USABILITY BRIEF FOR SHOPPING MALL ASSET ENHANCEMENT INITIATIVE (AEI) PROJECT IN KLANG VALLEY, MALAYSIA

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ABSTRACT

The purpose of this paper is to review the two attributes, usability and architectural, in order to develop a usability brief for shopping mall asset enhancement initiative (AEI) project. An exploratory sequential mixed method approach is undertaken, with the initial phase, a qualitative study using secondary data and focus group with the facility management team. The output from the qualitative phase is used to prepare a survey of 89 items. A pilot study of 15 participants is carried out to validate reliability of the items using SPSS. The questionnaire items are found to be reliable; hence, the survey can be used as a tool to gauge a larger sample. This paper presents an overview of a doctoral research by the main author and it provides the initial concepts for the undertaking of the research study.

Keywords*: Usability, Architectural, Shopping Mall, Asset Enhancement Initiative (AEI), Feasibility Study*

INTRODUCTION

In a shopping mall environment, the overall usability of the building is subject to the users and their journey (Alho et al., 2008). During the development of a building, developers and designers share a focus on the users; however, the users are often unengaged in ascertaining the right usability attributes, and the outcome may contradict between what the designers assume and what the users need (Ghani et al., 2016). Evaluation of usability requires an in-depth understanding of users and the benefit of usability data can further improve the quality of users' perceptions as well as current design of facilities (Haron et al., 2016). During the first phase of a project, it is a common practice for building owners to carry out a feasibility study to determine whether a project should or shouldn't be undertaken (Project Management Institute, 2003). Heralova (2017) argues that a valuable feasibility study should be more than just a set of financial facts and forecast. Even worse, the uncertainty of the long-term impact of COVID-19 virus may cause a fundamental change on the perceptions and design of public spaces such as shopping malls (Honey-Roses et al., 2020).

The rapid development of shopping malls, growth of consumer influence and impact of biological hazards such as the recent COVID-19 have created new challenges for shopping mall owners in Malaysia. As mentioned by Mahusni & Ghafar (2018), the physical retail industry must undertake significant changes to fulfil the balance of shopping experience and satisfaction for customers. In light of these events, existing shopping malls will need to position themselves better for success in what is likely to be a challenging business environment by embarking on asset enhancement initiative (AEI) to attract higher footfall and sustain their business in the competitive market. In Klang Valley, shopping malls such as Suria KLCC, One Utama Shopping Centre, Malakat Mall (previously known as Centrus Mall) and Sungei Wang Plaza have embarked on AEI such as space reconfiguration, expansion, rebranding and refurbishment to cater to the shifts in customer preferences and shopping behaviours amid growing challenges in the retail industry.

The objective of this research is to develop a usability brief based on two factors: (1) the customers' expectations of shopping malls in Malaysia, and (2) the customers' perception of one popular shopping mall in the

Klang Valley. There is no usability study of shopping mall done based on consumers' perception in Malaysia especially after the COVID-19 pandemic. As the shopping mall industry is required to adjust to the "new normal", a comprehensive study on the customers' perception on shopping mall's safe environment becomes important. This study aims at filling the gap by incorporating "safety" as an additional usability attribute in addition to Alho et al. (2008) seven usability attributes of shopping malls.

USABILITY

The application of usability is widely used in human-computer interaction (HCI) since the 1950s (Stage, 2018) and is widely known in relation to applications within user-centred design (UCD), usability engineering (UE) and user experience (UX) (Haron et al., 2016). Usability is a quality term in the HCI design which evaluates an interface's acceptability and helps designers to improve new interface features, uncover problems and limitations, reduce development cost and increase its market competitiveness. The usability concept covers all aspects of the user's experience when interacting with a specific product or service. Eventhough usability concept is commonly found in HCI and information, communication and technology (ICT) fields, the concept can also be applied to the physical built environment. According to ISO 9241-11:1998, the "built environment" is not specified in the concept of usability, however, it was later included in the revised 2018 version. Nonetheless, the ISO9241-11:1998 standard on usability was adopted by the International Council for Research and Innovation in Building and Construction (CIB) Task Group 51 in built environment studies (Windlinger, Nenonen & Airo, 2016). The CIB Task Group 51 was established in 2001 to investigate the application of the international standard of usability on built environment and promote a better understanding of the user experience in buildings. The ground-breaking work from the CIB Task Group 51 commissions has made usability a core concept for the design and operation of buildings. The usability topic covering concepts, methods and tools has been thoroughly deliberated in CIB W111 commissions (Usability of Workplaces) such as "Usability of Workplaces (1) Workshop 2005", "Usability of Workplaces (2) Workshop 2008", "Usability of Workplaces (3) Workshop 2010" and "Facilities Management Conference 2014".

