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A FRAMEWORK FOR BUYERS' HOUSE SELECTION CRITERIA VS. POST-OCCUPANCY RESIDENTIAL SATISFACTION LEVELS IN NORTH CYPRUS

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Abstract. Intense competition existing in speculative house-building market creates an industry dominated by client groups. This paper provides insights into house-buyers' perceptions of a set of criteria contributing to their selection of the product (house) to buy together with the post-occupancy residential satisfaction levels reached after their selections, by presenting survey findings of 320 house-buyers in North Cyprus house-building market. A striking finding was the fact that the responding house-buyers belonging to different categories had very significantly different priorities in the house selection stage. Therefore, market segmentation is the area with a great potential for competitive advantage which will help the house-builders to focus on the product selection criteria of buyers in specific segments so that the capabilities and the strategies of the company can be presented in ways best suited to take advantage of these. Furthermore, the findings demonstrated that price/payment method, design and customization were all crucially important for the buyers. Therefore, builders should focus on determining the optimum customization to offer greater product choice and a proper design without losing their competitive prices. The post-occupancy residential satisfaction values varied significantly according to the categories of house-buyers. This study will combine house-buyers' product selection criteria and the related satisfaction levels reached during post-occupancy stage. Although this study was based on input provided by house-buyers in North Cyprus market, we believe the findings are of good value to builders and buyers in other similar markets.

Keywords: house-builder, house-buyer, house selection, residential satisfaction, housing, North Cyprus.

Introduction

In today's competitive markets, clients have choice since more players are competing for the same market (Egemen & Mohamed, 2006). Achieving client satisfaction in the market has been identified as a key measure for success and an effective tool for sustaining competitive advantage (Othman, 2015). Kotler and Keller (2006) defines satisfaction as 'a person's feeling of pleasure or disappointment resulting from comparing a product's perceived performance or outcome in relation to his or her expectations. Othman (2015) discusses that client satisfaction's use as a criterion for measuring project success and gaining competitive advantage is at an early evolutionary stage in construction.

For most people, buying a house is the biggest lifetime investment. Customers and users are becoming more and more demanding, claiming for higher quality in those products which entail a major economic effort (Fernandez et al., 2016). In speculative building, house-builder purchases land, designs and constructs without reference to its customers and builds houses for selling purposes. Speculative house-builders have been traditionally criticized for poor quality, lack of customization and excessive standardization of their houses. Hofman et al. (2006) discusses that house builders in different countries are searching for ways to deliver higher levels of customization. Over the years, researchers have paid little attention to both the house-buyers' product selection and the residential satisfaction issues. There is a lack of knowledge when it comes to the way in which house-buyers make choices and what their priorities are in this selection process. The chief concern for the house-builders will be recognizing what is important to clients of different categories and presenting the capabilities of their firms in ways to meet this to best advantage. Moreover, residential satisfaction is a crucially important issue, which is not only related to a completed

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building but also its life cycle issue right from the initial investment stage (Jiboye, 2012). Also residential satisfaction reflects an individual's comprehensive evaluation of their housing and neighbourhood environment (Wang et al., 2019).

North Cyprus construction market is a small but a competitive market that plays a crucial role in the socio economic development of the country. According to State Planning Organization (2018), construction sector shares 5.9% of gross national product of the country and 7.0% of working population is employed in this sector. Housebuilding is a very major segment of the specified construction market. Most of the speculative housebuilders in the market offer customers a standard range of products with only a limited choice of internal details of the houses. The sector has a conservative attitude hence the emphasis assigned to innovation to improve or achieve differentiation is not high. Although the firms accept the fact that there is a need to develop a customer-focused culture, price has been the main basis for competition in the specified market.

The specified market's house-buyers' importance priority and hence behaviors in the product selection stage are not clear. Moreover, it is unknown how well the industry is meeting the customers' expectations or how satisfied the customers are in this segment. Considering the significance of the topic, a study is needed to investigate this issue thoroughly and clarify this complex picture in the specified market. This research would elicit responses from house-buyers on their perceptions of a set of criteria contributing to their selection of the house-builder and hence the house, together with the post-occupancy residential satisfaction levels reached after their selections. The findings will combine and enlighten the house-buyers' product selection criteria and the satisfaction levels reached as a result of different choices made by the buyers. Hence, an overall and complete framework including both the selection and the residential satisfaction stages of the house-buying process will be developed both for the house builders and the buyers. The findings of this study will reveal the selection and satisfaction criteria of the customers in this segment and hence provide a framework for the house builders to adopt customer-focused strategies in an effort to increase their share in the related market. Furthermore, various categories of house-buyers' possibly varying approaches to the issue will be investigated in detail.

1. Literature review

Numerous researchers have highlighted the importance of implementing customer-focused strategies in house-building sector. Also, many other researchers have discussed the factors affecting house-building clients' satisfaction in detail and models were proposed for measuring and improving residential satisfaction of these clients. Different surveys have been carried out to evaluate performance characteristics of builders, which contribute to clients' satisfaction.

Craig and Roy (2004) discusses the fact that UK housebuilding industry has been criticized for failing to satisfy the needs of the customers in UK and presents approaches to overcome the barriers to a customer-focused culture. Torbica and Stroh (2001) examines house- builders' performance empirically, which was measured by the degree of home buyers' satisfaction. A model was proposed, which described the house-buyer satisfaction in three dimensions, namely as house design, house quality and service. Ozaki (2003) has done an analysis of customer satisfaction concept in the service industry and identified three key aspects for housebuilding industry, which were good service, customized house design on top of quality products and good information flow. Othman (2015) aims to develop an international index for customer satisfaction in the construction industry. Zang et al. (2018) suggest that all the house-related characteristics utilized in the analysis have significantly positive effects on people's housing satisfaction, however only ownership and house size play important roles in overall happiness. Fakere et al. (2017) examined the relationship between residents' level of participation in house design and level of residential satisfaction. D. Wang and F. Wang (2016) finds out that home and neighborhood activities significantly affect residential satisfaction. Riazi and Emami (2018) carried out a study regarding affordable housing structures in Iran and planning policies, design principles and interaction with neighbors were found as the determinants of residential satisfaction. Dinc et al. (2014) determines the residential satisfaction in state mass housing projects. Nguyen et al. (2008) conducted a survey with 92 residential contractors to better understand the customer service management practices of house-builders which is very important for house-buyer satisfaction. Nahmens and Ikuma (2009) focuses on house-buyers' satisfaction with service quality and aims to assess the correlations between the factors on house-buyer expectations and their perceptions of service quality. Jiboye (2012) examined the residents' satisfaction rates, discussed the relationships between physical characteristics of the buildings and their residents' satisfaction levels. Schoenwitz et al. (2012) developed an approach to help house builders to pinpoint areas to focus efforts in providing choice to house-buyers while Fellows (2014) investigated the conceptualization of client satisfaction, in the context of determining client values and value perspectives with their aspirations for performance. Nguyen et al. (2018) examined housing satisfaction among residents living in their own affordable apartments in Vietnam and found that satisfaction was positively associated with household income but negatively related to educational levels. Residents borrowing from banks were found to be less satisfied with their homes. Additionally, respondents' positive evaluation of the features of their apartment such as the construction quality, design and the price along with the location of the house and the quality of the environment were all found to be major factors affecting housing satisfaction. Tran and Van Vu (2018) found that permanent housing and better amenities were major factors

contributing to housing satisfaction and life satisfaction. Gender, ethnicity, employment status and education were not associated with housing satisfaction. Age was found to have an inverted U-shape relationship with housing satisfaction while better health was found to be closely linked with higher levels of housing satisfaction. The level of residential satisfaction was found to vary across the region and rural people tend to be more satisfied. Nguyen et al. (2019) examined the relationship between the access to homebuyer credits and housing satisfaction and found that access to preferential home loans has a major positive impact on housing satisfaction. The features of the houses including number of bathroom and balconies, the location of the house, its distance from school, markets were all strongly linked with housing satisfaction while the age, occupation and gender of respondents had no impact on residential satisfaction.

