Assessing beneficiaries' needs and expectations as a determinant of residential satisfaction in South Africa

Abstract

Purpose: There is an integral link between theory and measurement suggesting that validation of measures should be the first stage of theory testing. The aim of the present study was to validate the factorial validity of needs and expectations features as determinants of low-income residents' housing satisfaction in South Africa.

Methodology: Empirical data were collected by a questionnaire survey conducted among 751 low-income housing residents' in three metropolitan and one district municipality in the Gauteng Province of South Africa. Data gathered via the questionnaire survey were analysed using structural equation modelling (SEM) version 6.2 which was used to assess the factorial structure of the constructs.

Findings: SEM analysis revealed that the internal consistency coefficients were over 0.70 criterions for acceptability and the constructs showed a good mode fit to the sample data. The *Z*-statistics analysis revealed that the construct (needs and expectations) have direct influence in determining low-income residents' satisfaction with their houses.

Conclusion: The SEM result advocates a practical consideration of the construct and its respective indicator variables in future development of low-income housing in South Africa.

Keywords: Confirmatory factor analysis, needs and expectations, housing satisfaction, structural equation modelling

INTRODUCTION

The success of housing programmes does not only depend on merely provision of housing units, but also on other factors that should be considered during the housing developmental process. Hence, Ha (2008) states that the failure of many housing projects may be traceable to the lack of knowledge or opinion on the determinants of housing satisfaction from the occupants of the houses. This importance is based on the fact that many problems in the existing low-income housing environment in South Africa is direct result of neglecting the beneficiaries' views without a knowledge of their needs and expectations before, and mostly, after the houses are built.

Residential satisfaction research echoes the degree to which housing occupants' needs are achieved (Aigbavboa & Thwala, 2011a; Salleh, 2008). Research in residential satisfaction is a valid way of assessing the overall performance of a housing system (Francescato et al. 1987) by assessing the success of housing policy and also to forecast the moving behaviour of housing occupants. According to Francescato et al. (1987), the supposition behind housing policy research is that higher satisfaction levels are a good

indication of the success of specific policies, programmes, or designs such as the South Africa low-income housing subsidy scheme amongst others. Also, Speare (1974) noted that for housing mobility research, mobility results from the increase in dissatisfaction beyond a person's threshold of tolerance level. It is assumed that satisfied residents choose to stay, rather than move out without a thorough examination of other factors that could have contributed to the none-mobility decision. However, it is useful to explore the meaning of satisfaction from the residents' perspective in order to have a holistic view of the housing system. Studying satisfaction requires real understanding of the individual needs and expectation; and according to the Marine-Webster Dictionary, satisfaction means fulfilment of a need or want. Thus, an understanding of occupants' housing needs and expectation will be useful to better develop low-income houses that will respond to the needs and expectations of the residents' (beneficiaries).

The work of Maslow (1970) on 'Motivation and Personality' conceptualized the well-known Needs Hierarchy Theory. Maslow theorizes that basic human needs are organized into an order of relatively importance. Maslow believes that human needs arrange themselves in order of 'pre-potency'. The needs order theory postulates that: the appearance of one need usually rests on the prior satisfaction of another more pre-potent need. That is, no need or drive can be treated as if it were isolated or discrete; thus every drive is related to the state of satisfaction or dissatisfaction of other drives. It is believed that once a need is satisfied, it ceases to motivate behaviour. But man being an "ever-wanting" creature; as soon as one need is satisfied, another appears in its place. Thus 'human needs' form a hierarchy according to Maslow's (1970) theory, which includes the physiological needs, safety needs, need to belong and love needs, esteem needs, and need for self-actualization. The Maslow's Needs Theory postulates that each need must be satisfied in turn, starting with the first, which deals with the most obvious needs for survival. It is only when the lower order needs of physical and emotional well-being are satisfied that a concern can be placed on the higher order needs of influence and personal development. However, if the things that satisfy the lower order needs are swept away, people are no longer concerned about the attainment and satisfaction of the higher order needs.

