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Consumers' Visual Perception of First and Second Generation Luxury Sleeper Train Passenger' Seats

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Abstract. The development of railways in Indonesia has experienced good innovation. An example is Sleeper Luxury Train. This train innovation aims to increase comfort and give a luxurious impression to the passengers. This innovation is realized in the form of a luxury sleeper passenger seat. Currently, the sleeper luxury train has two generations. The two generations carried differences in the design of the passenger seat. These two designs are distinctly different in appearances. Due to the differences, this research was conducted to determine consumer perceptions of trains towards the two designs and which design is preferred by consumers. This research was conducted on 102 train passengers using a 7-point semantic differential method and using 15 affective words. As a result, the design of the first-generation luxury sleeper train passenger seats is more attractive to consumers and there are differences in consumer perceptions on the variables of luxury, comfort, calm, relaxation, private and compact. Even so, the two designs of the luxury sleeper passenger seats are still in accordance with the brand made by KAI.

Keywords*: luxury; passenger seats; semantic differentials; trains; transportation design; visual perception*

1 Introduction

KAI is the sole railway company responsible for railway affairs in Indonesia. KAI is an important factor who act as the backbone of the rail-based transportation system in Indonesia [1]. Based on data from the Central Statistics Agency, train passengers in Indonesia are always increasing [2] until at its peak in 2019 KAI where they had carried 429.26 million passengers.

Figure 1 Graph of the increase in the number of train passengers from 2015 – 2019 [2].

Aside of experiencing good development in increasing number of passengers, KAI is also actively developing its variety of modes. In 2018, KAI launched the Light Rail Transit (LRT), the Minangkabau airport train and the Sleeper luxury train. The following year, in 2019, KAI operated two new airport trains named the New Yogyakarta International Airport Train and Adi Soemarmo Airport Train, Solo and brought in 438 new trains and also launching the second generation of luxury train. KAI is still developing its mode until 2020 where KAI collaborated with the DKI Jakarta Provincial Government and PT Mass Rapid Transit Jakarta (Perseroda) to inaugurate four integrated stations named Tanah Abang, Sudirman, Pasar Senen, and Juanda stations. The development carried out by KAI aimed to connect the country and provide easy mobilization for the community as well as increasing comfort for passengers. [1][3].

From the numbers of these innovations, the luxury sleeper train is a new class in the long-distance train class which is above the executive class. This luxury sleeper train is a super luxury train created by KAI that aimed to increase the comfort of long-distance travel and provide more privacy to passengers. KAI targeted this train for market segments that usually used trains for business trips and passengers who needed more comfort when traveled. According to Mukti Jauhari, the sleeper luxury train is expected to create better image for KAI as it stands as a new brand in the premium class [4].

Luxury sleeper train has had two generations. The first generation was launched in 2018 and the second generation was launched in 2019. In general, this train has several facilities offered to increase passenger's comfort. However, there are visible differences in the design of the passenger seat of this train. The shapes, materials, and colors in these two designs are very apparent. The visual differences in the design of the sleeper train seats in these two generations might potentially affected the brand image which currently built by KAI. According to Krezbauer and Malter, design influenced the concept of a brand and one of the factors that influence it is perception [5]. Human perception usually uses all the senses it has, but 80% of human perception is done visually [6]. Therefore, regarding to the phenomenon of these two different luxury sleeper train seat designs, research to reveal consumer visual perception is needed to be done so that consumer perception can be revealed regarding to the preference of its sleeper train seat design, especially the luxury design preference. This needs to be done so the branding KAI built can become a continuation. This revelation will become KAI's evaluation regarding to branding and design development.

2 Research Methodology

This research was done using an online survey by distributing questionnaires to 100 long-distance train passengers to determine the visual perception of train consumers towards the design of the first and second generation of luxury sleeper passenger seats. Stages of the questionnaire carried out in several stages. The first stage was carried out to obtain consumer perceptions about the design of the first and second generation of luxury sleeper train passenger seats. The second stage was carried out with the aim of obtaining consumer preferences for design elements in the design of the first and second generation luxury sleeper passenger seats. In the third stage, it was carried out to find out the respondents' design preferences for the design of the luxury sleeper train passenger seat which the consumer prefers.

Figure 2 Design of the first and second generation of luxury sleeper passenger seats used in the questionnaire.