According to Jens, Hausen & Haugen (2004), there are four ways to understand and explore the usability of buildings: (1) conditions affecting usability, (2) stakeholders or users' perspective, (3) time perspective, and (4) context and usage. The authors propose the Ishikawa/Fishbone diagram (Figure 1) to illustrate the different criteria for usability of buildings and to identify the relevant methods or tools in evaluating them. The diagram focuses on the functionality of the building and usability for the users. The "fish tail" represents the initial planning phase of a project where the functional and technical attributes in relation to the building are accentuated, and the "fish head" represents the last phase of a project where the building is near completion, hence the time when usability qualities and user perspective come into focus.
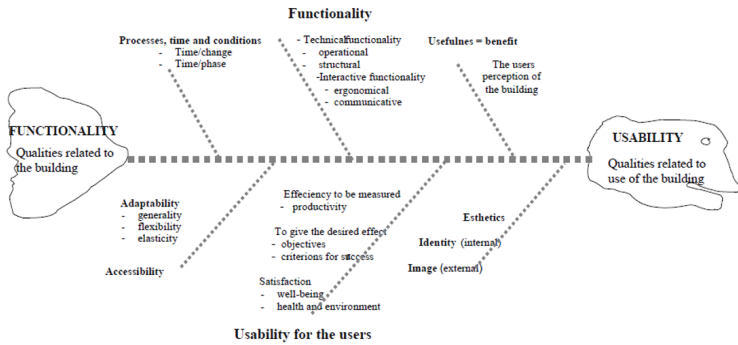

Figure 1: Fish Head Diagram from Functionality to Usability
(Source: Jens, Hausen & Haugen, 2004)

Usability is described as a dimension that has three characteristics: (1) the users' knowledge, (2) product's characteristics, and (3) the goals in relation to the usage of the product. In order to assess usability, it is imperative that the user's point of view and goals that he or she seeks to achieve are determined. Usability is a core concept that revolves around the questions of what users do (Sandstrom et al., 2016), how they do it and where do they do it (Alexander, 2006). In line with the concept of usability of ISO 9241:2018, Perry et al. (2018) define usability as a measure of effectiveness, efficiency, and satisfaction with respect to the users using a building and suggest that the usability of a building is determined by three main factors: (1) the ability of users to achieve what they want to do with the building, (2) the effort and duration required for users to achieve it, and (3) the users' feelings and behaviour towards the building. Usability

attributes alone do not create usability unless it is considered usable by the users and helps them to complete their tasks. However, it is crucial to decompose the attributes into measurable components and parameters in order to assess usability. Rasila, Rothe and Kerusuo (2010) point out that usability attributes should be defined on a case by case basis as some may not be applicable on certain types of building due to the different operating environment. As illustrated in Figure 2, Ghani et al. (2016) emphasised the usability attributes of a shopping mall by Alho et al. (2008) which comprise of seven usability attributes: (1) image, (2) accessibility, (3) business mix (tenant), (4) functionality, (5) atmosphere, (6) navigation and (7) interaction.
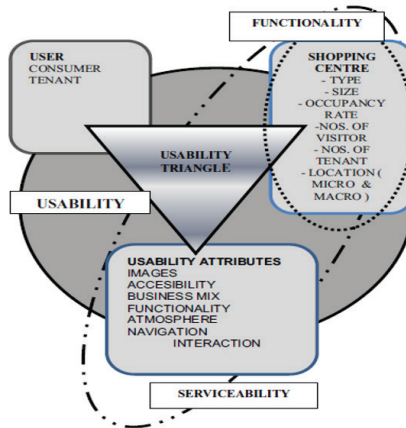
Figure 2. Usability Attributes
(Source: Alho et al., 2008; Ghani et al., 2016)

