

Factors Influence the Residents' Preferences on Hygienic Quality for Interior Floor Finishes

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Abstract

House, home, shelter or residential unit plays significance role for the human beings (residents) who live inside them. As interior designers, architects, planners or any other professional construction members, the residents' preferences on interior finishes should be considered as they are very important to guide the residents to adapt with their living environment according to their needs and desires for their living environment. The degree of satisfaction on their choices of interior floor finishes is fulfilled by considering the residents' preferences on interior floor finishes. The researcher emphasized on interior floor finishes instead of other interior elements for example wall and ceiling due to interior floor finishes give more impact to interior living environment. The aim is to find the most chosen factors that influence the hygienic quality of interior floor finishes. Hygienic is one of the selection criteria on interior floor finishes that should be given more attention especially during today's pandemic issues. The selection criteria of hygienic are stain resistant, slip resistant, moisture resistant, dust-free, bacteria resistant, fire resistant and gas chemical. The quantitative method is implemented by using stratified random sampling on housing areas towards respondents who have renovated their interior spaces in Kinta District, Ipoh. The tool been used is SPSS Version 25 to analyze the gathered data. As a conclusion, the residents did renovation with the purpose of enhancing their living environment predominantly, their interior surrounding to fulfil their satisfaction, needs and desires. Therefore, all the construction members should deliberate the selection criteria of the common interior floor finishes.

Keywords: preferences, interior floor finishes, living environment, selection criteria, hygienic.

INTRODUCTION

Living environment as an assembly of the built environment and natural environment. It is obtainable to the inhabitants of the place who accomplish various kinds of social, economic, religious, cultural and political activities which encourage distinctiveness in the living environment character. Hence, the researcher demarcated living environment as the combination of all the human activities and natural environment which constantly changing due to the continual interlinked evolution that happen over time and space. One of the components in the living environment is physical built environment and in samller context it is known

as interior spaces. The elements that exist in interior spaces are floor, wall and ceiling. These covering of these elements are called interior finishes.

LITERATURE REVIEW

Interior floor finishes are known as covered surfaces of floors, not only limited to contribution of 'homely feel', but they also provide a peaceful environment along with they take greater wear and tear, and provides adequate foot comfort. They also serve as the platform to support interior activities and furnishings, carry loads, durable to withstand continual usage and to ensure the properties, quality, aesthetic appearance regarding its intended use [1, 2, 3]. There are many types of interior floor finishes that can be chosen by the residents based on their own preferences.

The previous researchers defined preferences as constant dynamic operations of lifetime phenomena which are based on the residents' behavioral dynamism and are designated from available alternatives within the specific attributes or framework or product field that they live and work that have severe impacts on living environment [4, 5, 6]. Preferences is a technical term in psychology, economics and philosophy. It is defined as an evaluation judgement in the sense of liking or disliking, conceived of as an individual's attitude towards a set of objects, typically reflected in an obvious decision-making process, stable over time and can be notably modified by decision-making processes. The researcher demarcated preferences as expectation sets which depends on the positive emotions such as satisfaction, happiness, gratification, and others, as well as negative emotions such as loathing, sad, feeling not fulfilment and others towards a service, products or anything which the outcome are the optimal choices. These residents' preferences of interior floor finishes are basically based on selection criteria of beauty, hygienic, durable and comfort. Nevertheless, for this study the researcher only focuses on the hygienic quality as it is very important to enhance the residents living environment.

Hygienic is defined as conducive to maintain health and preventing disease, especially by being clean; sanitary [7]. It is related to health and safety issues as fires and accidents, as well as illness and allergies caused by indoor pollutants, including interior floor finishes in the residential units and could result in disorder to the residents' bodies and also disease. The researcher distinct health which is associated with hygienic is physical, mental and social wellbeing in optimal state and not simply been affected by disease and sickness. Furthermore, hygienic interior spaces is interior spaces which is hazardous-free material, health and comfort fostering and enhancing daily and also working activities of the residents. The selection criteria of hygienic are stain resistance, slip resistance, moisture resistance, dust-free, bacteria and microbial resistance, fire resistance and harmful chemical and gases.

