Development of the research instrument for evaluating the desire to live in an industrial city

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ABSTRACT

This study aims to develop a valid instrument to measure the two mediating variables namely place brand image and engagement with the place in the relationship between place brand benefits and employees' desire to stay in Bintulu, a newly established industrial city in the east part of Malaysia. To fulfil the objective, this study assesses the validity and reliability of instruments before carrying out the primary data collection. This instrument has been devised based on the Stimulus-Organism-Response (S-O-R) model and takes the form of a questionnaire for employed individuals who were born outside of Bintulu. The development of the valid instrument in this study involves four stages of validity test: panel experts examine the content validity; targeted respondents determine the face validity; exploratory factor analysis assesses the construct validity; and internal consistency measures the instrument's reliability. This study successfully gathered thirty-five usable questionnaires from working adults in Bintulu. The finding of this preliminary study demonstrates that the instrument is valid and reliable. All thirty-seven original items are thus retained. Performing step-by-step validity checks is essential in designing an instrument to assure its reliability. Using validated questionnaires in future studies can provide reliable empirical results, making them a practical solution.

Contribution/ Originality: This study develops an instrument for cities in targeting inbound employees, unlike many destination branding studies which primarily focus on the tourism sector and are geared towards tourists. The study offers a novel solution for designing instruments intended to assess city benefits (stimuli) and sequential mechanism (organisms) in order to increase intention to stay among employees.

1. INTRODUCTION

Since the early 2000s, place branding, particularly city branding, has been a relatively novel area of study in marketing. It is centered on city brand images and aims to differentiate the images of cities. Places have always needed to stay ahead of the competition to build their image, which is highly dependent on the construction, communication, and management of place image through perception (Kavaratzis & Ashworth, 2005). In Malaysia, growing competitiveness among cities has sparked interest in place branding. Place branding has been introduced in this country's present city council criteria. Malaysia implemented new city status requirements in 2008 (Official

Website of Ministry of Housing and Local Government, 2022). These additional requirements have made achieving city status more challenging. With the release of revised and new additional requirements, local authorities require a solid urbanization strategy and are responsible for realizing a particular city image. The inclusion of city image formation demonstrates that the government has recognized the importance of place branding practices in city administration. Several places in Malaysia have already upgraded to city status, for a total eighteen cities. From 2020 to 2022, four out of the eighteen total cities were formally recognized as cities. In the near future, several more towns will be granted city status (Bernama, 2020, 2022). A town in East Malaysia known as Bintulu is also striving towards a city status in the near future (Dayak Daily, 2020).

Bintulu, an important location for energy intensive industry in Malaysia, is now rebranding as an industry friendly city, in an effort first planned more than one decade ago (Abang Su'ud, 2011). Local authorities may use place distinctiveness to establish dynamic and long-term branding strategies to promote their reputation and highlight sustainability to compete for capital and talent (Dastgerdi & De Luca, 2019). Since Bintulu is the heart of energy-intensive businesses, this research addresses the need to focus on the intentions of employees to stay as competent human capitals are important for the industry. Decisions to stay are predicated on individuals' perceptions of the city's benefits versus costs (Lee, Seow, & Xue, 2021). An apparent issue is that the desired population level in Bintulu has yet to be reached. This strategic place had aimed to achieve city status in 2020 (Abang Su'ud, 2011).

The latest statistics have reported 266,200 people living in Bintulu as of 2020 (Bintulu Development Authority, 2020). Bintulu revised its goal to achieve city status in 2025, and now requires an increase of 46.8 percent of its current population to accomplish its objective of reaching a population of half a million people. Many research works related to city branding are concentrated in Europe regions, with a few in Asia.

While most scholars have focused on place attributes (Cassia, Vigolo, Ugolini, & Baratta, 2018; Chi & Han, 2020; Dastgerdi & De Luca, 2019; De Noni, Orsi, & Zanderighi, 2014; Kovačić, Milenković, Slivar, & Rancic, 2020; Trinchini, Kolodii, Goncharova, & Baggio, 2019; Truong, 2020; Zhang & Zhao, 2009) some scholars have begun to assess the place brand benefits (Fok & Law, 2018; Schade, Piehler, Müller, & Burmann, 2018). With a dearth of studies in Malaysia focusing on city branding, a valid research instrument is needed to obtain opinions related to employees' intention to stay in Bintulu.