Maslow's Needs Order Theory has been extensively used in many fields, but, mainly in the business and management domain to provide help on how to stimulate employees' motivation. However, the needs order clearly set up the levels of order which individuals have tried to pursue, as each level's need satisfaction will motivate the desire for the next level. This theory has also been tested to be useful in job satisfaction and customer satisfaction; and as such it has the potential to predict low-income residents' housing satisfaction with their allocated houses. Turner (1972) using Maslow's (1970) Need Theory suggested that material and existential needs and priorities exist in housing choices, in which the existential functions includes identity, security, and opportunity. Turner (1972) found that in any given context, housing priorities across different income groups show difference in their vital need (Turner, 1972). However, Greenberg (1999) attempted to combine Maslow's (1970) Needs Order; but failed to explore the full coverage of the theory and only indicated that controlling crime and physical problems are the basic criterion for a satisfied neighbourhood. Though Greenberg (1999) was right in his conceptualization, his

attempt only touched upon the holistic understanding of human complex needs in relation to their environment.

It must be recognised that a housing need exists, in which studies are mostly focused on different levels of the need. The work of Taylor (1995) claims that the fear of crime, or the feeling of safety, is the dominant predictor of satisfaction. Also, Greenberg (1999) found that crime and severe physical problems are the necessity need of any given neighbourhood. Furthermore, to achieve a satisfied living environment, there exists the needs order in the resident's housing consumption (Yiping, 2005); but little attention has been paid on studying this order. However the work of McCray and Day (1977) on housing satisfaction based on the Maslow's (1970) Theory of Needs, evaluated individual needs towards housing. McCray and Day (1977) found that when housing needs are fulfilled, the individual will indirectly be satisfied with his/her houses. Despite the general acceptance that housing is the primary component for quality life, McCray and Day (1977) emphasize that housing construction rarely refers to the needs and types of families who are going to inhabit the houses, whereas these criteria are critical in the establishment of human habitats. But the emphasis in most housing construction that involves the low-income is on the delivery at scale (quantity), which has compromised the principles enacted in most housing edicts that are committed to the provision of low income houses to the poor and disadvantaged who cannot provide for themselves. The achievement of government housing programmes does not only depend on bulk quantitative delivery of housing units, but also on the understanding of the factors that influence's the needs of residents and eventual satisfaction they derive from the housing product. Hence, RS deals with housing occupants' satisfaction with housing products, with the aim of informing housing policy and planning intervention (Yiping, 2005). Hence residents'' satisfaction has been credited as one of the most significant concept which should be considered in design and planning process for different nations housing policies.

In another work of Maslow (1998) on 'Towards a Psychology of Being', Maslow posits that housing order is constructed to understand factors that lead to a satisfied or dissatisfied neighbourhood, which is a major ideology of the current research. Residential satisfaction is determined by the fulfillment of individual housing needs, which is fundamentally determined under the condition of what level of housing need is pursued. This is because unless one level of needs is satisfied, they remain in the consciousness and become the prime determinant of behaviour towards the neighbourhood. Also, the effects of satisfying higher order needs will be neutralized if the lower-order needs are not fulfilled or when partially fulfilled. In other words, the residents who do not have sufficient living space in their apartment will care little about how the historic design of their building could affect their satisfaction.

Research on satisfaction using disconfirmation of expectations suggests that satisfaction is the result of a comparison of that which was expected and that which was received (Woodruff, Cadotte, & Jenkins, 1983). A fundamental premise of disconfirmation of expectation is that expectation is related to satisfaction. Erevelles and Leavitt (1992) states that post-purchase evaluation of a product can be explained, at least in part, by a comparison of the pre-purchase performance. Also, Spreng et al. (1996) extended the disconfirmation of expectations theory to include desires by developing a new model

which integrates desires and expectations. Tse and Wilson (1998:204) suggest that in addition to the influences from expected performance and subjective disconfirmation, "perceived performance exerts direct influence on satisfaction". Hence, the Expectancy Disconfirmation Model claims that user's satisfaction is a response to the congruency between an individual's expectations and the actual performance of a product (Oliver, 1981). Applied to the public housing subsidy scheme, satisfaction is viewed as a function of the interrelationship between what beneficiaries expect from the government and their perceptions of the house they have received, that is, the quality of the houses received and the satisfaction derived from the housing services provided.