The findings of these studies, all provide valuable information for both the house-builders and their clients. However, a combined study providing an enhanced insight into the relationship between the house-buyers' product (house) selection criteria and the resulting post-occupancy overall satisfaction levels reached is missing. Therefore, a comprehensive study investigating the relationship between the house-buyers' product selecting criteria and their related post-occupancy overall satisfaction levels and also differentiating among various types of client groups' behaviors would be of great value.

2. Research methodology

In order to obtain a representative sample of house-buyers available in the market, data collection process has been made with the overall aim of maximizing the number of responding buyers. A questionnaire-based survey was employed and the research sample choice was made on the basis of representativeness and accessibility. The sample used in this study has been drawn from private house-buyers, who had bought at least one new house from a house-builder in the last 5 years to make sure that they have the relevant knowledge to answer the questionnaire accurately. Considering the fact that clients usually start to face problems after they start to live in the house, post occupancy residential satisfaction was to be measured for accurate and comprehensive evaluation. Therefore, survey respondents sample selected were all in the post occupancy period and had been living in their houses built by speculative house-builders for a minimum period of 6 months.

A two-stage sampling was used for this study, which were selection of study neighbourhood and selection of households within the selected neighbourhood. This study was conducted in three big cities, namely Nicosia, Famagusta and Kyrenia considering the fact that most of the newly built houses by the house-builders are in these three cities. For sample selection, the districts of these cities including a high number of newly built houses were listed. In Nicosia, 12 of these districts were randomly selected and in each selected district, 10 house-buyers were randomly selected yielding a total of 120 house-buyers. In Famagusta and Kyrenia, 10 districts were randomly selected in each city and 10 house-buyers were selected in each selected district randomly, yielding a total of 200 in these two cities. Hence the total sample for the study included 320 house-buyers in three big cities.

Although it may not be possible to list all of the factors regarding the buyers' house selection process, it was attempted to provide a very comprehensive list of factors. The previous studies regarding customer focused approaches in house-building, housing sector clients' expectations, customer preferences in housing design and housing selection, different factors contributing to post-residential satisfaction were all investigated in detail (Ozaki, 2003; Hofman et al., 2006; Nguyen et al., 2008; Schoenwitz et al., 2012; Fakere et al., 2017; Riazi & Emami, 2018; Zang et al., 2018). In addition to combining different approaches that exist in the literature, semi-structured interviews were carried out with numerous experienced house-builders in the market regarding the factors to be included in the study. The literature review and the preliminary consultation with the experienced house-builders in the market formed the basis of the questionnaire. Before finalizing the questionnaire, semi-structured interviews were also carried out in a pilot study and the house-buyer respondents were asked to consider the clarity, representativeness, relevance and length of the questionnaire. According to the recommendations, comments and inputs obtained in the pilot study, required modifications and shortenings were incorporated to finalize the questionnaire. In order to prevent possibility of the responding clients withholding information, the anonymity of the participants in the survey was assured. A structured questionnaire was employed to assess the perceptions of house-buyers in the specified market and a total of 320 participants completed the questionnaire.

The questionnaire comprised three main sections, with many pre-determined factors listed under each of these sections. Considering the fact different categories of house-buyers' approaches to this issue can vary, different buyer categories were defined to reveal their possibly varying approaches to the specified factors in this study. The first section of the questionnaire was designed to categorize the responding house-buyers according to categories defined and requested background information about them. Section 2, which was the major section of the questionnaire, was designed to uncover the perspective of buyers regarding both the product selection process. This section was related to the criteria used by the buyers in selecting the house that they recently bought from a house-builder. The respondents were asked for their perception of importance attached to the criteria listed, while selecting the product from the house-builder. In Section 3, the respondents were asked to simply specify their overall post occupancy residential satisfaction levels reached as a result of the house chosen. The responses were analyzed separately with respect to the two specified and interrelated main sections, namely Section 2 and Section 3.

Before interpreting the research findings, descriptive statistics about the responding house-buyers are presented in Table 1. The sample of respondents can be summarized as constituting mainly private clients, who had bought at least one new house from a speculative house-builder in the last 5 years and had lived a minimum period of 6 months in the house.

Table 1. Statistics about the characteristics of the respondents

Variable	Category 1	Category 2	Category 3
Value of the product (in GBP £)	<80,000 (41.56%)	80,000–130,000 (31.88%)	130,000+ (26.56%)
Income level of the house-buyer	Low (17.50%)	Moderate (62.50%)	High (20.00%)
Age of the house-buyer	<40 (28.44%)	40–55 (43.43%)	55+ (28.13%)

The method used to analyse the data in Section 2 of the survey was the Relative Index (RI) technique that has been widely used in construction research for measuring attitude, which is the perceived level of importance in this context, with respect to surveyed variables (Shash, 1993; Kometa et al., 1994; Jennings & Holt, 1998; Sambasivan & Soon, 2007; Gunduz et al., 2013). The aim of the analysis was determining the relative importance of listed factors identified as factors affecting house selection and RI technique best fitted the purpose of this study. An ordinal scale was used for the measurement of variables and the respondent house-buyers were requested to assign level of importance using a five-point scale, 1 being 'very low importance', 3 being 'medium importance' and 5 being 'very high importance'. Data from the questionnaires were extracted to derive RI values for each of the factors, which were rank ordered based on these values. The magnitude of RI was calculated for all the listed factors by the formula:

$$RI = \frac{\sum W}{\left(M * N\right)}, \tag{1}$$

where: W – weighting given to each factor by respondents (ranging from 1 to 5); M – the maximum possible scale value (5 in this case); and N – total no of respondents. Therefore, this yielded an RI index range from 0.2 to 1, where 1 represented "the maximum possible importance" and 0.2 represented "the minimum possible importance".

The RI values found were used to rank different factors, which made it possible to cross-compare the relative importance of the factors as perceived by different groups of respondents.

In order to distinguish among the possible behavior variations of different categories available in house-buyer population, a collection of variables was selected that measure characteristics on which the respondent groups are expected to differ. Therefore, different subgroups in house-buyer sample were defined and analyzed separately as well. Moreover, Spearman Rank Correlation Coefficient (S.R.C.C.) test was performed on the pairs of ranks, obtained for the different subgroups of house-buyers in order to define the correlation and hence the difference in behavior of varying groups of respondents regarding this issue. Spearman's Correlation Coefficient is a statistical measure of the strength of a monotonic relationship between paired data. It is a non-parametric measure of correlation based on data ranks. Unlike the most widely used Pearson's Correlation, there is no requirement of normality in S.R.C.C. This test was chosen to show the degree of agreement between the rankings considering the fact that it is a non-parametric test, which does not require the assumption of normality. Spearman's coefficient ρ was calculated by using the formula:

$$\rho = 1 - \frac{6\sum di^2}{n\left(n^2 - 1\right)}, \tag{2}$$

where: d_i – difference between the ranks of corresponding pairs of values; n – the total no of pairs of rank. The Spearman's coefficient returns a value between −1 and 1, with 0 denoting no relationship at all. A positive correlation means both values move in the same direction, however a negative value means variables move in the opposite direction. The value +1 implies a perfect positive relationship (agreement), while −1 results from a perfect negative relationship (disagreement).