In this circumstance, developing a research tool that is capable of measuring employees intention to stay is decisive, as the complex nature of place branding has not been addressed in previous studies. However, the instrument for examining employees' intention to stay must be evaluated before being administered. The Stimulus-Organism-Response (S-O-R) model serves as the fundamental basis for the development of this tool. The connection between stimulus and response is conceptualized as being mediated by organisms (Winston, 2012).

One of the most often utilized instruments, particularly in social science research, is the questionnaire. It is used in research to collect data in the most reliable and valid way possible. The existing measurements originate from various sources.

This study intends to prepare the questionnaire with measurements borrowed from previous studies and adjusted for the local context. This current study conducted a preliminary study before collecting the primary data which was aimed at achieving four objectives as follows:

a. To evaluate the relevance of constructs in the instrument.
b. To improve the respondents' interpretation of the statements in the questionnaire.
c. To ensure that a construct is truly reflected by the groups of items used as the instruments.
d. To determine the internal consistency of each item.

The questionnaire is also used to present more empirical evidence.

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2. LITERATURE REVIEW

In the preliminary study, a pre-testing protocol is implemented before disseminating the questionnaires. Pre-testing enables the researchers to check the clarity of the instructions and questions in the survey form, as well as the quality and applicability of the measures (Moberg, Cutler, Gross, & Speh, 2002). Validity is categorized into four types, namely content, face, construct, and criterion validity, each with its own set of functions and considerations.

2.1. Content Validity

A scale that is based on quantitative evidence has its content validity assessed to see how thorough and representative it is (Yaghmaie, 2003). Subjective evaluations from several experts are typically obtained to confirm the relevance of the constructs utilized in an instrument. Wynd, Schmidt, and Schaefer (2003) assert that at least two expert-raters are tasked with determining all items' applicability for inclusion in an instrument. Achieving complete consensus from all invited experts is unlikely due to the experts' diverse viewpoints (Polit & Beck, 2006). Relevant parties hold significant responsibilities in implementing the fundamentals of place branding strategies (Cassia et al., 2018) could be selected as experts.

2.2. Face Validity

Face validity pertains to initial impressions when examining a test, determining whether it appears to be valid measure or not (Ghazali, 2016). Face validity is a component of content validity, focusing specifically on how the items appear on the surface (Bougie & Sekaran, 2020). The validity of the items cannot be generalized, even if derived from earlier research, since they are necessarily changed from the original context (Cooper & Schindler, 2008). Content validity generally relies on experts, while face validity is based on the perceptions of respondents involved in an actual survey (Brinkman, 2009).

2.3. Construct Validity

Construct validity is a method that can provide precise information about factors that are used in the questionnaire. Since the items are borrowed from a variety of sources, a factor analysis could be used to determine whether the group of items truly reflects a particular construct (Sang et al., 2017). This procedure also reduces the number of items while maintaining the original information's quality (Matsunaga, 2010). Construct validity measures the extent to which an instrument accurately measures the theoretical construct that it is designed to measure (Ghazali, 2016).

2.4. Criterion Validity

Following the criterion validity standard, a thorough comprehension of the relevant theory and properly evaluates the association between measures and correlated factors must be demonstrated (Muijs, 2004). Reliability an important procedure to consider when evaluating the quality of instruments (Churchill Jr, 1979). A pilot study is an important preliminary phase in a survey that aims to test the scale's internal consistency reliability before the main data collection begins. When respondents consistently answer the items in the research instrument, reliability is obtained (Hair, Page, & Brunsveld, 2020). Reliability is commonly associated with multi-item scales containing multiple items that represent a concept. Hair et al. (2020) provide one method for determining how well each of the items in a scale correlates with the sum of the remaining items. Therefore, the Cronbach alpha coefficient will be used to assess how reliable the measurements of constructs are. This study uses Cronbach alpha, which has a good cut off value of at least 0.60 (Hair et al., 2020). Hair et al. (2020) also pointed out that an alpha is higher than 0.95 could indicate a high level of item redundancy, which is defined as number of items addressing the same question in slightly different ways.

