An Architectural Insight into the Role of Personalisation of Homes and its Effects on Residents' Psychological Well-being

Dalia Al-Tarazi[1]*

Department of Architectural Engineering, Zarqa University, Zarqa, Jordan

Rachel Sara[2]

Birmingham School of Architecture and Design, Birmingham City University, Birmingham, United Kingdom

Paul Redford[3]

Department of ACE - Education and Childhood, University of the West of England, Bristol, United Kingdom

Louis Rice[4]

School of Architecture and Environment, College of Arts, Technology and Environment, University of the West of England, Bristol, United Kingdom

Colin Booth[5]

School of Engineering, University of the West of England, Bristol, United Kingdom

Declarations of interest: none.

*Corresponding author:

Email address: daltarazi@zu.edu.jo

Abstract

Purpose

The purpose of this paper is to explore the importance of personalisation in the relationship between architectural design of homes and inhabitants' psychological well-being.

Design/methodology/approach

This interdisciplinary mixed-method study first investigates the existence of a link between personalisation and users' association with home through a quantitative study (n=101), then explores the nature of this relationship through qualitative interviews (n=13) in a sequential explanatory approach.

Findings

The main findings of the study highlight the significance of personalisation in relation to the way people perceive home. A direct link was established between participants' involvement in the transformation of the home and their satisfaction with the residence, as well as satisfaction with life in general. Further thematic analysis of the qualitative study revealed further conceptualisations of personalisation which together for an umbrella concept called transformability.

Originality/value

The design of homes has a great impact on inhabitants' psychological well-being. This is becoming of a greater importance in light of the global COVID-19 pandemic that has led to an increase in the amount of time spent in homes. This research contributes to this debate by proposing concepts for deeper understanding architectural influences on the psychology of home.

Implications

The findings underscore the need for embedding flexibility as an architectural concept in the design of residential buildings for improving well-being in occupants.

Key Words

Home, Psychological well-being, Personalisation, Physical structure, Transformability

Paper Classification

Research paper

1. Introduction

The psychological well-being of populations is a general concern of the health sector and the World Health Organisation (WHO, 2016). In the field of architecture, as well as the field of environmental psychology, a strong link between the built environment and the way users' feel is suggested throughout literature and research (Codinhoto et al., 2009). Historically, studies have shown the existence of a relationship between the architectural design of spaces, such as workplaces, schools, hospitals, care homes, and users' psychological well-being (Ilardi et al., 1993; Kasser and Ryan, 1999). Yet, while housing has been widely identified as a key social contributor to health (Shaw, 2004), and despite homes being the place people spend most time in (Hodson, 2015), there is a critical lack in implementing existing research on homes into housing legislations and laws (Fox O'Mahony, 2013), along with the lack in research on promoting architectural design to support inhabitants' psychological well-being (Stoneham and Smith, 2015). Furthermore, during the global pandemic of COVID-19, the role of homes extended to become a workplace, a school, a nursery, and other roles, along with being a residence (Bouziri et al., 2020), which highlights potential broader impacts of satisfaction with home (Asojo, 2022).

Well-being can be promoted by satisfying human psychological needs; the need for autonomy, competence and relatedness as these needs are considered to be the key nutrients for psychological well-being (Deci and Ryan, 2000). The relationships between personalisation and well-being are associated with psychological need for autonomy in the Self-Determination Theory (SDT) of needs. According to SDT, autonomy is defined as being the origin for one's behaviour (Deci and Ryan, 2008). It is described as the need to "self-regulate one's experiences and actions" (Ryan and Deci, 2017, p. 10). Autonomy can be described as a functional need associated with a feeling of voluntariness, congruence and integrity (Friedman, 2003; Ryan, 1993; Weinstein et al., 2012). Autonomy can be viewed as the need to have a dependant, self-endorsed motivation for one's behaviour and values (Ryan et al., 2019). Therefore, only behaviours and actions that are fully congruent, self-regulated and not influenced by any means of external aspects that are not completely self-integrated can be viewed as autonomous. According to SDT, autonomy is at the centre of psychological needs as it is associated with one's complete control over one's cognitive behaviour (Ryan et al., 2019). Therefore, in the context of the built environment of the home, this study is looking at personalisation as means of addressing the psychological need for autonomy for the purposes of promoting inhabitants' psychological well-being, and accordingly, their sense of being *at home*.

This research looks at the relationship between the architectural design of home and inhabitants' well-being, with a particular focus on the importance of personalisation in creating a sense of home and promoting users' psychological well-being.

1.1 What is home

The broad concept of home bears a wide variety of meanings, aspects and types (Mallett, 2004). The meaning of home can be argued to be linked to the core of our existence; dwelling (Heidegger, 1971). Home is a subjective, non-quantifiable concept (Fox, 2002) idea, as it is not

only an emotional concept (Balantyne, 2002), and closely associated with the reproduction of life (Stretton, 1976), it is also the place associated with our everyday living (Hodson, 2015). Home is also a changing concept, with factors like time, aging, location and migration affecting how people perceive home (Kylén et al, 2019). While the term home can be very broad, including meanings ranging from one's hometown and neighbourhood to one's personal space (Sixsmith, 1986), the focus of this paper is the residential home; i.e. a flat, a house or any type of an accommodation in which a household lives.

The various meanings of home can be grouped into three categories; the personal home, the social home, and the physical home. According to Sixsmith, the personal home is associated with concepts that are related to oneself such as happiness, self-expression, and privacy. The social home is related to one's relations with others within the home, such as the type and quality of relationships. The physical home is related to the home (building) itself, such as the architecture and structure of the home (Sixsmith, 1986). In line with Sixsmith's meanings of home, Smith (1994) distinguishes between the home and the non-home by identifying the contributors to a sense of home and the contributors to the lack of a sense of home. While Smith's elements of home are not directly categorised into the personal, social, and physical aspects, they clearly fit within these categories. In the same way as Sixsmith (1986), Després (1991) identifies ten different meanings of home ranging from the physical material to the personal reflection of one's values, which fit in with the same categorisation of the social, the personal and the physical. Moreover, the physical home is considered the essential enabler for the family construct, without which societies would cease to exist (Atkinson and Jacobs, 2017), therefore, society is directly linked to the residential built environment.

This multidimensional conceptualisation of the home, represented by the psychological aspect, the household, and the house itself (Saunders and Williams, 1988), suggests that the house provides the space for home functions and qualities (Fox O'Mahony, 2013). Therefore, home can be identified as the physical space in which the households' activities and living occurs. The home, then, is the facilitator of the personal and social living of the household.

The physical aspect of the home can enable or constrain human behaviour and activity (Kent, 1993). Subsequently, by improving the quality of the physical aspect, it is possible to positively (or negatively) affect the other two aspects, thereby contributing to inhabitants' psychological well-being.

The pandemic of COVID-19 has unarguably added more dimensions to the already rich concept of home. The increased time spent in homes due to 'working from home' being now normalised in large parts of the world suggests a pressing need to rethink the meaning of home as well as the elements that make up the home (Peters and Halleran, 2021). This shift can be argued to have physical aspect (i.e. to accommodate for working, learning, etc., in the space), as well as social and personal aspects (Gezici Yalçın and Düzen, 2022).

1.2 The Role of Home in Psychological Well-being

The World Health Organisation WHO identified health in 1948 as "a state of complete physical, mental and social well-being" (Huber et al., 2011, p. 1) not just the absence of illness.

Accordingly, there are three aspects of the overall state of health: physical well-being, which is identified as the optimal functioning of the body and the absence of disease; mental well-being, which involves more than the absence of mental illness, it includes the presence of a positive state such as confidence, inner peace, and social connection; and lastly, social well-being which refers to the quality of the social interactions with individuals and within the society (WHO, 2001a). In more recent research, WHO defined positive mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (WHO, 2001b; cited in WHO, 2005). Well-being is described to consist of three elements, good life, happiness, and satisfaction (Carlquist et al, 2017). Furthermore, levels of well-being are found to be linked to how long people live (Ryff, 2013). It is important to note that various factors play a role in overall health and well-being; including genetic, behavioural, and environmental factors. The built environment, and professionals associated with it including architects, do not have an influence on the mentioned factors, nonetheless, they do play a crucial enabling role (UK-GBC, 2016).

