CHAPTER 5

RESULTS AND DISCUSSIONS

5.1. Samsung S9 reviews Kansei words identification

After finding the features of the Samsung S9 phone, the next step is to identify the correlating adjectives towards the features. Which is in this case researcher filtered out the similarities or we can say as the co-occurrence of two words in the whole dataset of those adjectives. Some nouns also included to determine the sub-features that correlated with the main feature that is analysed in the previous step, later known as the Kansei words of the features. This process uses gensim word2vec library to find the similar words correlated to the features of the phone. The complete description of each features and its corresponding Kansei words can be seen in table below.
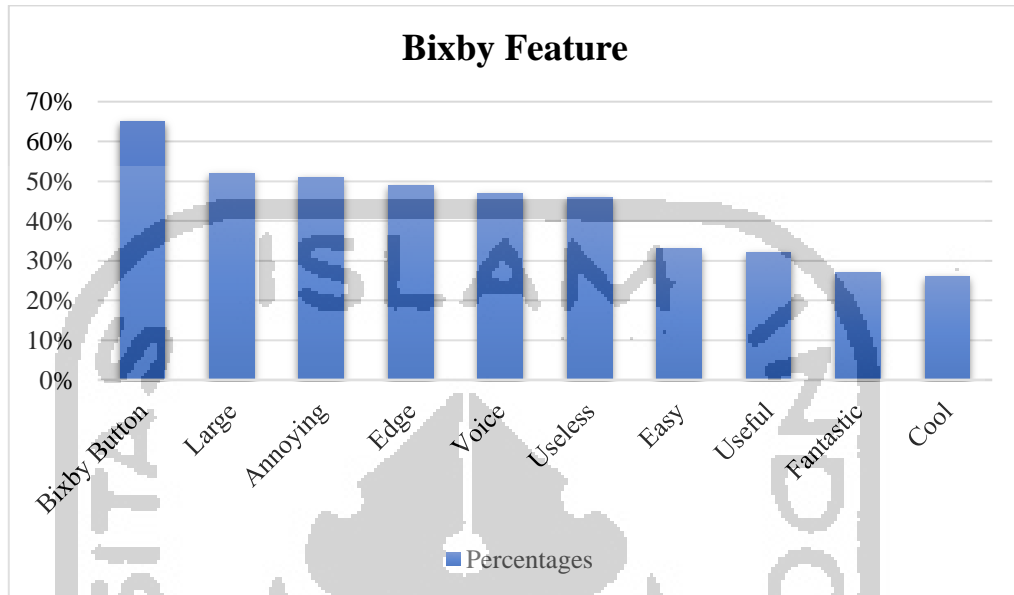
Bixby Feature

Figure 5. 1. Bixby feature of Samsung S9 kansei words

From chart above, it can be inferred that there are several words that correlated with Bixby feature. However, there are polarities from the comments, which are negative comments that indicate a bigger percentage. Hence, it should be compared and identified the positive terms that indicate a smaller percentage from the whole dataset. Therefore, the researcher suggests, for the product improvement guideline, to exclude Bixby button from the features list, which means to remove the button, as the implementation for the next phone improvement, since the Kansei words indicates it as annoying and useless feature.
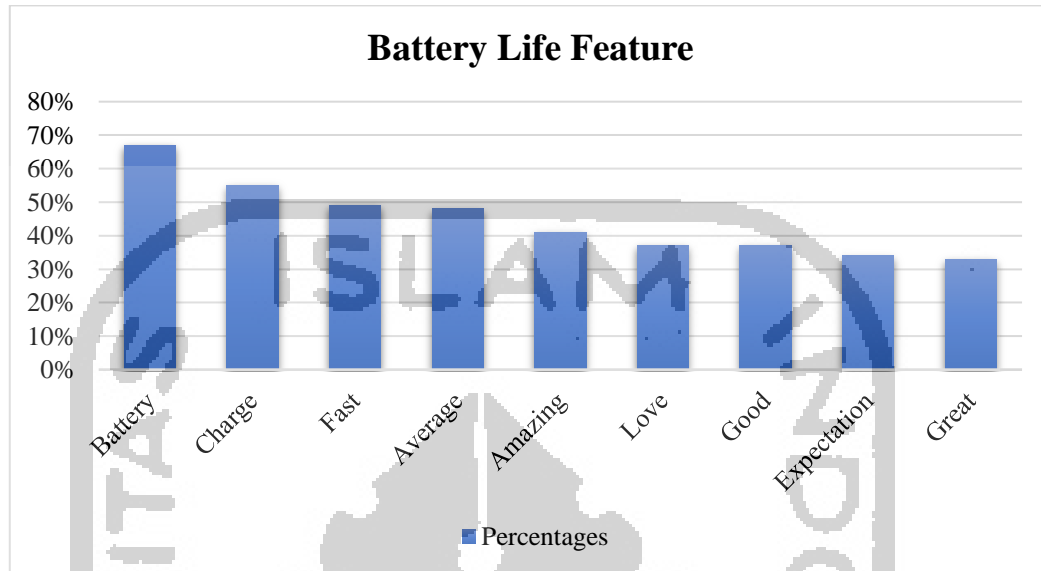
Battery Life Feature

Figure 5. 2. Battery Life feature of Samsung S9 Kansei words

From this result, researcher can analyse that the Kansei words compilation refers to customer's feels, stated that the battery performance is good on its fast charging features. Some words indicate the average response show up with a pretty high percentage, showing that some customer feel that the performance is normal just like other phones. Some words that indicate positive feedbacks are also emerged, such as love, good expectation, and great but not with a high percentage value. Then, researcher suggests, for product improvement guideline, to equip the battery with a fast-charging feature, with a long-lasting battery life.
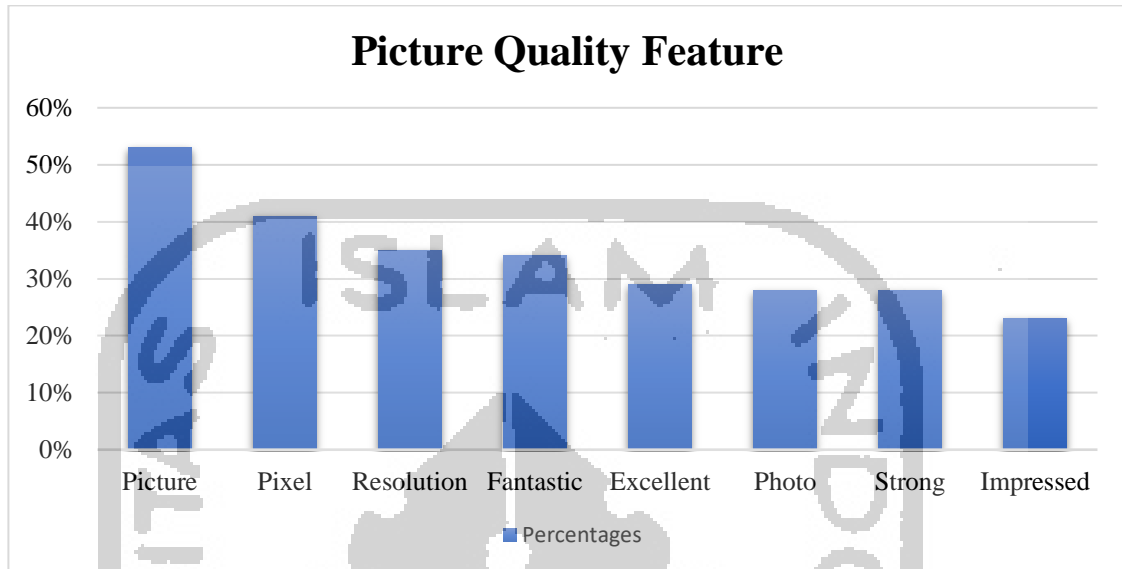
Picture Quality Feature