According to Reisig and Chandek (2001), the expectancy theory can be conceptualized in a four-stage process. Firstly, the user formulates expectations regarding a product. Expectations contrast across users (Tse & Wilson, 1988). For example, based on a resident's knowledge of the product, an individual may estimate what the performance will be (Oliver, 1980). On the other hand, expectations may also be more normative in nature, and thought of as what the user believes performance ought to be (Tse & Wilson, 1988; Woodruff et al., 1983). Secondly, the individual makes certain attributions regarding the performance of that product; and thirdly, compares the perception of the product's performance against the initial expectations. The last stage in the Expectancy Disconfirmation Process is the user's determination of how well the product measures up to initial expectations. Here, expectations provide a standard from which to compare perceptions of product performances. Consequently, the individual may judge product performance to be better than, worse than, or equal to what he/she expected. The extent to which perceptions of performance match expectations dictates the type of disconfirmation the occupant experiences, and has a direct effect on satisfaction (Oliver, 1980). For example, an individual might experience positive disconfirmation, wherein the expectations are exceeded (increases likelihood of satisfaction). Negative disconfirmation is another probability, and arises when the user's expectations are not met by the product or service performance (decreases likelihood of satisfaction). Lastly, zero disconfirmation can also occur when performance of the product matches expectations (no effect on satisfaction).

While disconfirmation is assumed to have a major effect on user satisfaction, research shows that disconfirmation is not the only direct outcome (Reisig & Chandek, 2001). Reisig and Chandek (2001) further claim that expectations have also been found to directly affect satisfaction. For instance, individuals with lower expectations often report higher levels of satisfaction. Similarly, the second component of disconfirmation, which is performance, has also been interrelated to the outcome (satisfaction). Additionally, Oliver (1981) maintains that as performance increases, so too do levels of user satisfaction. Expectations and performance, therefore, are believed to have both direct and indirect effects on user's satisfaction (Reisig & Chandek, 2001). Hence, it is evidence that there is a fundamental link between theory and measurement advising that confirmation of measures should be the first stage of theory testing.

Therefore, the aim of the present study was to validate the factorial validity of needs and expectations features as determinants of low-income residents' housing satisfaction in South Africa because it is presumed that not all identified needs and expectations indicator variables' in literature will be effective in measuring residential satisfaction in

a cultural context like South Africa. The paper presents an overview on how to satisfy housing needs and expectation followed by the description of the methodology adopted before the results of the questionnaire survey analysis and findings of the research are presented. Finally, the paper draws some conclusions and makes some recommendations. The paper makes a significant contribution towards understanding needs and expectations on subsidised low-income housing projects. This study provided significant insight into how residents' satisfaction with their houses could be improved through internal consultation with the beneficiaries.

FULFILLING BENEFICIARIES' HOUSING NEEDS AND EXPECTATIONS
As part of the theoretical context of low-income housing satisfaction research, the gratifications of the beneficiaries' housing needs and expectations should have the noteworthy prominence. Households or individuals with diverse housing needs and expectations, the same housing condition could bring different satisfaction levels because their needs and expectation are also diverse. Moreover, Yiping (2005) states that residential satisfaction is fundamentally formed under the condition of what level of housing needs an individual or household is currently being pursued. Hence, if level one need is not satisfactorily satisfied, they will stay in the occupant's consciousness and will thus become the leading determinants of housing behaviour (Aigbavboa & Thwala, 2012). In earnest, the living condition that is currently being pursued forms the housing expectation of the individual or household, which is related to their inclusive residential satisfaction with the houses.

Previous research on housing satisfaction research, have separately addressed the different needs level of individuals, households and social groups, on its significance on informing policies on how best to handle a need of a particular group. For example, Marcus (1995) studies the self-actualization level and believes that housing is like a mirror which has a powerful effect on our sojourn toward a state of wholeness. Also, research on social needs in housing environment has increased in which social capital is the focus (Putnam, 1995). Social capital refers to social trust, norms and networks that people can draw upon to resolve their common problems such as housing problem (Lang and Hornburg, 1998). All around the globe, inclusive of South Africa, there is a growing consensus that social capital constitutes a significant new dimension of public housing development and establishment, as occupants are directly involved; meaning their needs and expectations would have been taken care of through their activate involvement in the development process. Housing needs as a shelter in South Africa are mostly a concerned for those who struggle for these needs, such as the homeless, those previously disadvantage from owning property as a result of previous government policy (apartheid rule in the previous South Africa).

