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Design Guidelines for the Identity of Rapid Transit Stations in Bangkok from Passenger's Perception of Physical Environment

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Abstract

The perceived value of the rapid transit lines in Bangkok can be increased when unique features allow them to be distinguished from each other. This paper aims to describe the perception of physical environments at the four lines of rapid transit in Bangkok including the BTS Sky train (BTS), MRT Blue Line (MRT BL), AERA1 (AERAWAN), and MRT Purple Line (MRT PPL). Questionnaires were used to collect data from 800 passengers, using The Likert Scale and One-way ANOVA analysis to analyze the physical environment of the 4 stations. The questionnaire is divided into 3 phases, (1) Indoor physical environment (2) Outdoor physical environment and (3) Interchange stations. The physical environment perception that significantly affects all passengers' perception was the outdoor area including the external building, other public transport systems, the entrances, exits, and sign systems in the station. The second was the indoor physical environment comprised of the ticket vending machine, walkway, sign system, the position of the information and cooperate image, followed by the interchange station, Skywalk, and shops. This guideline was designed to assess the stations based on three criteria. (1S) Story is the background from culture, society, that, and the area near the station (2S) Space of the station should be associated with the physical environment of each station. (3S) Style focuses on the pattern of designing a sustainable context for the station. The research findings can be used to identify the environmental factors of the stations that will increase the perceived value of the passengers.

Keywords: *Physical Environment, Perception, Identity of Station*

1. Introduction

The Master plan mass rapid transit Bangkok Metropolitan Region is the latest version in the Thai government Ministry of Transport for the development of an urban rail transit network system servicing the greater Bangkok area. The rapid transit was established to improve traffic congestion in Bangkok; moreover, it was aligned with Mass Rapid Transit Master Plan in Bangkok Metropolitan Region by extending 11 fully integrated rapid transit lines including elevated and underground trains. It is expected to be completed within the year 2029 (Mass Rapid Transit Authority of Thailand, 2016). Recently, rapid transit operated on 4 lines consisting of the BTS Sky Train (1999-2022), MRT Blue Line (2003-2022), APL (2010-2022) or subsequently known as AERA 1, and MRT Purple Line (2016-2022).

The environment is important for the perception of physical factors that convey identity from the office environment, such as physical form and free space in the office with decorative patterns space and shapes including the interior atmosphere (Balmer, & Grayser, 2006). The size of the station building, and its interior affects the emotional response and visual weight generated by this impression (Tork, Elgohary, & Dewidar, 2019). The physical environment of the station can be categorized according to the purpose of each area including the external building, the entrances and exits, the interchange station and Skywalk, the nearby buildings, and inside the station such as graphical symbols, signposts, walkways, ticket section, and platform. Distinct physical environment characteristics of each station can lend an identity representing the station's uniqueness (Puttipakorn, & Upala, 2018).

Figure 1 Bangkok's transit lines map (Clark, 2021)

In addition to symbol and sign systems, pictures are one of the best ways to effortlessly reinforce the passengers' perception of the new physical environment (Alman, 1976). Other topics in this study indicate that the identity of the station can be affected by environmental factors; creativity through graphic design can further uniquely identify the station through efficient use of the building. Furthermore, it increases the positive passengers' perception of the service in the station. (Sirijansawang, & Upala, 2018).

The individual perception will be interpreted according to different understandings, the meaning of a picture depending on the environmental factors that are related to each other including the cultural context that influences that image. Also, the meaning of "Reconstruction of Historic Buildings," shows the importance of historical value or symbolism as a national monument rather than the original design of the building. based on shared experiences and feelings which are tied to images, the process of inventing this method of communication creates a traditional society. The physical environment of the station is categorized according to the purpose of each area including the external building, the entrances and exits, and nearby buildings. Graphical symbols are another crucial area in the station., such as informational signs, walkways, ticket vending, and platform designations. It was found that pictures were one of the best ways to effortlessly reinforce the passenger's perception of the physical environment. Cities could benefit from considering 'community supportive' transit design that promotes local identity in addition to more pragmatic wayfinding concerns. (Douglas, 2010) The consistency of brand identity is formed by its features like culture, vision, personality, positioning, presentations, relationships, and other beliefs followed by the entity. (Mindrut, Manolica, & Roman, 2015)