The measurement in the first stage is carried out by assessing the image of the passenger seat from the first and second generation of luxury sleeper trains using a 7-point semantic differential scale carrying 15 adjectives as the measuring instrument. The semantic differential method is used because this technique can measure people's interpretation regarding to certain concepts quite objectively, reliably, and valid [7] and the 15 adjectives are obtained by choosing adjectives from its branding, brand luxury index, and combining them with the result of the impression from some designers about the meaning of 'luxury' in train passenger seats. From the various adjectives collected, the set of adjectives will be used has been determined such as: luxurious, attractive, unique, expensive, good quality, impressive, comfortable, quiet, relaxation, spacious, ergonomic, compact, easy to use, private, and modern.

Table 1 Luxury sleeper train passenger seat design elements.

Design elements [8]	**Chair section**
Color	Chair color
Form	*Enclosure* shape, sofa shape, stitch pattern, head cushion
Product graphics	-
Material	Sofa material, *enclosure material*

The method of measuring consumer preferences is carried out by revealing consumer interest in the design elements of the luxury sleeper train passenger seat. According to Jordan, what is meant by design elements are color, shape, product graphics, materials, sound and design interactions [8]. Because this research is focusing on visual design, the design elements that will be assessed are design elements that can be measured only visually. Therefor the design elements which become the measuring tools are; color, shape and material. Product graphics will not be used due to unavailability of such element in the design of the luxury sleeper train passenger seats.

The last stage, respondents will be asked to choose the design they preferred between the first and second generation luxury sleeper train passenger seat designs to find out their interest in the design of this luxury sleeper passenger seat as a whole.

The data analysis method is carried out by comparing the average between variables of the two passenger seat designs for the first and second generation of luxury sleeper trains. Therefore, statistical analysis by T-test might be performed to find the average differences between the two designs.

3 Results and Discussion

3.1 Demographic Data

This survey obtained 102 respondence, consisting of 53 female respondents and 49 male respondents. The executive train class is the train class most frequently used by respondents. 52 respondents stated that they most often used executive class trains, then 25 people stated that they most often used premium economy class trains and 21 respondents stated that they most often traveled to Surabaya – Jakarta using Argo Bromo-Anggrek.

3.2 Semantic Differential Scale

The collected data was then retrieved using the IBM SPSS 26 program by performing a different test to see the average difference in each variable. After analyzing the difference test (T-test), the results obtained are shown in table 2.

Table 2 Mean Comparison s between First- and second-generation Luxury Sleeper Seat design per variable.

Variable	Chair Design	Mean	Mean Difference	Sig. (2-tailed)
Luxurious	Generation 1	5.54	.431	.031
	Generation 2	5.11		
Interesting	Generation 1	5.05	-.059	.792
	Generation 2	5.11		
Unique	Generation 1	4.71	-.373	.084
	Generation 2	5.08		
Expensive	Generation 1	5.66	.353	.061
	Generation 2	5.30		
Good Quality	Generation 1	5.61	.118	.481
	Generation 2	5.49		
Impressive	Generation 1	5.25	.049	.811
	Generation 2	5.20		
Comfortable	Generation 1	6.01	.686	.000
	Generation 2	5.32		
Calm	Generation 1	5.95	.990	.000
	Generation 2	4.96		
Relax	Generation 1	5.93	.676	.000
	Generation 2	5.25		
Large	Generation 1	5.30	.510	.011
	Generation 2	4.79		
Ergonomic	Generation 1	5.53	.333	.065
	Generation 2	5.20		
Compact	Generation 1	5.24	-.461	.007
	Generation 2	5.70		
Easy to use	Generation 1	5.67	-.137	.317
	Generation 2	5.80		
Private	Generation 1	5.68	1,696	.000
	Generation 2	3.98		
Modern	Generation 1	5.15	-.353	.076
	Generation 2	5.50		

3.2.1 Not Luxury – Luxury

In the luxury variable there is a significant difference seen from the value of Sig. (2-tailed) = 0.031< 0.05. The first generation design is perceived as more luxurious than the second generation design as seen from the mean difference

value = 0.431 which means the average value obtained by the first generation design is greater than the second generation design.

3.2.2 Boring – Interesting

In the interesting variable the value of Sig. (2-tailed) = 0.792> 0.05 which means that there is no significant difference between the first generation design and the second generation design.