This research introduces an additional usability attribute: safety, as it deserves a special attention due to the current COVID-19 pandemic. According to Kerusuo's (2007) usability dimension, "safety" is categorized as a sub-attribute under "functionality". However, in the usability assessment study of built environment by Rasila et al., (2010), "safety" is categorized as a usability attribute by itself similar to "functionality" and it relates to both safety and health of the users. A well-designed built environment can provide a sense of safety (Aalto & Lappalainen, 2017) and a shopping mall is considered safe by the customers if the mall owners or operators have implemented safety measures (Tan, 2019). The concept of safety has many definitions, depending on the viewpoint. Gopikrishnan & Topkar (2014) define safety as protection against accidents and harm caused by

fire, electrical, theft, crime and animals. Jensen (2014) describes safety as protection from unintentional, accidental or environmental damages and he claims that feeling unsafe is often related to perceptions rather than actual experience and the view on safety depends on the individual's personality, background and personal experience. Yläoutinen and Kähkönen (2014) argue that technical solutions for the built environment helps to create a sense of security but does not ensure the safety. Nonetheless, currently the major safety concern is the COVID-19 virus which has globally impacted many of the business sectors especially shopping malls. In Malaysia, many shopping malls have adopted new technologies and implemented new standard operating procedures (SOP) as safety measures to combat the COVID-19 virus and most importantly, to protect the customers in the premise. In view of this, the current "safety" measures implemented in the shopping mall will need to be assessed and incorporated in the usability brief to ensure that the design of future shopping malls is better prepared to face another pandemic.

Architectural Attributes

The shopping mall architectural design is characterized as a key part of feasibility study that requires designers to create a unique internal and external environment as customers evaluate a shopping mall based on its physical features (Said, Hasmori & Pa'wan, 2020). It is particularly important that shopping mall owners pay special attention to architectural features to understand in what ways customers are attracted to shopping malls (Meyer-Ohle, 2014; Kiriri, 2019) as the surrounding environment of a shopping mall directly influence customers' evaluation of the quality and standard of service they are able to receive there (Kushwaha, Ubeja & Chatterjee, 2017). Every shopping mall is unique and vary in location, size, design and quality. Customers are also unique and they have different tastes and preferences which mean that they may be attracted to one or multiple architectural features when choosing a shopping mall to fulfil their needs.

According to a research on Malaysian shopping mall architectural attributes by Said, Gambo & Ismail (2016), there are four key features that attract customers to select a shopping mall and must be carefully assessed prior to construction: location, aesthetic and design, facilities and services and quality structures. A strategic shopping mall location that is closed

proximity to customers and easily accessible directly relate to shopping convenience (Tan, 2019) and it attracts a large crowd of customers especially the ones living nearby which in turn boost the sales of both the shopping mall and its tenants. Jain, Khan, & Mishra (2015) mentioned that the aesthetic design of shopping mall's interior influences emotional stimulus and purchase decision-making of customers. In general, emphasizing the aesthetical characteristics can affect the customers' emotion, perception and behavior as well as the image of the shopping mall over time. According to Said et al. (2016), customers desire various types of facilities and services during their shopping trip such as variety of stores, public spaces, restrooms, spacious parking, lifts, escalator, air-conditioning, automated teller machine (ATM), signage, safety and others. From an architectural point of view, the space allocation and functions of the facilities and services should be looked into in detail to provide comfort and convenience for different customer groups. During the design phase of a building, it is essential that the users' opinion is taken into account to ensure the quality of architectural object (Mohamed & Karima, 2018). In this case, the user that is referred to is the owner or operator of the building. Notwithstanding, Said et al. (2016) found that the qualities of engineering structures play an important role in the customer's choice of shopping mall. The identified qualities of structures are related to size, material, texture and shape. Moreover, Mohamed & Karima (2018) mentioned that architectural qualities of building parts include the technical aspects such as durability of material, ventilation, acoustic and thermal insulation.