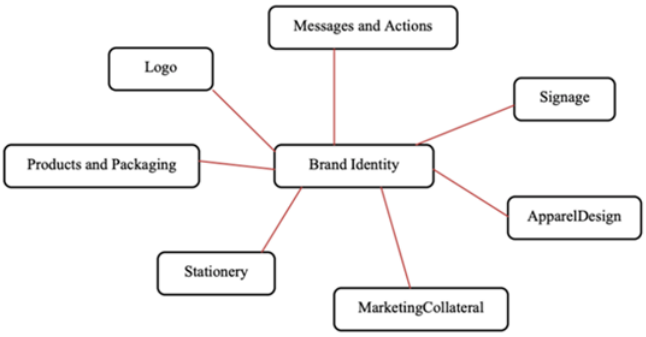

Figure 2 Branding Identity Elements (Mindrut et al., 2015)

Images can help passengers identify specific stations however it can be difficult to decipher different signs.

Information regarding passenger satisfaction with the mass transit system is lacking. The physical environment has not been elucidated since it is the main point to enhance the cooperate image of that station. Even if a building is present, it is difficult to find an appropriate design to connect the building with the station, but a good design can provide distinguishing characteristics. The size of the station building, and its interior affects emotional response and visual weight generated by the impression of the passengers (Tork et al., 2019). Railway stations play an important role in choosing the required color palette to identify the station buildings as a part of the history and cultural qualities(Glăveanu& Tanggaard, 2014).

Behavior perception is based on both the inner influence of the individual and the external influences (Ames. 1949). There are also several other factors that can influence this such as personal experiences, race, religion, culture, ability to evaluate the surrounding environment, ability to comprehend signs and maps, local traffic congestion, underground retail space and the characteristics of the public transport environment Thus, the individual perception and understanding of the surrounding environment are different (Horrayangkurl, 2013). A different color is assigned for the vaults in each station, to identify the railway station lines Perception of colors is also used to express the design concept (Novakova.,& Foltinova,2014). Colors combined with light can be used for aesthetic and functional arrangement at the station, to underline particular functional elements, branding, or to show directions. The form of a station and its aesthetical values becomes more expressive of the city's identity, even if the exterior design can be a representation of an international style at first glance (Ye-Kyeong., & Hye-Jin,2015).Therefore, aesthetics are not bound to represent a specific art movement, but rather symbolize an identity to its environment.

The passenger's perception of the physical environment can build on identity design for other mass transit systems in the future to increase the value of the station and promote tourism. The identity design can represent the unique community, society, and culture.

1.1 The Problem of Passengers' Perception

Despite their high-capacity transit system, numerous studies revealed that several problems must be addressed actively. For instance, the passengers merely recognize the symbol of the train, and they found that it is difficult to decipher the signs. Passenger satisfaction towards the mass transit system is low based on survey results of photographs of symbols on platforms, in trains, in stations and on roads due to inconsistencies in the symbol system. The old symbolic system is still in use This system is complicated and does not accurately portray the information that a passenger might need at transit decision points such as entrances and walkways. There were some symbols that can be seen from the platform area, but the symbols were placed too high to be seen from inside the train. See the details in Figure 3-8 .

1.2 Literature Review

Physical Environment

Perception and understanding of the physical environment vary among individuals. The color is assigned for each station, to identify of the railway's line stations (Tork et al., 2019)

The physical environment be described to enhance the corporate image (Worasit, & Choonhachatrachai, 2016)

Perception of Colors combined with light can be used for aesthetic and functional arrangement at the station, to underline particular functional elements, branding or to show directions

Perception

The individual perception will be interpreted according to different understandings, the meaning of that picture depending on the environmental factors that are related to each other (Douglas, 2010)

Identity of Station

Culture can create a uniqueness from habitat, lifestyle, traditions, beliefs, and important places of worship. Which can be communicated as an idea for creativity that will not be duplicated (Duxbury, & Jeannotte, 2011)

As the concept states, brand identity is how a company is being identified. The consistency of this brand identity is formed by its features like culture, vision, personality, positioning, presentations, relationships, and other beliefs followed by the entity. (Mindrut et al., 2015)

The stations were designed with the concept of identity from the physical environment around the stations that representation. (Seangsuk, & Upala, 2020)

2. Objectives

1) Examine the physical environment of 4 rapid transit line stations in Bangkok.

2) Comparative analysis of the passenger's perception of the rapid transit stations in Bangkok.