Figure 5. 3. Picture quality feature of Samsung S9 Kansei words

From this result, it can be seen there are some words that correlate with the picture quality, such as the word picture itself, and some words like pixel and resolution that are the specification of the picture resulted from the camera of the phone. It is analysed that the customers presume that the picture demonstrates a fantastic and strong quality, especially in terms of the pixel and the resolution. Therefore, researcher decides to use it as a suggestion for the future product improvement guideline, a picture quality feature with strong pixel and resolution specification.
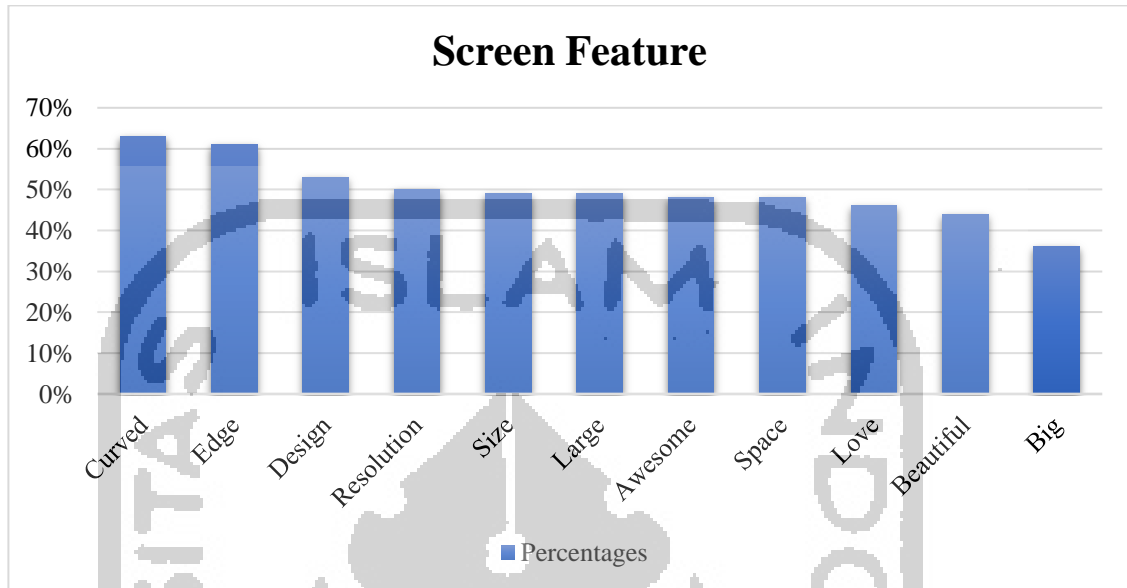
Screen Feature

Figure 5. 4. Screen Feature of Samsung S9 Kansei words

The result of the Kansei words analysis shows that the customer reviews sum up the impression on the screen feature condition. They are impressed by the curved and edge design of the phone. The customer feels that the large resolution of the phone is awesome and the space availability on the screen is amazing, or it can be said that customers love it by the size of the screen. Therefore, researcher decide to suggest the future product improvement on the product improvement guideline, by putting big screen resolution with a wide space on the screen and not to be designed with many debris on the screen. The curved design should be maintained since the customer loves it.
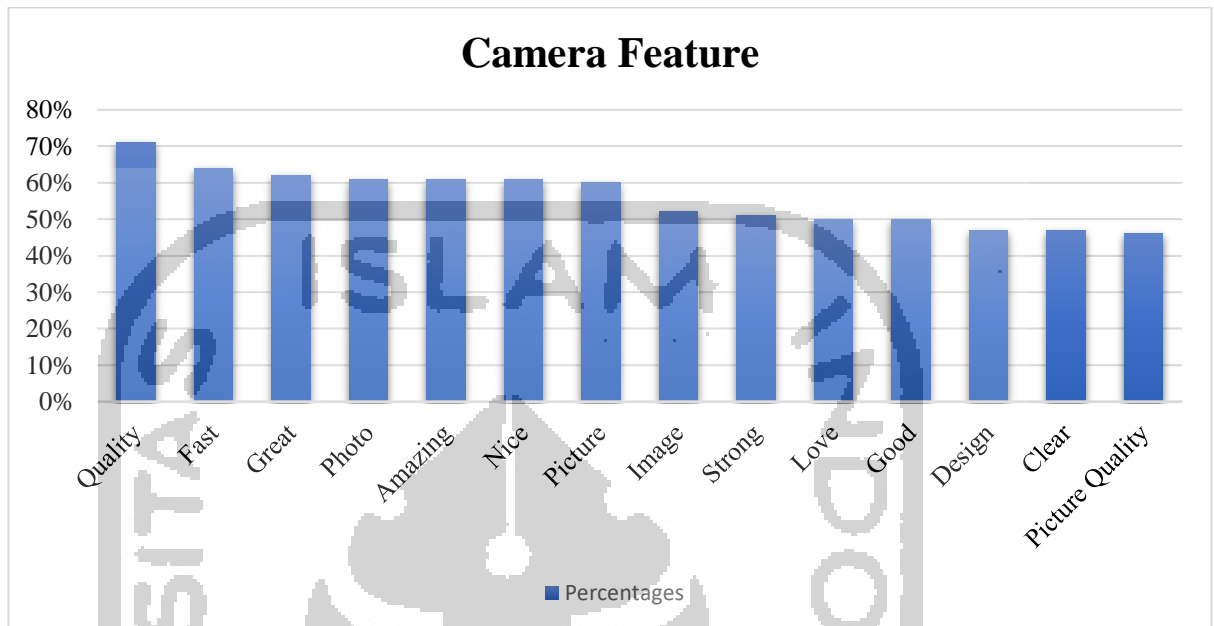
Camera Feature

