CLASSIFICATION OF COMMON AREA PREFERENCE FACTORS AFFECTING SUBDIVISION PROJECT CUSTOMERS' WILLINGNESS TO PAY

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Abstract

The objectives of this research were to analyze factors related to common areas that buyers are willing to pay for and proposing guidelines for driving project success. The research methodology comprised collection of data from 400 respondents, selected via purposive sampling, who were residents of housing estate projects in the Bangkok Metropolitan area, Thailand, with experience in using common areas. The researchers reviewed the literature and interviewed 10 experts regarding their preference factors for common areas in housing estate projects. Finally, 32 factors were screened in creation of the questionnaires. The acquired data were analyzed using descriptive statistics and factor analysis, as well as the Pareto Principle. The results found that the preference factors could be classified into five groups: (1) utilities, (2) quality of life, (3) identification, (4) relationships, and (5) working support. It was found that occupation and income were the most obvious demographic factors that affected the preferences of the respondents. In this regard, entrepreneurs and designers can use the results as guidelines when designing common areas in housing estate projects to add value to their projects. Furthermore, people can use the results as the basis for buying decisions.

Keywords: Housing estate project, Common area, Willingness to pay, Factor analysis, Preference factor

1. INTRODUCTION

The common areas of a housing estate project are one of the key components that support residents' buying decisions (Ariyawansa, 2007; Tochaiwat et al., 2018). A reasonable physical design should therefore support long-term residents' needs and usage (Riratanaphong et al., 2016). For this reason, entrepreneurs nowadays often use common areas as a key selling point and a main motivating component for buyers through the creation of a distinctive design. Common areas are built to increase buyers' willingness to pay and generate greater profits for the projects (Arumwirot, 2015). That is, a well-designed common area can increase the value or attractiveness of the project in the buyer's point of view.

Kongphunphin, Iamtrakul & Srivanit (2018) defined four main issues to consider in relation to public common areas in Thailand: urban, creative, identity, and sustainability. This approach can improve understanding and lead to better management of these areas. However, they seem to specifically apply to public areas as they are one of the most important issues for the private sector, as the customer's willingness to pay, is not taken into account. Moreover, common areas in

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residential projects require property management to be maintained to meet the needs of buyers (Riratanaphong et al., 2016). This is a key factor leading to successful housing development projects (Tochaiwat et al., 2011; 2020). On the other hand, projects with common areas that cannot respond to the needs of buyers inevitably leads to buyers having a reduced willingness to pay, which can eventually cause project failures. Therefore, developers need to know the key elements of the common areas that buyers want and are willing to pay for. As there are several factors related to the common areas of a housing project, they should be grouped into categories to give the concerned persons (i.e., project developers, project designers, and authorized public authorities) guidelines about their design, development, or management. There are several studies that have presented information about the above concept such as Leesatapornwongsa & Jarutach (2020), Peamyoosuk (2010), Tochaiwat et al. (2018) and Tochaiwat, Jiraprasertkun & Wanichwatunyou (2020).

For this reason, this study considers the effects on the willingness to pay for various common area factors, as categorized by factor analysis. The stakeholders can apply the findings from each category of the common area factors to make decisions during design, development, and maintenance of the areas, and ultimately to drive project success.

2. LITERATURE REVIEW

To reach the objectives of this research, the factors influencing the willingness of buyers to pay for housing projects were initially collected from a literature review. It was found that the buyers' demographic factors, such as gender, marital status, and salary, have profound effects on purchasing decisions (Majid, Said & Duad, 2012). Marketing and a project's strengths are the key driving forces, in addition to the price of the residences in the projects (Haddad, Judeh & Haddad, 2011). The hallmarks that project developers often use to improve their projects to build a willingness to pay among their customers, are project facilities, such as beauty, modernity, and safety of the project common areas (Kueh & Chiew, 2005).