3) To suggestion and make guidelines that will indicate the identity of the station design.

3. Materials and Methods

Guidelines Design for the Identity of Rapid Transit Stations in Bangkok from Passenger's Perception of Physical Environment is a mixed methods research scope to study the 4 rapid transit lines from the central station of the mass transit system, interchange station and terminal station.

Step 1 Literature review to examine the 4 lines of the rapid transit and summarize the physical environment of the stations. Passenger behavior is observed to designate the station sample and the research questions and the research instrument.

Step 2 Filed study to collect data by observing the physical environment of the station and the passengers' behavior. A questionnaire consisting of 4 parts (1) Demographics (2) the passenger's perception towards the physical environment of the station section, (3) the demand on identity (4) passenger' satisfaction using the 5-point Likert scale to measure satisfaction is 5=Very satisfied (Highest), 4=Satisfied (High), 3=Neither satisfied nor dissatisfied (Medium), 2=Dissatisfied (Low), and 1=Very dissatisfied (Lowest). Collect the data. The sampling group was attained by systematically, counting the passengers of 4 lines in equal intervals for 200 people on each line to total 800. The samples were analyzed to compare the passenger's perception towards of the station.

Step 3 Analysis and conclusion by descriptive statistics to summarize mean, standard deviation, and ONE-WAY ANOVA.

The result of the station's examination indicated the most highly used area period time and the station as shown below.

1.) Data collection by the period of time

Rush hour in the mourning (7:00-9:00 a.m.) and evening (16:00-18:00 p.m.)

Regular time from 9:01 a.m. until 15:59 p.m.

2.) From BTS, MRT BL, AERA1, and MRT PPL Selected 3 stations per line consisting of the central station of the mass transit system, interchange station and terminal station.

The 4 Lines of Rapid Transit Station in Bangkok

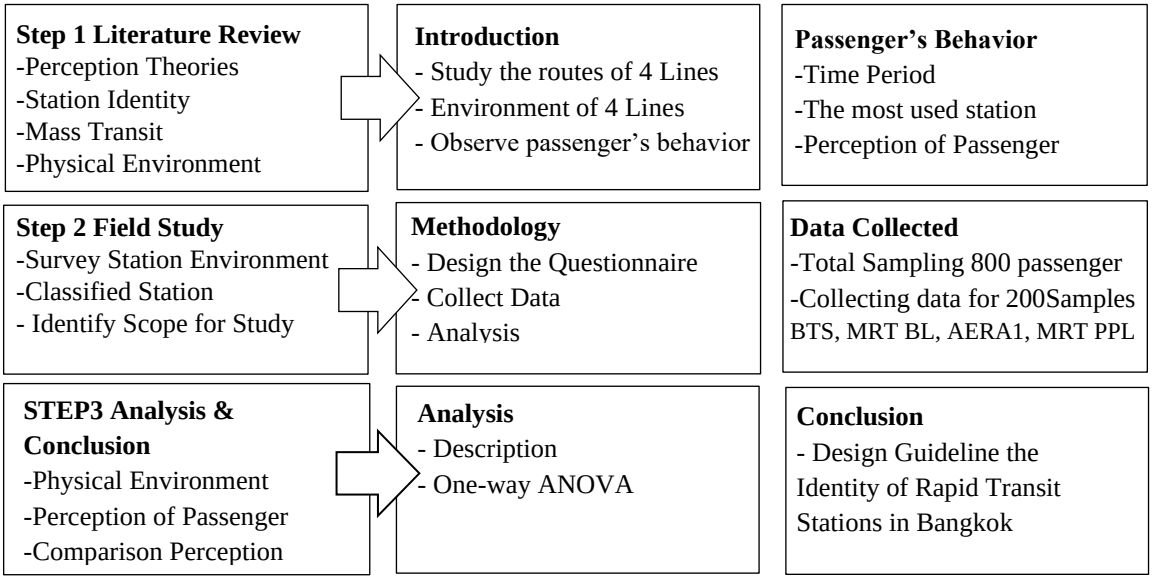

Figure 3 Conceptual Framework (Seangsuk, 2022)