Homes affect multiple aspects of residents' lives; from the levels of security they feel, to the quality and amount of sleep, to the social life inside and outside the home (UK-GBC, 2016). Furthermore, improving the quality of housing has multiple implications on people's mental health and well-being; from improving life quality and minimising the risk of disease which can ultimately save lives, to the larger scale implications of reducing poverty and addressing global issues such as climate change (WHO, 2018). According to the housing and health guidelines document produced by WHO, healthy housing can aid the achievement of some of the Sustainable Development Goals set by the UN; in particular, SDG 3 with a focus on health and well-being, and SDG 11, with a focus on sustainable cities and communities (WHO, 2018). In fact, healthy, affordable, safe housing is the first target in achieving SDG 11 (United Nations Department of Economic and Social Affairs, 2020). Out of 10 criteria for measuring individuals well-being in the UK, where we live including satisfaction with residence is one of the key indicators). Furthermore, housing quality was directly attributed to be essential in both individual and community well-being (Peasgood et al, 2017). Housing, therefore, is a vital and central starting point in addressing users' health and the contributors to their well-being (UK-GBC, 2016).

1.3 The Role of Personalisation

Personalisation is identified as "The relationship between persons and the spatial dimensions of the environment that affects the cognitive, affective and socioemotional components of the individual" (Bonnes and Secchiaroli, 1995, p. 93). It is the modification of the built environment that reflects inhabitants' identity (Becker, 1976). Personalisation of living accommodation is associated with higher levels of social interaction (Greenbaum and Greenbaum, 1981), and is identified as a healthy instinct in which inhabitants control the space through their individual power in order to balance the control of community power (Kendall, 2013). According to Kopec (2006), personalisation is the physical boundary that inhabitants use to define their personal space, and identity and control their social

interaction. Architects and designers are therefore recommended to leave open spaces in houses for users' participation (Nalkaya, 1980).

Home modification occurs for various reasons; for example, financial efficiency, and aesthetical improvements (Abbott et al., 2003). Personalisation can be the users' way of expressing their unique identities as individuals and as social groups (1985; Giuliani et al., 1988; Lawrence, 1987; Rapoport and Duncan, 1981) and reflecting their identities on their homes (Marcus and Sarkissian, 1986) in addition to increasing inhabitants' harmony and congruence with their residence (Jusan, 2007). Personalising one's own space is argued to have a positive impact on their satisfaction with the space, and their well-being (both physical and psychological). This is mainly regarded as being due to the sense of control that personalisation provides (Wells, 2000). Modification of the home can also increase the level of place attachment, as it can help residents adapt to required changes within the house (Fernandez, 2007; Marcus and Sarkissian, 1986). Furthermore, flexibility and personalisation are re-emerging as a key concern in architectural design of homes due to the post COVID-19 effects on the way home is perceived (Peters and Halleran, 2021; Salama, 2023). Ease of modification can accommodate for the changing or evolving role of home.

However, despite personalisation being significant for inhabitants' well-being, developers argue it is inefficient as it is mainly limited either by the landlord, agency or regulatory restrictions or the architectural design (Abu-Ghazzeh, 2000). Personalisation of the home can be limited by the architectural design of the space, as some architectural settings can be more flexible than others (Omar et al., 2012). The current problem with personalisation, however, is that is happens post occupation on an individual level, then it deals more with fixing issues resulting from the mass production of community controlled (one fits all) designs, than personalisation on the deeper identity level (Kendall, 2013).

Through personalisation, a house can be psychologically transformed into a home (Duncan and Duncan, 1976; cited in Sixsmith, 1986). Therefore, the current study looks at the role of personalisation in creating a sense of home. Specifically, the ways in which personalisation can be achieved in residences, and the different reasons behind users' desire/need for a particular type of personalisation.

2. Materials and Methods

This research is a part of an interdisciplinary study between architecture and psychology that explored the relationship between the design of aspects of home (personal, social, and physical), and inhabitants' psychological well-being. The present paper reports findings on the importance of personalisation in creating a sense of home and promoting users' psychological well-being.

Following a critical realism philosophical approach, a sequential explanatory mixed methods strategy was developed to achieve completeness in understanding the research findings by using a triangulation of quantitative and qualitative methods (Robson, 2011). Such an approach was adopted for two reasons; to minimize the limitations associated with quantitative and qualitative methods, and to achieve completeness in addressing the aim of

the research. Similar approaches are often adopted in architectural studies, e.g., Al Maani and Shanti (2023).

Phase 1 – quantitative survey

The quantitative phase was conducted through a survey questionnaire designed to investigate the existence of a link between personalisation of the home and levels of satisfaction with the home as well as with life in general. The survey gathered responses from 101 participants recruited using online platforms as well as paper handouts. The sample size was chosen for a small to medium size effect. The electronic format, with 61 respondents, was designed using Qualtrics software and was distributed on social media platforms, while paper copies, with 40 respondents, were handed out to participants in four areas in the South West of England, UK. The study was conducted between two institutions; one in the South-West of England, and one in Jordan, thus, the results yielded findings mainly from these two countries.

Measures

The survey consisted of four parts; overall satisfaction with life, overall satisfaction with living accommodation, satisfaction with the physical aspect of the living accommodation, and satisfaction with levels of personalisation in the accommodation. The following four sections illustrate the measurements used to assess each of the survey parts.

Satisfaction with life measurement

The first section of the survey aimed to assess participants' subjective well-being. Participants' satisfaction with their life at the time of the study was assessed using the Satisfaction With Life Scale (SWLS) (Diener et al., 1985). The SWLS is a five-item scale that includes statements about life in general (in most ways my life is close to my ideal, the conditions of my life are excellent, I am satisfied with my life, so far I have gotten the important things I want in life, and if I could live my life over, I would change almost nothing). The scale measures well-being based on the participants' evaluation of their life (Pavot and Diener, 1993) providing a subjective reflection without any influence from the researcher. The results are analysed using a Seven-point Likert scale response set ranging from "Strongly disagree" to "Strongly agree".

Other Scales

Other scales were adapted to address the remaining research constructs: satisfaction with living accommodation (Home Well-being), satisfaction with level of personalisation, and satisfaction with physical structure. To measure satisfaction with living accommodation, a scale was designed based on adaption of the SWLS (Diener et al., 1985) and with substitution of wording related to life well-being with home well-being. The scale was used to assess satisfaction with home in general, the results were analysed using a 7-point Likert scale response set ranging from "Strongly disagree" to "Strongly agree". Then a linear scale from 0-10 was used to measure overall satisfaction with home. Additional scales were derived from extensive literature review (Diener et al., 1985; Deci & Ryan, 2008; Mallett, 2004) and adapted to measure satisfaction with physical structure and personalisation. This was achieved

through on four-point likert scales, followed by a descriptive text entry box for further comments.

Analysis

Descriptive statistics were used to explore data and assess measures of central tendency. Then multivariate statistical techniques were then used to ascertain the relationship between key research variables. Pearson's correlation was first used to ascertain associations between all variables and as a precursor for further exploration (Cohen, 2013). Multiple Linear Regression was then applied to develop more statistically robust models explaining relationships identified through the correlational analysis (Field, 2013).

Phase 2 – qualitative interviews

The interviews followed a semi-structured design, with a one-to-one, face-to-face contact to allow for insight and flexibility to address key issues in accordance with interviewee's answers (Robson, 2011). The interviews addressed ideas related to the level of control interviewees have over their homes (to what extent they can transform/change) and their related feelings about the impact of that level of control on their perception of their home.

Participants were recruited through a process of door-to-door leaflet dropping. The interviews were suggested to take place at the interviewees' homes in order for the participants to feel as related to the subject of the interviews as possible, as collecting data in the field of study – the residence in this case – can target participants' emotions and help them relate to the questions more (Creswell and Clark, 2018). However, interviewees were given the choice of having the interview at their home or at a nearby café of their choice. Only one of the 13 interviews took place in a café.

The purpose of the interviews was to recruit from a variety of property types and property ownership types as possible while trying to keep other factors of variation minimal. Therefore, an area with the radius of 250m was chosen in the city of Bristol, UK as it offered such variety.

Analysis

A thematic analysis approach (Robson, 2011) was adopted for analysing the interviews. All audio recordings were transcribed by the interviewer immediately after the relevant interview, then data was manually coded. After all the interviews were coded, themes were generated, and the data was analysed.