Furthermore, overall post-occupancy residential satisfaction levels reached by the responding house-buyers were analyzed in Section 3. An ordinal scale was used for the measurement of overall house-buyer satisfaction and the respondent house-buyers were requested to assign overall satisfaction score using a nine-point scale, 1 being 'the highest dissatisfaction', 5 being 'neutral case' and 9 being 'the highest satisfaction'. Data from the questionnaires were extracted and the magnitude of Overall House-Buyers' Satisfaction Score (HBS) was calculated for the respondents, which yielded an index range from 0.111 to 1, where 1 represented 'the maximum possible satisfaction', 0.111 represented the 'maximum possible dissatisfaction' and 0.544 represented the neutral case with neither satisfaction nor dissatisfaction. HBS score was calculated by using the formula:

$$HBS = \frac{\sum W}{\left(I * N\right)}, \tag{3}$$

where: W – weighting given to each factor by respondents (ranging from 1 to 9); I – the maximum possible scale value (9 in this case); and N – total no of respondents.

3. Research findings and discussions

3.1. Product selection criteria and overall satisfaction (aggregated response)

The first part of the study focused on investigating how potential house-buyers in North Cyprus market prioritize the factors in selecting the house to buy from house-builders. Therefore, the main aim was to uncover the impor-

tance assigned to different criteria used by the buyers in selecting the product to buy from a house-builder. The respondents were asked for their perception of importance attached to the criteria listed, while choosing the house to buy. A summary of 'Relative Indices' and Ranks derived from the responses of all of the 320 house-buyers is presented in Table 2.

The average RI value of 0.631 is quite high, which is an indication of the high emphasis assigned to the listed factors by the responding house-buyers. The extremely high importance scores of the first two factors demonstrate the crucially high importance assigned to both price and payment plan offered by the responding clients. It is a known fact that buying a house usually is the biggest lifetime investment and buyers should focus on achieving the best value. However, it is obvious that price still emerged as the leading factor in the specified market, along with the conditions of the long-term payment plan proposed by the house builder. Hence, house builders should find ways to develop products that satisfies the customers' needs without losing their competitive prices.

The factors ranked from 3rd to 9th were all related to the product itself or its location, but not the house-builder firm. 'The range of selection choice in interior finish details', 'the internal design and functionality of the house', 'the quality and type of the materials to be used', 'the size of indoor area', 'the external appearance of the building' and 'adequacy of daylight distribution and natural ventilation' were all factors related to the product itself and were all assigned significantly high importance scores in the selection process.

These findings definitely indicate that the house-builder firms should focus their efforts for making correct decisions about the design, size and appearance of the house at the very beginning of the process. Additionally, the fact that house–buyers appreciate the freedom of choice was also reflected in the importance scores assigned. Since prior skill and experience usually result in lower costs and probably less quality problems, standardization emerges as a primary benefit to house-builders. However, 'the range of selection choice in interior finish details' emerged as a factor with strikingly high importance score of 0.897, while the range of selection choice in technical details and exterior details were assigned moderately high scores of 0.694 and 0.614 respectively. These findings show that house-builder firms should definitely give their clients freedom of choice, at least for interior finish details. Considering the extreme importance assigned to both 'the final price of the house' and also 'the range of selection choice in interior details', the builder firms should offer a high level customization by designing basic things in a way that would enable them to offer their clients a wide range of choices at an acceptable cost.

Considering the financial problems, late delivery and even bankruptcy of the builders encountered in the specified market in the previous years and also the fact that house-buyers sign their contracts with the house-builder firms while the product (house) is still in the design stage, one would expect that factors related to the reliability of the house-builder firm itself would be assigned high importance levels. However, the results clearly demonstrated that the factors related to the builder firm itself were assigned substantially lower importance scores, compared to the product related factors. This is an interesting finding that should be considered by the house-builder firms in the market. Among the factors related to builder firm, 'references about the house-builder', 'house-builder's previous works' quality' were selected as the two most important ones and were ranked 10th and 12th, while 'financial capacity and stability of the house-builder' was assigned a rather low importance score of 0.544 and ranked 25th. Considering these findings, it can be concluded that assuring customer satisfaction and positive word-of-mouth are crucially important and can be a market different differentiator. The builder firms should focus on strategies to completely satisfy their clients, achieve their positive recommendations and aim to do business with their friends or families in the future. On the other hand, these results also indicate that negative word-of-mouth will make it fairly difficult for a house-builder to survive in the long term in this small market. If used properly by the house-builders, these findings may be the key to survive and beat the intense competition in this specific market.

The remaining factors related to builder-firms were assigned lower importance levels. The RI scores found for 'overall customer services and after-sales care offered' and 'warranty conditions offered' were interestingly low, indicating that the respondents did not place much emphasis on these two factors. Although after-sales care is known to be important for customers' satisfaction in the post occupancy stage, the findings indicate that buyers do not assign high emphasis to this factor in the product-selection stage. However, caring for customers and providing them the service required in the post-occupancy stage is still rather important since it may be one of the critical keys to increase satisfaction of customers and gain advantage strategically in future works with positive-word-of-mouth.

The 'advertisements of the project' and 'the documents provided by the builder firm' did not come out as very major factors in the selection process while the 'the builder firm's overall communication with the client' and 'image and identity of the builder firm' received considerably higher importance scores. These findings indicate that house-builders should focus on communicating effectively with their clients and building an overall strong firm image in the market.

As a result of the priorities or importance values assigned to different factors in the product selection stage, a house was selected and bought by each of the 320 respondents. Overall House-Buyers' Satisfaction Score (HBS) would measure overall post-occupancy residential satisfaction levels reached by these house-buyers as a result of the product they selected. The Overall House-Buyers' Satisfaction Score (HBS) was found as 0.505, as presented in Table 2. The score of 0.505, which is far less than the maximum possible satisfaction score of 1 and even less

than the neutral case value 0.544, indicates a significant dissatisfaction of the responding buyers with the houses they bought. In today's competitive markets, achieving house-buyers' satisfaction is a key measure for success and satisfied customers are the backbone of the house-building industry. Actually, positive word-of-mouth traditionally has been significantly important in house-building market of North Cyprus. The findings of this study also reveals that among the factors related to builder firm itself, 'references about house-builder', was selected as the most important factor by the respondents in selecting the house to buy from a house-builder. There is a strong correlation between clients' satisfaction and their willingness to recommend the firm to their friends or families. Therefore, house-builders should focus their efforts in determining and applying appropriate customer-focused strategies, in an effort to increase overall customer satisfaction. Actually, this strikingly low overall satisfaction level indicates that in this highly competitive market, there is room for improvement of builders in being more customer-focused.