Figure 5. 5. Camera feature of Samsung S9 Kansei Words

From this process, it can be seen that the Kansei words that correlated to camera feature indicate mostly positive feedbacks from the customers. However, some words almost identical with the picture quality Kansei words. But, some significant words from the picture quality Kansei words like strong resolution and pixel cannot be found here, so researcher decided to separate the suggestion for both features. Therefore, the improvement suggestion taken from this summary is to make the camera feature with a good designed placement spot, with a clear picture quality output and fast loading camera, since some words from customers emerge that a fast loading camera loading is wonderful.
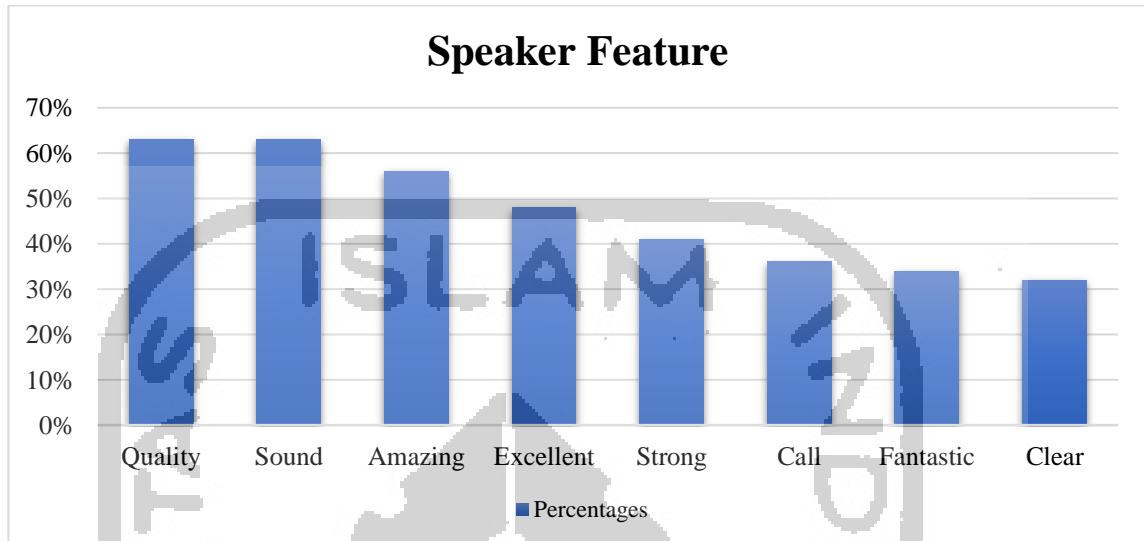
Figure 5. 6. Speaker feature of Samsung S9 Kansei words

Overall, this result shows positive feedbacks from the customer reviews. Some adjective words that present on the result like excellent, amazing and fantastic demonstrate a satisfaction feeling from the customer. Some related features from the speaker such as call feature is related to the speaker is co-occur with the speaker and it indicates a positive feedback. Then for the product improvement guideline, researcher suggests to embed a speaker with a good and clear sound, and the calling speaker needs to be designed with a good quality speaker also.
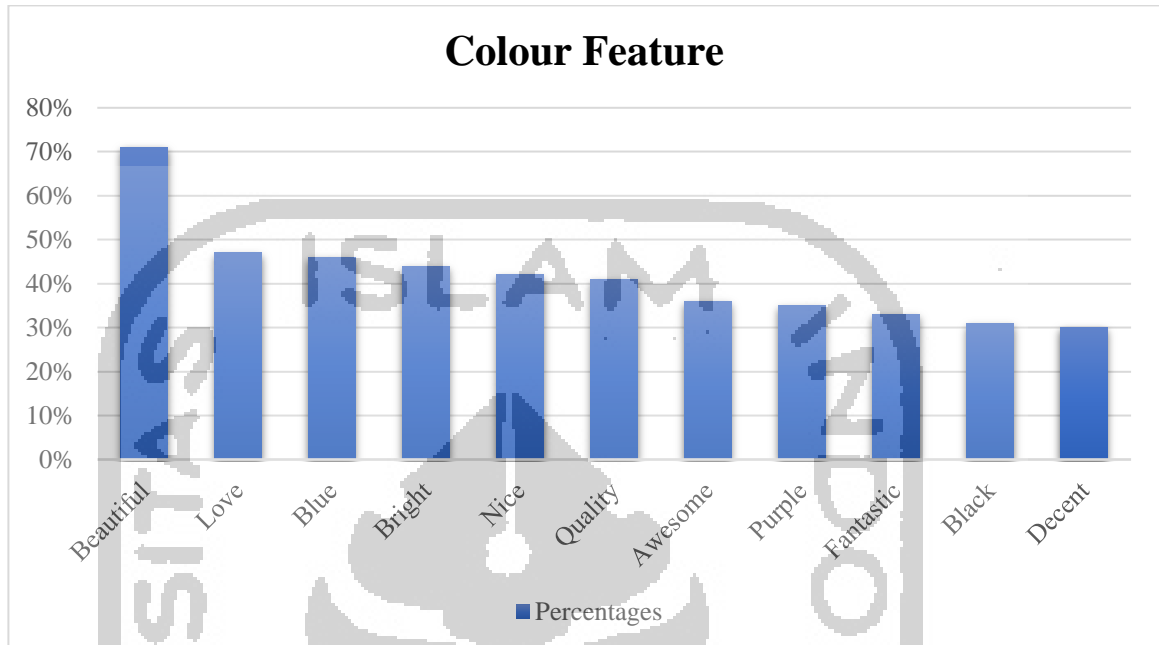
Figure 5. 7. Colour feature of Samsung S9 Kansei words

For colour feature, some significant feedbacks from customers are obtained. Based on the result, they feel that the colour is good. Some colour like purple, blue and black are mentioned on the result. However, there are some colours that are not mentioned in this result, researcher assumes that these colours, which are not mentioned to be less reviewed by customer or maybe not many customers buy the phones with these colours. The colour that is not mentioned on this summary result is silver. Therefore, researcher suggests, for future phone improvement, to keep the colour option design with purple, blue and the black as the phone's colour reference.