3. Results and Findings

Phase 1 - Quantitative Findings

The survey questionnaire tested the following questions: (1) Do levels of personalisation have an impact on overall satisfaction with living accommodation?; and (2) Are levels of personalisation related to satisfaction with the physical structure.

Background of Respondents

A total of 101 respondents between the ages of 24-59 years participated in the survey. Majority were female (55.5%) and 35.6% were male, while 8.9% of respondents chose not to specify their gender. Majority of respondents were from the UK (58.4%) followed by Jordan (10.9%), significant proportion chose not to specify their country of residence (30.7%). The sample equally represented people living in houses (45.5%) as well as in flats (45.5%), with a minority living in other accommodation. Almost half of the participants' households were family units living with spouse/partner and children (43.6%), with slightly less participants living with partners or friends (37.6%), and a minority living with sharers or alone (21.8%). House ownership was roughly equally distributed with slightly more owners (57.4%) than renters (41.6%). In addition to these descriptive analysis of the demographic data, a split sample analysis was carried out across different country contexts albeit revealed no significant differences in responses.

Survey Findings

The mean of subjective well-being, home well-being, satisfaction with physical structure, and levels of personalisation (the ability to modify the home) were computed as presented in Table 1. Cronbach's Alpha (α) was computed to test reliability of scales adopted for measuring these research constructs. This yielded minimum value of 0.79 indicative of very reliable questionnaire (Field, 2013).

Table 1: Mean and Standard Deviation of Key Variables

	Subjective well-being	Home well-being	Physical structure	Personalisation
Mean ($\bar{x}$)	4.70	4.42	3.19	2.87
Std. Deviation (SD)	1.31	1.49	0.72	0.94
Cronbach's Alpha (α)	0.85	0.89	0.82	0.79

Source(s): Created by authors

Three sets of correlation revealed interesting associations relevant to the research questions as shown in Table 2 below: first, between subjective well-being and personalisation, then between home well-being and personalisation, and finally, between physical structure and personalisation.

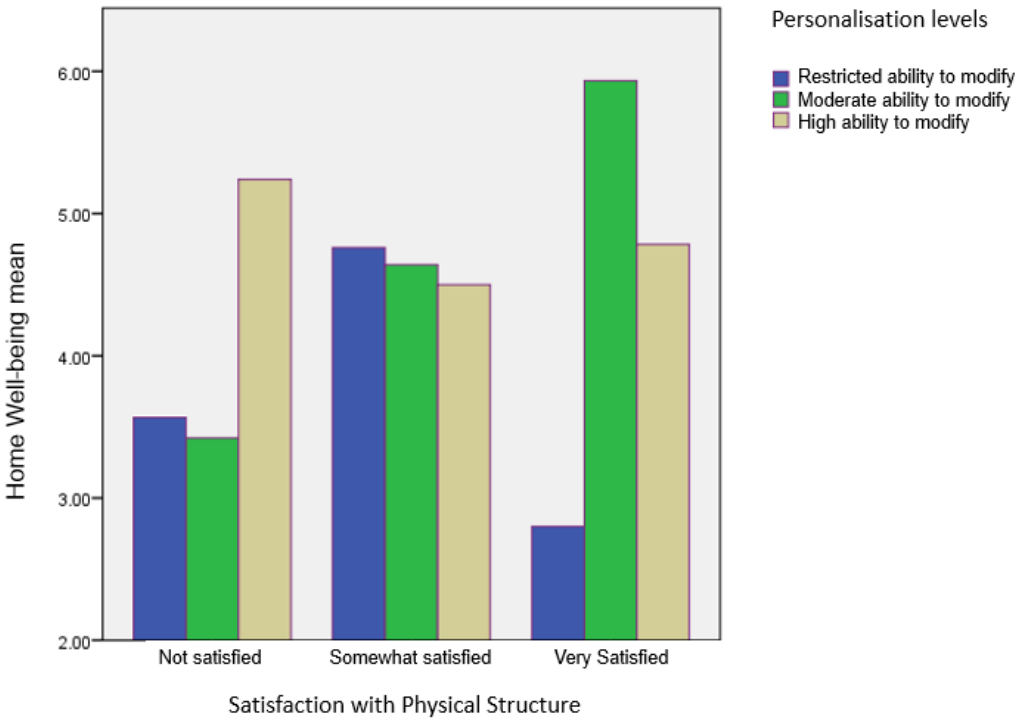
Table 2: Correlations between Key Variables

		Subjective well-being	Physical structure	Personalisation
Home well-being (HWB)	Pearson's correlation (r) Sig. (2-tailed) N	0.55** 0.00 99	0.46** 0.00 97	0.32** 0.00 91
Personalisation	Pearson's correlation (r) Sig. (2-tailed) N		0.34** 0.001 92	

** Correlation is significant at the 0.01 level (2-tailed) * Correlation is significant at the 0.05 level (2-tailed).

Source(s): Created by authors

There was a strong relationship between home well-being and personalisation ($r = 0.32$, $p < 0.01$), satisfaction with physical structure ($r = 0.46$, $p < 0.01$) and subjective well-being ($r = 0.55$, $p < 0.01$). Furthermore, personalisation and physical structure were found to be correlated ($r = 0.34$, $p < 0.01$). With further investigation we categorized personalisation results into three groups; restricted ability to modify, moderate ability to modify and high ability to modify (within the legal and physical regulations). The same strategy was undertaken to categorize satisfaction with physical structure into three groups as well; from not satisfied at all, to very satisfied. Then, we performed a multi-variable cross-tabulation to identify patterns in the relationship between home well-being (HWB) and satisfaction with physical structure in relation to personalisation. Results showed that personalisation levels were highest when satisfaction with physical structure was at its lowest level (HWB $\bar{x} < 5.0$). In contrast, personalisation was of less importance for the sub-sample with highest satisfaction with the physical structure ($4.0 <$ HWB $\bar{x} < 5.0$) as shown in Figure 1.



Source(s): Created by authors

Figure 1: Descriptive Statistics of the Relationship between Overall Satisfaction with Home and Satisfaction with Physical Structure in Relation to Personalisation

Regression Modelling

Multiple Linear Regression (MLR) analysis was then carried out as a more robust approach for establishing predictive capabilities of the variables. MLR is a statistical modelling technique used to understand the relationship between a dependent variable and one or more independent variables; it aims to analyse and predict the values of the dependent variable based on the values of the independent variables (Field, 2013). Based on classical MLR modelling, the relationship between the predicted outcomes Y_p and predictor variables (X_1,

X_2, X_{k-1}, X_k) were assessed in the study through the stepwise method. This supported the development of optimum regression models containing only the most relevant predictors after iterative rounds of analysis (Brace *et al.,* 2003). The model established relationship between personalisation, physical structure (predictors) on one hand and home well-being (outcome) on the other.

Regression Model – Home Well-being

The multiple regression modelling resulted in a statistically significant regression equation (F [2, 88] = 12.525; $p < 0.05$) with an R^2 of 0.222. The adjusted R^2 of 0.204, denotes 20.4% of the variation in home well-being is accounted for by the predictor variables included in the model as shown in Table 3 below.

Table 3: Regression Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R^2 Change	F Change	df1	df2	Sig. F Change	
1	0.471a	0.222	0.204	1.354	0.222	12.525	2	88	0	1.907
a Predictors: (Constant), Personalisation, Physical Structure b Dependent Variable: Home Well-being										

Source(s): Created by authors

Based on the analysis home well-being can be predicted by Equation 1.

Equation 1: Regression Equation for Predicting Home Well-being based on architectural elements of home

HWB = 0.883+ 0 .326 (Personalisation) + 0.812 (Physical Structure)

This regression equation denotes that home well-being increases per 0.326 unit increments in level of *personalisation* ability in a home and 0.812 unit increments in satisfaction with physical structure. Both *Personalisation* (p = 0.045, n = 101) and *Physical structure* (p = 0.000, n = 101) yielded statistically significant results as predictors of home well-being. The regression is reported in Table 4 and Figure 2.