Table 2. Product selection criteria and satisfaction level (aggregated response)

N	Factor description	RI	Rank
1	The final price of the house	0.942	1
2	The payment plan proposed by the house-builder (duration, interest rate, etc.)	0.928	2
3	The range of selection choice in interior finish details	0.897	3
4	The internal design and functionality of the house	0.893	4
5	The quality and type of the materials to be used	0.873	5
6	The size of indoor area	0.866	6
7	The convenience of estate location (i.e. distance to the city/town center)	0.841	7
8	The external appearance of the building	0.800	8
9	Adequacy of daylight distribution and natural ventilation	0.778	9
10	References about the house-builder	0.759	10
11	Legal status of the land of the house	0.706	11
12	House-builder's previous works' quality	0.703	12
13	The range of selection choice in technical details of the house	0.694	13
14	Current stage of construction/time of delivery	0.690	14
15	Adequacy of outdoor/garden/landscaping areas	0.669	15
16	The image and identity of the builder firm in the market	0.637	16
17	The builder firm's overall communication with the client	0.618	17
18	The range of selection choice in exterior details of the house	0.614	18
19	Experience of the house-builder (no. of years in the market)	0.603	19
20	Overall contract conditions	0.600	20
21	Overall customer services and after-sales care offered	0.573	21
22	Safety and security of the house's neighbourhood	0.567	22
23	Warranty conditions the builder firm offered	0.550	23
24	Urban aesthetics in the neighbourhood area	0.547	24
25	Financial capacity and stability of the house-builder	0.544	25
26	Adequacy of privacy from neighbors	0.481	26
27	Social/recreation centers in the near neighbourhood	0.479	27
28	Expected land value increase in the neighbourhood area	0.470	28
29	Advertisements of the project	0.464	29
30	Isolation/heating systems of the house (thermal comfort)	0.429	30
31	Risks available due to inflation rate or instability of currency exchange rates	0.424	31
32	Availability of technical ability and resources of the builder	0.375	32
33	The documents provided by the builder firm during the first visit	0.364	33
34	Builder-firm' managerial capacity with similar size previous projects	0.359	34
35	Previous records of claims and disputes about the builder	0.357	35
	Average RI:	0.631	
	Overall house-buyers' satisfaction (HBS):	0.505	

3.2. Product selection criteria and satisfaction (subgroups)

In addition to overall responding house-buyers' results, the importance scores for many different subgroups available in our respondents' sample are presented in Tables 3, 4 and 5 to provide the insight of different house-buyer groups' expectations. The factors with low importance scores were discarded and the top-twenty factors were used for correlation tests among different subgroups.

The overall observation of the results in Table 3 confirms that there is a distinct and significant variation of scores among the groups of respondents categorized according to various control variables. Although obvious differences exist among factor rankings of the three specified categories, the S.R.C.C. test showed a strong correlation to exist in each case. The least correlation existed between Groups 1 and 3 ($r_s = 0.75$), while higher correlation existed between Groups 1 and 2 ($r_s = 0.87$) and 2 and 3 ($r_s = 0.94$). Actually, these findings clearly reveal that there is an important increase in correlation among subgroups having smaller differences in project values. The house-buyers' importance priority varied when there is a high difference in project values. On the other hand, the buyers involved in projects of similar values had more similar priorities. This is an interesting finding that should be assigned enough emphasis, considering the fact that there exist many house-builder firms in the market, which specialize on certain types or sizes of projects. This is the area with a potential for competitive advantage, which may lead to a path to increase their market share. Hence, the house-builders should do market segmentation and focus on the details of selection criteria and satisfaction levels of the buyers in the related specific categories.

When the factors are investigated in detail, it is apparent that 'the final price of the house' is the leading factor in all three subgroups, as expected. Also, it can be observed that Group 1 buyers assigned more emphasis on 'the payment plan proposed by the house-builder' and 'the size of indoor area' while Groups 2 and 3 respondents assigned higher rankings to 'the range of selection choice in interior finish details', 'the quality and type of the materials to be used', 'the external appearance of the building' and 'the range of selection choice in exterior details'. These findings reveal the significance of freedom of choice, quality and aesthetic appearance, especially for house-builders whose target markets consist of higher value projects' buyers. On the other hand, budgets of Group 1 buyers may be limited and the builders targeting lower value projects' buyers should focus on determining the optimum size of house with a competitive price and an advantageous payment plan.

Of specific interest, both 'current stage of construction/time of delivery' and 'experience of the house-builder' seem to be more important for smaller value project buyers while 'adequacy of outdoor/garden/landscaping areas', 'the image and identity of the builder firm in the market' and 'references about the house-builder' are more important for higher value projects buyers. Although importance values for 'financial capacity and stability of the house-builder' were low for all categories, that Group 1 buyers assigned slightly more significance to this specific factor.

When the House-Buyers' satisfaction scores are investigated, the post-occupancy overall residential satisfaction levels reached by all three of these subgroups seemed to be low. The findings indicate that Group 2 respondents are more satisfied than the respondents in other categories as presented in Table 3. The score of 0.546 for Group 2 is just above the neutral value while the scores for other groups are much lower than the neutral value indicating a fairly significant dissatisfaction of the responding buyers with the houses they bought. The lowest satisfaction score is found for the respondents in the lowest product value category (HBS = 0.465). The buyers in this category, who assigned more significance on optimum size of house, competitive price and advantageous payment plan, were the most dissatisfied group. On the other hand, Group 2 and Group 3 respondents, who assigned more emphasis on freedom of choice, quality and aesthetic appearance, were less dissatisfied. The strikingly low satisfaction level for Group 1 respondents indicates that there is room for improvement of house-builders specifically for lower value projects segment of the market. Therefore, house-builders should differentiate themselves from the others, analyze potential customers' requirements in this segment and apply customer-focused strategies to gain competitive advantage.

For only the selected factors which had striking findings in the comparisons, rank variations are displayed in Figure 1. Selected factors' ID numbers ('N' in Table 1) are displayed on the X-axis, their respective ranks are shown on the y-axis while the different categories are displayed in different colours. Moreover, seven highest ranked factors for each category of the value of the product are displayed in Figure 2. RI index for each factor is displayed on y-axis, ID numbers of the factors are displayed on top of the coloured columns while the different ranks from 1 to 7 are displayed in different colours.

The results in Table 4 showed the approaches of different groups of house-buyers categorized by their income levels. The S.R.C.C. test revealed that the least correlation existed between Groups 1 and 3 ($r_s = 0.83$), while very high correlation existed between Groups 1 and 2 ($r_s = 0.94$) and 2 and 3 (0.95). These findings reveal that there is an important increase in correlation among subgroups having smaller differences in income levels. The house-buyers' importance priority varied when the difference in income levels increased. Hence, the builders should focus on the details of selection criteria and satisfaction levels of the specific buyer groups who are within their target segment.

When the differences among the categories are investigated in detail, it is observed that clients with high income level assigned a lower rank on 'the payment plan proposed by the house-builder' compared to the other two groups. Actually, the fact that high income level buyers may not assign extreme significance to long term payment plans offered is expected. Buyers with low income levels assigned more emphasis on 'the size of indoor area' and

Table 3. Product selection criteria and satisfaction by the value of the product[a]