2.1 Common Areas

Generally, in various residential projects, there will be a facility area that can be used communally by the residents of the project, called common areas, which often contain several facilities, such as swimming pools, fitness areas, parking lots, and sidewalks, as well as garden areas within projects (ALM Media Properties, 2014). In addition, the common area is defined as the independent application of the project area and the provision of services within the project as well (Bankrate, 2020). The definition shows the importance of the common areas, as well as creating a distinctive feature for projects. These areas also consist of utility systems within projects that enhance the quality of life and support the convenience and well-being of the residents, such as planting trees within the project to support outdoor activities or designs that conform to the needs of use (Land & Houses, 2016; Rinchumphu et al., 2021).

As mentioned in prior research, there are several factors that affect customers' decisions to buy, such as functionality, effective property management, common fee, security, design, universal design, maintenance, relationships among villagers, energy saving, supporting work, and showing identity (Brankov, 2019; Farida, 2013; Kaewprom, Suriyachan & Klongvessa, 2020; Leesatapornwongsa & Jarutach, 2020; Suttiwongpan, Tochaiwat & Naksuksakul, 2019; Tochaiwat et al., 2018; Vangjeen, 2018; Wongbumru & Dewancker, 2020). However, the residents are often charged for project common areas under several items, such as: 1) property management fees, 2) project utility costs, 3) procurement and maintenance costs, and 4) project activity expenses (Smartfinn, 2020). These expenses also affect the willingness to pay of the residents, and it is one of the factors affecting the success of different projects.

2.2 Willingness To Pay (WTP)

Willingness to pay can be measured by a variety of methods, such as via simulations, experiments, field trials, auctions, data collection by direct questionnaires, and data collection via indirect questionnaires (Satraphan, 2017). Regarding willingness to pay, there are two potential methods for the delivery of questionnaire surveys. The first method involves data collection by means of direct questionnaires with expert judgment and customers (direct survey method). This method is suitable for small sample groups, but data collection may be inaccurate and cannot be applied to people who have never used the product or service (Breidert, Hahsler & Reutterer, 2006). The second method involves data collection by means of indirect questionnaire surveys (indirect survey method) which determine the characteristics of products or services; this method uses the Conjoint Analysis (CA) method (Cameron & James, 1987), which is appropriate for the analysis of a product with specific needs and characterization. However, it should be noted that this research did not measure the willingness to pay of the residents of the subdivision housing projects, but instead analyzed the factors that impact the willingness to pay of the residents. There are several factors that affect customers' willingness to pay, such as the marketing mix provided by the developers, and other stimuli such as demographic factors (especially age and income), environmental factors, and complexity of decisions (Kotler & Armstrong, 2004; Suksanguan, 2018).

2.3 Pareto Principle

The Pareto Principle, or the 80/20 rule, was originally used to explain economic phenomena. It is a widely accepted theory that can be applied in planning the prioritization or allocation of resources for use in production and planning systems to efficiently achieve the desired goals (Boonchote, 2021). The main idea of the theory is to prioritize the factors that cause the effect of interest. In various situations, it has been shown that 80% of the outcomes or consequences are caused by only 20% of the potential factors or causes (Dunford et al., 2014). In other words, 20% of the factors can drive 80% of the success, or more importantly 80% of the effect can come from effective management of only 20% of the factors (Vanichchinchai, 2012). According to this concept, the Pareto Analysis aims to find the factors that contribute to 80% of the outcome of interest.

3. RESEARCH METHODOLOGY

This research adopted a mixed methodology involving a literature review and interviews with 10 experts, as well as a questionnaire survey. Expert interviews were used to determine the factors affecting the willingness to pay of house buyers. Interviewees consisted of five real estate staff and five buyers of houses in housing estate projects. Due to differences among the common areas in the housing projects of different countries, the factors collected from Thai and international literature, as mentioned in Section 2.1 Common Areas, were filtered, and some missing factors were added following the experts' opinions before being further analyzed in a quantitative approach. This approach is similar to the methodologies of Khumpaisal (2011), Riazi & Emami (2018), and Tochaiwat & Likitanupak (2017). The acquired 32 preference factors were then used to create a questionnaire consisting of 5-level scale questions in accordance with Likert (1974). The questionnaire survey was then deployed to collect data from 400 respondents selected via purposive sampling; respondents were required to be residents of housing projects with experience in using all common areas of their projects. The respondents were selected via a purposive sampling technique and completed the surveys online via a questionnaire.