Charger Feature

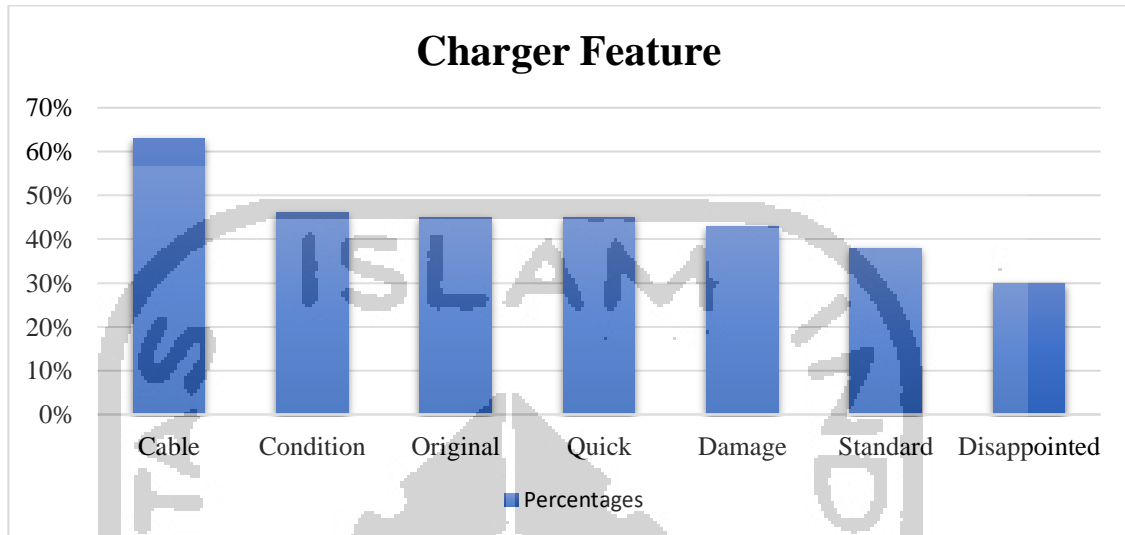|	Cable	Condition	Original	Quick	Damage	Standard	Disappointed
70%							
60%							
50%							
40%							
30%							
20%							
10%							
0%							

■ Percentages

Figure 5. 8. Charger Feature of Samsung S9 Kansei Words

This charger feature that indicated by the result of the reviews mostly talk about the phone shipment condition from amazon. Therefore, researcher decided not to put this result to the improvement guideline because it is not correlated to the phone in significant ways, besides that some of the general features of the charger have been previously reviewed on the battery feature.

Accessory Feature
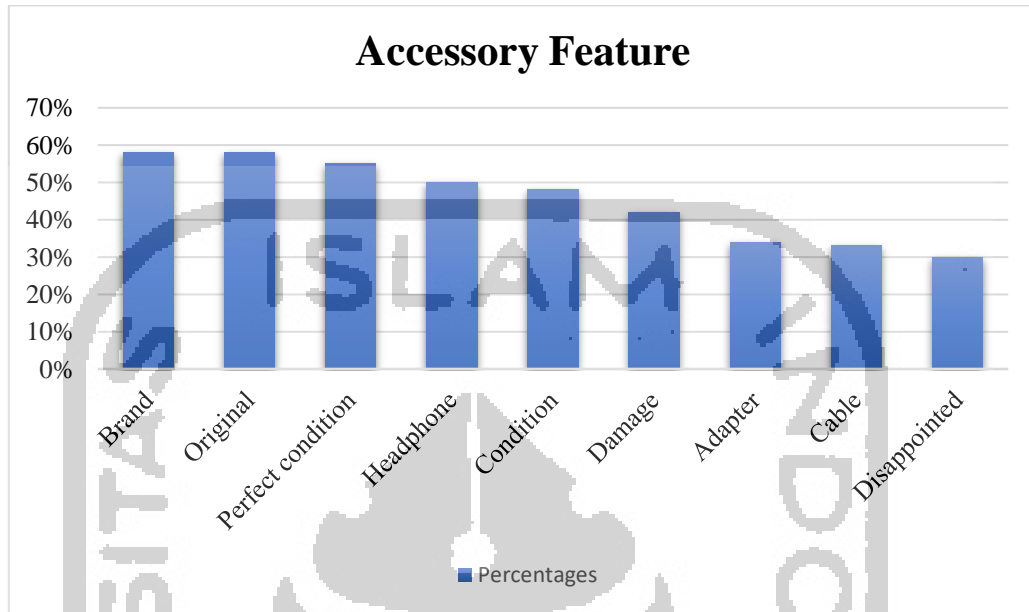
This review also indicates that the result is not correlated with the feature of the phone significantly. Therefore, researcher decides not to put this feature on the product improvement guideline lists.
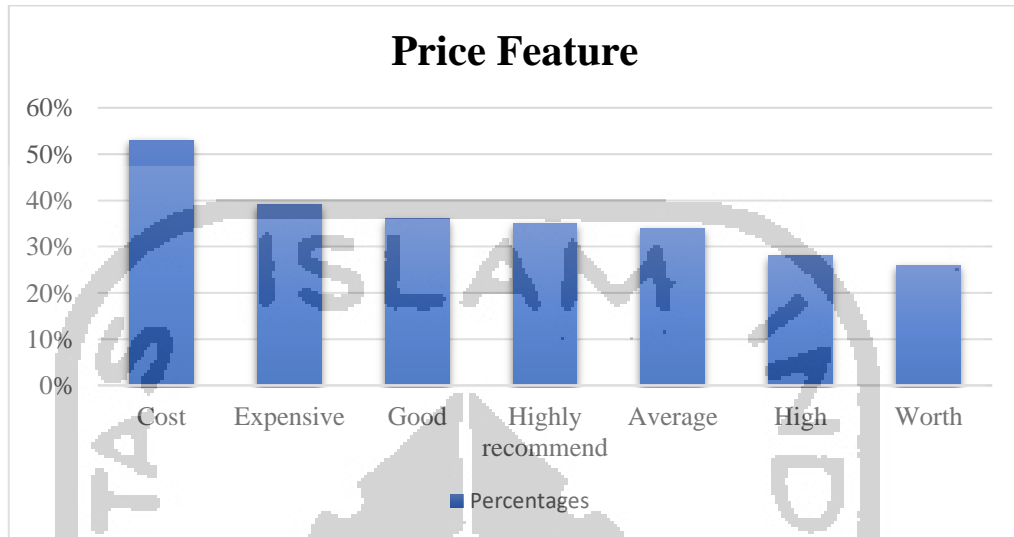
Figure 5. 9. Price feature of Samsung S9 Kansei Words

Talking about price feature is a little bit subjective because it depends on someone's budget and somewhat the availability of the money from the buyer. But, based on the reviews, it shows that some customer feels that the phone is considered as expensive, yet some result indicates a good feedback on the price feature but with lower percentage on the similarity percentage. Therefore, researcher decides to suggest the future improvement phone should be on sale with a price that is worth to buy matched with the quality of the phone and its specifications.