RESEARCH METHODOLOGY

The purpose of this study is to assess two factors:
• the customers' expectations of a shopping mall in general based on four architectural attributes: (1) location, (2) aesthetics and design, (3) facilities and services, and (4) quality structures (Said et al. (2016); and
• the customers' perceptions of Sunway Pyramid Mall in Klang Valley based on eight usability attributes: (1) image, (2) accessibility, (3) tenant mix, (4) functionality, (5) atmosphere, (6) navigation, (7) interaction (Alho et al., 2008), and (8) safety (Rasila et al., 2010).

Summarizing the literature review, the conceptual framework is

defined in Figure 3 below.
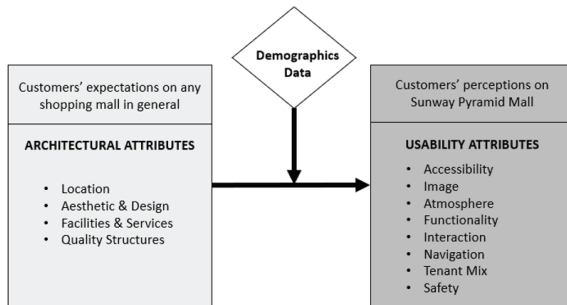
Figure 3. Conceptual Framework
(Source: Author, 2021)

Sunway Pyramid Mall is chosen for this research due to its unique usability attributes, high occupancy rate- 97% as of Q1 2020 (SunwayReit, 2020) and it has expanded twice since its operation in 1997 which shows that there are demands from tenants to occupy the space in the shopping mall. The net lettable area (NLA) of the shopping mall is 1,800,000 sqft and is classified as a super-regional center by International Shopping Center Classification (ICSC). Sunway Pyramid Mall is the first shopping mall under the portfolio of Sunway Malls and there are currently seven shopping malls in total with three new upcoming shopping malls in the project pipeline that are expected to be completed in 2024. Sunway Pyramid Mall has received both local and international awards for various categories such as best retail development, most innovative shopping centre, best shopping mall, popular shopping mall, family friendly mall and others (SunwayPyramid, 2020). Recently in 2021, they have also received the gold award for Malaysia's Best Managed & Sustainable Property Awards 2021 under 10 Years & Above Retail Category by EdgeProp (SunwayPyramid, 2021). Moreover, Sunway Malls as a whole has introduced additional standard operating procedures (SOPs) and new technologies as part of COVID-19 economy recovery strategy to ensure a safe shopping environment is provided to their customers (BERNAMA, 2020). This has further influenced the researcher to choose the shopping mall for the study.

Research Design
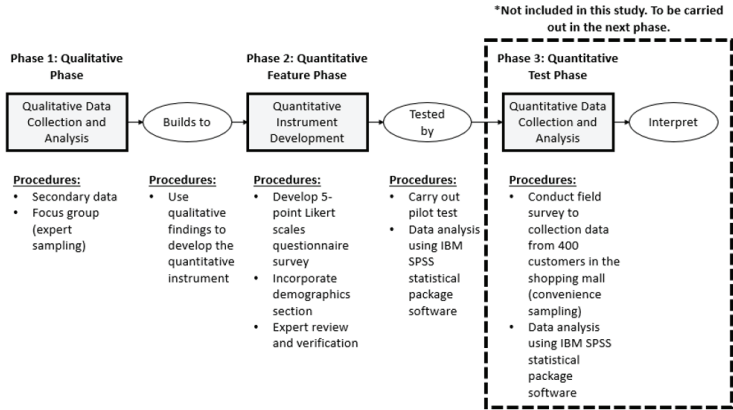
Figure 4. Exploratory Sequential Three-Phase Mixed Methods Diagram
(Creswell and Clark, 2017)

A mixed method typology adopted for this study refers to Creswell and Clark's (2017) exploratory sequential three-phase mixed methods design with greater emphasis on the quantitative method (qual - QUAN): qualitative phase, quantitative feature phase and final quantitative test phase. The primary objective of adopting the exploratory sequential design for this study is to use the foundation of qualitative data to develop and implement a quantitative survey tool (ibid). Currently, this study has completed Phase 1 and 2 as well as the pilot test as shown in Figure 4.