All social researches on housing can be grouped within a system relating to different needs order. Exclusively, every household is inspired to pursue the higher level needs in the housing needs order when the lower needs have been satisfied. Collectively, it brings social issues regarding the processes of different level of housing need's satisfaction. Discrepancies in housing priorities are so big that housing provision sectors has to provide a wide variety of dwelling types with all forms of tenure to meet the demand (Aigbavboa & Thwala, 2012). This is because residents are only satisfied when

their current housing needs and expectations are satisfied. However, it must be noted that the satisfaction will not stay unchanged; because soon, there will be other higher level needs and expectation that will have to be fulfilled. More so, households who are dissatisfied are likely to consider some form of adjustment. They may attempt to make adjustment to reduce dissatisfaction by revising their needs and expectations to reconcile the incongruity, or by improving their housing conditions through remodelling ((Hamnett, 2001; Morris & Winter, 1975). According to Morris and Winter (1975), they may also move to another place to bring their housing into conformity with their needs and expectations. However, both mobility and adjustments are subject to the constraints posed by financial resources at one's disposal and by information regarding alternative adaptation opportunities (Morris and Winter, 1975). Thus moving behaviour is only one type of adjustment residents perform during the time of dissatisfaction of housing needs and expectations; but in the case of the low-income group, it might not be possible, as most cannot access housing on their own and the subsidized houses received might be their only life time opportunity to access housing. Furthermore, the next section of the article discusses the methodology used in conducting the research.

METHODOLOGY

The research objectives were accompanied using both qualitative and quantitative data collection approach. Delphi technique was used to collect the qualitative, a while the field questionnaire survey method was used to collect the quantitative data. The Delphi survey was conducted amongst 15 housing experts drawn from the entire South Africa. The output from the Delphi techniques helped to refine the dwelling unit conceptual variables used for the quantitative data collection. The assessed factors were identified during the course of the literature review and further validated via the Delphi study as already stated. An existing valid survey instrument was not used, but the developed questionnaire was further validated via the SEM output. The residents' housing needs and expectations features considered for the present study are summarized in Table 1.

Table 1: Needs and Expectations Features Conceptual Variables (NAE)

These variables were considered valid to measured NAE in South Africa because of the historic issues surrounding housing development in the country and also, they align with international best practice.

The present conceptual model in Table 1 hypothesis that occupant (beneficiaries') residential satisfaction (RS) with government provided low-income housing in South Africa is derived from the assessment of the needs and expectations of the housing beneficiaries. The model tested in the hypothesis postulates a priori that RS is a multidimensional structure influence by NAE. This is presented schematically in Figure 1. The theoretical underpinning of this priori is derived from the works of Marans and Rodger (1975); Marans and Sprecklemeyer's (1981) models of satisfaction and the approach as adopted by Galster and Hesser (1981) and Cutter (1982).

Figure 1: Measurement Model of Needs and Expectation

With regards to the quantitative aspect of the study, a face-to-face administered questionnaire survey was conducted among 751 subsidised low-income housing residents' in three metropolitan and one district municipality in the Gauteng Province of South. These municipalities were selected as the study population because they are a typical representation of the South Africa cities urban space. Their significance and relevance to the low-income housing development is an example of what the progress and development of low-income housing typology should be in the country and in the developing countries. Hence, they were adopted as the study population. The unit of measurement was the beneficiary's (occupants') of the subsidised low-income housing that have been built, allocated and are being inhabited. The selected low-income housing locations were chosen based on the history of the areas to the South Africa housing space. The questionnaires were administered to the heads of the households. In cases where the head of the household was not available, their spouses were chosen. However, when both were not around or a spouse is not present, another housing unit is then chosen. One household head or spouse per house was engaged in the questionnaire administration.