5.2. Other smartphone brand reviews Kansei words identification

The main ide of analysing other smartphone reviews dataset is to put this data as the available current condition of the customer's impression, that is indirectly researcher assumes as the competitor of Samsung S9 smartphone. The researcher hopes that it can give a better insight towards the product improvement guidelines based on the Kansei

words as well as some other features that might not be reviewed in the Samsung S9 review dataset identifications in these review data. As for the comparison dataset, this process undergoes the same step as the previous dataset. The Kansei words are analysed from the adjectives and some nouns that later to be considered as a sub-feature that indicates correlation for the main feature that is popping out in the main LDA process output, that later to be known as the Kansei words. The analysis result and process can be seen in charts below.
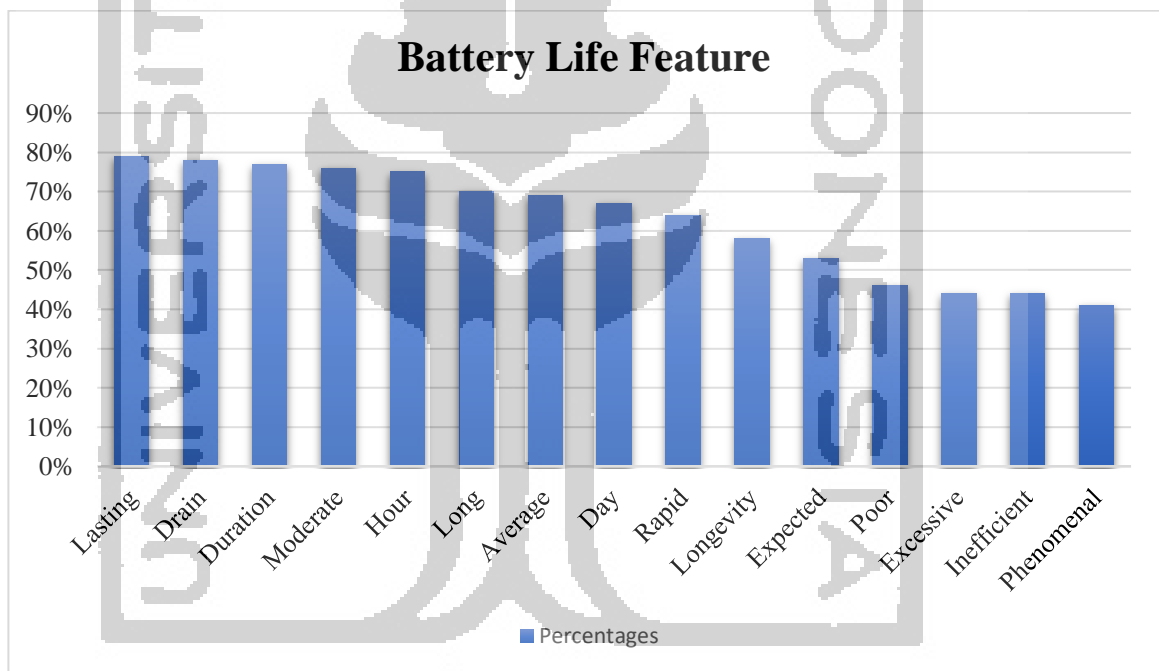

Figure 5. 10. Battery Life feature of the other smartphone Kansei words

This battery feature also becomes one of the features to be added inside the product improvement guideline of Samsung S9 smartphone, which makes researcher to directly assess the Kansei words that is co-occur with battery feature. As we know

from the table above, there is a tendency of customer impression towards the battery life duration is a bit negative as researcher assume. This allows researcher to understand about the other smartphones' battery, that there is a gap that Samsung S9 smartphone improvement can fill. By assessing the negative feedbacks from the battery feature, that correlated to the duration of the battery life, researcher can suggest that the improvement can be taken from these reviews for the battery feature, which is the battery should have long-lasting duration, and efficient usage of the battery.
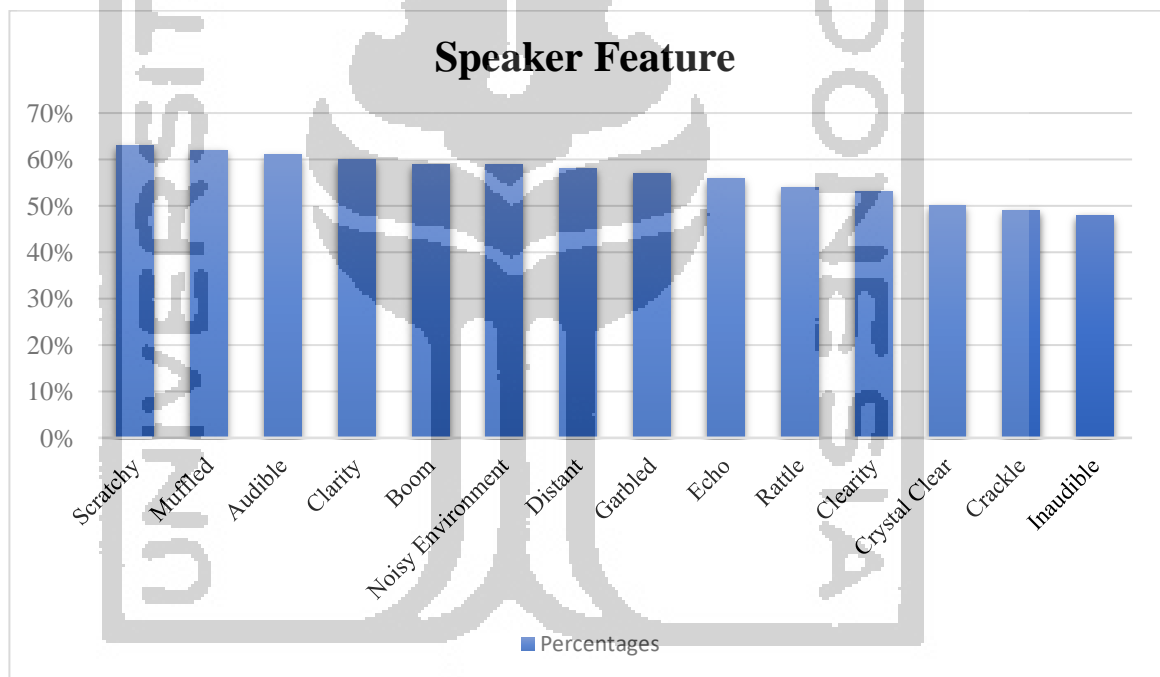