Phase 1 - Qualitative Phase

Two qualitative methods are used to prepare the quantitative survey tool. In regards to the identification of sub-attributes under the four architectural attributes, the researcher uses secondary data from journals and articles. The other qualitative method used in this study is a focus group and the researcher uses open-ended questions to identify the sub-attributes related to the eight usability attributes. An expert sampling technique is adopted for the focus group as the facility management team is the subject-matter experts and most familiar with the shopping mall design and environment.

Phase 2 - Quantitative Feature Phase

The qualitative findings from Phase 1 are used to develop the questionnaire survey tool in two forms of 5-point Likert scales. The questionnaire items are related to the customers' expectations (architectural attributes), and the scales are 1=not important, 2=slightly important, 3=moderately important, 4=important, 5=very important. On the other hand, the scales for items related to the customers' perception (usability attributes) are 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree. The questionnaire survey also consists of a demographic section to gather information such as age, gender, marital status, occupation, monthly income, and number of visits before and after MCO (Movement Control Order in Malaysia due to the COVID-19 pandemic), and others.

Phase 3 - Quantitative Test Phase

According to the Department of Statistics Malaysia (2021), the population size is approximately 9.6 million in the Klang Valley, as of fourth quarter (Q4) 2020. The basis of the sample size for this study is determined using the population in Klang Valley as well as following the sample size method by Israel (1992), whereby a population size exceeding 100,000 with ±5%, precision level, 95% confidence level and .5 maximum variability will require a sample size of 400 which is the number of responses set for the quantitative survey. The researcher intends to use the convenience sampling technique to collect data from customers in Sunway Pyramid Mall and aims to carry out the field survey in the 3rd quarter of 2021.

RESULT AND DISCUSSION

Upon completion of Phase 1 (Qualitative phase), a total of 30 sub-attributes were identified from secondary data related to architectural attributes and selected for the survey with a breakdown of seven sub-attributes related to location, five sub-attributes related to aesthetics and design, thirteen sub-attributes related to facilities & services, and five sub-attributes related to quality structures. As for the focus group process, ten members of Sunway Malls' facility management team representing different departments such as Centre Management Services (CMS), Operations (OPS), Design & Fit-Out (DFS), Business Innovation (BI), Leasing and Marketing participated in the

discussion. 59 sub-attributes related to usability attributes were highlighted by the participants and chosen for the survey with a breakdown of six sub-attributes related to accessibility, nine sub-attributes related to image, four sub-attributes related to atmosphere, twelve sub-attributes related to functionality, five sub-attributes related to interaction, six sub-attributes related to navigation, eight sub-attributes related to tenant mix and nine sub-attributes related to safety. As there is a risk of misinterpreting the data and generating inaccurate conclusions, the qualitative findings from the focus group discussion were further verified by the Sunway Malls' facility management team to ensure that the sub-attributes are accurately categorized under the respective main attributes.

The qualitative data from Phase 1 were then used to develop the quantitative survey tool in Phase 2 of this study. The final questionnaire design and length are as shown in Table 1.

Table 1. Questionnaire Design and Length

Attributes	Purpose	Number of Questions
1-Location	To measure customers' expectations on any shopping mall in Klang Valley	7
2-Aesthetics & Design		5
3-Facilities & Services		13
4-Quality Structure		5
5-Accessibility	To measure customers' perceptions on one popular mall in Klang Valley (Sunway Pyramid, Petaling Jaya)	6
6-Image		9
7-Atmosphere		4
8-Functionality		12
9-Interaction		5
10-Navigation		6
11-Tenant Mix		8
12-Safety		9
Total Questionnaire Length		89

(Source: Author, 2021)

The following section shows the findings of the pilot study based on the quantitative data collected from 15 participants (Table 2). According to Bujang and Baharum (2017), 15 to 20 participants are recommended for pilot study purposes. Julious (2005) recommended 12 participants per group as a rule of thumb for any pilot study. However, Browne (1995) argued that

a pilot study requires at least 30 participants in order to obtain reliable data. Based on 400 sample size, the 15 selected participants only represent 3.75% of the total sample and this is considered as a limitation of the pilot study.