The data gathered through the questionnaire survey were analysed using structural equation modelling (SEM) software Version 6.2, which was used to assess the factor structure of the constructs. The conceptual variables were thereafter tested as a priori using SEM of the questionnaire survey results. The SEM process was therefore undertaken as confirmatory factor analysis (CFA) of the priori model. Structural equation modeling (SEM) has been theoretically and empirically demonstrated to be powerful in disentangling complex causal linkages among variables in social studies, and its use in studying the relationships between housing satisfaction variables and the built environment has become more and more popular (Bagley & Mokhtarian, 2000; Cao, Mokhtarian, & Handy, 2007). As with other statistical methods, given the prior establishment of conceptual plausibility, the inferences of causality in SEM are based on hypothesis tests (priori) on the model and parameter estimates. If the data meet all the assumptions required by an estimation method, the results are assumed to be trustworthy. Due to the limited space in current paper, the Delphi process is not discussed.

Model testing

Confirmatory factor analysis (CFA) using EQS Version 6.2 (Bentler & Wu, 1995) was used to test the factorial validity of the needs and expectations features priori which were determined from the literature and further validated through the Delphi survey. The construct parameters were estimated using the Maximum Likelihood method. Since psychometric data have a tendency to be not normally distributed, consideration was given to the Mardia coefficient. Meaning, if the Mardia coefficient values showed significant deviation from normality, the Satorra-Bentler Scaled statistics (Robust) would be used as these have been found to perform adequately under such conditions (Bentler, 1988). In SEM, one of the main concerns about the data is whether the sample has a multivariate normal distribution, because this influences what estimation method should be used and the extent to which the estimates obtained from the most common

methods are trustworthy. In general, real-world data (including those from housing satisfaction research) do not have univariate normal distributions, let alone multivariate normal distributions (Chou, Bentler, & Satorra, 1991; Micceri, 1989).

In establishing the score reliability, the construct validity for the variables was conducted to demonstrate the extent to which the constructs hypothetically relate to one another. This is also referred to as the test of measurement equivalence or measurement invariance between indicator variables. Measurement invariance (MI) is a very important requisite in SEM. It attempts to verify that the factors are measuring the same underlying latent construct within the same condition. MI ensures that the attributes must relate to the same set of observations in the same way. The MI for the dwelling unit features was determined based on examination of the residual covariance matrix from the SEM output result as opposed to the correlation matrix. Covariance matrix establishes the variables that adequately measure the dwelling unit construct.

Therefore, preliminary Confirmatory Factor Analysis (CFA) was performed to measure the needs and expectations indicator variables to identify which items appropriately measures the neighbourhood features. Initial CFA analysis revealed that the residual covariance matrix were within the accepted range, as recommended by Byrne (2006).

Hence, the indicator variables sufficiently measured the needs and expectations as in other cultural context and past research studies. According to Byrne (2006), when residual covariance matrix values are greater than 2.58, these are considered large, and are not adequately measuring the factor they are associated with. Therefore, in order for a variable to be described as well-fitting in measuring a construct like needs and expectations as considered in the present study, the distribution of residuals covariance matrix should be symmetrical and centered around zero. This procedure was adopted as a means to ensure that the indicator variables were measuring the needs and expectations construct.

RESULTS

Measurement Model for needs and expectations feature (NAE)

The number of cases that were analysed for the NAE construct was 751 cases which is equivalent to the survey sample size of 751. No case was skipped because there were no missing variables. Furthermore, CFA analysis revealed that the residual covariance matrix were within the accepted range as already stated. That is, in order for a variable to be included in a further SEM analysis, thus enabling the model to be described as well-fitting, the distribution of residuals covariance matrix (factor loadings) should be symmetrical and centred around zero (Byrne, 2006:94) and should not be greater than 2.58. The four-indicator variables which passed the covariance matrix's test provides good measures of residual matrix and evidence of convergent validity. They indicator variables are showed in Table 1. These variables were used for further assessment of the measurement model goodness-of-fit test.