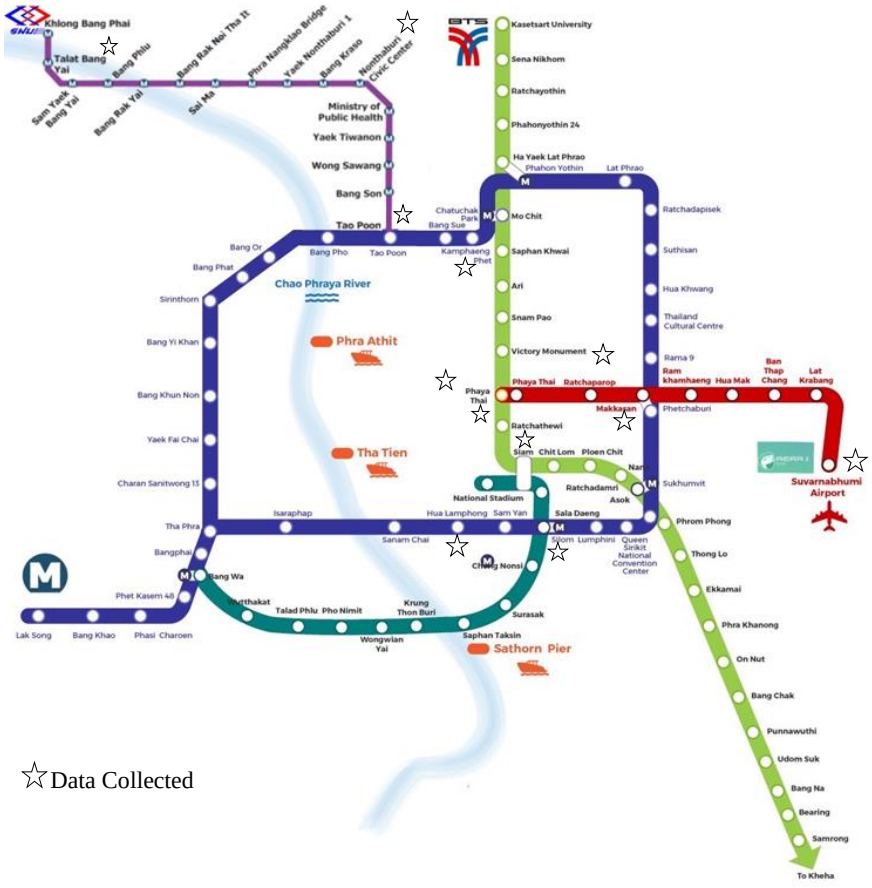

Figure 4 The 4 Lines of Mass Rapid Transit in Bangkok (Travel happy, 2023)

3.1 Physical environment of the station

BTS Sky train (BTS) is the first mass transit railway system in Thailand, operating in Bangkok, Samut Prakan and Pathum Thani. BTS Sky train provides 2 lines: Sukhumvit Line and Silom Line with 47 stations in total running from Khu Khot Station to Kheha Station. The latter services 14 stations in total running from National Stadium Station to Bang Wa Station. Both of the Sukhumvit lines are interchanged at the Silom Line at Siam station.

MRT Blue Line (MRT BL) is popularly called "subway" since it is the first underground metro rail system in Thailand to service 38 stations in total and runs in a circle-shaped curve from Lak Song Station, to interchange at Tha Phra station where the. The MRT can interchange with the BTS. In addition, at Tao Poon Station passengers can access the MRT PPL. At Phetchaburi Station passengers can change their routes to Suvarnabhumi Airport by taking AERA 1.

AERAWAN (AERA1) From Suvarnabhumi Airport, AERA1 is formerly known as Airport Rail Link (APL). AERA1 is a special mass transit system project comprised of 8 stations. Formerly, AERA1 was in the construction of an electric train route in the suburban rapid transit system. AERA1 is under of the rapid mass transit network in Bangkok metropolitan. It was built with an elevated structure at a height of 20 meters throughout the project except for routes approaching Suvarnabhumi Airport

MRT Purple Line (MRT PPL) or also known as M.R.T Chalong Ratchadham line runs from Tao Poon station to Bang Yai station with underground and elevated structures. The MRT Purple Line which is comprised of 16 stations, operates from Bang Bua Thong District, Nonthaburi Province (The western outer ring) past Bang Yai District, Nonthaburi Province.

