 2019; Vanichvatana, 2018).

Within the macro-economic environment of the Philippines, demand for flexible workspace seating capacity grew significantly by 35.7% annually prior to expanding to approximately 548 structural hubs nationwide (JLL Philippines, 2018; RenTech Digital, 2025). In urban centers like Metro Manila, empirical literature establishes that physical servicescape attributes—including visual cleanliness, atmospheric lighting setups, and functional furniture—directly govern freelancers' actual visitation intent (Bautista & Florendo, n.d.; Galvez & Murad, 2021). As a rapidly urbanizing metropolitan hub in the southern Philippines, Davao City exhibits a growing co-working sector driven by hybrid workforce trends (FilipiKnow, 2025). However, tropical environments necessitate unique environmental features, such as layered glare-reducing lighting frameworks and thermal insulation defenses, to sustain workplace performance (Dagohoy et al., 2025). While historical regional research highlights how environmental psychology and alignment with core work values affect government employee behaviors in surrounding municipalities (Arellano, 2019; Lacanlale, 2018), there remains a pronounced empirical deficiency regarding how physical elements explicitly dictate preferences in Davao City. This research addresses clear population and methodological gaps by executing a choice-based conjoint model to map out the physical design attribute priorities of working professionals and post-graduate scholars operating in District 1 of Davao City. The primary research aim is to establish the specific relative importance weights and utility values assigned to environmental design trade-offs, thereby equipping local entrepreneurs with data-driven frameworks to refine consumer satisfaction indices.

THEORETICAL REVIEW

Multi-Attribute Utility Theory

The structural core of consumer preference modeling is grounded in Multi-Attribute Utility Theory (MAUT). MAUT offers an objective, mathematically rigorous method to measure, evaluate, and rank complex multi-criteria

alternatives by converting qualitative consumer choices into explicit utility scores (Patel, 2023). The structural utility model assumes that an individual evaluates an entity by decomposing it into independent constituent attributes, assigning preferential weights to each dimension to determine an additive aggregative value score.

Bitner's Servicescape Model

To map physical environment dynamics, this study incorporates Bitner's Servicescape Model (1992) as its primary supporting framework. The model dictates that the physical environment triggers internal cognitive, emotional, and physiological reactions that directly guide customer behavior (Nguyen & Nguyen, 2020). In a commercial context, these servicescape responses occur across three environmental dimensions: Ambient Conditions (temperature, sound levels); Space/Function (spatial layout, furniture utility); and Signs, Symbols, and Artifacts (visual signage, design themes). Driven by these environmental dynamics, the systemic integration of these variables is structured below in the Conceptual Framework of the study, as shown in Figure 1.

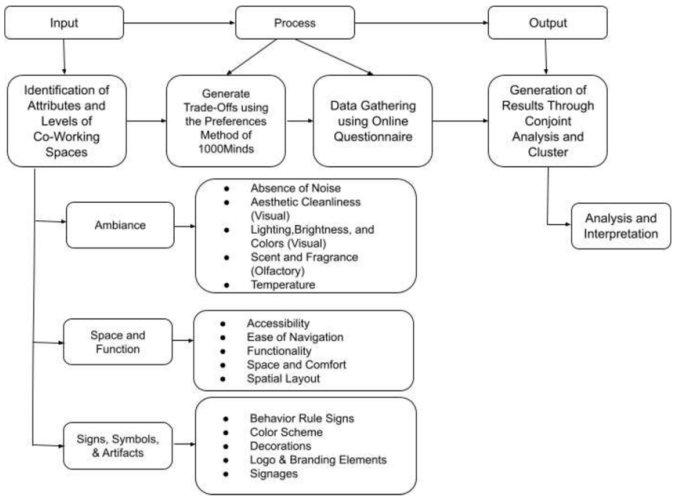

Figure 1. Conceptual Framework of the Study

METHODOLOGY

This study applied a descriptive quantitative research design leveraging Choice-Based Conjoint (CBC) Analysis to unpack user trade-off balances without relying on static descriptive assertions (Conjointly, 2024; Gell, 2025). The target population comprised working professionals (n=180) across high-demand urban industries (e.g., BPO, E-Commerce, Healthcare) and postgraduate university students (n=180) in professional disciplines (e.g., Medicine, Law, Business) within District 1, Davao City (CHED, 2022; N90, 2025; PSA, 2020). The minimum sample size requirement of 271 was established via Cochran's sampling formula at a 90% confidence level and a 5% margin of error.

Accounting for potential data-cleaning exclusions, the researchers expanded the sample to 360 respondents. Multi-level non-probability sampling merged purposive and quota frameworks across strategic malls, universities, and distinct local co-working platforms (Fleetwood, 2024; Nikolopoulou, 2022).

Cross-sectional intercept timelines were modeled using the Poisson Distribution Method across regular intervals to capture natural traffic patterns (Turney, 2023).