Inspection of the Bentler-Weeks Structure representation for the construct revealed that the NAE construct has 4 dependent variables, 5 independent variables and 8 free parameters. The number of fixed non-zero parameter was 5. Analysis of the Mardia values showed that the data deviated significantly from normality (Mardia = 44.4301), hence the decision was to use the robust maximum likelihood method.

Table 2: Robust fit indexes for needs and expectation

The sample data on needs and expectations feature measurement model yield the $S - B\chi^2$ of 190.72 with 20 degrees of freedom (df) (*p = 0.00000*) as shown in Table 2. The chi-square value advocated that the difference between the sample data and the hypothesised construct was insignificant. From these values, the normed chi-square value was determined to be 9.5362. The normed chi-square is the procedure of dividing the chi-square by the degrees of freedom. The normed values of up to 3.0 or 5.0 are recommended (Kline, 2005). The ratio of $S - B\chi^2$ to the degrees of freedom was higher than the upper limit value of 5.0 suggesting a non-acceptable fit of the data to the construct. However, the chi-square statistics is only indicative of fit and therefore, other goodness-of-fit indexes were reviewed.

The goodness-of-fit indexes are presented in Table 2. The robust Comparative fit index (CFI) of 0.955 was higher than the minimum value of 0.95 set for good fit criteria. A model is said to be a good fit if the CFI is above the cut-off value of 0.95 (Hu & Bentler, 1999:27; Joreskog & Sorbom, 1996). The robust root mean square error of approximation (RMSEA) with 90% confidence interval was found to be 0.118 (lower bound value = 0. 077 and the upper bound value = 0.163). This value is higher than the maximum value of 0.08 for a good fit model, albeit, with a margin of 0.038. Hence, this was considered a mediocre model fit according to MacCallum et al. (1996). In addition, the absolute fit index, Standardised root mean square residual (SRMR) was found to be 0.046 which was lower than the minimum value of 0.05 cut-off set for good fit. This value indicated a very good fit because a good fitting model is expected to have an SRMR index lower or equal to 0.05, whilst an index of 0.08 is sufficient to accept the postulated model. The absolute fit index SRMR accounts for the average discrepancy between the sample and the postulated correlation matrices and therefore, it represents the average value across all standardised residuals and ranges between zero and 1.00 (Byrne, 2006). Therefore, the evaluation of the SRMR, RMSEA (90% CI), and the CFI fit indexes indicated an acceptable fit of the measurement model for the NAE features factor.

Testing the influence of needs and expectations construct on overall residential satisfaction

In order to determine the internal consistency of the composition of the measurement model, the Rho coefficient and Cronbach's alpha (α) were examined to establish the reliability. Byrne (2006) and Kline (2005) theorize that Cronbach's alpha measures the degree to which responses are consistent across all items within a single measure and if this statistics is low, the content of the items may be so heterogeneous that the total score is not the best possible unit of analysis for the measure. Therefore, the acceptance of Cronbach's Alpha to measure internal homogeneity is limited. Byrne (2006) argues that the use of the Cronbach's Alpha Coefficient to judge latent variable models

especially models with multi-dimensional structure such as the dwelling unit features in a residential satisfaction study is questionable because it is based on a very restrictive model that requires all factor loading and error variances to be equal. Therefore, in establishing score reliability for the analysis, the Rho Coefficient was relied upon more than the Cronbach's Alpha Coefficient even though it is the most common method used for assessing the reliability for a measurement scale with multi-point items (Hayes, 1998). The Rho coefficient provides a good estimate of internal consistency because the model that was analysed in the current study was a full latent variable mode (Byrne, 2006).

According to Kline (2005), the reliability coefficient should fall between zero and 1.00. Values close to 1.00 are desired. The Rho Coefficient of internal consistency was found to be 0.915. This was above the minimum value of 0.70. Likewise, the Cronbach's Alpha was also found to be above the minimum value of 0.70 at 0.912 (Table 3). Both of these values indicated a high degree of internal consistency and homogeneity. Therefore, the dwelling unit factor satisfied both internal reliability and the construct validity criteria.