Table 2. SPSS Case Processing Summary – Sample Size (N=15)

Case Processing Summary

		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0

a. Listwise deletion based on all variables in the procedure.

(Source: Author, 2021)

The frequencies of 15 participants' demographics data are provided in Table 3.

Table 3. SPSS Frequencies of Demographics Data

	Valid	Frequency	Percent	Valid Percent
Age	25 & Below	3	20.0	20.0
	26-30	5	33.3	33.3
	31-40	7	46.7	46.7
	Total	15	100.0	100.0
Gender	Male	9	60.0	60.0
	Female	6	40.0	40.0
	Total	15	100.0	100.0
Race	Malay	15	100.0	100.0
Residence	Kuala Lumpur	1	6.7	6.7
	Petaling Jaya	7	46.7	46.7
	Subang Jaya	4	26.7	26.7
	Shah Alam	1	6.7	6.7
	Puchong	2	13.3	13.3
	Total	15	100.0	100.0
Marital Status	Married	12	80.0	80.0
	Single	3	20.0	20.0
	Total	15	100.0	100.0
No of Kids	1-2	6	40.0	40.0
	3-4	2	13.3	13.3
	0	7	46.7	46.7
	Total	15	100.0	100.0

Highest Education	Masters Bachelors Diploma Others Total	3 9 2 1 15	20.0 60.0 13.3 6.7 100.0	20.0 60.0 13.3 6.7 100.0
Employment status	Employed Unemployed Student Total	12 1 2 15	80.0 6.7 13.3 100.0	80.0 6.7 13.3 100.0
Income	Below RM 2,500 RM 2,500 – RM5,000 Above RM 5,000 Total	3 9 3 15	20.0 60.0 20.0 100.0	20.0 60.0 20.0 100.0
Mode of Transportation	Drive	15	100.0	100.0
No of Visits before MCO	Above 10 3 – 4 1 – 2 Total	1 2 12 15	6.7 13.3 80.0 100.0	6.7 13.3 80.0 100.0
No of Visits after MCO	1 – 2	15	100.0	100.0
No of Stores Visited	Above 10 1 – 5 6 – 10 Total	6 4 5 15	40.0 26.7 33.3 100.0	40.0 26.7 33.3 100.0
No of Pax During Visit	1 – 2 3 – 4 Total	4 11 15	26.7 73.3 100.0	26.7 73.3 100.0
Hours Spent at the Mall	1 – 2 2 – 3 Total	3 12 15	20.0 80.0 100.0	20.0 80.0 100.0

(Source: Author, 2021)

Table 4 shows the descriptive statistics for the parameters under architectural and usability attributes. The mean and standard deviation are listed in the table.

A reliability test was conducted in the pilot study and the value of Cronbach's alpha for the 12 attributes is .955 as presented in Table 5. As mentioned by Taber (2018), Cronbach alpha (α) value of 0.7 or higher is considered acceptable for further analysis. Table 6 features the Item-Total Statistics. The table tabulates the sum for every attribute: the four architectural attributes, and the eight usability attributes. The columns with Corrected Item-Total Correlation and Cronbach's Alpha if Item Deleted show the items' reliability.