Victory Monument Phaya Thai Siam

Figure 5 BTS (Green line) Station for Data Collected

Kamphaeng Phet Hua Lamphong Silom

Figure 6 MRT BL (Blue Line) Station for Data Collected

Phaya Thai **Makkasan** **Suvarnabhumi**

Figure 7 AERA1 (Airport Link) Station for Data Collected

Tao Poon **Nonthaburi Civic Center station** **Talad Bang Yai**

Figure 8 MRT PPL (Purple line) Station for Data Collected

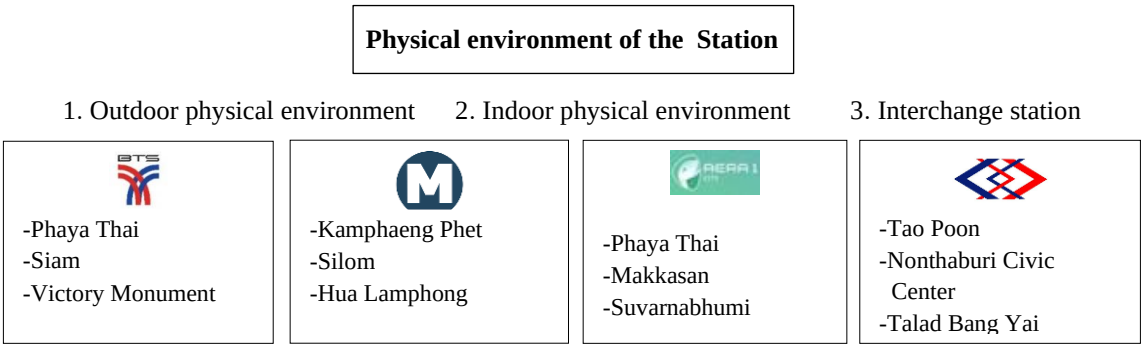

Figure 9 The scope of the station for study

4. Results

The passengers' perception the physical environment of BTS, MRT BL, AERA1, and MRT PPL, as demonstrated in table 1, revealed that of 800 respondents there were more males than females. the results are described below.

Table 1 Demographic

Gender	Passenger							
	BTS		MRT BL		AERA1		MRT PPL	
	n	$\bar{x}$	n	$\bar{x}$	n	$\bar{x}$	n	$\bar{x}$
Female	87	43.50	80	40.00	82	41.00	81	40.50
Male	113	56.50	120	60.00	118	59.00	119	59.50

4.1 BTS

The physical environments that had a significant impact on passengers 'perception were the external building and nearby public transport connection systems with an average score of 4.37 (high level), followed by the position of the information at the station with a score of 4.25 (high level). Moreover, walkways inside the train station were marked as 4.11 (high level). Nonetheless, the interchange station and Skywalk, Corporate Image and the demand for shops remained at the lowest levels, respectively. The details are described in Table 2 below.

Table 2 The passengers' perception the physical environment at BTS

Line	Physical environmental	$\bar{x}$	S.D.	Level	No.
1. BTS	1. External building and nearby public transport connection systems	4.37	0.816	high	1
	2. The position of the information	4.25	0.827	high	2
	3. Walkway inside the train station	4.11	0.875	high	3
	4. Ticket Vending Machine	4.09	1.034	high	4

Line	Physical environmental	$\bar{x}$	S.D.	Level	No.
	5. Sign system in the station	4.05	0.920	high	5
	6. Train station entrance/exit	4.03	0.916	high	6
	7. Signpost	3.84	1.097	high	7
	8. Interchange station and Skywalk	3.78	1.037	high	**8**
	9. Corporate Image	3.74	0.919	high	**9**
	10. Shop/souvenir shop	3.26	0.985	Medium	**10**
	Average	**3.95**	**0.947**	high	

4.2 MRT BL

As demonstrated in table 4, the respondents revealed that the external building and the nearby public transport connection systems with a score of 4.39 (high level) was the physical environment that dominated the passenger' perception. Ticket vending machines accounted for the same level with 4.33. Following this, the position of the information at the station came with a 4.25 score (high level). Three areas that had slightly impact on the passenger's perception were the interchange station and the Skywalk, corporate image, and shops, respectively. The details are described in Table 3 below.