3. RESEARCH METHOD

3.1. Location and Participants

The pilot study was conducted in the actual research location as proposed in this study, which is Bintulu located in East Malaysia. Bintulu was selected due to an important geographical factor. It is a key location for Malaysia's energy intensive industry and is now rebranding as an industry-friendly city (Abang Su'ud, 2011). More than ten years ago, this location intended to become a city in 2020, and has pushed that goal to 2025. Sample size for a pilot study could be as small as 12 respondents (Julious, 2005).

This exercise involved the employees who represent the respondents that involved in the actual survey. The selection procedure of participants was based on convenience, but their participation was screened to ensure the selected respondents fulfilled the criteria for this study. The first condition is the respondents are Malaysians born outside of the Bintulu area.

This was intended to exclude the participation of the local Bintulu residents from this study. The second condition is that the respondents had been working in Bintulu for at least two years. The second condition was added because individuals need at least two years to adjust to new places or unfamiliar environments (Terrazas-Carrillo, Hong, & Pace, 2014). A total of 37 employees working in Bintulu participated in the pilot phase. 35 of the 37 responses were useful, with the researcher discarding 2 responses.

3.2. Research Instruments

A valid instrument must demonstrate capability to assess the specific parameter it is designed for (Muijs, 2004). The researchers utilized a structured questionnaire that included closed-ended questions. The Likert scale used for scoring all the independent and mediating variables ranged from (1) strongly disagree to (5) strongly agree. The Likert scale is a survey tool that uses ratings to measure agreement or belief and assigns weights to responses. It is applicable in both online and self-administered surveys (Hair, Bush, & Ortinau, 2009). Ratings for the dependent variable ranges from 1 (strongly disagree) to 6 (strongly agree) on a 6-point scale. The scale is intended to eliminate the neutral or indecisive response, closer to normal distribution (Leung, 2011) and has higher discriminating power (Preston & Colman, 2000). Using an even-point scale to avoid central tendency error is acceptable for surveys conducted in Asia because this approach prevents respondents from expressing their fondness on the neutrality rating (Sang et al., 2017).

The researcher included a cover page containing project title, general objective of the study, general instruction, and requirements for participating in the survey. The questionnaire has two sections. The first section focuses on all dimensions (37 items), while the second section collects demographic information (8 items). The questionnaire additionally included three marker variables labelled as general statements designed to address the common method variance (CMV) issue (Lin, Huang, & Hsu, 2015; Oreg, 2003). As part of the survey items, the study established a method factor through the use of the marker variable approach (Rönkkö & Ylitalo, 2011). However, the variables were not tested on the model.

There are several reasons why this study required a preliminary test. First, in developing items for the questionnaire, the researcher borrowed the items from previous studies conducted in European and other Asian countries. These items were pretested by expert panels from the local administrative office and public universities in Malaysia. After assessment by the panel experts and discussion with a professor in the marketing field, several items, as presented in Table 1, required adjustments to suit the local context. Second, the researcher offered both English and Malay versions of the questionnaire.

A bilingual questionnaire was provided because the current study was conducted in Malaysia, where the majority of the population uses Malay as their first language. In line with this justification, there is a need for a set of reliable instruments. Therefore, the preliminary study was performed with the intention of achieving the four

objectives. All the constructs went through the operationalization procedure by using questionnaire to gather empirical data.

4. RESULTS AND ANALYSIS

4.1. Content Validity

The researcher considered the experts' opinion by performing modification, reduction, and introduction of items to suit the local context and the suitability of measurement items. Table 1 illustrates a snapshot of all the eight constructs, number of items for each construct, as well as their sources. Four existing dimensions of the place brand benefits namely cost efficiency, job chances, social life, and recreation were initially tested in Schade et al. (2018) whereas the place attachment construct is the new dimension for place brand benefits which was conceptualized in Scannell and Gifford (2017) for offering a psychological benefit.