The acquired data were then analyzed using statistical analysis methods to find the frequency and percentage of the respondents' demographic factors, while factor analysis was used to group the preference factors into

the main independent groups that can represent the key issues that influence residents' willingness to pay for common area facilities. In addition, this research also applied the Pareto Principle, discussed by Sander (1987), which addresses the 80/20 rule to determine the key groups of preference factors which have the main influence on the willingness of buyers to pay, leading to suggestions for application of the research results as guidelines for entrepreneurs and designers in their decision-making. At the same time the results can be useful for those who are interested in buying houses in housing projects when taking into account the common areas in subdivision housing projects.

4. RESEARCH RESULTS

4.1 Demographic Factors of Respondents

Demographic factors have relationships with buyers' willingness to pay (Kotler 1991).

Table 1 summarizes the data gathered from the questionnaire survey regarding the demographic factors of the 400 respondents.

Table 1 shows that most of the respondents were company employees, other workers such as self-employed, housewives (not working), and graduate level students. Most of them were aged between 25 and 50 years of age, with an income in the range of $800 - $1,920 per month.

4.2 Classification Of Common Area Preference Factors

The literature review and expert interviews revealed 32 common area preference factors for housing estate projects, which are shown in Table 2. In the classification of the acquired factors, factor analysis was performed to categorize the factors into five main groups. The data acquired from the questionnaires consisted of various common area preference factors that were used for grouping similar factors systematically, as shown in Table 2.

Table 1 Demographic Factors Respondents

Demographic Data		Number of Respondents	Percentage
Gender	Men	172	43.00%
	Women	223	55.75%
	Other	5	1.25%
Age	< 25	43	10.75%
	25 – 30	83	20.75%
	31 – 35	46	11.50%
	36 – 40	44	11.00%
	41 – 50	78	19.50%
	> 50	106	26.50%
Status	Single	221	55.25%
	Married	166	41.50%
	Divorced	13	3.25%
Occupation	Graduate Level	39	9.75%
	Company employee	204	51.00%
	Business owner	36	9.00%
	Government officer	75	18.75%
	Other	46	11.50%
Income	$800 – $1,920	124	31.00%
	$1,921 – $2,560	101	25.25%
	$2,561 – $3,200	110	27.50%
	$3,200 – $6,400	52	13.00%
	< $6,400	13	3.25%

Table 2: Classification of Common Area Preference Factors by Factor Analysis

Group	Common Area Preference Factors Influencing Willingness to Pay	Group 1	Group 2	Group 3	Group 4	Group 5
1. Utility value	Cost-effective use	0.791	0.308			
	Availability	0.785				
	Responsive to practical use	0.785				
	Beauty and modernity	0.703		0.370		
	Comfort in life	0.692	0.313			
	Safety in use	0.692	0.364		0.322	
	Supporting car traffic	0.632	0.350			
	Modern and comfortable exercise area	0.607	0.357			
	Guards and security systems	0.581	0.486		0.323	
	Shady trees in the project	0.577	0.320		0.306	
	Disaster prevention	0.576	0.320		0.371	
	The width of the footpaths supports walking	0.556		0.340	0.436	
	Damage handling and notification center	0.536	0.428			
2. Quality of life	Drainage system handles heavy rain		0.851			
	Waste management system		0.822			
	Air circulation system		0.791			
	Bill management	0.342	0.752			
	Lighting present throughout the common areas	0.393	0.747			
	Electric poles do not obscure the scenery		0.740			
	Cleaning service	0.491	0.665			
	Online bookings		0.553			0.519
	Additional parking and multi-purpose area	0.419	0.433	0.304	0.401	
3. Identification	Use as living area			0.773		
	Use as meeting area			0.675	0.342	
	Showing identity			0.607		0.416
	Statue, courtyard, and fountain			0.580		0.352
	Uncongested common area	0.413	0.493	0.532		
4. Relationship	Income generating				0.730	
	Building relationships among villagers		0.398	0.340	0.632	
	Promotion of interaction among villagers			0.407	0.598	
5. Supportive of Work	Use as working area					0.677
	Automation technology		0.415			0.592

Table 2 shows the factor loadings of each common area factor obtained from the factor analysis. The factors can be categorized into five main factor groups: 1) utility value, 2) quality of life, 3) identification, 4) relationship, and 5) supportive of work, with the number of factors in each group being 13, 9, 5, 3, and 2 factors respectively.