Table 3 Passengers' perception the physical environment of MRT BL

Line	Physical environmental	$\bar{x}$	S.D.	Level	No.
	1. External building and nearby public transport connection systems	4.39	0.816	high	1
2. MRT BL	2. Ticket Vending Machine	4.33	0.840	high	2
	3. The position of the information	4.25	0.827	high	3
	4. Walkway inside the train station	4.11	0.876	high	4
	5. Sign system in the station	4.07	0.901	high	5
	6. Train station entrance/exit	4.06	0.905	high	6
	7. Signpost	3.98	0.896	high	7
	8. Interchange station and Skywalk	3.86	0.995	high	**8**
	9. Corporate Image	3.74	0.919	high	**9**
	10. Shop/souvenir shop	3.35	0.972	Medium	**10**
	Average	**4.01**	**0.991**	high	

4.3 AERA1

The physical environment that predominantly affected passengers' perceptions towards the station was the train station entrances/exits with a 4.91 score (highest) Next, the ticket vending machine accounted for 4.24 (high), accompanied by the external buildings and the nearby public transport connection systems was 4.21 (high). On the other hand, the interchange station and Skywalk, shops and cooperate image slightly gained the passenger' perception The details are described in Table 4 below.

Table 4 Passengers' perception of the physical environment at AERA1

Line	Physical environmental	$\bar{x}$	S.D.	Level	No.
	1. Train station entrance/exit	4.91	0.998	highest	1
3. AERA1	2. Ticket Vending Machine	4.24	0.854	high	2
	3. External building and nearby public transport connection systems	4.21	0.821	high	3
	4. The position of the information	4.20	0.842	high	4
	5. Walkway inside the train station	4.13	0.860	high	5
	6. Signpost	3.96	0.886	high	6
	7. Sign system in the station	3.95	0.947	high	7
	8. Interchange station and Skywalk	3.69	0.920	high	**8**
	9. Shop and souvenir shop	3.67	0.985	high	**9**
	10. Corporate Image	3.40	0.885	Medium	**10**

Line	Physical environmental	$\bar{x}$	S.D.	Level	No.
	Average	**4.00**	**0.899**	high	

4.4 MRT PPL

Two areas that had a substantial impact on passengers' perception were external buildings and nearby public transport connection systems with an average of 4.14 (high), followed by walkways inside the train station with the score of 4.12 (high). Furthermore, the position of the information accounted for 4.14 (high). In contrast, the respondents indicated that directional signs to the station, the entrances, exit, and shops respectively were the lowest compared to other areas.

Table 5 Passengers' perception of the physical environment at MRT PPL

Line	Physical environmental	$\bar{x}$	S.D.	Level	No.
4. MRT PPL	1. External building and nearby public transport connection systems	4.91	0.998	highest	1
	2. Walkway inside the train station	4.24	0.854	high	2
	3. The position of the information	4.21	0.821	high	3
	4. Sign system in the station	4.20	0.842	high	4
	5. Interchange station and Skywalk	4.13	0.860	high	5
	6. Ticket Vending Machine	3.96	0.886	high	6
	7. Corporate Image	3.95	0.947	high	7
	8. Signpost	3.69	0.920	high	**8**
	9. Train station entrance/exit	3.67	0.985	high	**9**
	10. Shops such as pharmacies, restaurants, and souvenir shops	3.40	0.885	Medium	**10**
	Average	**3.90**	**0.751**	high	

4.5 Comparison of physical environment affecting the passenger's perception of the station

Passengers of the 4 different lines that share the similar travel behavior show the same levels of perception towards the outside physical environment of the station and the interchange station. The details are illustrated in Table 6

Table 6 The comparison of the physical environment affecting the 4 lines passenger's perception

Physical environment	Line								F	Sig
	BTS		MRT BL		AERA1		MRT PPL			
	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.	$\bar{x}$	S.D.		
1. Indoor	4.08	0.769	4.14	0.725	4.36	0.856	3.85	0.758	0.564	0.570
2. Outdoor	4.04	0.905	4.10	0.875	3.98	0.783	3.18	0.773	0.365	0.694
3. Interchange stations	3.52	0.713	3.60	0.779	3.65	0.775	3.71	0.771	1.584	0.208

*P < 0.05

Comparison of the physical environments among all four stations yielded similar results categorized by the area. The most significant area was the outdoor physical environment, followed indoor physical environment and the interchange station, respectively. The details are described in Table 7 below.