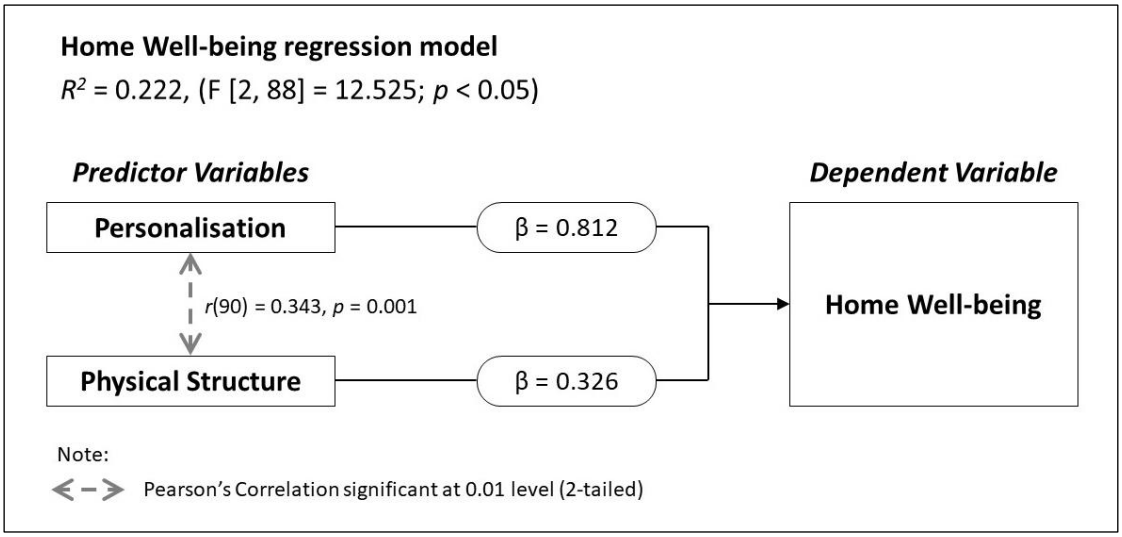
Table 4: Summary of Regression Results

Variables in Equation							
	β	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	0.883	0.726		1.217	0.227		
Personalisation	0.326	0.160	0.203	2.038	0.045	0.892	1.121
Physical Structure	0.812	0.223	0.363	3.647	0.000	0.892	1.121
Std. Error = 1.354; Durbin-Watson = 1.907 ANOVA (F (2,88) = [12.525], p = 0.000)							

Source(s): Created by authors

The Durbin-Watson test recorded value of 1.907 indicative of no independence of the error term. The VIF (variance inflation factor) were within acceptable range (1.121 for *Personalisation* and *Physical Structure)* (Hair *et al.,* 2010). All required assumptions for MLR

were met including normally distributed data in scree plots which have not been presented for brevity.



Source(s): Created by authors

Figure 2: Summary of Regression Analysis for Home Well-being Prediction

Summary of Quantitative Findings

After the comprehensive quantitative analysis, the key research questions were established as follows. Personalisation has impact on overall satisfaction with living accommodation (i.e. home well-being). Personalisation is closely related and correlated to satisfaction with physical structure. Consequently, both satisfaction with physical structure and personalisation levels have significant impact on overall satisfaction with home well-being.

Phase 2 – Qualitative Findings

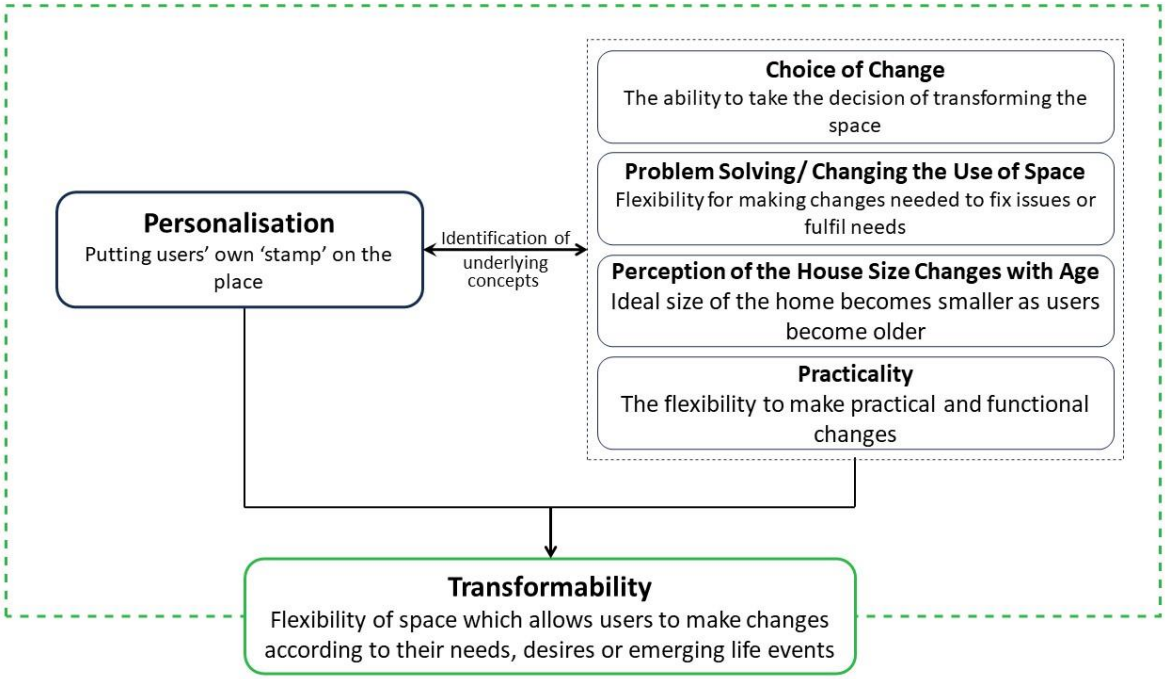
Following the significant findings from the quantitative enquiry, a qualitative exploration of the concept of personalisation in relation to creating a sense of home was performed. This was to develop deeper and contextual understanding of the quantitative findings.

Background of Respondents

Morse (2000) suggest between 5-50 interviews for qualitative research, however, in the case of mixed methods research, the recommended sample size is a minimum of ten interviews to follow the quantitative phase (Creswell, 2011; Onwuegbuzie, 2007). Consequently, a total of 13 interviews, consisting of total of 15 individuals with four being couples. Participants' ages ranged from 24-75 years with total of ten females and five males. Eight interviewees lived in houses and while five lived in flats. However, interviews also considered previous properties that interviewees lived in. Ten of the 13 properties were owned, one was on a leasehold and two were rented. The majority of the interviewed sample were living with their partners or families (partner and children), two participants were living alone, and one in a shared accommodation.

Interviews Findings

Upon analysis of the transcribed qualitative interview data, it was found that the changes (or desired changes) that participants referred to as *personalisation*, address a wider scope of transformations that can be referred to as 'transformability'. Transformability is the flexibility of the space that allows users to make changes to that space according to their needs, desires and according to emerging life events. Transformability therefore came up as a significant umbrella theme and also represents an expanded concept delineating further, the nuances of residents' ability to influence changes in the spatial organisation, architectural arrangements and features. The additional sub-themes related to transformability were conceptualised as: *Choice of Change, Problem Solving/ Changing the Use of Space, Perception of the House Size Changes with Age, and Practicality*. This broader view emerged as a result of systematic probing and attainment of saturation in the thematic analysis of the data. The definition and relationships between these emergent concepts are presented in Figure 3 and Table 5.