3.2.3 Ordinary – Unique

In the uniqueness variable, the value of Sig. (2-tailed) = 0.084> 0.05 which means that there is no significant difference between the first generation design and the second generation design.

3.2.4 Cheap – Expensive

On the expensive variable the value of Sig. (2-tailed) = 0.061> 0.05 which means there is no significant difference between the first generation design and the second generation design.

3.2.5 Poor Quality – Good Quality

On the quality variable the value of Sig. (2-tailed) = 0.481> 0.05 which means there is no significant difference between the first generation design and the second generation design.

3.2.6 Not Impressive – Impressive

In the impression variable, the value of Sig. (2-tailed) = 0.811> 0.05 which means there is no significant difference between the first generation design and the second generation design.

3.2.7 Uncomfortable – Comfortable

In the comfort variable there is a significant difference seen from the value of Sig. (2-tailed) = 0.000 < 0.05. The first generation design is perceived as more comfortable than the second generation design, as seen from the mean difference = 0.686, which means that the average value obtained by the first generation design is greater than the second generation design.

3.2.8 Not Calm – Calm

There is a significant difference in the calmness variable, which can be seen from the Sig value. (2-tailed) = 0.000 < 0.05. The first generation design is perceived as calmer than the second generation design as seen from the mean difference

value = 0.990 which means the average value obtained by the first generation design is greater than the second generation design.

3.2.9 Not Relaxed – Relax

In the relaxation variable there is a significant difference seen from the value of Sig. (2-tailed) = 0.000 < 0.05. The first generation design is perceived as more relaxed than the second generation design, as seen from the mean difference = 0.676 which means the average value obtained by the first generation design is greater than the second generation design.

3.2.10 Narrow – Broad

In the wide variable there is a significant difference seen from the value of Sig. (2-tailed) = 0.011< 0.05. The first generation design is perceived as wider than the second generation design as seen from the mean difference = 0.510 which means the average value obtained by the first generation design is greater than the second generation design.

3.2.11 Not Ergonomic – Ergonomic

On the ergonomic variable the value of Sig. (2-tailed) = 0.065> 0.05 which means that there is no significant difference between the first generation design and the second generation design.

3.2.12 Complicated – Compact

In the Compactness variable there is a significant difference seen from the value of Sig. (2-tailed) = 0.007 < 0.05 and the second generation design is perceived to be more Compact than the first generation design as seen from the mean difference value = -0.461 which means the value obtained by the second generation design is greater than the first generation design value.

3.2.13 Difficult to Use – Easy to Use

In the convenience variable using the value of Sig. (2-tailed) = 0.317> 0.05 which means that there is no significant difference between the first generation design and the second generation design.

3.2.14 Not Private – Private

In the privacy variable there is a significant difference seen from the value of Sig. (2-tailed) = 0.000 < 0.05 and the first generation design is perceived to be more private than the second generation design as seen from the mean difference value

= 1.696 which means that the value obtained by the first generation design is greater than the value of the second generation design.

3.2.15 Simple – Modern

The modernity variable uses the value of Sig. (2-tailed) = 0.076> 0.05 which means that there is no significant difference between the first generation design and the second generation design.

After determined the average value of each design per variable, the semantic differential graph can be described as in Figure 3.