Value of product (£)		<80,000		80,000–130,000		130,000+	
		(Group 1)		(Group 2)		(Group 3)	
N	Factor description	RI	Rank	RI	Rank	RI	Rank
1	The final price of the house	0.948	1	0.943	1	0.932	1
2	The payment plan proposed by the house-builder (duration, interest rate, etc.)	0.943	2	0.934	3	0.899	4
3	The range of selection choice in interior finish details	0.852	4	0.938	2	0.919	2
4	The internal design and functionality of the house	0.895	3	0.901	4	0.882	5
5	The quality and type of the materials to be used	0.826	7	0.898	5	0.916	3
6	The size of indoor area	0.850	5	0.881	7	0.872	7
7	The convenience of estate location (i.e. distance to the city/town centre)	0.837	6	0.883	6	0.841	8
8	The external appearance of the building	0.712	13	0.849	8	0.879	6
9	Adequacy of daylight distribution and natural ventilation	0.806	8	0.759	10	0.760	10
10	References about the house-builder	0.723	11	0.805	9	0.761	9
11	Legal status of the land of the house	0.722	12	0.702	12	0.685	13
12	House-builder's previous works' quality	0.688	14	0.723	11	0.701	12
13	The range of selection choice in technical details of the house	0.729	10	0.659	15	0.681	14
14	Current stage of construction/time of delivery	0.756	9	0.695	13	0.583	18
15	Adequacy of outdoor/garden/landscaping areas	0.600	18	0.690	14	0.752	11
16	The image and identity of the builder firm in the market	0.595	20	0.656	16	0.678	15
17	The builder firm's overall communication with the client	0.632	16	0.615	19	0.599	17
18	The range of selection choice in exterior details of the house	0.590	21	0.616	18	0.650	16
19	Experience of the house-builder (no. of years in the market)	0.667	15	0.556+	20	0.560	19.5
20	Overall contract conditions	0.614	17	0.620	17	0.557	21
21	Overall customer services and after-sales care offered	0.599	19	0.552	22	0.555	22
22	Safety and security of the house's neighbourhood	0.583	25	0.554	21	0.560	19.5
23	Warranty conditions the builder firm offered	0.586	23	0.529	24	0.520	24.5
24	Urban aesthetics in the neighbourhood area	0.584	24	0.523	25	0.520	24.5
25	Financial capacity and stability of the house-builder	0.589	22	0.515	27	0.510	27
26	Adequacy of privacy from neighbors	0.417	29	0.5311	23	0.523	23
27	Social/recreation centers in the near neighbourhood	0.488	27	0.471	28	0.476	28
28	Expected land value increase in the neighbourhood area	0.489	26	0.519	26	0.421	29
29	Advertisements of the project	0.429	28	0.469	29.5	0.511	26
30	Isolation/heating systems of the house (thermal comfort)	0.407	31	0.466	31	0.420	30
31	Risks available due to inflation rate or instability of currency exchange rates	0.415	30	0.469	29.5	0.385	34
32	Availability of technical ability and resources of the builder	0.352	32	0.392	32	0.390	32
33	The documents provided by the builder firm during the first visit	0.349	34	0.362	33	0.388	33
34	Builder-firm' managerial capacity with similar size previous projects	0.350	33	0.337	35	0.401	31
35	Previous records of claims and disputes about the builder	0.348	35	0.359	34	0.368	35
	Average RI:	0.628		0.639		0.630	
	Overall house-buyers' satisfaction (HBS):	0.465		0.546		0.520	

Note: [a] Spearman Rank Correlation Coefficient (r_s) between groups 1 and 2 = 0.87; 1 and 3 = 0.75; 2 and 3 = 0.94; correlation is significant at 1% level for all.

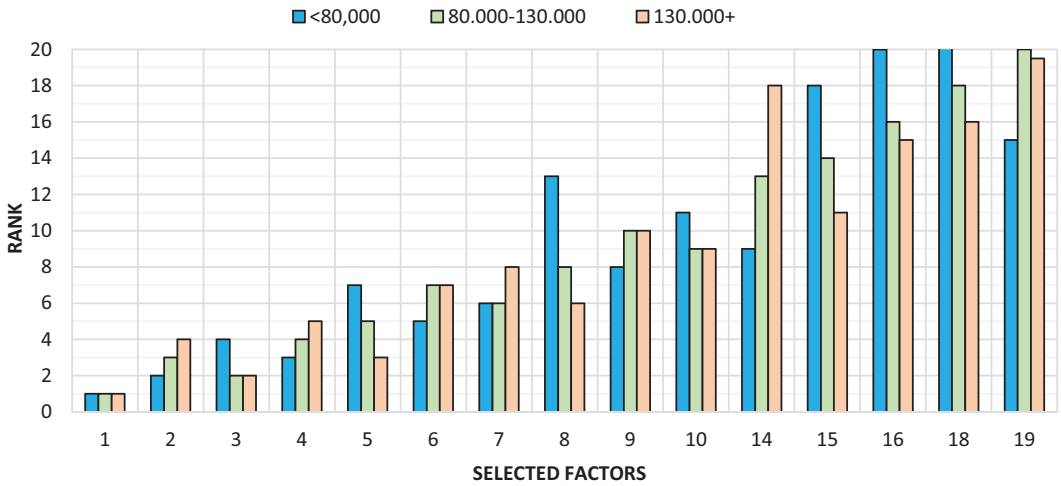

Figure 1. Rank variations by the value of the product in £

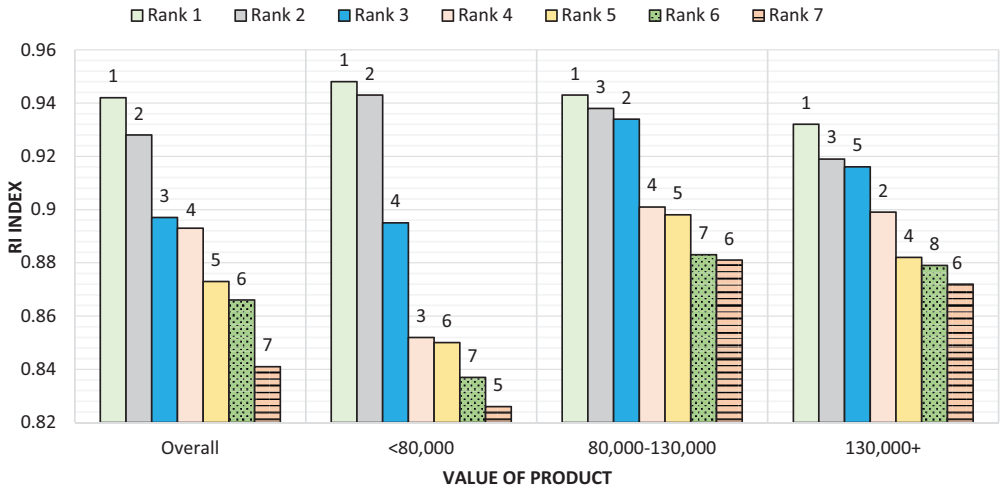

Figure 2. Seven highest ranked factors for each category of the value of the product

'adequacy of daylight distribution and natural ventilation. The emphasis assigned to the factors 'the range of selection choice in interior finish details', 'the quality and type of the materials to be used', 'the external appearance of the building' and 'the range of selection choice in exterior details' increased significantly with increasing income levels. These findings actually uncover the importance of freedom of choice, quality and aesthetic appearance, especially for the house-builders whose target market consists of buyers with higher income levels. The rankings assigned to the factors 'image and identity of the builder firm in the market' and 'house-builder's previous works' quality' increased with increasing income levels. This is a clear indication for the need of building a strong firm image with a successful firm history, especially for builders who target higher income level clients market. On the other hand, the emphasis for 'current stage of construction/time of delivery' increased with decreasing income level. This may be an indication of these respondents' urgent need for a house or it may be explained by their need to invest their money in a more secure option, considering the fact that investing money for a house long before the construction stage can be risky. Although importance scores for 'Overall contract conditions' and 'Overall customer services and after-sales care offered' were moderately low for all three groups, low income level buyers assigned slightly higher ranks to these factors. This may be an indication that buyers with limited budgets are looking for more secure options. Of specific interest, 'adequacy of outdoor/garden/landscaping seem to be more important for buyers with high income level.

The House-Buyers' Satisfaction Scores presented in Table 4 reveal that the post-occupancy overall residential satisfaction levels are lower than the neutral value indicating a fairly significant dissatisfaction of the responding buyers regardless of their category. However, it is interesting that moderate level income buyers have less dissatisfaction than the other two groups as presented in Table 4. The HBS score of 0.520 for moderate level income buyers is quite higher than the scores found for the other two groups. The satisfaction scores found for the respondents with high and low income levels were 0.477 and 0.480 respectively. The significantly low satisfaction levels for Group 1 and Group 3 respondents reveals that, there is room for improvement of house-builders specifically for low and high income level clients segment of the market.