Source(s): Created by authors

Figure 3: Personalisation and Transformability

Table 5: Personalisation and Transformability Themes (Interviews)

Themes	Sub- Theme		1	2	3	4	5	6	7	8	9	10	11	12	13
Personalisation	**Personalisation**		X	X	X	X	X	X	X	X	X	X	X	X	X
	Sample Codes	Identity, decoration, personal													
	Sample Quote	"*…I think you personalise it so you put your things in it, your stamp on it…*"													
Transformability	**Choice of Change**		X		X	X		X	X	X			X		X
	Sample Codes	Control, ability													
	Sample Quote	"*… Just being able to decorate it as I wanted…, made it more homely I think*"													
	Problem Solving/ Changing the Use of Space			X	X	X		X		X	X	X		X	
	Sample Codes	Accommodate needs, individual requirements													
	Sample Quote	"*…so the separate room at the back here has been used as a bedroom*"													
	Perception of the House Size Changes with Age		X	X				X			X		X		X
	Sample Codes	Maintenance, space													
	Sample Quote	"*… I certainly wouldn't want all of that space to have to look after by myself*"													
	Practicality		X			X	X		X			X		X	
	Sample Codes	Convenience, comfort													
	Sample Quote	"*…it made the room have better proportion…*"													

Source(s): Created by authors

Personalisation

The primary theme of enquiry was personalisation. In relation to this theme, a common idea shared between all the participants of the interviews, was the importance of having the ability to 'stamp' their own personality on the house. This was in most cases achieved through decoration and furnishings, by the choice of home itself and by finding space within the home for their own hobbies and activities. Personalisation was also recorded to be important in making the house feel more homely through having one's own belongings in the house. Interviewee 7 said:

> *I really love radio, so you noticed in every space I've got a radio, both from the aesthetic of how radios look especially analogue radios, but also having the sound of radio in our home, that contributes to it being a home, and my feeling content*

Participants also stated that they personalised the space to fit within their unique needs. Interviewee 3 explained "*I knew when I walked in to view it that we'd be happy there and it was the right flat for us… it's decorated how I wanted it, I've bought a carpet for the first time at the age of 44, so it just feels cosy and right*". She continued to say: "*that was really quite important to me, I felt like a grown up for the first time*". This shows the importance of the concept of identity in the making of home, the interviewee is making an identity claim about being a 'grown up' through personalisation. Personalisation can be interpreted in different ways; such as decorating, personal belongings and creating a space for a particular interest or passion.

Most of the interviewees prefer to have a space within the house that they can use for their personal interests such as books library, music room or gaming room. Interviewee 9 was asked to describe his ideal house, he said "*it's got a huge music room*". This type of personalisation requires a level of flexibility to the design of the house.

It was found that the flexibility of the design that allows users to make changes to the house is an important aspect of the concept of home. Interviewee 6 commented that "*the layout of it does give you the ability to change it slightly, which is quite nice, it makes it a bit more flexible*". However, personalisation is not necessarily related only to practical changes, rather it represents a personal reflection of users' identity and individuality. The need for such a change can be linked to psychological satisfaction and autonomy.

The lack of ability to change or personalise the space also appeared to have a negative impact on users' perception of home. Interviewee 7 who used to live in a house where she was not allowed to make any changes, said "*I felt there is this incongruity between me and my style if I have any, and the way the home was decorated, but also I felt very concerned, so not very relaxed, concerned that I might knock something*". Furthermore, she commented on the way not being able to personalise made her feel: "*I found that a bit frustrating, and I found a bit frustrating and disappointing that I couldn't make it my own place*". This demonstrates that personalisation is essential for satisfying the need for autonomy and self-actualisation and the representation of personal identity. However, identity can also be addressed through making the choice of change and being in control.

Transformability

Other emerging concepts from the interviews analysis addressed a broader view of space transformation, these are grouped under the umbrella of 'transformability'; the flexibility of the space that allows users to make changes to that space according to their needs, desires or emerging life events. These concepts are *Choice of Change, Problem Solving and Changing the Use of Space, Perception of the House Size Changes with Age,* and *Practicality*.

Choice of Change

It was found from the data collected through the interviews that making the decision to change, and accordingly what to change, and how to change it, has a great role in making the house feel more homely. Interviewee 11 said "*it makes me feel brilliant… and seeing it come to fruition is wonderful*". Interviewee 9 said "*the re-decorations did make it feel like home… it didn't feel home till we re-painted them and then we felt 'yes this is the way we wanted it"*. Interviewee 6 also commented on this idea when she was asked to explain why her house felt homely: "*because I was able to furnish it how I wanted, to decorate it how I wanted… Just being able to decorate it as I wanted, colour schemes that we wanted, made it more homely I think*".

Transformation is not necessarily about making big changes; interviewees reported small changes they had made that had a great impact on their everyday life and their perception of home. Interviewee 7 described something that she changed in her flat to make it feel homelier:

> *I think it's really little things…I put up a new mirror that isn't new, that is from a grandparent and I thought ah! Right! I hadn't realised how something so little had some kind of impact, especially that I look in the mirror every day.*

The ability to make changes can be related to the idea of autonomy and being in control. Interviewee 9 commented on his experience as a teenager living with his family: "*I never felt at home because I never felt I was in control of my life, and I was yearning to grow up, to get out of the house, to organise my own life*". On the other hand, the same interviewee was given the opportunity to make changes according to his preference at other stages of his life, which had a positive impact on his perception of home, "*the re-decorations did make it feel like home, I mentioned there was this dreary grey colour in the rooms upstairs, they didn't feel home till we re-painted them and then we felt yes this is the way we wanted it*".

On the other hand, the lack of ability to change can have an effect on people's perception of home. Interviewee 9 who is not able to make a particular change said:

> *Well it makes me feel slightly frustrated and it gives us a reason to want to move out of this which we wouldn't have otherwise, day by day it doesn't make us feel any less at home because it's not actually interfering with our living in the house, it's interfering with our wish*

This subtheme highlights the concept of identity. Flexibility in this case can be seen as an important factor of satisfying the need for autonomy. Therefore, it could be argued that

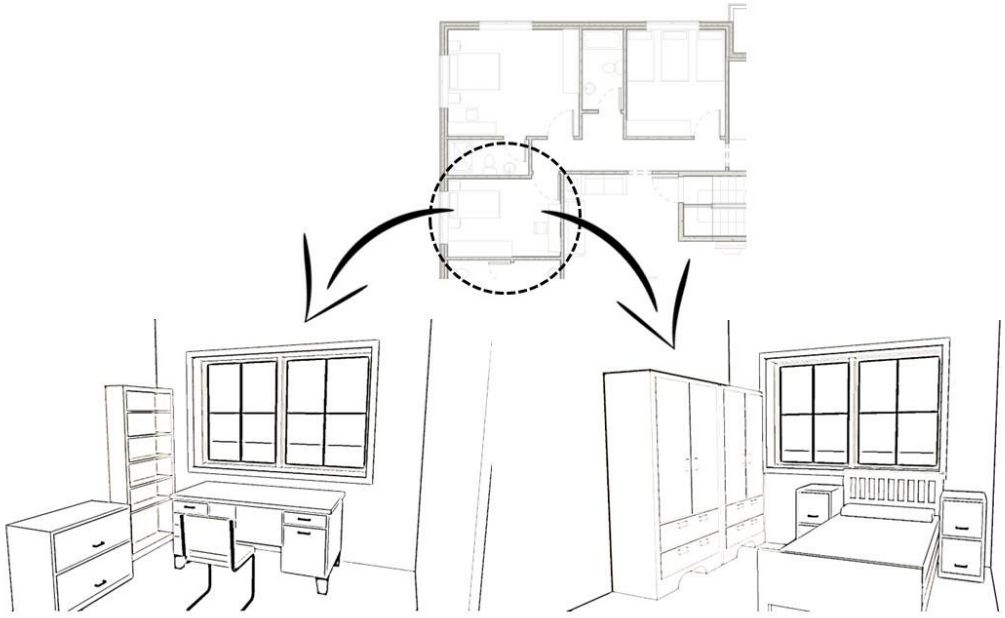
having flexibility that allows residents to reflect their own identity to their residence has a significant impact on their levels of well-being. However, flexibility is also necessary for coping with the residence as well.

Problem Solving and Changing the Use of Space

A number of interviewees addressed the importance of having flexibility within the house which allows them to make changes needed to fix issues or fulfil their needs. In terms of changing the use of the space, interviewee 6 said:

> *I moved here after a divorce, so I had two children; a boy and a girl, and I really needed somewhere with three bedrooms, so the separate room at the back here has been used as a bedroom, and we've never changed it because we now use it as a spare bedroom and a study, we have a computer in there*

The previous quote, illustrated below in Figure 4, also relates to the idea of personalisation and the social construction of a 'need'.