One item for cost efficiency, "Overall, living expenses in Bintulu are within my expectations," was introduced to measure the general evaluation on cost of living in Bintulu. Similarly, one item was added in recreation because this dimension does not only cover the recreational sites, but also the facilities provided at the recreational sites. Following that, items in social life dimension were reduced to suit the existing environment of research setting. Next, the number of items for job chances dimension after validity procedure remained similar. This study introduced a new dimension, namely the place brand benefits construct. The fifth dimension was place attachment. The items for place attachment were borrowed from Widya, Kusuma, and Lubis (2019) which were used to examine intention to move from one of the cities in Indonesia. One item from this dimension was eliminated after the pretest phase. In total, 22 items were used to measure the place brand benefits in pilot study.

For the sixth construct, the researcher labelled the dimension place brand image. The study borrowed the three measures from Gómez, Fernández, Molina, and Aranda (2018) as they used them to obtain the opinion from the external stakeholders, in which the viewed are appropriate for non-local residents. The three measures were borrowed from Martinez, Garcia, Zapata, and Molina (2007) as they were used to evaluate the city image formation from internal stakeholders, which are local residents. After obtaining the experts' opinion, the study adapted three items from Gómez et al. (2018) adapted one item and dropped two items from (Martinez et al., 2007). Similar to these two works of literature, the dimension was utilized as unidimensional. Altogether, four items were used to evaluate the place brand image during the pilot test.

Following that, engagement is the seventh construct was labelled as place engagement dimension. Many studies on engagement have been performed in an online world context (Razmus, 2021). Engagement construct is understudied in an offline environment (Islam & Rahman, 2016). Both real-world (offline) and virtual (online) environments are capable of fostering engagement. In place brand context, engagement in both online and offline perspective remains underexplored. This study integrated both personal and online environment in measurement scale. This dimension was employed to measure engagement with the place using measures from Obilo, Chefor, and Saleh (2021) for online and Razmus (2021) for offline environments. In pilot study, engagement was demonstrated as a one-dimensional perspective (Brodie, Hollebeek, Jurić, & Ilić, 2011) which could also be generalized to measure an overall engagement (Islam, Hollebeek, Rahman, Khan, & Rasool, 2019; Park & Ha, 2020; Vivek, Beatty, Dalela, & Morgan, 2014). After consulting experts and professor in marketing field, the nine items from Obilo et al. (2021) were reduced to two items to better reflect the online context. In addition, this study borrowed six items from Razmus (2021) to reflect the offline context. In total, eight items were used to measure the place engagement dimension.

The eighth construct initially was labelled as mobility intention. During the validity procedure, the panel expert opined the items used in this construct were confusing because they reflect both positive and negative measures. This construct is later represented the intention to stay dimension contained three items were borrowed from (Merrilees, Miller, & Herington, 2009). All the items measure the intention to stay to reflect their intention in

accordance with timeframe of short term, medium term, and long term. In the past, the items were developed to measure the residents' intention to continue living in Gold Coast (GC), Australia. The third item "Likely to retire in GC" was improvised to "I am likely to stay in Bintulu until retirement". The likelihood that the respondents would stay in Bintulu until retirement age is lower because Malaysians who are not Sarawakians are required to apply for a work permit to enable them to remain and work legally in this city. This measure was improvised to ensure that all Malaysian respondents could respond objectively and express their opinions on the scale of agreement in an unbiased manner. The details of comparison of all items pre- and post-validity are also presented in Table 1.

Table 1. Summary of items to measure each construct/dimension.

Dimensions/ Constructs	No. of items prior validity test	No. of items after validity test	Sources
Cost efficiency	3	3	Schade et al. (2018) and Zenker, Petersen, and Aholt (2013)
		1	New item
Job chances	5	5	Schade et al. (2018)
Social life	8	4	Schade et al. (2018)
Recreation	3	3	Schade et al. (2018) Obtained from item R1in recreation
		1	
Place attachment	6	5	Widya et al. (2019)
Place brand image	3	1	Martinez et al. (2007) and
	3	3	Gómez et al. (2018)
Place engagement	9	2	Obilo et al. (2021) and
	6	6	Razmus (2021)
Intention to stay	3	3	Merrilees et al. (2009)

4.2. Face Validity

The research instruments were borrowed from previous studies and have yet to be tested in Malaysian setting. The researcher took the initiative to improve the respondents' interpretation of the questionnaire. First, the questionnaire was prepared in a dual-language version (English and Malay). During the pilot survey, the researcher asked the respondents on the choice of words and construction of sentence. The participants commented the statements in both English and Malay languages were clear and understandable. Hence, there was no demand to amend the words and phrases after the back translation procedure.