Table 3: Reliability and Construct Validity of NAE Model

Similarly, the construct validity was determined by examining the magnitude of the parameter coefficients. High parameter coefficients of greater than 0.5 indicate a close relation between the factor and an indicator variable. A parameter coefficient of 0.5 is interpreted as 25% of the total variance in the indicator variable being explained by the latent variable (factor). Therefore, a parameter coefficient has to be greater than 0.5 - 0.7 or greater to explain about 50% of the variance in an indicator variable (Hair et al., 1998). Hence, the inspection of the standardized factor loadings revealed that all values were generally large and statistically significant (values ranged from 0.818 to 0.884 for the needs and expectations features and values of 0.391 to 0.797 for the residential satisfaction variable). The estimate of 0.884 suggested that the measured factor accounts for 63.87% of the variance in predicting the residents' satisfaction which was the highest. The total variances accounted for in each indicator variables by the residents' satisfaction variable all revealed that the scores were significance at 5% level.

Also, the interfactor correlation (R^2) values were large and statistically significant (values ranged from 0.668 to 0.782 for the NAE indicator variables) as shown in Table 3. The interfactor correlation (R^2) test statistics need to be greater than 1.96 based on the probability level of 5% before the hypothesis can be rejected. The test statistics is the parameter estimate divided by its standard error and therefore, it functions as a *Z*-statistics to test that the estimate is statistically different from zero. Inspection of the correlation values, standard errors and the test statistic in Table 3, reveal that all standardized coefficient correlation values were not greater than 1.00; all test statistics (*Z*-values) were greater than 1.96 (*p<0.05*) and the signs were appropriate (positive) and found to be statistically significant. Therefore, the score results suggested that the influence of the needs and expectations features in determining the residents' overall satisfaction with their subsidised houses was direct and statistically significant.

DISCUSSION AND CONCLUSION

The finding was that NAE variables satisfied both internal reliability and the construct validity criteria. The Rho value was above the minimum value of 0.70 (Table 3) and the construct validity criteria was justified by the magnitude, and statistical significance of all parameter coefficients.

The SEM results revealed that the standardized factor values and interfactor correlations for the NAE latent factor were large and statistically significant (Table 3). Inspection of the total variances accounted for in each measure by the residential satisfaction variable revealed that the scores were also significant (Table 3). The relationship between NAE indicators and residential satisfaction is found to be statistically significant. The parameter with the highest standardised coefficient for this factor was the indicator variable NAE2. The indicator variable NAE2 (R^2 = 0.782) which asked the beneficiaries of their level of agreement if owners (beneficiaries) should be asked the type of house they need was found to be mostly associated with overall residential satisfaction than all other indicator variables. While NAE4 (R^2 = 0.662) had the weakest association amongst these variables. NAE4 asked the housing occupants about their level of agreement if the houses should meet their family need. The interfactor (R^2) values for this variable were considerate; suggesting that more than 50.0% of the latent variable considerably predicted the residential satisfaction factor construct. Thus, the overall results suggested that the presence / influence of needs and expectations features in determining the subsidised beneficiaries overall satisfaction with their subsidised housing units is direct and statistically significant. The score results suggested that the direct influence of beneficiary participation in determining beneficiaries overall satisfaction with their subsidised dwelling unit is statistically significant.

The findings suggested that beneficiary's housing needs and expectations have a direct positive influence on overall residents' satisfaction. This were defined by the following indicator: owners should be told beforehand the type of house they will receive, owners should be asked what type of house they need, owners expect good quality houses and the houses should meet the needs of the family.

The findings were consistent with Hablemitoglu et al.'s (2010) study, which found that meeting respondents' housing needs set forth a dimension of needs and the current satisfiers determine a set of requirements for their satisfaction. According to Maslow's (1980) Needs Theory, human needs are unlimited and when one of them is met, another follows suit. In this process, complete satisfaction is not possible unless a need classified to be important is first met. Individuals want what they do not have and the need satisfied loses its motivating power. This is because housing occupants' are only satisfied when their current housing needs and expectations are satisfied. However, it must be noted that residents' satisfaction will not stay unchanged, because soon, there will be other higher order needs and expectations that will have to be satisfied. More so, households that are dissatisfied are likely to consider some form of adjustment. Morris and Winter (1975) and Hamnett (2001) inform that residents may attempt to make adjustments to reduce dissatisfaction by revising their needs and expectations to reconcile their incongruity, or by improving their housing conditions through remodeling. They may also move to another place to bring their housing into conformity with their needs and expectations. However, both mobility and adjustments are subject

to the constraints posed by financial resources at one's disposal and by information regarding alternative adaptation opportunities.