4.3 Relationships Between Demographic Factors and Groups of Common Area Preference Factors

Not all groups of common area preference factors have significant impacts on residents' willingness to pay. Therefore, a Pareto Analysis was performed to highlight the main groups that impact the residents in relation to their demographic factors. The percentage of the respondents with a preference for each factor group was acquired from factor analysis and was further analyzed, while the factor groups that can explain more than 80% of the total variance in respondents' willingness to pay within each demographic factor were specified as the main factor groups that influence the willingness to pay and should be given prior priority when designing or managing common areas. As a result, different groups of factors were prioritized for residents with different demographic data. The results are shown in Table 3.

From the application of the Pareto Analysis, the percentage of the respondents with a preference for each of the five factor groups was used when determining the main factor groups influencing the respondents' willingness to pay, classified by demographic factors. Table 3 indicates that the house buyers with different demographic factors prioritize the factor groups differently. In addition, it was found that occupation and income affect which factor groups have the main influence on the willingness to pay of the house buyers, consistent with Majid, Said & Duad (2012). On the whole, house buyers prioritized quality of life (Factor Group 2), identification (Factor Group 3), work support (Factor Group 5), and relationships (Factor Group 4). The total percentages shown at the end of the table were obtained from Cluster Analysis. However, there were some interesting findings such as (1) occupation seems to influence the respondents' priorities for the common areas. For example, graduate students give lower priority to identification while company employees give lower priority to relationships. Business owners gave higher priority to the utility value but lower priority to identification. (2) Buyers with $800 – $1,920 income give lower priority to relationships, while buyers with an income greater than $6,400 focused only on quality of life and work support. (3) Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) people focused only on two factor groups: quality of life and identification. (4) Buyers older than 40 years give lower priority to building relationships with others through common areas. The results show relationships between demographic factors, in accordance with Kotler & Armstrong (2004) and Suksanguan (2018).

Table 3 Percentage of Respondents Prioritizing Each Factor Group, Classified by Their Demographic Factors

Demographic data		Percentage of respondents who have preferences to:					
		Utility value	Quality of life	Identifica -tion	Relation- ships	Work Support	Total
Gender	Male	9.3%	37.2%	23.3%	13.4%	16.8%	100.0%
	Female	8.5%	35.0%	19.3%	16.1%	21.1%	100.0%
	Other	0.0%	40.0%	40.0%	20.0%	0.0%	100.0%
Age	> 25	11.6%	30.2%	11.7%	11.6%	34.9%	100.0%
	25 – 30	8.4%	30.1%	16.9%	16.9%	27.7%	100.0%
	31 – 35	10.9%	28.3%	21.7%	23.9%	15.2%	100.0%

Table 3 (Continued)