As previously mentioned in research methodology section, the researchers discarded two responses due to not fulfilling the requirement of the survey, which is "a Malaysian born outside of the Bintulu area". This requirement was clearly written on the cover page of the form and the researcher identified their place of origin in the demographic profile, which is at the completion of the survey. To ensure that respondents read the instruction and clearly understand the requirement, the researchers convert the requirements statement to the screening questions. Screening questions work to determine whether respondents are qualified to participate in the survey based on their responses (SurveyMonkey, 2022). This approach enables respondents to treat the requirements as questions that they must answer before taking part in the survey. By filtering respondents, screening questions enable researchers to focus questions to a particular group, who then complete the survey's subsequent questions after first seeing the screening question (Google Surveys Help, 2022).

4.3. Construct Validity via Exploratory Factor Analysis (EFA)

The researcher performed exploratory factor analysis to analyse data patterns to discover the factors. This analysis is usually performed to produce evidence for measuring the construct validity (Tavakol & Wetzel, 2020). Factors are supposed to reflect the concepts or latent qualities explored by the assessment under consideration. In general, the items that load the best into a factor are used to identify the conception that a factor represents. For a factor to accurately assess the concept it could be representing, it must include multiples items. There should be at

least three items in each factor (Brown, 2006). The researcher used EFA as an exploratory and descriptive approach to determine whether measure variables are reliable indicators of the various latent dimensions. In this analysis, the researchers observed the size and differential magnitude of factor loadings. "Factor loadings are the correlations between each of the original variables and the newly extracted factors" (Hair et al., 2020). This analysis used item correlations generated from non-local resident replies to classify items on an assessment. As suggested by Hair et al. (2020), factor loadings 0.3 and above were counted in the factor matrix. This examination is not concerned with the adequacy of the constructs explored. Instead, the interest was in determining the variables for each construct explored, since the items were obtained from multiple sources, subjected to content validity through the experts' opinion, and were modified to fit the context of study. The outcomes of the factor analysis also address any possible concerns for later analysis.

In exploratory factor analysis, principal components analysis was run before-performing reliability test. Only factor loadings greater than 0.3 were counted towards any factor, however meaningful interpretations must still be done with caution when double loadings occur (Muijs, 2004). After twelve iterations, seven factors were developed as shown in Table 2. The results demonstrate that all items for job chances and social life are grouped together in Component 1 and 4, respectively. Four items for recreation have all been grouped together in Component 2. Component 2 additionally includes two items from cost efficiency. There are two items from cost efficiency in Components 5 and 6, respectively. For place attachment dimension, four items are grouped in Component 3, and one item is present in Component 7. Factor analysis only indicated the construct validity and little regard given to content validity (Ghazali, 2016). Realizing this, the researchers made the decision to maintain the five place brand benefits dimensions as originally hypothesized.

Table 2. Exploratory factor analysis for place brand benefits (Based on eigenvalue).

KMO measure of sampling adequacy: Bartlett's test of sphericity				Chi-square Degree of freedom Sig (p-value)		0.576 570.943 231 0.000	
	Component						
Items	**1**	**2**	**3**	**4**	**5**	**6**	**7**
CE1						0.943	
CE2					0.966		
CE3		0.394					
CE4		0.333					
JC1	0.962						
JC2	0.982						
JC3	0.740						
JC4	0.925						
JC5	0.711						
SL1				0.399			
SL2				0.395			
SL3				0.875			
SL4				0.784			
RE1		0.861					
RE2		1.044					
RE3		0.963					
RE4		0.443					
PA1			0.729				
PA2			0.960				
PA3			0.906				
PA4							0.878
PA5			0.619				

Note: Extraction method: Principal component analysis.
Rotation method: Promax with kaiser normalization.
KMO (Kaiser-Meyer-Olkin).