Initial attributes were selected following structured key informant interviews (KII) and deep qualitative in-depth interviews (IDI) with ten local coworking operators. Conjoint data acquisition was executed using 1000minds software, which applies the Potentially All Pairwise RanKings of all possible Alternatives (PAPRIKA) algorithm. This approach presents pairs of hypothetical configurations to compute precise internal part-worth preferences via linear programming techniques. Reliability was verified across successive phases, yielding a final Kendall's W concordance value of 0.790 and a Spearman's rho coefficient of 0.788, indicating strong, consistent alignment across the dataset (Blaschke et al., 2019; Dhavu et al., 2019).

RESULTS

Demographic Profile of Respondents

From the initial pool of 430 survey participants, data cleaning removed 70 invalid records due to response rushing, incomplete profiles, or straight-lining patterns, leaving 360 valid responses, split evenly between working professionals (n=180) and postgraduate students (n=180). As shown in Table 1, Age distribution was heavily skewed toward early-career individuals aged 25–28 (65.8%, n=237), followed by those aged 29–32 (16.1%, n=58), 33–36 (9.2%, n=33), 41–44 (5.6%, n=20), and 37–40 (3.3%, n=12). Gender representation was predominantly female (64.2%, n=231) compared to male (35.6%, n=128) and intersex (0.3%, n=1) participants.

Geographically, District 1 residents comprised the largest segment (45.6%, n=164), closely followed by District 2 (41.4%, n=149), with District 3 representing the remaining 13.1% (n=47). Among the working professional cohort, the Business Process Outsourcing (BPO) sector was most prominent (36.1%, n=65), followed by E-Commerce & Retail (25.6%, n=46), Healthcare (10%, n=18), and Tourism (10%, n=18). Within the postgraduate student cohort, scholars from Medicine and Nursing led representation (27.8%, n=50), followed by Arts & Sciences (18.9%, n=34), Law (17.2%, n=31), and Education (15.6%, n=28). Notably, while baseline awareness of coworking spaces was exceptionally high, a significant portion of the sample (32.2%, n=116) identified as familiar non-users, while active users primarily visited on a weekly (15.3%) or monthly (13.3%) basis.

Table 1. Demographic Profile of Sample Population (n=360)

Category	Subcategory	Frequency	Percentage (%)
Age Group	25–28 Years Old	237	65.8
	29–32 Years Old	58	16.1
	33–44 Years Old	65	18.1
Sex	Female	231	64.2
	Male / Intersex	129	35.8
Location	District 1 (Poblacion/Talomo)	164	45.6
	Districts 2 & 3 Combined	196	54.4

Vocation Profile	Working Professional (BPO, Retail, etc.)	180	50.0
	Postgraduate Student (Med, Law, etc.)	180	50.0

Preference Analytics and Attribute Level Utility Decompositions

The choice-based conjoint analysis executed via the PAPRIKA algorithm mathematically calculated the relative importance weights of the three primary servicescape attributes. As shown in Table 2, Space and Function was established as the most critical determinant of choice with a relative importance weight of 38.8%. Signs, Symbols, and Artifacts emerged as the second most vital attribute at 31.5%, while Ambiance was prioritized least, securing an importance weight of 29.7%.

To reveal the specific structural nuances within these choices, part-worth utility scores were computed for individual attribute levels on an interval scale, establishing clear preference hierarchies.

Space & Function Levels: Efficient Spatial Layout (the balance of private and shared environments) yielded the absolute peak utility score of 0.388. Space and Comfort (seating varieties and ergonomic chairs) followed with a utility of 0.300. Operational Functionality scored 0.216, while Ease of Navigation and Accessibility dropped to baseline values (0.00), highlighting that structural utility strongly outpaces basic physical access in user selection.

Signs, Symbols, and Artifacts Levels: Informational and directional Signages achieved the top utility profile within this dimension at 0.315. Visual Logo & Branding Elements followed with a part-worth value of 0.220. General Decorations (artworks, plants) scored 0.154, while Color Scheme cohesion and Behavior Rule Signs generated baseline scores (0.00).

Ambiance Levels: Thermal regulation via Temperature control secured the dominant utility score of 0.297. Scent and Fragrance diffusers followed with a utility profile of 0.202. Visually oriented Lighting, Brightness, and Colors scored 0.142, while a clean appearance (Aesthetic Cleanliness) and the absolute Absence of Noise generated no incremental utility (0.00).

Table 2. Conjoint Preference Utilities and Weights

Primary Attribute	Importance (%)	Component Attribute Levels	Utility Score
Space & Function	38.8	Spatial Layout Configuration	0.388
		Basic Functional Accessibility	0.000
Signs, Symbols, Artifacts	31.5	Directional Signages	0.315
		Behavioral Rule Signage	0.000
Ambiance	29.7	Controlled Indoor Temperature	0.297
		Baseline Absence of Sound	0.000

Simulated Market Share Choice Profiles

By synthesizing individual part-worth values, the software simulated total market share choices across varied configuration profiles to predict real-world selection behaviors, as shown in Table 3.