Demographic data		Percentage of respondents who have preferences to:					
		Utility value	Quality of life	Identifica-tion	Relation-ships	Work Support	Total
Status	36 – 40	11.4%	43.2%	13.6%	18.2%	13.6%	100.0%
	41 – 50	7.7%	32.1%	33.3%	12.8%*	14.1%	100.0%
	< 50	6.6%	46.2%	22.6%	11.3%	13.3%	100.0%
	Single	9.0%	36.2%	18.6%	15.8%	20.4%	100.0%
	Married	8.4%	34.9%	24.1%	13.9%	18.7%	100.0%
	Divorced	7.7%	46.2%	30.8%	15.3%	0.0%	100.0%
Occupation	Graduate Level	7.7%	28.2%	10.3%	15.3%	38.5%	100.0%
	Company employee	6.4%	38.7%	25.5%	14.2%*	15.2%	100.0%
	Business owner	25.0%	33.3%	8.3%	13.9%	19.5%	100.0%
	Bureaucrat	8.0%	36.0%	18.7%	20.0%	17.3%	100.0%
	Other	8.7%	32.6%	26.1%	10.9%	21.7%	100.0%
Income	$800 – $1,920	10.5%	39.5%	23.4%	4.0%	22.6%	100.0%
	$1,921 – $2,560	6.9%	39.6%	17.9%	15.8%	19.8%	100.0%
	$2,561 – $3,200	9.1%	25.5%	28.2%	22.7%	14.5%	100.0%
	$3,200 – $6,400	7.7%	40.4%	13.5%	26.9%	11.5%	100.0%
	> $6,400	7.6%	46.2%	0.0%	0.0%	46.2%	100.0%
Total		8.8	36.0	21.2	15.0	19.0	100.0%

Note. 1. Underlined data identifies main factor groups influencing willingness to pay of respondents when concerning demographic data, in accordance with Pareto Analysis.

2. * Not considered as main influencing factor group because cumulative percentage from prior factor groups was close to 80% already.

3. Exchange rate was 1 THB per 0.032 USD (exchange-rates.org, 2021).

5. CONCLUSIONS AND RECOMMENDATIONS

This research was done by factor analysis together with the Pareto Analysis of the influence of the factor groups for respondents classified by demographic factors. In conclusion it was found that most of respondents were willing to pay for enhanced common areas for their quality of life, identification, work support, and building relationships, while the utility value of common areas received the lowest attention from the respondents. Suggested directions for applying the research results and conclusions, from the highest to the least priority, are as follows:

5.1 Groups of Preference Factors:

1) Enhancing Quality of Life: It was found that this factor had the highest influence on willingness to pay for common areas, with a value of 36.0%. The respondents focused on drainage, waste disposal, air circulation, and cleanliness, which can enhance the quality of life. In addition, an online booking system and multi-purpose space can facilitate the daily life of the house buyers while the lighting system requires a professional common fee to

fund management. Finally, developers, designers, and residential buyers should pay attention to factors that promote hygiene, cleanliness, and management, affecting the convenience of residents, leading to better quality of life for the residents. These findings are in accordance with Brankov (2019), Kaewprom, Suriyachan & Klongvessa (2020), Vangjeen (2018), and Wongbumru & Dewancker (2020).

2) Identification: It was found that this factor group has the second rank in terms of average influence on the willingness to pay for common areas with a value of 21.3%. This factor group focuses on the space for living and welcoming visitors. For this purpose, the common areas must have spaces for holding parties and showing the identity of the residence and buyers, in accordance with Leesatapornwongsa & Jarutach (2020) and Tochaiwat et al. (2018). The areas should be decorated with ornaments and not crowded to create beautiful scenery for visitors. Developers, designers, and residential buyers should pay more attention to the issue of enhancing the scenery as well as enhancing the usability of the area, taking visitors into account. The common areas should not be overcrowded and respond to the usage of residential buyers.

3) Work Support: It was found that this factor group has the third rank in terms of average influence on willingness to pay for common areas, with a value of 18.0%. This factor group requires the common areas to provide area for work, in accordance with Leesatapornwongsa & Jarutach (2020). This may be due to certain types of occupations or the epidemic that has forced many people to work from home (this research was done in 2021, when COVID-19 was an issue). The provision of automation technology that supports work in the common areas is also important. For developers, it is necessary to develop the area that can be used as a workplace, modifying the areas to enhance usability, and applying some innovations to facilitate the online work of residents.