Stain resistant is one of the chosen selection criteria for the resident's interior floor finishes. More or less of the interior floor finishes can easily be cleaned by using damp cloth or any simple equipment. Every interior floor finishes behave differently against various chemicals and differ in the tendency of staining and clean ability.

Slip and fall usually happen in kitchen area. It is due to the presense of contamination is water, oil, grease, dust, sand and others in this interior space and it is supported by [8]. Some of the hard surfaces of interior floor finish, must be clean frequently and properly maintained by using appropriate detergents and cleaning tools to improve their traction and effect on falls, slips and trips so that the accidents can be minimized. These incidents sometimes may lead to more serious outcomes, including disabling injuries and even death. [9, 10].

The residents must choose the appropriate interior floor finishes based on the suitable selection criteria regarding moisture resistance. Some of the interior floor finishes that have content of wood, wood products and other porous materials are not moisture resistant which encourages the retention and growth of molds, fungi, viruses and algae on interior floor finishes [11]. The poor installation of adhesive or resin might trap moisture under vinyl flooring.

Certain interior floor finishes that become the medium of upbringing dust mites which need favourable temperatures and a source of nutrients, and also water to live. Dust mites devoured dead skin cells and they caused allergies, nasal inflammation, itching, inflammation rash, asthma and other complications. About 53 percent of allergic residents, are sensitive to household dust and 37 percent residents are allergic to dust mites [12]. Thus, it is an advantage if the chosen interior floor finishes are free from dust.

Bacteria and Microbial Resistance is one of the selection criteria in hygienic quality. Bioaerosols such as fungi, bacteria, viruses, and pollen and others presents in indoor environment such as residential units with 60 percent relative humidity to survive. The tiny spores from molds float through the air and irritate skin and mucous membranes. If not properly chosen, the interior floor finishes can be the breeding ground for molds.

Fire resistance has a positive influence on safety and health performance, which is associated with hygienic. Interior floor finishes with fire safety property in interior spaces is very central thus, interior designers and other construction members should continuously search the best possible when choosing interior floor finishes to reduce fire threat. Fire resistance regulations prohibit the use of materials with a low flash point or set standards for the degree of flame spread and smoke emission allowed [1, 3]. The heat sources and ignitable materials that are brought into the building for example interior floor finishes are major cause and it is the first chance to achieve fire safety through fire prevention. This idea is also supported by [13], interior floor finishes can act as passive fire protection by maintains the building structure stability and separate the building into manageable risk areas or known as fire compartments when the occurrence of fire. Therefore, interior designers and other professional members ought to suggest the residents the specification of less fire-prone interior floor finishes.

Harmful chemicals and gases are one of the selection criteria in hygienic quality. Diverse interior floor finishes behave differently against various chemicals. Volatile organic compounds (VOCs) are chemicals that tend to evaporate at room temperature and normal atmospheric pressure and usually emitted from toxicity of sealants and adhesives, chemicals used to give stain and insect resistance, fibres, plastic, plywood, varnishes and coatings from interior floor finishes [12].

MATERIALS AND METHODS

For this study, the researcher applied quantitative research by using a close-ended survey to gain quantitative or numeric description of opinions, attitudes or trends of a population that been studied as posited by [14]. The survey forms have been distributed to the 314 respondents of selected 11 residential areas by using stratified random sampling in Kinta District. The distributed survey forms are included with Likert Scale which ranging from 1 until 6. Scale 1 represents 'very strongly disagree', scale 2 represents 'strongly disagree', scale 3 represents 'disagree', scale 4 represents 'agree', scale 5 represents 'strongly agree' and scale 6 represents 'very strongly agree' to measure the most selected interior floor finishes in the interior spaces. The tool that has been used were Microsoft Excel and SPSS Version 25 for this study.