Table 7 The summary on physical environment affecting the 4 lines passenger's perception

Physical environment	BTS	MRT BL	AERA1	MRT PPL	Average
1. Outside physical environment					
● external building and other public transport connections	4.37	4.39	4.21	4.12	**4.27**
● Train station entrance/exit	4.03	4.06	4.91	3.98	**4.24**
● Informational sign	3.84	3.98	3.96	3.73	**3.87**
Total average	**4.08**	**4.14**	**4.36**	**3.94**	**4.13**
2. Indoor physical environment					
● The position of the information	4.25	4.25	4.20	4.14	**4.21**
● Ticket Vending Machine	4.09	4.33	4.24	3.81	**4.11**

Physical environment	BTS	MRT BL	AERA1	MRT PPL	Average
● Walkway inside the train station	4.11	4.11	4.13	4.12	**4.11**
● Sign system	4.05	4.07	3.95	4.08	**4.03**
● Corporate Image	3.74	3.74	3.40	3.80	**3.67**
Total average	**4.04**	**4.10**	**3.98**	**3.99**	**4.02**
3. Interchange stations					
● Interchange station and Skywalk	3.78	3.86	3.69	3.83	**3.79**
● Shops	3.26	3.35	3.61	3.59	**3.45**
Total average	**3.52**	**3.60**	**3.65**	**3.71**	**3.62**

4.6 The demand for the identity of each station

The station identity analysis result revealed that each station has a distinguishing physical environment. The three areas which have the lowest impact on the perception are the interchange station, the provided area that connects with other public transport connections and Skywalk. Consequently, it is crucial to reinforce the identity of each required area by integrating the physical environment around the station so that it will be able to meet the needs of the passengers. The details are shown in Table 8 below.

Table 8 The demand for the station identity

Line	The station identity		Design concept
	Demand	Non-demand	
	75.96%	20.04%	1. Indoor physical environment
	78.22%	21.78%	2. Outdoor physical environment
	82.24%	17.76%	3. Interchange station
	83.30%	16.70%	

4.7 The demand for shops at the station

The demand for shops at the stations are as follows: BTS, MRT BL and AERA1 passengers have moderate demand at 3.26, 3.40 and 3.55, respectively, and MRT PPL passengers have high demand 3.98. The details are shown in Table 9 below.

Table 9 The demand for station shops

Line	Analysis of Variation	SS	DF	MS	F	Sig.
BTS	Between groups	489.786	2	244.893	2.634	.074
	Within groups	18219.812	196	92.958		
	Total	18709.598	198			
MRT BL	Between groups	134.753	2	67.377	.324	.724
	Within groups	40746.121	196	207.888		
	Total	40880.874	198			
AERA1	Between groups	4577.818	2	2278.909	2.151	.119
	Within groups	207700.856	196	1059.698		
	Total	212258.683	198			
MRT PPL	Between groups	13247.122	2	6623.561	3.206*	**.**050
	Within groups	404995.732	196	2066.305		
	Total	414242.854	198			

*P < 0.05

From Table 9 it was not found that MRT PPL passengers have significant demand ($p<0.05$) thus, it is crucial to employ Scheffé's test to compare the differences.

Table 10 The demand for station shops

Line	$\bar{x}$	BTS	MRT BL	AERA1	MRT PPL
BTS	3.26	-	-3.646	-5.784	-3.313
MRT BL	3.40		.333	-3.242	-6.674*
AERA1	3.35			.387	-5.886
MRT PPL	3.98				

*P < 0.05

This table indicates that the demand for station merchandise and souvenirs of MRT PPL and MRT BL passengers has significant demand at $p<0.05$.

4.8 Passengers' satisfaction with the 4 Lines service

The questionnaire revealed that the overall satisfaction of passengers with the sky train service was 3.96 in total meaning that the passengers have high satisfaction, MRT BL passengers show the highest satisfaction with 4.08 (high level), followed by BTS with an average of 3.93 (high level). MRT PPL and AERA1 had 3.89 and 3.61 (high level), respectively. The details are demonstrated in Table 11.