4) Relationship Building: It was found that this group of factors has the fourth rank in terms of average influence on the willingness to pay for common areas, with a value of 15.0%. The respondents required some income-generating areas for residents, in accordance with Leesatapornwongsa & Jarutach (2020). In addition, the factors for relationship building and promoting the interaction of villagers received second and third ranks, respectively. Having common areas that facilitate the building of relationships and fostering interactions, is important for creating unity between residents and forming a good community. Developers, designers, and residential buyers should consider common areas that give benefits to everyone in the project, such as income generation or activities that build relationships among the residents. In the meantime, it is also necessary to design spaces that promote interaction among occupants. This finding was in accordance with Farida (2013) and Brankov (2019).

5) Common Area Utility value: It was found that this group of factors has the lowest average influence on the willingness to pay for common areas with a value of 8.8%. This can be explained by Kano's Model (Kano et al., 1984) that buyers view this group as must-be requirements that the product should have. Therefore, even if the product has these factors, it will not satisfy the buyer. However, the developers or the designers must take into account that if the product does not contain any of the above factors, it will lead to buyer dissatisfaction. Therefore, common area utilities are a basic requirement that any project should have even though it is unable to generate greater willingness to pay among customers. Therefore, the design should be considered so that buyers can make full utilization of common areas, as well as using factors from other groups to create features that exceed customer expectations, creating attractiveness and a greater willingness to pay for common areas in the project (Tochaiwat et al., 2020). These findings were in accordance with Kaewprom, Suriyachan & Klongvessa (2020), Leesatapornwongsa & Jarutach (2020), Suttiwongpan, Tochaiwat & Naksuksakul (2019), and Vangjeen (2018).

The summary of results and guidelines for their application can be used as suggestions for several types of professionals involved in the development of subdivision housing projects, as well as buyers who are involved in the selection of projects. These groups of people can use the information in different ways. Therefore, specific recommendations for each of group of interested parties are as follows:

5.2 Recommendations

1) Recommendations for Developers: For entrepreneurs or project developers, the research results can be used as a basis for project design in terms of proportions or prioritization of physical and management areas, allowing the project to increase the willingness to pay of the target groups. This can help control the budget to only the factors that are worthwhile, and which correspond to the actual needs of the buyers, in turn leading to project success.

2) Recommendations for Designers: When designing the physical space for aesthetics and utilization, this information can be used by designers in appropriate allocation of area, giving priority to the areas that generate most of buyers' willingness to pay. Designers can also use the data acquired from the research for design which supports the use of space and management, giving the project a common area that creates a key selling point and responds effectively to the actual use of buyers.

3) Recommendations for Buyers: For residential buyers, the research results can be used as a basis for evaluation, together with purchasing decisions whether the project can respond to their needs. It can be used as a checklist for various factors that should be considered by the buyer before making a decision, assisting the buyer in gaining comprehensive consideration which will be beneficial for the buyers themselves in the future, when they are living in the projects.

4) Recommendations for Academia and Further Research: This research applied the Pareto Analysis in filtering the preferred factor groups that affect buyers' willingness to pay for each group of buyers classified by their demographic factors. This technique can highlight the important factors that have greater impacts (80% of all impacts) than using the generally adopted majority basis (cover 50% of all impacts). Interested researchers can conduct further studies with other elements of housing estate projects which affect buyers' willingness to pay. Alternatively, future research could use other techniques such as Conjoint Analysis or Simulation Technique to measure the willingness to pay for common areas in monetary value to acquire greater understanding of buyers' willingness to pay. The interested researcher could also conduct the same study with other types of real estate, such as residential condominiums. In addition, a probabilistic sampling method should be used in selecting the respondents to increase the reliability of the results.

Moreover, it should be noted that the analysis of the demographic data found that most of the respondents, who live in the Bangkok Metropolitan region of Thailand, were female, aged 36 years or more, with single status, occupied as company employees, with an income of $800 – $2,560, and housing buying power of approximately $40,000 – $128,000. Therefore, the acquired results will be very accurate for a group of customers with similar demographic data to the sample, as well as for projects with a price range between $40,000 – $128,000. Finally, project developers, designers, residential buyers, and all other parties concerned, these data can be used as design and decision-making criteria for common area development; those whose businesses are located in different areas can apply the same methodology to create success for future residential projects.

6. ACKNOWLEDGEMENT

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