Source(s): Created by authors

Figure 4: Depiction of Different Settings for One Room According to Household Needs

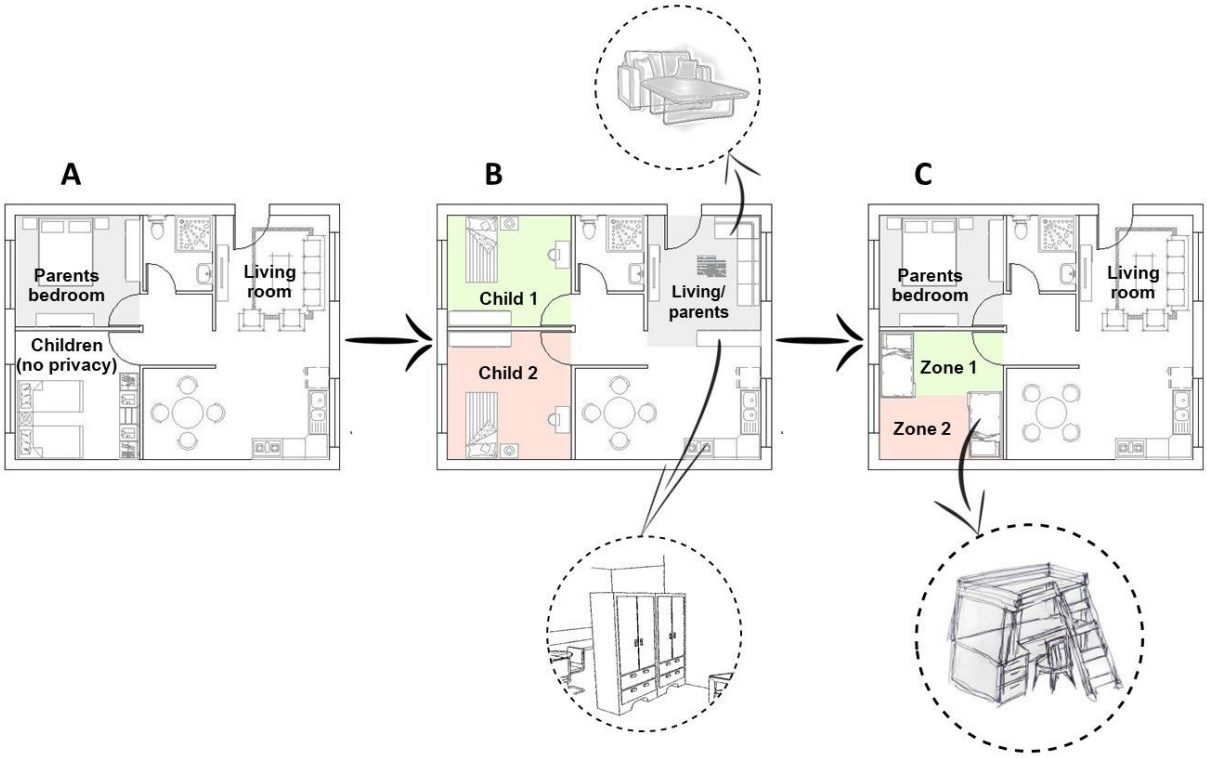
Interviewee 7 who lives in a two-bedroom flat with her partner and two children, wanted to give each of her children a private space, she said:

> *Initially…my partner and I thought well maybe we could move out of our bedroom and give them each a bedroom and then we make this space into some kind of bedroom/sitting room for us…and then I started to investigate high beds with desks and wardrobe underneath and that all being integrated … they'll have their own space in terms of a bed and a desk and…but they'll still be in the same room, and then I had*

this idea of turning them so they weren't facing in, so it feels very much like they have their own zones… they've got ownership of their own space, even though it's very little

The outcome of the problem above being solved had a positive impact on the users of the space – the children. The interviewee (the mother) commented that "*I think they are definitely happy of having their own spaces and an area that they've been able to make their own, so their things, their belongings and arranging everything just like they would like it*".

Figure 5 below depicts the thought process of the interviewee, where (A) represents the arrangement of space they wanted to avoid, (B) represents a possible option for the solution however not functional, and (C) represents the solution in which both children share the room while having a sense of individual privacy.



Source(s): Created by authors

Figure 5: Depiction of Problem Solving Through Space Transformation

However, while having the flexibility to change the space has a positive effect on the perception of home, changing the use of the space does not always have a positive effect. Interviewee 7 described a room in one of the houses she had lived in:

The dining room, what other households would've used as a dining room was my bedroom, and it always felt a bit strange, even though there was nothing in there in terms of table and chairs and it was set up as bedroom, but it always felt very strange, I don't know why…It felt very temporary

Making changes for the purpose of addressing the household needs was common among interviewees. Taking that this is the general case, it is important to have a level of flexibility which allows such a change to be made. This is particularly significant as it satisfies the household needs from the space and promotes levels of well-being and satisfaction with the house itself. The problem-solving subtheme shows the need for flexibility to cope with the household requirements at a particular stage, however, levels of satisfaction with the house change with time, and other changes may be seen necessary at other stages of life.

Perception of the House Size Changes with Age

The way that the requirements from a house change over time was identified by interviewees. Six participants identified the need for a bigger house when they were at a younger age and their families were bigger. They reflected that at this point they were young, so they can manage a big property. At an older age, they suggested that children would have moved out, and since it is a hard task to manage a large property, a smaller house becomes preferable. Interviewee 2 said: "*my perception of space has changed, so now when I go back home I look at it and think there's a lot of unnecessary space… and I certainly wouldn't want all of that space to have to look after by myself*". Interviewee 6 also commented: "*I lived in a more modern house when my children where smaller, and that suited me because it was bigger*".

This suggests that a variety of house sizes should be available to support the different needs of different age groups. It also emphasises the importance of design flexibility in order to give residents the ability to make changes to their houses according to their needs at the particular stage of life they are at.

Interviewee 6 also said "*the interior has been changed to reflect the different needs of the generations that lived here*". We can see here that having a level of flexibility enables the household to modify the space as required to satisfy their needs, and accordingly, promote levels of well-being.

Practicality

Interviewees also talked about making changes to transform the space into a more practical and functional place. Interviewee 4 commented: "*it facilitates the purpose of living and relaxing*".

Having the flexibility to make practical and functional changes can have a huge positive impact not only on the level of comfort users have in their houses, but also on their psychological satisfaction with the house. Interviewee 9 commented:

> *We put an extra little bit of staircase…which made a need for an extra bathroom which was actually much more convenient to live in and also it helped us feel homely…so we put a false floor in and achieved several things, it made the room have better proportion, it brought the window sills down because the sills were quite high, one thing we like is these low sills that you can see out of*

However, the design of the house is not always as flexible as is required in order to make changes that are either necessary or desired, which might eventually lead to discomfort and dissatisfaction with the house.

4. Discussion

The present paper shows the importance of personalisation, flexibility and the ability to transform living accommodation. The quantitative phase of the research stressed the significance of personalisation and established the following: Personalisation has impact on overall satisfaction with living accommodation (i.e., home well-being). This accords with research by (Fernandez, 2007; Abbott et al., 2003) who similarly found modification of living accommodation to be influential in the perception of home. This work found that, personalisation is closely related and correlated to satisfaction with physical structure. Thus, both satisfaction with physical structure and personalisation levels are related and have significant impact on overall satisfaction with home well-being. As the conditions of the built environment and architectural design play a crucial role in overall satisfaction with life (well-being) (Randall, 2012; UK-GBC, 2016), These findings are of a particular importance as they provide some of the means for higher satisfaction levels with living accommodations.

Further research was carried out in form of qualitative interviews to explore in-depth the meaning of personalisation in relation to home. The analysis of this phase provided insights into the nuances of personalisation, as well as other related concepts which aid architectural insights. These have been broadly grouped under an umbrella concept called transformability. The figure 6 below is an example of flexible design that allows for transformability, where movable walls provide inhabitants with options for different settings as living needs evolve.