Figure 5. 11. Speaker Feature of the other smartphone brands Kansei words

Speaker feature is one of the most reviewed features in Samsung S9 dataset, but from this other smartphone brand review dataset, some specific words show up. Therefore, researcher gains more insights from these words, such as the words of noisy

environment, that in this result shows that the current impression summary from the customer indicates the current speaker specifications from the other phone is audible, and it has a good clarity indicated with the boom word. But, also some words like scratchy and muffled are emerged that indicate the other specification that should be avoided on the specifications of speaker. Other words like garbled and echo indicate customers' feeling on certain speaker from other phones that is somehow has low-quality specification. Therefore, researcher suggests putting the words, for the improvement of the speaker feature, to be not scratchy, muffling, and not garbling with a crystal-clear sound booming and audible in noisy environment.
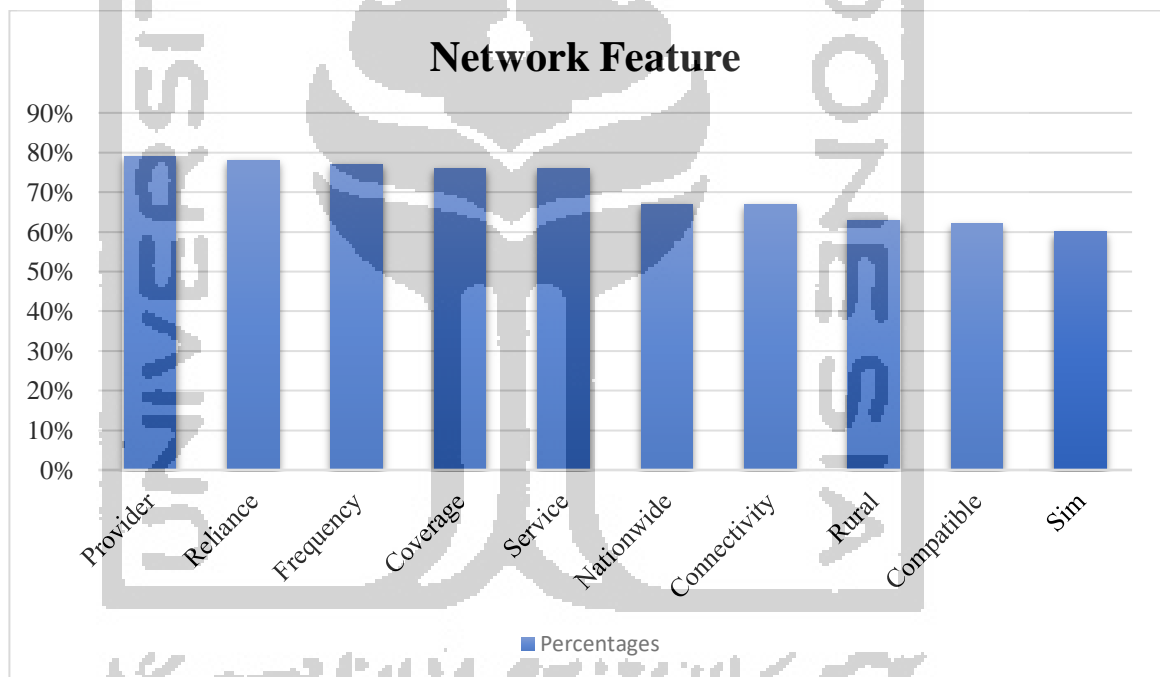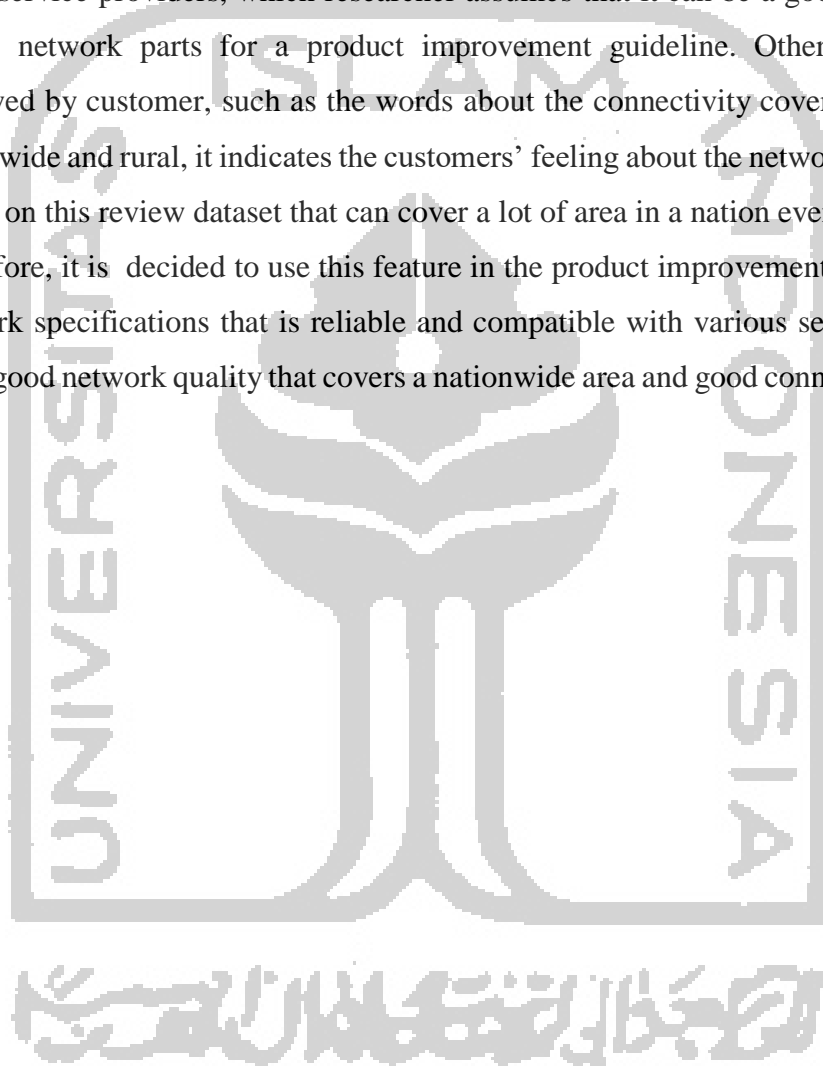