Table 4. Product selection criteria and satisfaction by the income level of the house-buyer[a]

Income level of the house-buyer		Low		Moderate		High	
		(Group 1)		(Group 2)		(Group 3)	
N	Factor description	RI	Rank	RI	Rank	RI	Rank
1	The final price of the house	0.955	1	0.944	1	0.922	1
2	The payment plan proposed by the house-builder (duration, interest rate, etc.)	0.947	2	0.938	2	0.877	5
3	The range of selection choice in interior finish details	0.868	5	0.899	3	0.917	2
4	The internal design and functionality of the house	0.908	3	0.890	4	0.887	4
5	The quality and type of the materials to be used	0.828	7	0.879	5	0.895	3
6	The size of indoor area	0.870	4	0.868	6	0.856	7
7	The convenience of estate location (i.e. distance to the city/town cente)	0.830	6	0.850	7	0.822	8
8	The external appearance of the building	0.702	11	0.806	8	0.869	6
9	Adequacy of daylight distribution and natural ventilation	0.810	8	0.785	9	0.727	11
10	References about the house-builder	0.783	9	0.749	10	0.771	9
11	Legal status of the land of the house	0.695	12	0.713	11	0.695	13.5
12	House-builder's previous works' quality	0.658	14	0.698	12	0.758	10
13	The range of selection choice in technical details of the house	0.694	13	0.693	14	0.695	13.5
14	Current stage of construction/time of delivery	0.755	10	0.695	13	0.611	17
15	Adequacy of outdoor/garden/landscaping areas	0.652	15	0.665	15	0.696	12
16	The image and identity of the builder firm in the market	0.588	20	0.640	16	0.674	15
17	The builder firm's overall communication with the client	0.635	16	0.622	17	0.590	18.5
18	The range of selection choice in exterior details of the house	0.563	21	0.613	18	0.665	16
19	Experience of the house-builder (no. of years in the market)	0.633	17.5	0.598	19	0.590	18.5
20	Overall contract conditions	0.633	17.5	0.597	20	0.578	21
21	Overall customer services and after-sales care offered	0.590	19	0.572	22	0.562	22
22	Safety and security of the house's neighbourhood	0.484	26	0.586	21	0.579	20
23	Warranty conditions the builder firm offered	0.559	22	0.551	24	0.538	25
24	Urban aesthetics in the neighbourhood area	0.535	24	0.552	23	0.543	24
25	Financial capacity and stability of the house-builder	0.558	23	0.543	25	0.534	26
26	Adequacy of privacy from neighbors	0.430	29	0.475	27	0.544	23
27	Social/recreation centers in the near neighbourhood	0.509	25	0.480	26	0.450	29
28	Expected land value increase in the neighbourhood area	0.490	27	0.470	28	0.459	28
29	Advertisements of the project	0.469	28	0.454	29	0.494	27
30	Isolation/heating systems of the house (thermal comfort)	0.420	30.5	0.430	31	0.435	30
31	Risks available due to inflation rate or instability of currency exchange rates	0.420	30.5	0.440	30	0.376	34
32	Availability of technical ability and resources of the builder	0.378	32	0.3700	32	0.386	32
33	The documents provided by the builder firm during the first visit	0.366	33	0.356	33	0.390	31
34	Builder-firm' managerial capacity with similar size previous projects	0.359	34	0.354	34	0.377	33
35	Previous records of claims and disputes about the builder	0.357	35	0.353	35	0.372	35
	Average RI:	0.627		0.632		0.632	
	Overall house-buyers' satisfaction (HBS):	0.480		0.520		0.477	

Note: [a] Spearman Rank Correlation Coefficient (r_s) between groups 1 and 2 = 0.94; 1 and 3 = 0.83; 2 and 3 = 0.95; correlation is significant at 1% level for all.

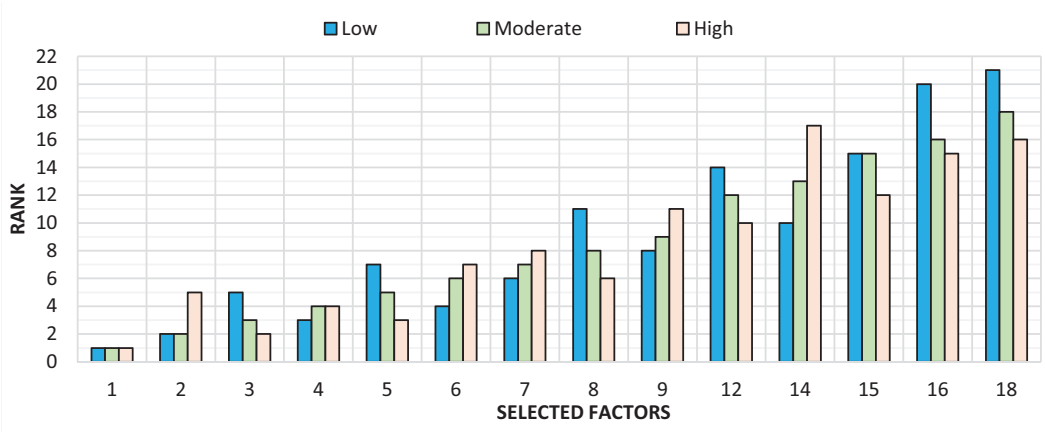

Figure 3. Rank variations by the income level of the house-buyer

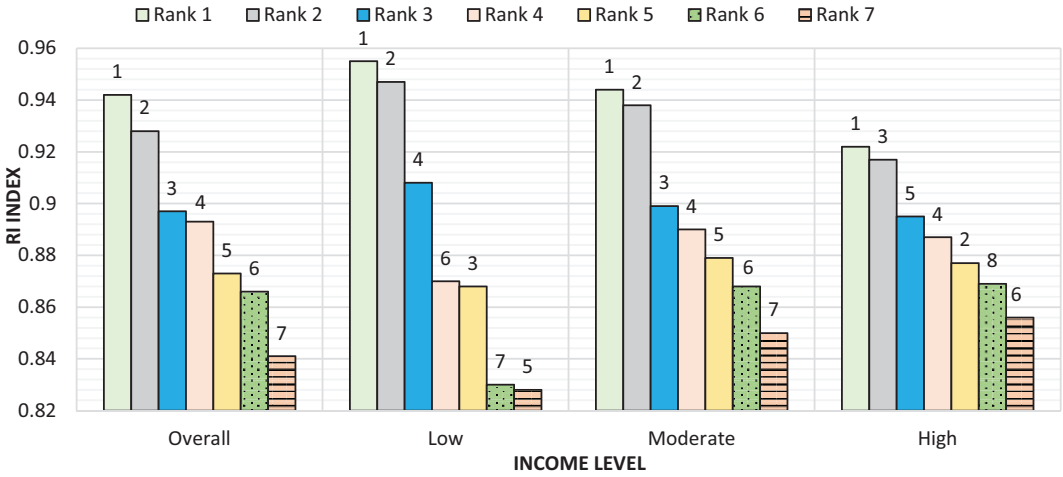

Figure 4. Seven highest ranked factors for each category of the income level of the house-buyer

For only the selected factors which had striking findings in the comparisons in this category, rank variations are displayed in Figure 3. Selected factors' ID numbers are displayed on the X-axis, their respective ranks are shown on the y-axis while the different categories are displayed in different colours. Moreover, seven highest ranked factors for each category of the income level of the house buyer are displayed in Figure 4. RI index for each factor is displayed on y-axis, ID numbers of the factors are displayed on top of the coloured columns while the different ranks from 1 to 7 are displayed in different colours.