Source(s): Created by authors

Figure 6: Example of Flexible Architectural Design

The significance of personalisation was discussed in the literature as an important aspect of well-being in the built environment. For example, research has shown that personalisation of a workspace increases employees' productivity (Lee and Brand, 2005). This can be associated

with increased comfort and familiarity, as well as having a sense of identity to the workspace (Laurence et al., 2013). Personalisation is perhaps mostly about identity, as people use personalisation as means of putting their own stamp on the space (Marcus and Sarkissian, 1986) and expressing their individual and social identities (Giuliani et al., 1988; Lawrence, 1987; Rapoport and Duncan, 1981). In terms of housing, personalisation has a lot of limitations depending on many factors, but can mainly be linked with ownership. Rented accommodations have varying levels of restrictions when it comes to personalisation, and while in some of these accommodations a limited amount of personalisation is allowed, such as hanging a picture on the wall or planting different plant in the garden, in other accommodations personalisation can be only achieved by having moveable items such as furniture. Furthermore, personalisation of the home can be limited by the architectural design of the space, as some architectural settings can be more flexible than others (Omar et al., 2012), and in cases, architects' resistance to user modification, as the design represents the architect's experience, knowledge, and identity (Ahuja et al., 2020). This research suggests that having more flexibility in rented accommodations could have a positive impact on residents' well-being, especially in cases where users' view their residence as a permanent one.

The 'choice of change' sub-theme is mainly related to users' sense of being in control. This is in line with Kendall's (2013) linking transformability to balancing the control of community power through individual power of controlling spaces. This, in fact, links transformability to the social aspect of home as it creates the acceptable boundaries for social interaction determined by the individual user of the residence (Kopec, 2006), as transformability in general was found to be associated with social interactions (Greenbaum and Greenbaum, 1981). It is therefore suggested that regulations should be developed to ensure that users have the flexibility and ability to make changes to their residences within certain limits.

The sub-theme 'problem-solving and changing the use of the space' was highlighted as it was found that users make changes to their residences to adapt with their personal living circumstances. Modification of the residence can also increase the level of association with the home, as it can also help residents adapt to required changes within the house (Marcus and Sarkissian 1986, Fernandez 2007). While it could be argued that different houses and flats have different layouts and spaces to suit different users, it is important to note that there are other factors affecting the use of space including financial reasons and changes in the household circumstances.

In terms of the size of the residence, it is a relative measure that depends on the users' needs and preferences at a particular period of time. The preferred size of the house seems to change as the household's circumstances change (Costa-Font et al., 2009), usually over a period of time. Many people buy their own houses when they are young, and in many cases with the perception of having a house that is suitable for a family. The problem arises as they grow older and their children movie out, it becomes difficult to maintain the house, and some users expressed a feeling of guilt about occupying the extra unnecessary space. It is therefore suggested that the design of larger houses should consider flexibility to allow owners to separate a section and rent it out. In recent times, opportunities for such rental abound with

the emergence of Service Accommodation concepts such as Airbnb, which provides a platform for people with extra space (Ozanne and Prayag, 2022). For example, an interviewee explained that their desire to rent a room out was challenging due to the restricting design of the house which does not allow for two separate entrances.

Practicality is about making changes to the place to become more functional, and can be understood as a transformation to accommodate the household's particular needs, including financial needs such as making the space more efficient and aesthetic preferences such as decorating (Abbott et al., 2003). Changes made for practical purposes have a positive impact on users' satisfaction with their residence as well as their comfort levels and psychological well-being.

As with the other sub-themes related to transformation, flexibility in the design of the house is the key element in achieving practicality (Omar et al., 2012; Nalkaya, 1980). For example, a design that allows the adding of partitions to divide one big space into two, or allowing for an opening in the wall to create an entrance between two separate spaces where needed (for example, to accommodate for post COVID-19 changes in home dynamics).

5. Conclusions

The findings of this research emphasise the importance of personalisation in homes for promoting and alleviating residents' psychological well-being. The quantitative phase of the study showed a direct link between transformation of the home and satisfaction with the residence, as well as satisfaction with life in general. Further investigation showed that personalisation is particularly linked to satisfaction with the physical structure of the home. Interestingly, personalisation was found to be of a higher significance to residents' psychological well-being when their satisfaction with the physical structure is lower, which can be related to residents' attempts to compensate for their dissatisfaction.

The findings of the qualitative phase of the study identified the term 'transformability' as the broader umbrella term which includes personalisation among other themes. Transformability of homes illustrates the different reasons and ways residents used to express their desires/needs from their residences. The five themes of transformability are identified as: personalisation (the expression of identity), the choice of change (the practice of power and control), problem solving and changing the use of space, perception of house size changes with age, and practicality. These themes highlight the focus areas for architectural research in terms of allowing for flexibility through architectural design in order to facilitate promoting residents' psychological well-being.

Particular importance should be given to architectural research focussing on housing policy, including more opportunities for participatory design for example, where user's involvement, and hence personalisation, starts at design stage. Planning, building regulations and design codes should take cognisance of the importance of architectural flexibility and thereby be less restrictive in imposing rules on spatial and structural configuration. By so doing, the objectives of broader policies such as the UNSDGs can be more easily integrated locally in order to achieve built environment well-being goals related to residential building design.

Despite the significant findings of this study, there are other elements of home to be explored in relation to residents' psychological well-being. Future studies should delve deeper into elements of physical structure, as well as spatial organisation. Post COVID-19 replication of the study would also provide insights into the significance of transformability in the new era.

References

Abbott, L., Edge, M. and Conniff, A. (2003) *Housing Modification and Implication for Future Housing Provision: A Socio-Psychological Investigation*. In: *ENHR/IAPS Conference*. Stockholm, Sweden.

Abu-Ghazzeh, T.M. (2000) Environmental Messages in Multiple-family Housing: territory and personalization. *Landscape Research*. 25 (1), pp. 97–115.

Ahuja, S., Nikolova, N., & Clegg, S. (2020). Professional identity and anxiety in architect-client interactions. *Construction Management and Economics*, *38*(7), 589–602.

Atkinson, R. and Jacobs, K. (2017) House, home and society. Bloomsbury Publishing.

Asojo, A., Vo, H., Fisher, T. and Singh, V. (2022) Shaping health and well-being in a COVID era: the role of design. *Archnet-IJAR: International Journal of Architectural Research*. 16 (3), pp. 473–494.

Balantyne, A. (2002) *Architecture. A Very Short Introduction*.

Becker, F.D. (1976) *Housing messages*. 30, Stroudsburg, Pa.: Dowden, Hutchinson & Ross.

Bonnes, M. and Secchiaroli, G. (1995) *Environmental psychology: A psycho-social introduction*. Sage.

Bouziri, H., Smith, D.R.M., Descatha, A., Dab, W. and Jean, K. (2020) Working from home in the time of COVID-19: how to best preserve occupational health? *Occupational and environmental medicine*. 77 (7), pp. 509–510.

Brace, N., Kemp, R. and Snelgar, R. (2003) SPSS for psychologists: A guide to data analysis using SPSS for Windows, revised & expanded.

Carlquist, E., Ulleberg, P., Delle Fave, A., Nafstad, H.E. and Blakar, R.M. (2017) Everyday understandings of happiness, good life, and satisfaction: Three different facets of well-being. *Applied Research in Quality of Life*. 12, pp. 481–505.

Codinhoto, R., Tzortzopoulos, P., Kagioglou, M., Aouad, G. and Cooper, R. (2009) The impacts of the built environment on health outcomes. *Facilities*.

Cohen, J. (2013) *Statistical power analysis for the behavioral sciences*. Routledge.

Costa-Font, J., Elvira, D. and Mascarilla-Miró, O. (2009) Ageing in place'? Exploring elderly people's housing preferences in Spain. *Urban studies*, 46(2), pp.295-316.

Creswell, J.W. and Clark, V.L.P. (2018) *Designing and conducting mixed methods research. Thousand Oaks, CA: SagePublications*.

Deci, E.L. and Ryan, R.M. (2008) Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian psychology/Psychologie canadienne*. 49 (3), p. 182.

Deci, E.L. and Ryan, R.M. (2000) The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*. 11 (4), pp. 227–268.

Després, C. (1991) The meaning of home: Literature review and directions for future research and theoretical development. *Journal of architectural and Planning Research*. pp. 96–115.

Diener, E.D., Emmons, R.A., Larsen, R.J. and Griffin, S. (1985) The satisfaction with life scale. *Journal of personality assessment*. 49 (1), pp. 71–75.

Duncan, J.S. and Duncan, N.G. (1976) Social worlds, status passage, and environmental perspectives. *Environmental Knowing. East Stroudsburg, PA: Dowden, Hutchinson and Ross*. pp. 206–213.