Next, the researchers performed principal component analysis once again. The number of components in this procedure was limited to five and rotation converged in six iterations. Only factor loadings higher than 0.3 were tallied towards any component. When multiple loadings occur, meaningful interpretations must be formed with caution (Muijs, 2004). The results, as presented in Table 3, clearly show all items for job chances, recreation, place attachment, and social life are all grouped in Components 1, 2, 3, and 4. For cost efficiency, three out of four items are all grouped in Component 5, except item CE3, which contributed to Component 2, is the same as has been presented earlier. Once the data collection is accomplished, validity must be examined, because validity requires a substantial sample (Hair et al., 2020); hence, item CE3 was kept in the research instrument.

Table 3. Exploratory factor analysis for place brand benefits (Based on five factors).

KMO measure of sampling adequacy: Bartlett's test of sphericity		Chi-square Degree of freedom Sig (p-value)		0.576 570.943 231 0.000
Items	Component				
	1	**2**	**3**	**4**	**5**
CE1					0.616
CE2					0.446
CE3		0.597			
CE4					0.769
JC1	0.920				
JC2	0.952				
JC3	0.726				
JC4	0.924				
JC5	0.831				
SL1				0.674	
SL2				0.616	
SL3				0.750	
SL4				0.679	
RE1		0.829			
RE2		0.883			
RE3		0.842			
RE4		0.682			
PA1			0.747		
PA2			0.879		
PA3			0.948		
PA4			0.486		
PA5			0.773		

Note: Extraction method: Principal component analysis.
Rotation method: Promax with kaiser normalization.

The sixth and seventh constructs, place brand image and place engagement, represent the mediating variables or organism. These two constructs went through deletion and modification of items meant for content validity prior to pilot study. Since the items for this construct were obtained from multiple sources, EFA was performed to assess if the twelve items contributed to the factors. Principal components analysis was performed, and the outcomes formed two factors after three iterations as demonstrated in Table 4. The result clearly shows that three items from place engagement construct, PE1, PE2, and PE4, along with the other four items of place brand image, contributed to Factor 1. PE3, PE5, PE6, PE 7, and PE8 contributed to Factor 2. Then, the researcher has labelled Factor 1 as a place brand image dimension and Factor 2 as a place engagement dimension.

An EFA was once again performed to measure the eighth construct, intention to stay (response). Altogether, three items were obtained from a single source. As previously stated, item ITS3 was modified to fit the study's setting, implying construct validity. Principal components analysis was performed, and the outcome established one

factor, which is presented in Table 5. Based on the result, all three items contributed to the factor and were retained in the research instrument.

Table 4. Exploratory factor analysis for place brand image and place engagement.

KMO measure of sampling adequacy: Bartlett's test of sphericity	Chi-square Degree of freedom Sig (p-value)	0.772 280.090 66 0.000
	Component	
Items	**1**	**2**
BI1	0.457	
BI2	0.969	
BI3	0.677	
BI4	0.839	
PE1	0.896	
PE2	0.597	
PE3		0.849
PE4	0.601	
PE5		0.901
PE6		0.516
PE7		0.944
PE8		0.815

Note: Extraction method: Principal component analysis.
Rotation method: Promax with kaiser normalization.

Table 5. Exploratory factor analysis for intention to stay.

KMO Measure of sampling adequacy: Bartlett's test of sphericity	Chi-square Degree of freedom Sig (p-value)	0.649 71.076 3 0.000
	Component	
Items	**1**	
ITS1	0.956	
ITS2	0.925	
ITS3	0.822	

Note: Extraction method: Principal component analysis.

4.4. Reliability

This preliminary study aims to assess the reliability of an instrument to measure the perception of non-local residents (employees originated from outside of Bintulu) towards intention to stay in the new industrial city in East Malaysia. Alpha coefficient reliability or Cronbach alpha was used in this test. This study supports (Hair et al., 2020) who suggested a cut off value of Cronbach alpha at least 0.60 is a good indication of item redundancy, while a value higher than 0.95 indicates a high amount of item redundancy.