The observation of the findings presented in Table 5 clearly demonstrates the varying approaches of different groups of house-buyers categorized by age. Although obvious and important differences are observed among factor rankings of the three different categories, the S.R.C.C. test showed a fairly strong correlation to exist in each case. The least correlation existed between Groups 1 and 3 (r_s = 0.77), while higher correlation existed between Groups 1 and 2 (r_s = 0.94) and 2 and 3 (0.83). These findings showed that the house-buyers' behavior in product selection varied more with increasing difference in age groups of the responding buyers. On the other hand, the buyers belonging to similar age groups had more similar importance priorities.

The analysis of the factors in detail reveals that there is an obvious and significant increase in importance assigned to 'the range of selection choice in interior finish details', 'the range of selection choice in technical details of the house' and 'the external appearance of the building' with decreasing age of the respondents. These findings uncover the significance of 'freedom of choice' and 'aesthetic external appearance', especially for house-builders whose target market consists of young or middle-aged buyers. The results also demonstrated that 'the internal design and functionality of the house', 'the convenience of estate location', 'adequacy of outdoor/garden/landscaping areas' and 'references about the house-builder' were assigned significantly more emphasis by higher age respondents. Therefore, the builders targeting older age groups should focus on internal design, functionality, location and outdoor area of the house. Of specific interest, Group 3 respondents also assigned significantly higher ranks to 'overall customer services and after-sales care offered' and 'safety and security of the house's neighbourhood' compared to the other two age groups.

The factor 'experience of the house-builder' was assigned strikingly more importance by higher age groups while 'the image and identity of the builder firm in the

Table 5. Product selection criteria and satisfaction by the age of the house-buyer [a]

Age of the house-buyer		<40		40-55		55+	
		(Group 1)		(Group 2)		(Group 3)	
N	Factor description	RI	Rank	RI	Rank	RI	Rank
1	The final price of the house	0.950	1	0.940	1	0.938	1
2	The payment plan proposed by the house-builder (duration, interest rate, etc.)	0.926	3	0.934	2	0.920	3
3	The range of selection choice in interior finish details	0.935	2	0.904	3	0.846	7
4	The internal design and functionality of the house	0.892	4	0.869	6	0.930	2
5	The quality and type of the materials to be used	0.872	5	0.874	5	0.874	5.5
6	The size of indoor area	0.859	7	0.899	4	0.821	8
7	The convenience of estate location (i.e. distance to the city/town cente)	0.815	8	0.836	7	0.874	5.5
8	The external appearance of the building	0.861	6	0.792	8	0.749	10
9	Adequacy of daylight distribution and natural ventilation	0.726	10.5	0.750	9	0.875	4
10	References about the house-builder	0.720	12	0.745	10	0.819	9
11	Legal status of the land of the house	0.690	13	0.724	11	0.695	12.5
12	House-builder's previous works' quality	0.683	14	0.721	12	0.695	12.5
13	The range of selection choice in technical details of the house	0.726	10.5	0.709	13	0.638	18
14	Current stage of construction/time of delivery	0.750	9	0.669	14	0.661	15
15	Adequacy of outdoor/garden/landscaping areas	0.612	16.5	0.661	15	0.740	11
16	The image and identity of the builder firm in the market	0.678	15	0.640	16.5	0.590	20
17	The builder firm's overall communication with the client	0.612	16.5	0.637	18.5	0.596	19
18	The range of selection choice in exterior details of the house	0.611	18	0.640	16.5	0.576	22
19	Experience of the house-builder (no. of years in the market)	0.572	19	0.570	20	0.686	14
20	Overall contract conditions	0.568	21	0.637	18.5	0.575	23
21	Overall customer services and after-sales care offered	0.553	22	0.536	23	0.650	16
22	Safety and security of the house's neighbourhood	0.540	24	0.532	25	0.642	17
23	Warranty conditions the builder firm offered	0.569	20	0.546	22	0.536	25
24	Urban aesthetics in the neighbourhood area	0.500	26	0.556	21	0.579	21
25	Financial capacity and stability of the house-builder	0.535	25	0.533	24	0.572	24
26	Adequacy of privacy from neighbors	0.541	23	0.476	27	0.429	28
27	Social/recreation centers in the near neighbourhood	0.487	27	0.456	29	0.506	26
28	Expected land value increase in the neighbourhood area	0.462	29	0.504	26	0.424	31
29	Advertisements of the project	0.483	28	0.475	28	0.428	29
30	Isolation/heating systems of the house (thermal comfort)	0.420	30	0.398	31	0.485	27
31	Risks available due to inflation rate or instability of currency exchange rates	0.411	31	0.432	30	0.425	30
32	Availability of technical ability and resources of the builder	0.384	32	0.381	32	0.357	34
33	The documents provided by the builder firm during the first visit	0.358	33.5	0.359	33	0.377	32
34	Builder-firm' managerial capacity with similar size previous projects	0.358	33.5	0.357	34	0.363	33
35	Previous records of claims and disputes about the builder	0.356	35	0.354	35	0.362	35
	Average RI:	0.629		0.628		0.630	
	Overall house-buyers' satisfaction (HBS):	0.522		0.540		0.435	

Note: [a] Spearman Rank Correlation Coefficient (r_s) between groups 1 and 2 = 0.94; 1 and 3 = 0.77; 2 and 3 = 0.83; correlation is significant at 1% level for all.