The most significant findings from the SEM results highlighted the fact that owners should be told beforehand the type of house they will receive and should also be asked what type of house they need. This significance is highlighted by the fact that the gratifications of occupants housing needs and expectations should have noteworthy prominence. Because people with different housing needs and expectations, the same housing condition could bring different satisfaction levels because their needs and expectations are different. Hence, unless the level one need is sufficiently satisfied, they will remain in the occupant's consciousness and will thus become the prime determinants of housing behaviour. In earnest, the living condition that is currently pursued forms the housing expectation of the individual, which is highly related to the overall residential satisfaction. The current study finding on this aspect concur with Marcus's (1995) study which found that housing is like a mirror, which has a powerful effect on our sojourn toward a state of wholeness (satisfaction). Hence, all over the world, and in South Africa, there is a growing consensus that meeting residents' housing needs and expectations constitutes a significant new dimension of community development and establishment. This is because housing needs as a shelter are mostly a concern for those who struggle for these needs, such as the homeless, those previously disadvantaged from owning property, as a result of government policy of the past.

Likewise, previous research (Caughey et al., 1998) has shown that expectations have a significant effect on overall satisfaction of housing occupants. This is because satisfaction normally occurs based on a comparison of that which is expected with that which is received. Similarly, prior exposure to that which is to be received has the tendency to influence occupant's satisfaction towards a housing product. While a negative prior experience can generate a lower expectation, which will result in lower satisfaction. Further findings revealed that when beneficiaries of the housing units have an expectation of what they will receive, they will either be satisfied based on the expected outcome or be dissatisfied. Satisfaction with what is expected suggests that satisfaction is the result of a comparison of that which was expected and what was received (Caughey et al., 1998; Woodruff et al., 1983). Also, Tse and Wilston (1998) posit that a fundamental premise of dissatisfaction with prior exposure (expectation) is that expectation is related to satisfaction. The result also suggests that in addition to the influences from expected performance and subjective dissatisfaction, perceived performance exerts direct influence on satisfaction. Therefore, it can be asserted that when beneficiaries are dissatisfied with what has been received it is in response to the congruency between their expectations and the actual performance of the housing product that was received (Morris and Winter, 1975).

Hence, subsidised public housing beneficiaries satisfaction may be viewed as a function of the interrelationship between what beneficiaries expect from the government in relation to their housing need and their perceptions of the houses they have received (i.e. the quality of the houses received and the satisfaction derived from the housing meeting their needs). It should be noted that satisfaction is not the only direct outcome, but prior exposure to what is to be received have also been found to directly affect dissatisfaction.

The implication of these findings is that variables that have been found to be determinants of needs and expectations should be considered when planning for new low income housing development. Hence, the residential satisfaction of South African low-income housing occupants' can be enhanced through the consideration of these features. Research in South African low-income housing has shown that despite the acknowledged significance of the needs and expectations features to the subsidised housing occupants, the Department of Human Settlement and other stakeholders responsible for the provision of these houses have not responded significantly to rectify this challenge (Aigbavboa & Thwala, 2011b; Charlton & Kihato, 2006).

The findings emanating from the predictive effects of needs and expectations on residents' satisfaction are therefore significant, and when attention is given to the issues of dissatisfaction regarding the involvement of the residents' in the housing development process, the much desired housing satisfaction of the low-income group residing in the subsidised houses will be realised. Furthermore, the findings make it possible for policy makers to address factors of residence participation and the assessment of their needs as already recommended by the various housing policy's documents, in such a way that it will ensure the residents' are satisfied with their housing units. The summarised result for this variable revealed that the residents' prior needs and expectations has a direct influence in determining overall residential satisfaction.

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