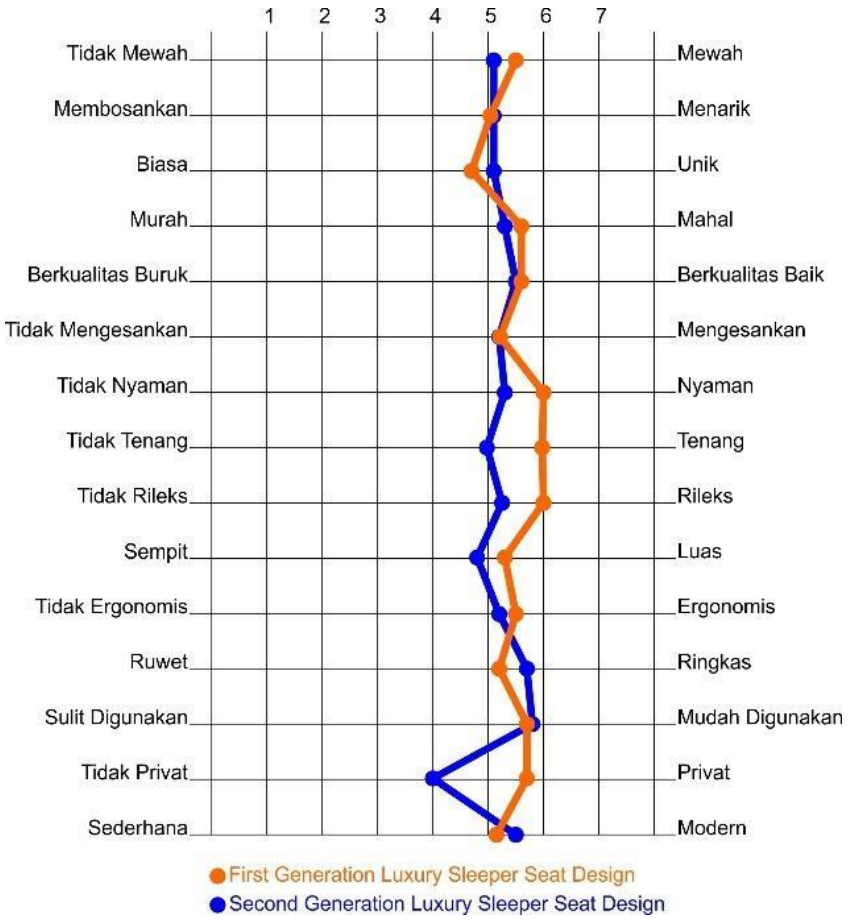

Figure 3 Semantic Differential Scale of consumer perception for First and Second Generation of Luxury Sleeper Passenger Train Seat Design

3.3 Consumer' Preferences

Consumer preference analysis uses the same method as the previous method by means of a different test (T-test) with the IBM SPSS 26 computer program. The results obtained are shown in table 3.

Table 3 Mean Comparison consumer' preferences of design elements between First- and second-generation Luxury Sleeper Seat design

Variable	Chair Design	mean	Mean Difference	. Sig (2-Tailed)
Color	Design 1	4.72	.461	.079
	Design 2	4.25		
Sofa Shape	Design 1	5.15	.343	-121
	Design 2	4.80		
Enclosure Shape	Design 1	4.69	-.206	.380
	Design 2	4.89		
Sofa Material	Design 1	5.31	.480	.015
	Design 2	4.83		
Enclosure Material	Design 1	4.93	-.137	.508
	Design 2	5.07		
Stitch Pattern	Design 1	5.02	.382	.068
	Design 2	4.64		
Headrest Shape	Design 1	5.35	.529	.008
	Design 2	4.82		

The results of the analysis above shows differences in consumer preferences for sofa materials and the shape of the headrest. This is evidenced by the value of Sig (2-tailed) on the sofa material variable is 0.015 < 0.05 and the head cushion shape variable is 0.008 < 0.05 and with a positive mean difference value, 0.480 for the sofa material and 0.529 for the shape of the headrest, it can be interpreted that consumers are more interested in the material of the sofa and the shape of the headrest in the design of the first generation luxury sleeper train passenger seat. Meanwhile, the other variables did not show any significantly different results.

In the third stage of the previous questionnaire, respondents were asked to choose which design is more attractive to them and the results are 79 people (77%) expressed interest in the design of the first generation luxury sleeper train seat and 23 people (23%) expressed interest in the second generation luxury sleeper train seat.

4 Conclusion

The result of the analysis shows that there is a difference in perception between the design of the passenger seat of the first and second generation of luxury sleeper trains. The design of the passenger seat of the first generation is perceived as more luxurious, comfortable, quiet, relaxing and spacious compared to the design of the passenger seat of the second generation luxury sleeper train, but it is also found that the passenger seat of the second generation of luxury sleeper train is perceived to be more compact than the design of the first generation luxury sleeper train passenger seat. In other variables, there was no significant difference in perception between the two designs.

The passenger's preferences for the design elements are revealing that the shape of the sofa/seat and the shape of the headrest in the design of the first generation luxury sleeper passenger seat are more attractive to consumers. Other variables do not show significant differences between these two designs. Overall, consumers are more interested in the design of the first generation luxury sleeper train passenger seats.

So that the statement by Krezbauer and Malter which says that design affected the concept of a brand [5] is proven because there is a difference in perception between the two designs. Even though the statement is proven to be true, the researcher considered this difference in perception to be reasonable and does not make a distinct clash with the branding which currently built by KAI.

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