RESULTS AND DISCUSSION

Internal consistency reliability is a respondents' consistency test to answers all the items in measure. Moreover, Cronbach's coefficient estimates the degree to which the items in the scale are domain representative of the latent variable being measured. By referring to Table 1 on Reliability Statistics, the Cronbach's Alpha is 0.763. It is sensible to use the instrument that had the reliability score of 0.7 and above as suggested by Nunnally and Bernstein (1994); Sekaran (2003); Hinton et al., (2004); Hishamuddin (2005); Chua (2006); Hair et al., (2006); Radhakrishna (2007) and Leech et al., (2008).

Table 1 Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
0.763	8

Based on Table 2 on the Kaiser-Meyer-Olkin (KMO) and Bartlett's Test, KMO is 0.839 which is high and acceptable while Bartlett's test showed highly significant value ($p < 0.001$).

Table 2 KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.839
Bartlett's Test of Sphericity	Approx. Chi-Square	925.955
	df	28
	Sig.	0.000

By referring to Table 3 on the Association between Interior Floor Finishes and Selection Criteria of Hygienic, there are 72 respondents out of 314 respondents who have chosen tiles as their interior floor finishes. It also reveals that the highest mean rank is stain resistant ($M=5.29, SD=0.813$), and followed by gas chemical ($M=5.15, SD=1.070$), fire resistant ($M=5.14, SD=0.909$), dust-free ($M=5.13, SD=0.963$), moisture resistant ($M=5.11, SD=0.928$), and the lowest mean rank are slip resistant ($M=5.07, SD=1.053$) and bacteria resistant ($M=5.07, SD=1.053$). On the other hand, 62 respondents out of 314 respondents have selected timber floor board with the highest mean rank of stain resistant ($M=5.42, SD=0.615$) and moisture resistant ($M=5.42, SD=0.641$); and followed by dust-free ($M=5.37, SD=0.752$), bacteria resistant ($M=5.29, SD=0.687$), gas chemical ($M=5.27, SD=0.705$), slip resistant ($M=5.26, SD=0.571$) and the lowest mean rank is fire resistant ($M=5.24, SD=0.717$). Conversely, 30 respondents out of 314 respondents have chosen carpet with the highest mean rank of fire resistant ($M=5.27, SD=0.828$), and followed by gas chemical ($M=5.17, SD=0.913$), stain resistant ($M=5.13, SD=1.196$), dust-free ($M=4.87, SD=0.860$), slip resistant ($M=4.80, SD=1.126$), moisture resistant ($M=4.67, SD=1.184$), and the lowest mean rank is bacteria resistant ($M=4.63, SD=1.189$).

Contrariwise, 39 respondents out of 314 respondents have selected mosaic with the highest mean rank of fire resistant ($M=5.10, SD=0.912$), and followed by stain resistant ($M=5.00, SD=0.858$) and slip resistant ($M=5.00, SD=1.000$). Next, it is followed by moisture resistant ($M=4.85, SD=1.406$), bacteria resistant ($M=4.77, SD=1.111$), and gas chemical ($M=4.74, SD=1.141$) and the lowest mean rank is dust-free ($M=4.64, SD=1.423$). Instead, 104 respondents out of 314 respondents have selected marble with the highest mean rank of stain resistant ($M=5.62, SD=0.508$), and followed by moisture resistant ($M=5.46, SD=0.622$), dust-free ($M=5.40, SD=0.676$), gas chemical ($M=5.38, SD=0.596$) bacteria resistant ($M=5.37, SD=0.713$), slip resistant ($M=5.35, SD=0.587$), and the lowest mean rank is fire resistant ($M=5.34, SD=0.648$). However, 7 respondents out of 314 respondents have selected vinyl with the highest mean rank of fire resistant ($M=5.86, SD=0.378$), and followed stain resistant ($M=5.71, SD=0.488$) and dust-free ($M=5.71, SD=0.488$) which have the same mean rank. Next, it is followed by slip resistant ($M=5.57, SD=0.535$) and the selection criteria with also have the same mean rank are moisture resistant ($M=5.29, SD=0.756$) and bacteria resistant ($M=5.29, SD=0.488$). Lastly, the lowest mean rank is gas chemical ($M=5.57, SD=0.535$).