Table 3. Detailed Selection Probabilities for Coworking Design Profiles (n=360)

Design Profile	Ambiance Level	Space & Function Level	Signs, Symbols, & Artifacts Level	Total Utility Score	Simulated Market Share
Physical Design 1	Temperature	Spatial Layout	Signages	**1.000**	**100.0%**
Physical Design 4	Scent & Fragrance	Spatial Layout	Signages	0.912	41.7%
Physical Design 3	Temperature	Space & Comfort	Signages	0.906	33.1%
Physical Design 2	Temperature	Spatial Layout	Logo & Branding Elements	0.904	25.3%
Physical Design 7	Lighting & Colors	Spatial Layout	Signages	0.845	21.1%
Physical Design 5	Temperature	Spatial Layout	Decorations	0.838	11.9%
Physical Design 6	Temperature	Functionality	Signages	0.828	10.8%

Physical Design 1 achieved an absolute 100% preference consensus under the baseline simulation setup, confirming that an optimal mix of cool thermal regulation, dynamic table arrangements, and direct directional signage represents the ideal environment for local users. When that primary combination is unavailable, secondary preferences shift toward Physical Design 4 (41.7% share), substituting temperature control with active scent and fragrance diffusers, and Physical Design 3 (33.1% share), which replaces spatial separation with premium ergonomic furniture setups. The lowest priority configuration was Physical Design 6 (10.8% share), which sacrifices spatial layout for baseline operational functionality.

The consistency and reliability of these attribute rankings were confirmed through non-parametric correlation tests. Kendall's coefficient of concordance yielded a strong value of $W=0.790$, proving a highly reliable, unified consensus among the 360 respondents regarding their alternative rankings. This alignment is further validated by a Spearman's rank correlation coefficient of $\rho=0.788$, confirming a robust, stable, and highly positive monotonic relationship across all ranked preference data within the sample.

DISCUSSION

The academic interpretation of these findings demonstrates that target consumers in District 1, Davao City view functional spatial layouts as their primary priority when selecting a coworking environment. This outcome confirms

the core assertions of Bitner's servicescape theory, showing that space and function are essential for supporting user goals and task performance (Bitner, 1992; William, 2023). Users prioritize a well-balanced arrangement of tables and desks that provides clear separation between individual work pods and collaborative spaces (Chansomsak et al., 2018; Weijs-Perrée et al., 2018).

Interestingly, directional signage emerged as the second most influential factor, outranking baseline ambient elements. This indicates that users place a high value on clear visual navigation cues within large, shared spaces to minimize confusion (Abdelhady et al., 2020; Aziz et al., 2018). In terms of ambiance, ambient temperature control was identified as a critical factor for thermal comfort, which aligns with previous studies on local coffee shop preferences within Davao's tropical climate (Awa et al., 2025; Dagohoy et al., 2025).

In contrast, the lower emphasis placed on the absence of noise suggests that users may view managed sound levels as a standard baseline requirement rather than an additional value-driven design feature. Similarly, the lower relative priority for external accessibility indicates that since most coworking hubs are already concentrated in accessible areas within District 1, users focus more heavily on interior design and operational functionality.

CONCLUSIONS AND RECOMMENDATIONS

This study concludes that postgraduate students and working professionals in District 1, Davao City prioritize design functionality, explicit navigational support, and thermal comfort over purely decorative elements when evaluating coworking spaces. Conjoint analysis confirmed a strong preference alignment (W= 0.790) across these user segments, highlighting a shared demand for efficient spatial layouts, reliable temperature control, and clear signage. These results validate the utility of combining Multi-Attribute Utility Theory with the Servicescape Model to analyze user preferences in evolving urban service markets.

Based on these empirical findings, the following concrete recommendations are provided for coworking space operators and industry stakeholders:

1. **Implement Flexible, Zoned Furniture Layouts:** Space providers should prioritize investments in modular, movable desks and acoustic partitions to build a dynamic layout. Interior architecture must clearly separate isolated "deep-work" pods from collaborative, shared meeting rooms, allowing the physical environment to fluidly adapt to both individual productivity and group work tasks.
2. **Optimize Climate Control and Thermal Comfort:** Given the tropical climate of Davao City and the high utility assigned to temperature control, operations must invest in zoned HVAC infrastructure. Thermostats should be maintained within an optimal target productivity window (22 °C to 24 °C) across all occupied rooms to prevent discomfort, visual fatigue, or loss of concentration during peak work hours.
3. **Deploy High-Visibility Navigational and Directional Signage:** Coworking spaces—especially larger, multi-room hubs—should install clear, uniform, and aesthetically integrated wayfinding signage. Operators must strategically place visible direction markers leading to

essential functional areas, such as printing stations, quiet zones, restrooms, and emergency exits, to maximize usability and streamline client transit.

4. **Offer Tiered Membership Packages Tailored to Vocation Profiles:** Because postgraduate students and working professionals display unique usage patterns, operators should move away from rigid, one-size-fits-all pricing models. Facilities should introduce off-peak student evening passes that align with university schedules, alongside premium daytime corporate plans that offer dedicated desks and guaranteed access to meeting rooms, maximizing space utilization throughout the day.

FURTHER STUDY

This research was limited to the urban demographic of District 1, Davao City. Future studies should expand their geographic scope to include transregional settings or neighboring provinces to improve the generalizability of the findings. Researchers could also explore the impact of innovative amenities, such as dedicated wellness areas and nap pods, to assess how evolving work-life patterns influence workspace design expectations.

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