Figure 5. 12. Network Feature of the other smartphone Kansei words

The network feature that is previously ignored in Samsung S9 review dataset, now in this comparison dataset shows some good insights, such as the words of network

provider, which is assumed as the company that provides sim card for the phone and all the correlating features. In this provider case, there are some words that indicate customer's feels about the other phone on this review dataset, which is available for many service providers, which researcher assumes that it can be a good specification in the network parts for a product improvement guideline. Other specifications reviewed by customer, such as the words about the connectivity coverage, which are nationwide and rural, it indicates the customers' feeling about the networks on the other phone on this review dataset that can cover a lot of area in a nation even in rural areas. Therefore, it is decided to use this feature in the product improvement guideline with network specifications that is reliable and compatible with various service providers and a good network quality that covers a nationwide area and good connectivity in rural areas.
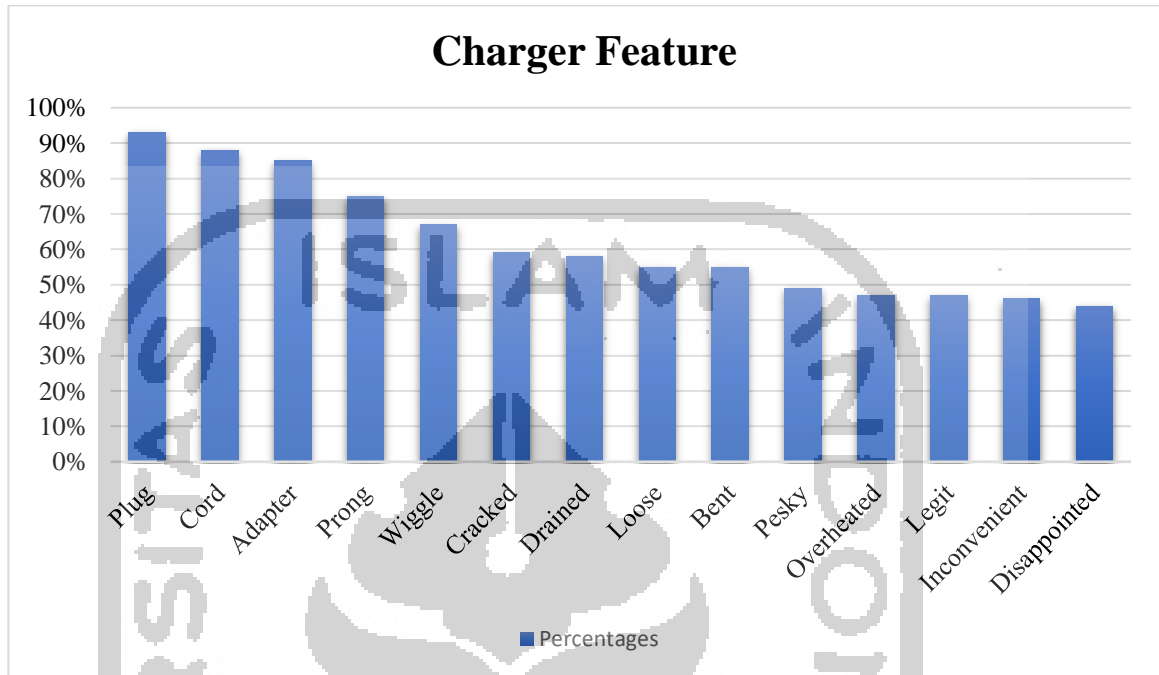
Charger Feature

Figure 5. 13. Charger feature of the other smartphone Kansei words

The charger feature which is previously ignored from the improvement guideline, due to the findings in this dataset, indicates there are some specifications of the charger which is significantly indicate the feature of the phone. Researcher assumes, it is best to complement this feature in the improvement guideline. Some insights about this charger feature are the cable, adapter and prong which show a negative feedback, since it is followed with some other words like drained, loose and bent. But a word wiggle shows up that means the charger is moveable in its use, which indicate customers' feeling about the charger from some phones in this dataset, which is moveable in charging mode and conveniently charged while in use at the same time. Other than that, some negative feedbacks also show up, that researcher assume the best charger specifications to be suggested in the Samsung S9 improvement is a good charger with reliable materials yet convenient and moveable while in use.
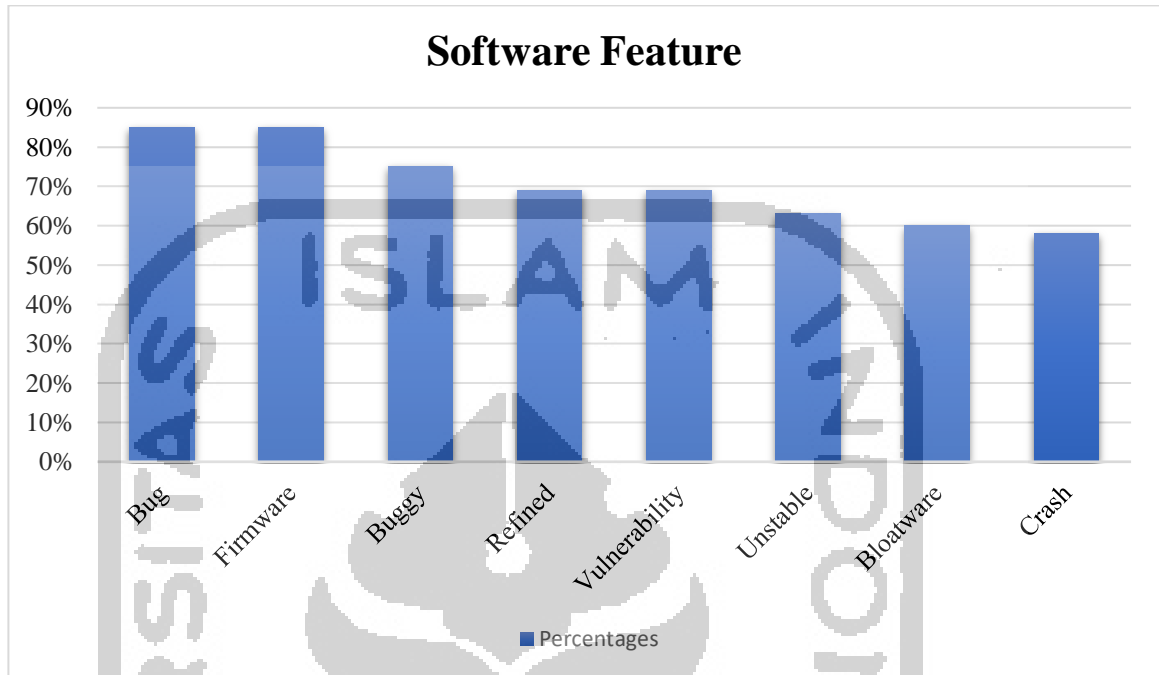
Figure 5. 14. Software feature of the other smartphone Kansei words