From these tables, it can be concluded that most of the respondents have preferred tiles, timber floor board and marble as their interior floor finishes for the reason of stain resistant. Tiles, timber floor board and marble do not need any systematic cleaning and easily be cleaned generally by wiping off with soap and water to sheen their surfaces. These have been supported by [1, 15, 16, 17, 18, 19, 20, 21]. Conversely, carpet and mosaic and vinyl are chosen by most of the respondents because of fire resistant [19, 17, 22, 23] and Shashank Singh, 2017). Although is known to easily spread fire but the respondents have better options when choosing types of carpet flooring. They can choose the highest fire resistant type of carpet flooring which is made of wool instead of from rubber or blended [2]. Some of the materials for instance mosaic flooring act as passive fire protection as posited by [13] Additionally, vinyl flooring is also selected by the

respondents due to fire resistant. The chlorine content gives vinyl flooring significant for fire resistance, but the plasticizers required to make it flexible has reduce its fire retarding properties. Vinyl flooring contain flame retardants to meet fire safety standards.

Table 3: The Association between Interior Floor Finishes and Selection Criteria of Hygienic

FLOOR FINISHES		STAIN RESISTANT	SLIP RESISTANT	MOISTURE RESISTANT	DUST-FREE	BACTERIA RESISTANT	FIRE RESISTANT	GAS CHEMICAL
TILES	Mean	5.29	5.13	5.11	5.13	5.07	5.14	5.15
	N	72	72	72	72	72	72	72
	Std. Deviation	0.813	0.768	0.928	0.963	1.053	.909	1.070
TIMBER FLOOR BOARD	Mean	5.42	5.26	5.42	5.37	5.29	5.24	5.27
	N	62	62	62	62	62	62	62
	Std. Deviation	0.615	0.571	0.641	0.752	.687	.717	.705
CARPET	Mean	5.13	4.80	4.67	4.87	4.63	5.27	5.17
	N	30	30	30	30	30	30	30
	Std. Deviation	1.196	1.126	1.184	0.860	1.189	0.828	0.913
MOSAIC	Mean	5.00	5.00	4.85	4.64	4.77	5.10	4.74
	N	39	39	39	39	39	39	39
	Std. Deviation	0.858	1.000	1.406	1.423	1.111	0.912	1.141
MARBLE	Mean	5.62	5.35	5.46	5.40	5.37	5.34	5.38
	N	104	104	104	104	104	104	104
	Std. Deviation	0.508	0.587	0.622	0.676	0.713	0.648	0.596
VINYL	Mean	5.71	5.57	5.29	5.71	5.29	5.86	5.57
	N	7	7	7	7	7	7	7
	Std. Deviation	0.488	0.535	0.756	0.488	0.488	0.378	0.535
TOTAL	Mean	5.38	5.19	5.22	5.19	5.14	5.25	5.21
	N	314	314	314	314	314	314	314
	Std. Deviation	0.763	0.767	0.928	0.931	0.928	0.780	0.870

(Source: Nurrajwani Abdul Halim, 2019)

CONCLUSION

As a conclusion of this research, the respondents have preferred the common interior floor finishes for example tiles, timber floor board, carpet, marble, mosaic and vinyl based on their benefits on the living environment. The residents' main purpose is to enhance their living environment by considering the hygienic selection criteria for instance stain resistant, slip resistant, moisture resistant, dust-free, bacteria resistant, fire resistant and gas chemical. Hygienic is one of the most important selection criteria on interior floor finishes that should be given more thoughtfulness especially during in this pandemic time. Although this research findings are not a big contribution to the body of knowledge, but more or less the researcher hope it can be useful and helpful to the construction members for them to offer the best interior floor finishes preferences based on the selected selection criteria by the residents.

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