Table 11 Passengers' satisfaction 4Lines of Rapid transit

Line	$\bar{x}$	S.D.	Min	Max	Level	No.
MRT BL	4.08	0.767	2.00	5.00	high	**1**
BTS	3.93	0.917	1.00	5.00	high	**2**
MRT PPL	3.89	0.817	2.00	5.00	high	**3**
AERA1	3.61	1.094	1.00	5.00	high	**4**
Average	**3.96**	0.835	1.00	5.00		high

5. Discussion and Conclusion

The association between and station and the residents around the station are important criteria to determine if the identity of the station can be formed effectively. Besides, the investigation of areas around the station could provide an important avenue for future research because the historical or cultural background of each area can enhance and depict its uniqueness. The most significant physical environment feature that the passengers of 4 lines from MRT, AERA1, and MRT PPL perceived were Outdoor from the external building. Passengers can look at the scenery around the station to recognize the station by nearby places and the terminal station. In contrast, the passengers of MRT BL are intended to easily recognize the physical environment because the station has a distinctive physical environment, with symbols, advertising, identity, and other elements of the station. These are the reasons that MRT BL has a higher perception of the physical environment.

5.1 Design Guideline for the identity of the station

To efficiently establish a memorable identity, consider The 3 S's: ***S***tory is the background from the regent, culture, social, and historical that area near the station ***S***pace from the area to have function in the station such as exit, ticket machine, information, and platform. ***S***tyle focus on the conceptual design within the context of the station.

5.2 The demand for station's shops and souvenir

Passengers from MRT PPL have a high demand for station merchandise and souvenirs because the train route runs out of town. Thus, the result of this study suggested that commercial spaces such as shops, community malls, and OTOP product centers can be operated in the future.

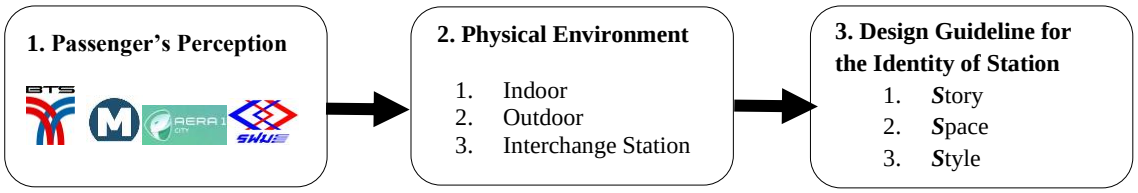

Figure 10 3***S*** Concept for designing the station's identity

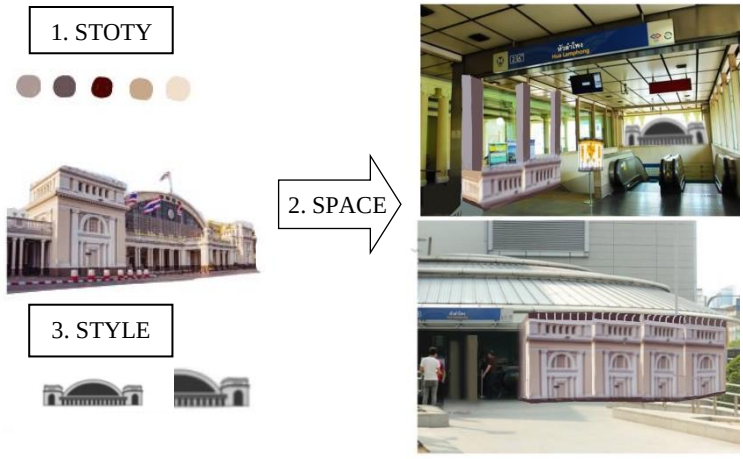

Figure 11 3S to apply designing the station's identity

5.3 Benefits for Public and passengers

The study of the physical environment of the station can be built on the design identity of the station since the perception towards the identity of the station can increase the value to the stations. For instance, the passengers were able to recognize the station by its identity and uniqueness. Furthermore, based on the passenger travel' behavior, the passengers have to study the travel plan, the routes, interchange stations and nearby public transportation systems to shorten travel time to terminal stations. To satisfy the passenger's needs, apart from the perception towards the entrances and exits sign at both inside and outside the station, the station identity plays a significant role in the passenger's perception. Thus, it is important to involve the physical environment around the station to represent the station's uniqueness since the passengers effortlessly engage in visual images.

5.4 Benefits of Public and private sectors and associations

We can conclude that the State Railway of Thailand and the Ministry of Transport should promote the physical environment identity in the station since the result indicated that the area of least passenger perception in the physical environment were the interchange stations and the Skywalk. Consequently, the reinforcement of the station's identity should be comprised of social and cultural aspects as well as the uniqueness of the surrounding community to set the guideline for creating the identity. As a result, it can be used for further commercial real estate, commerce, industry, and employment opportunities around the station.

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