Table 4. SPSS Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
TOTAL LOCATION	15	10	17	13.80	2.396	-.124	.580	-1.260	1.121
TOTAL AESTHETICS DESIGN	15	6	11	8.40	1.805	.145	.580	-1.663	1.121
TOTAL FACILITIES SERVICES	15	21	29	26.60	2.746	-.948	.580	-.275	1.121
TOTAL QUALITY STRUCTURE	15	11	17	14.80	1.612	-.925	.580	.565	1.121
TOTAL ACCESSIBILITY (U)	15	14	21	18.93	1.981	-1.294	.580	1.520	1.121
TOTAL IMAGE (U)	15	15	25	20.87	3.292	-.530	.580	-1.062	1.121
TOTAL ATMOSPHERE (U)	15	4	10	7.67	2.093	-.945	.580	-.805	1.121
TOTAL FUNCTIONALITY (U)	15	25	43	34.93	6.170	-.380	.580	-1.196	1.121
TOTAL INTERACTION (U)	15	13	25	19.80	4.586	-.241	.580	-1.634	1.121
TOTAL NAVIGATION (U)	15	10	24	19.00	4.928	-.694	.580	-1.179	1.121
TOTAL TENANT MIX (U)	15	20	30	25.67	3.792	.044	.580	-1.736	1.121
TOTAL SAFETY (U)	15	21	32	28.20	4.539	-.737	.580	-1.379	1.121
Valid N (listwise)	15								

(Source: Author, 2021)

Table 5. SPSS Reliability Statistics (N=12 Attributes)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.955	.968	12

(Source: Author, 2021)

Based on the pilot study data, the Cronbach's alpha values indicate that the survey items are reliable. Thus, the pilot test has proven that the questionnaire survey tool is ready for Phase 3 of the study. A larger sampling size may provide a more realistic view of the customers' expectations of any shopping malls in the Klang Valley and a better understanding of the customers' perceptions of Sunway Pyramid Mall. The four architectural attributes (location, aesthetics and design, facilities and services and quality structures) may also have a significant impact on the eight usability attributes (accessibility, image, atmosphere, functionality, interaction, navigation, tenant mix and safety) and this will be determined upon completing the

quantitative data collection and analysis under Phase 3.

Table 6: SPSS Item-Total Statistics

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
TOTAL LOCATION	224.87	1143.410	.684	.998	.955
TOTAL AESTHETICS DESIGN	230.27	1171.495	.690	.992	.956
TOTAL FACILITIES SERVICES	212.07	1102.352	.823	.998	.951
TOTAL QUALITY STRUCTURE	223.87	1182.552	.674	.986	.957
TOTAL ACCESSIBILITY (U)	219.73	1141.352	.857	.991	.953
TOTAL IMAGE (U)	217.80	1064.457	.860	.985	.949
TOTAL ATMOSPHERE (U)	231.00	1136.143	.846	.978	.953
TOTAL FUNCTIONALITY (U)	203.73	889.638	.903	.999	.953
TOTAL INTERACTION (U)	218.87	961.410	.976	.999	.945
TOTAL NAVIGATION (U)	219.67	957.952	.910	.997	.948
TOTAL TENANT MIX (U)	213.00	1038.286	.848	.998	.949
TOTAL SAFETY (U)	210.47	967.124	.964	.999	.945

(Source: Author, 2021)

CONCLUSION

This paper presents an overview of a doctoral research by the main author and the aim of this study is to develop a usability brief as an additional input for a feasibility study of shopping mall AEI project. By selecting a reputable shopping mall (Sunway Pyramid Mall) for the scope of this study, the findings on quality usability design and best practices of the shopping mall will contribute significantly to the development of the usability brief. At the same time, the findings will expand the knowledge area of usability concept and its relevance to the shopping mall design in Malaysia. Through understanding the customers perception on usability attributes of shopping malls during the COVID-19 pandemic era, it will enable shopping mall developers, designers and owners to plan and incorporate the usability attributes into the design of shopping malls. Nonetheless, it is best that the usability attributes of shopping malls are reviewed regularly as they may no longer be relevant in the future due to changes on consumer behavior, technologies and built environment design features. As this research captures

the contemporary usability attributes of shopping malls, the findings can be used for comparison with future shopping malls usability studies. Future researchers may further contribute to the knowledge area and fill the gaps of this study by incorporating other concepts and theories, assessing two or more shopping malls with varying sizes, including other parties such as architects, designers or engineers in the process, conducting their research in a different region or country, increasing the sampling size, or using other data collection methods.

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