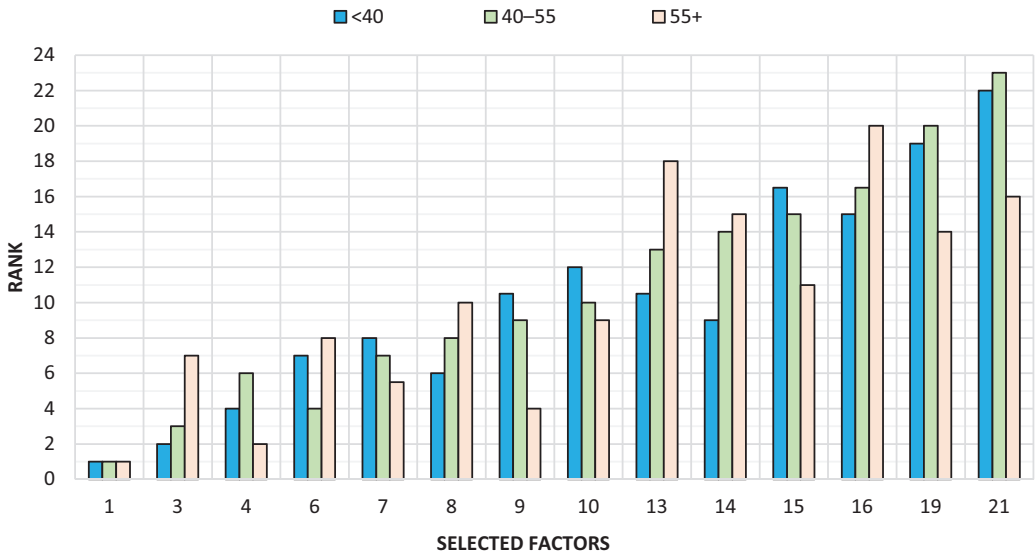

Figure 5. Rank variations by the age of the house-buyer

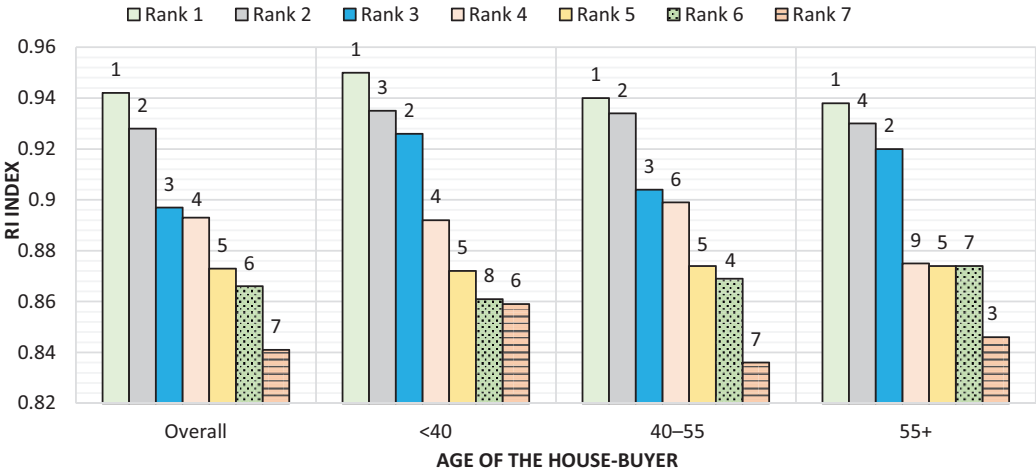

Figure 6. Seven highest ranked factors for each category of the age of the house-buyer

market' was assigned higher significance by the lower age groups. Although experience is traditionally considered to be very important in this market, it seems that it is perceived more important by higher age respondents. The findings also show that 'the size of indoor area' was perceived significantly more important by Group 2 respondents, while 'current stage of construction/time of delivery' was much more important for Group 1 respondents. These results indicate that young house-buyers in this market prefer to invest money in projects that are about to be completed in near future.

The House-Buyers' Satisfaction Scores presented in Table 5 show that buyers belonging to young and middle age groups are less dissatisfied than the buyers in the higher age group. Buyers belonging to different categories used different selection criteria and this resulted in significantly different residential satisfaction levels. The HBS scores of 0.540 for Group 2 and 0.522 for Group 1 are just below the neutral value of 0.544. However, the HBS score found for higher age respondents, belonging to Group 3 was very low (HBS = 0.435). This strikingly low score indicates a very significant dissatisfaction of the buyers in this category. In an effort to increase their market share, house-builders should analyze the needs of the potential clients under this category to gain competitive advantage.

For only the selected factors which had striking findings in the comparisons in this category, rank variations are displayed in Figure 5. Selected factors' ID numbers are displayed on the X-axis, their respective ranks are shown on the y-axis while the different categories are displayed in different colours. Moreover, seven highest ranked factors for each category of the age of the house buyer are displayed in Figure 6. RI index for each factor is displayed on y-axis, ID numbers of the factors are displayed on top of the coloured columns while the different ranks from 1 to 7 are displayed in different colours.

Conclusions

Numerous researchers have highlighted the importance of implementing customer-focused strategies in house-building sector. Moreover, other researchers have discussed the factors affecting post residential satisfaction. However, house selection and the resulting post residential satisfaction after the selection are two distinct but sequential stages of a complex and important process for people's lives considering the fact that buying a house is a lifetime investment. In an effort to uncover the main factors that characterize the two distinct and sequential stages of this process, namely house selection and post residential satisfaction, this study provided a comprehensive framework that had significant contribution to the research in this field. Unlike previous studies, this overall framework not only included one of the two sequential stages but both in a complete manner. While the study provided an enhanced insight into the relationship between the house-buyers' house selection criteria and the resulting post-occupancy overall satisfaction levels reached, it also differentiated among various types of client groups' behaviors in both house selection and the residential satisfaction stages. Various categories of house-buyers' significantly varying approaches and perceptions regarding house selection preferences and the resulting post residential satisfaction values were investigated within the developed overall framework.

Due to the intense competition in the market, the speculative house-builders have been focusing on offering a standard range of products, with an advantageous price and payment plan. However, the findings of this study clearly revealed that a significant dissatisfaction exists among the house-buyers in the market. Moreover, the findings confirmed that 'references about the house-builder' and hence positive word of mouth was perceived important by the buyers in house selection stage. It is a known fact that there is a strong correlation between clients' satisfaction and their willingness to recommend the firm to their friends or families. Therefore, this strikingly low overall satisfaction level indicates that there is room for improvement of house-builders in being more customer-focused in the highly competitive market. In order to outperform competitors, the builder firms should place high emphasis on the expectations of their existing customers, focus on strategies for achieving full satisfaction and aim to create future jobs with their positive recommendations.

Additionally, the satisfaction values vary significantly between the groups of respondents within the sector, categorized according to different control variables. In order to increase their share in the intensely competitive market, house-builders should follow a strategy of differing themselves from the competitors, focus and apply customer-focused strategies specifically for the categories of customers having very low satisfaction levels. If used properly by the house-builders in the market, these findings may actually be the market differentiator.

Further, it was found that the responses from house-buyers on their perceptions of a set of criteria contributing to their selection of the house-builder and the product vary very significantly among different categories of buyers. This is a strong indication that the house-buyers belonging to different subgroups or categories have significantly different importance priority and hence behaviors in the product selection stage. This is actually an indication that it may not be possible to design and build a house, meeting the varying requirements of all of these categories of customers together. Therefore, these results suggest that the house-builder firms may benefit from market segmentation, within the house-building market. It will help the house-builders to understand the nature of the specific segment of the market in a better manner, focus on the house selection criteria of those within so that the capabilities and the strategies of the organization can be presented in ways best suited to take advantage of these. This is the area with a great potential for competitive advantage.

The findings of this study also confirmed the fact that both customization and the price/payment method were very important for the buyers in the house-building market. Although the findings about the importance of price/payment method was expected, it is also apparent that house-buyers do not prefer a standard range of products and definitely appreciate freedom of choice. Although clients usually prefer to select from alternatives, they will be less willing to prefer this if this option means a significant increase in price. Since more customization usually means increase in price, house-builders should focus on developing more flexible processes to be able to offer optimum customization, which can be determined only after detailed investigation about the customization preferences of the buyers in the studied market. Additionally, the emphasis assigned to customization varied between different categories of buyers. Therefore, these results suggest that there is a definite need for market segmentation before shaping strategies about customization in house-building market.

Considering the late delivery and the financial problems of the builders encountered in the house-building markets and also the fact that house-buyers may sign contracts with the house-builder firms before the product is completed, one would expect that factors related to the reliability of the house-builder firm itself would be assigned high significance levels. However, the findings surprisingly demonstrated that the factors related to the builder firm were assigned relatively lower emphasis, compared to the product related factors. This is an indication that builder firms may compete even with the more experienced competitors, if they focus their improvement efforts for making correct decisions about the design, customization and other important details of the house to meet the expectations of the potential buyers in the market.

The findings of this study suggest that various categories of buyers who assign emphasis on different criteria in their selection of the house, reach significantly different levels of post-occupancy residential satisfaction. Hence, an overall framework combining the selection preferences and the resulting satisfaction levels of house-buyers of different categories is developed. In an effort to determine the correct factors that should be considered during the product selection stage, these findings may provide a guide for the house-buyers to reach higher levels of post-occupancy residential satisfaction.

In spite of the fact that this study was based on input provided by house buyers in North Cyprus construction market only, we believe that the approach, reasoning and the findings of this research are of good value to the house-builders and also buyers, not only in North Cyprus but also in similar markets throughout the world.

Disclosure statement

The author declares no competing financial, professional or personal interests.

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