Fernandez, K. (2007) Personalising the home. *ANZMAC. New Zealand*. 2255, p. 2261.

Field, A. (2013) *Discovering statistics using IBM SPSS statistics*. sage.

Fox, L. (2002) The meaning of home: A chimerical concept or a legal challenge? *Journal of Law and Society*. 29 (4), pp. 580–610.

Fox O'Mahony, L. (2013) The meaning of home: from theory to practice. *International Journal of Law in the Built Environment*. 5 (2), pp. 156–171.

Friedman, M. (2003) *Autonomy, gender, politics*. Oxford University Press.

Gezici Yalçın, M., & Düzen, N. E. (2022). Altered meanings of home before and during COVID-19 pandemic. *Human Arenas*, *5*(4), 672–684.

Giuliani, V., Bonnes, M., Amoni, F. and Bernard, Y. (1988) Home and the theory of place. *IN CANTER*.

Greenbaum, P.E. and Greenbaum, S.D. (1981) Territorial personalization: Group identity and social interaction in a Slavic-American neighborhood. *Environment and behavior*. 13 (5), pp. 574–589.

Headey, B., Veenhoven, R. and Weari, A. (2005) Top-down versus bottom-up theories of subjective well-being. In: *Citation Classics from Social Indicators Research*. Springer, pp. 401–420.

Heidegger, M. (1971) Building dwelling thinking. Poetry, language, thought. *Trans. Albert Hofstadter. New York: Harper Colophon*.

Hodson, H. (2015) No one in control. *New Scientist*. 225 (3007), pp. 30–33.

Huber, M. *et al.* (2011) How should we define health? *Bmj*. 343.

Ilardi, B.C., Leone, D., Kasser, T. and Ryan, R.M. (1993) Employee and supervisor ratings of motivation: Main effects and discrepancies associated with job satisfaction and adjustment in a factory setting 1. *Journal of applied social psychology*. 23 (21), pp. 1789–1805.

Joseph, F., Barry, J.B., Rolph, E.A. and Rolph, E.A. (2010) *Multivariate data analysis*. Pearson Prentice Hall.

Jusan, M.M. (2007) Personalization as a means of achieving person-environment congruence in Malaysian housing. *Unpublished PhD, University Technology Malaysia, Skudai*.

Kasser, V.G. and Ryan, R.M. (1999) The relation of psychological needs for autonomy and relatedness to vitality, well-being, and mortality in a nursing home 1. *Journal of Applied Social Psychology*. 29 (5), pp. 935–954.

Kendall, S.H. (2013) The next wave in housing personalisation: customised residential fit-out. In: *Mass Customisation and Personalisation in Architecture and Construction*. Routledge, pp. 66–76.

Kent, S. (1993) *Domestic architecture and the use of space: an interdisciplinary cross-cultural study*. Cambridge University Press.

Kylén, M., Löfqvist, C., Haak, M. and Iwarsson, S. (2019) Meaning of home and health dynamics among younger older people in Sweden. *European Journal of Ageing*. 16 (3), pp. 305–315.

Kopec, D.A. (2006) Health Care Environments. *Environmental psychology for design*. pp. 257–276.

Laurence, G.A., Fried, Y. and Slowik, L.H. (2013) "My space": A moderated mediation model of the effect of architectural and experienced privacy and workspace personalization on emotional exhaustion at work. *Journal of environmental Psychology*. 36, pp. 144–152.

Lawrence, R.J. (1987) Housing, dwellings and homes: Design theory, research and practice.

Lee, S.Y. and Brand, J.L. (2005) Effects of control over office workspace on perceptions of the work environment and work outcomes. *Journal of environmental psychology*. 25 (3), pp. 323–333.

Al Maani, D. and Shanti, Z. (2023) Technology-Enhanced Learning in Light of Bloom's Taxonomy: A Student-Experience Study of the History of Architecture Course. *Sustainability*. 15 (3), p. 2624.

Mallett, S. (2004) Understanding home: a critical review of the literature. *The sociological review*. 52 (1), pp. 62–89.

Marcus, C.C. and Sarkissian, W. (1986) *Housing as if people mattered: Site design guidelines for the planning of medium-density family housing*. 4, Univ of California Press.

Nalkaya, S. (1980) *The personalization of a housing environment: a study of Levittown, Pennsylvania*. University of Pennsylvania.

Omar, E.O., Endut, E. and Saruwono, M. (2012) Personalisation of the Home. *Procedia-Social and Behavioral Sciences*. 49, pp. 328–340.

Ozanne, L.K. and Prayag, G. (2022) Exploring Airbnb host wellbeing and host-guest conflicts in network hospitality. *Frontiers in Psychology*, 13, p.805761.

Pavot, W. and Diener, E. (1993) The affective and cognitive context of self-reported measures of subjective well-being. *Social indicators research*. 28 (1), pp. 1–20.

Peasgood, T., Preston, L. and Cantrell, A. (2017) Housing and Wellbeing. *What Works Centre for Wellbeing*. 261.

Peters, T., & Halleran, A. (2021). How our homes impact our health: using a COVID-19 informed approach to examine urban apartment housing. *Archnet-IJAR: International Journal of Architectural Research*, *15*(1), 10–27.

Randall, C. (2012) *Measuring National Well-being: Where We Live, 2012*. Office for National Statistics (England).

Rapoport, A. and Duncan, J.S. (1981) Identity and Environment: A Cross-cultural Perspective in Housing and Identity.

Robson, C. (2011) *Real world research: a resource for users of social research methods in applied settings, 2011*.

Ryan, R. and Deci, E. (2017) Basic psychological needs in motivation, development, and wellness. *Sevent Avenue*.

Ryan, R.M. (1993) Autonomy, and the Self in Psychological Development. *Developmental perspectives on motivation*. 40, p. 1.

Ryan, R.M., Ryan, W.S., Di Domenico, S.I. and Deci, E.L. (2019) The nature and the conditions of human autonomy and flourishing: Self-determination theory and basic psychological needs.

Ryff, C.D. (2013) Psychological well-being revisited: Advances in the science and practice of eudaimonia. *Psychotherapy and psychosomatics*. 83 (1), pp. 10–28.

Salama, A. M. (2023). Coronavirus questions that will not go away: interrogating urban and socio-spatial implications of COVID-19 measures. *Emerald Open Research*, *1*(5).

Saunders, P. and Williams, P. (1988) The constitution of the home: towards a research agenda. *Housing studies*. 3 (2), pp. 81–93.

Shaw, M. (2004) Housing and public health. *Annu. Rev. Public Health*. 25, pp. 397–418.

Sixsmith, J. (1986) The meaning of home: An exploratory study of environmental experience. *Journal of environmental psychology*. 6 (4), pp. 281–298.

Smith, S.G. (1994) The essential qualities of a home. *Journal of environmental psychology*. 14 (1), pp. 31–46.

Stretton, H. (1976) *Capitalism, socialism and the environment*. CUP Archive.

UK Green Building Council (2016) Health and wellbeing in homes. *Green Building Council*.

United Nations Department of Economic and Social Affairs (2020)'The Sustainable Development Goals Report 2020'The Sustainable Development Goals Report [online]. United Nations. Available from: https://www.un-ilibrary.org/content/books/9789210049603 [Accessed 19 July 2022].

Weinstein, N., Przybylski, A.K. and Ryan, R.M. (2012) The index of autonomous functioning: Development of a scale of human autonomy. *Journal of Research in Personality*. 46 (4), pp. 397–413.

Wells, M.M. (2000) Office clutter or meaningful personal displays: The role of office personalization in employee and organizational well-being. *Journal of environmental psychology*. 20 (3), pp. 239–255.

World Health Organization (2005) *Promoting mental health : concepts, emerging evidence, practice : a report of the World Health Organization, Department of Mental Health and Substance Abuse in collaboration with the Victorian Health Promotion Foundation and the University of Melbourne* [online]. Available from: https://apps.who.int/iris/handle/10665/43286.

World Health Organization (2001a) *Strengthening mental health promotion (Fact sheet no. 220).* Geneva.

World Health Organization (2001b) The World Health Report 2001: Mental health: new understanding, new hope.

World Health Organization (2018) WHO housing and health guidelines.

World Health Organization (2016) *World health statistics 2016: monitoring health for the SDGs sustainable development goals*. World Health Organization.