4.5. Reliability for Place Brand Benefits as Stimulus

As explained earlier, place brand benefits consisted of five dimensions. The first four dimensions are cost efficiency (four items); job chances (five items); social life (four items); and recreation (four items), derived from the city brand benefits construct. The fifth dimension (five items) is derived from place attachment construct. There are 22 items altogether for place brand benefits dimensions. The Cronbach's alpha values are shown in Table 6. Cronbach's alpha for the first dimension is 0.632, for the second dimension is 0.921, for the third dimension is 0.777, for the fourth dimension is 0.898, and for the fifth dimension is 0.822. When compared to previous studies, all five constructs i.e., social life, cost efficiency, job chances, recreation, and place attachment have value range between 0.80 and 0.92 on a reliability assessment (Schade et al., 2018; Widya et al., 2019). The fact that reliability for cost efficiency in the earlier study indicated a higher value could be related to the target respondents and the sample

group differences. A previous study reported that respondents above 30 were underrepresented, and that fresh graduates made up the bulk of the respondents. In contrast, the current study obtained the most responses from respondents over 30. Overall, the Cronbach alpha values for all five dimensions tested in this preliminary study were above 0.6, fulfilling a good indication of item redundancy. Therefore, no item was deleted in this procedure.

Table 6. Values of Cronbach's alpha if item deleted and overall Cronbach's alpha for the place brand benefits.

Dimensions place brand benefits	Items	Cronbach's alpha if item deleted	Overall Cronbach's alpha value
Cost efficiency	CE1	0.537	0.632
	CE2	0.552	
	CE3	0.571	
	CE4	0.591	
Job chances	JC1	0.899	0.921
	JC2	0.887	
	JC3	0.924	
	JC4	0.900	
	JC5	0.905	
Social life	SL1	0.825	0.777
	SL2	0.712	
	SL3	0.640	
	SL4	0.672	
Recreation	RE1	0.843	0.898
	RE2	0.827	
	RE3	0.834	
	RE4	0.948	
Place attachment	PA1	0.775	0.822
	PA2	0.748	
	PA3	0.716	
	PA4	0.875	
	PA5	0.795	

4.6. Reliability for Place Brand Image and Place Engagement as Organism

There are 12 items altogether for both constructs. Cronbach's alpha value is shown in Table 7. Cronbach's alpha for the sixth construct is 0.876 whereas for the seventh construct is 0.911. The overall value of Cronbach alpha for both constructs are above 0.6, which is a good indication of item redundancy. Therefore, no item was deleted in this procedure.

Table 7. Values of Cronbach's alpha if item deleted and overall Cronbach's alpha for place brand image and place engagement.

Dimensions	Items	Cronbach's alpha if item deleted	Overall Cronbach's alpha value
Place brand image	BI1	0.884	0.876
	BI2	0.850	
	BI3	0.873	
	BI4	0.838	
	PE1	0.850	
	PE2	0.845	
	PE4	0.859	
Place engagement	PE3	0.857	0.897
	PE5	0.878	
	PE6	0.875	
	PE7	0.890	
	PE8	0.867	

4.7. Reliability and Validity for Intention to Stay as Response

Then, researcher performed a reliability test on the intention to stay dimension. Altogether, there are 3 items used to measure this dimension. Cronbach's alpha value for the eighth construct is 0.879 is shown in Table 8. The

overall values of Cronbach alpha for this construct are above 0.6, meeting a strong indication of item redundancy. Therefore, no item was deleted in this procedure.

Table 8. Values of Cronbach's alpha if item deleted and overall Cronbach's alpha for intention to stay.

Dimensions	Items	Cronbach's alpha if item deleted	Overall Cronbach's alpha value
Intention to stay	ITS1	0.735	0.879
	ITS2	0.803	
	ITS3	0.943	

Finally, the researchers present Table 9 to show all the 37 items on place brand benefits, place brand image, place engagement, and intention to stay. Items to measure cost efficiency, job chances, social life, recreation, place attachment, and intention to stay remain similar. After performing EFA, three items that were previously used for measuring place engagement are included in place brand image. This results in a place brand image dimension has with items. When three items were removed from place attachment, only five items remained for the measurements.

Table 9. All items for stimulus, organism, and response.

Constructs/Dimensions	Items before the validity and reliability test	Items after the validity and reliability test
Stimulus (Place brand benefits)		
Cost efficiency	CE1, CE2, CE3, CE4	CE1, CE2, CE3, CE4
Job chances	JC1, JC2, JC3, JC4, JC5	JC1, JC2, JC3, JC4, JC5
Social life	SL1, SL2, SL3, SL4	SL1, SL2, SL3, SL4
Recreation	RE1, RE2, RE3, RE4	RE1, RE2, RE3, RE4
Place attachment	PA1, PA2, PA3, PA4, PA5	PA1, PA2, PA3, PA4, PA5
Organism		
Place brand image	BI1, BI2, BI3, BI4	BI1, BI2, BI3, BI4, PE1*, PE2*, PE4*
Place engagement	PE1*, PE2*, PE3, PE4*, PE5, PE6, PE7, PE8	PE3, PE5, PE6, PE7, PE8
Response		
Intention to stay	ITS1, ITS2, ITS3	ITS1, ITS2, ITS3
Total items	37	37

*Note: Items PE1, PE2, PE4 are removed from place engagement and added in place brand image dimension.

5. DISCUSSION

In branding research, assessment is an essential element. Interaction between stakeholders and the place brand benefits, a favorable place image, and engagement with the place may be crucial factors in enhancing residents' intentions to remain, which is thought to aid the local administrators to increase the population. Place brand benefits could be the main elements that indirectly contribute to this intention. The Ministry of Housing and Local Government in this country has incorporated the city brand image in the development of the city since 2008. The local administrators have worked to put planning into action that is consistent with the brand image the city portrays. The researchers hold this factor is likely still insufficient. Current non-local residents' engagement with the place could be useful to mediate the intention to stay in the city. Currently, an instrument to evaluate the brand benefits of cities, especially in Malaysia is still lacking. Therefore, the psychometric properties of an instrument to measure the perception of non-local residents towards intention to stay were improvised and assessed.

The reliability and validity of the questionnaire must be established beforehand so that the researchers can anticipate any issues. Following a thorough literature search, no validated instruments were found to be appropriate for this study environment and research purpose. A new instrument was thus developed. The internal consistency of all items in this study fall within the acceptable range for Cronbach's alpha values of between from 0.60 and 0.95 (Hair et al., 2020). Furthermore, the factor loadings display significant values towards the factors, providing ample information on the construct validity. However, the relevant interpretations supplied by researchers should be

carefully considered. A sufficient sample size must be used to ensure validity (Hair et al., 2020). Validity testing during the pilot study is not entirely feasible due to limited sample size. Due to this reason, the actual validity assessment will be performed after the final round of data collection.

6. CONCLUSION

This study provides a useful framework for the evaluation of non-local residents to stay in Bintulu, a new industrial city in East Malaysia. It is accepted that place brand benefits, place brand image, place engagement, and intention to stay components will be aimed primarily at Malaysians originated from outside of Bintulu and currently working there. The research instrument can be used to obtain feedback from any employed persons in this new city. The researcher opines that economic growth is not the only metric for a city's success. It is essential to attract non-local employees with various demographic profiles to stay in the new city. As the population grows, having employed non-local residents may lead to the city being populated by a pool of knowledge society. In brief, this framework conceptualizes that if non-local residents' internal states are induced with a city image perception and positive engagement with the place, place brand benefits offer indirect influence on non-local residents' intention to stay.

The researchers recommend further study to obtain the responses from employed person in energy intensive industry, particularly in the downstream spectrum of oil and gas sector. This city was initially associated with the energy industry and its strong point is downstream activities. The city's concentration on the energy sector for more than 40 years has demonstrated that the city can rely in this sector for economic gain. Furthermore, developing and planning a city is a huge investment for the state, and requires impactful outcomes in the long run.

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