This software feature of the other phone brands' dataset mostly talks about the specifications of what happening that is translated in the "software language", which indirectly means as as a negative feedback. As we know, words like buggy, unstable are bad words for software's condition. However, a positive feedback that is emerged in a word of refined software, indicates an upgrade from the previous software. Therefore, researcher suggests for this feature to be added to the improvement guideline list as an additional feature which is previously excluded from Samsung S9 review dataset, with software specification to be refined from the previous model, less-bloatware (useless software which usually is the factory installed software) and less buggy and crashing firmware.
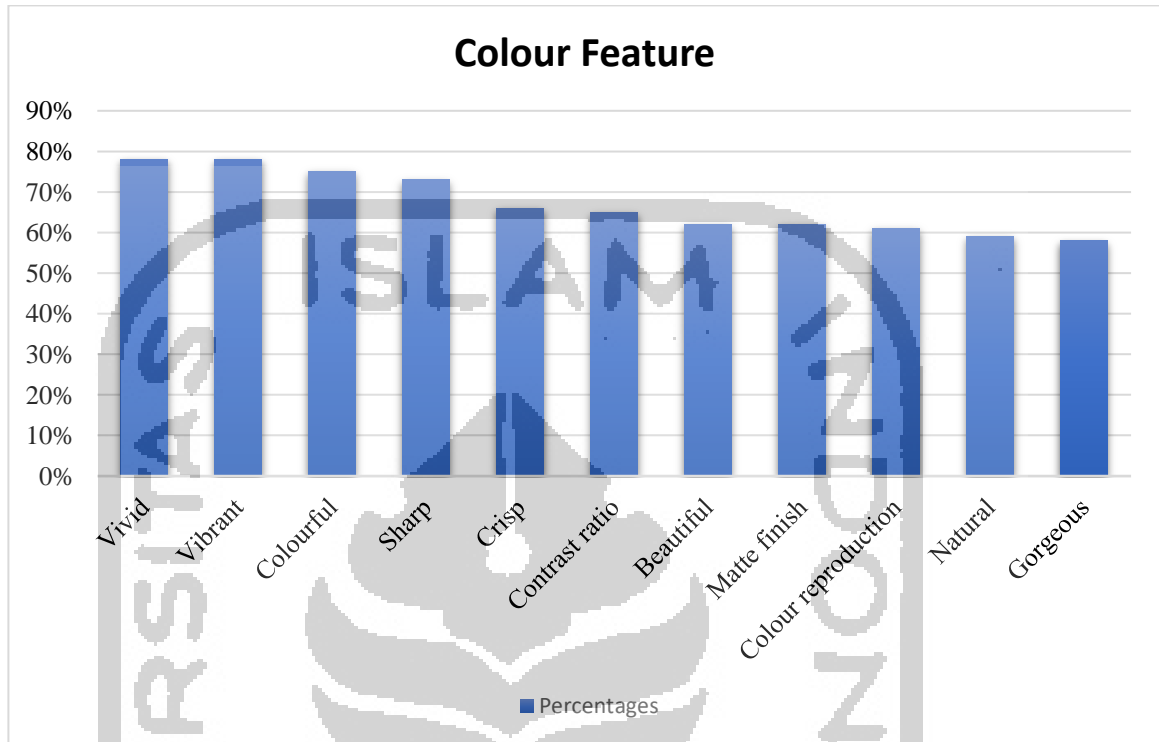
Colour Feature

Figure 5. 15. Colour of the phone feature of the other smartphone Kansei words

The compilation of words talks about the colour of the other smartphone brand reviews dataset that has a lot of positive feedbacks and some detailed specifications. In which researcher can analyse that, customers are impressed by the vivid and vibrant colour of the phone they have bought. The colour options of the phone are great with some of the words described that customers are impressed with the sharpness and crisp colour of the phone's colour that they have bought. Therefore, researcher can suggest that the colour options for the next product improvement should be equipped with vivid and vibrant colour, with a good sharpness and crisp phone colour, and natural colour options.
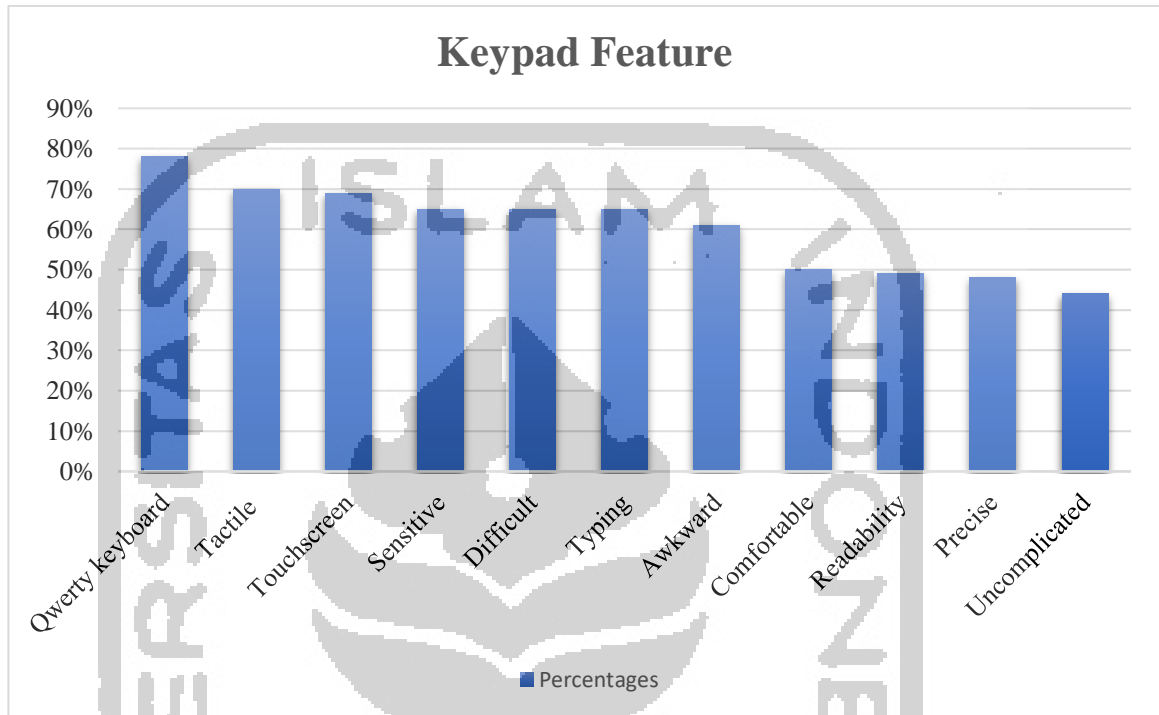
Figure 5. 16. Keypad feature of the other smartphone Kansei words

These Kansei words from keypad feature that previously excluded from Samsung S9 review dataset, are shown up here. Some insights are delivered regarding to the keypad feature of the other smartphone's brands. Some of which talking about the sensitivity response from the keypad to the user's input. Then it is followed by words like awkward. Then it provides understanding that too sensitive keypad gives user possibilities for typo. Then the awkward word might be translated that the design of the keypad can give a user an awkward typing position. Furthermore, some sub-functions of the keypad like the readability and precision that indicate the keypad design that impress the user when seeing and reading the keypad. Therefore, researcher decides to add keypad to improvement guideline list and the specifications suggestions

enlisted that the keypad feature should be well-designed, equipped with not complicated design to prevent miss-input with a good sensitivity on touch from the user.
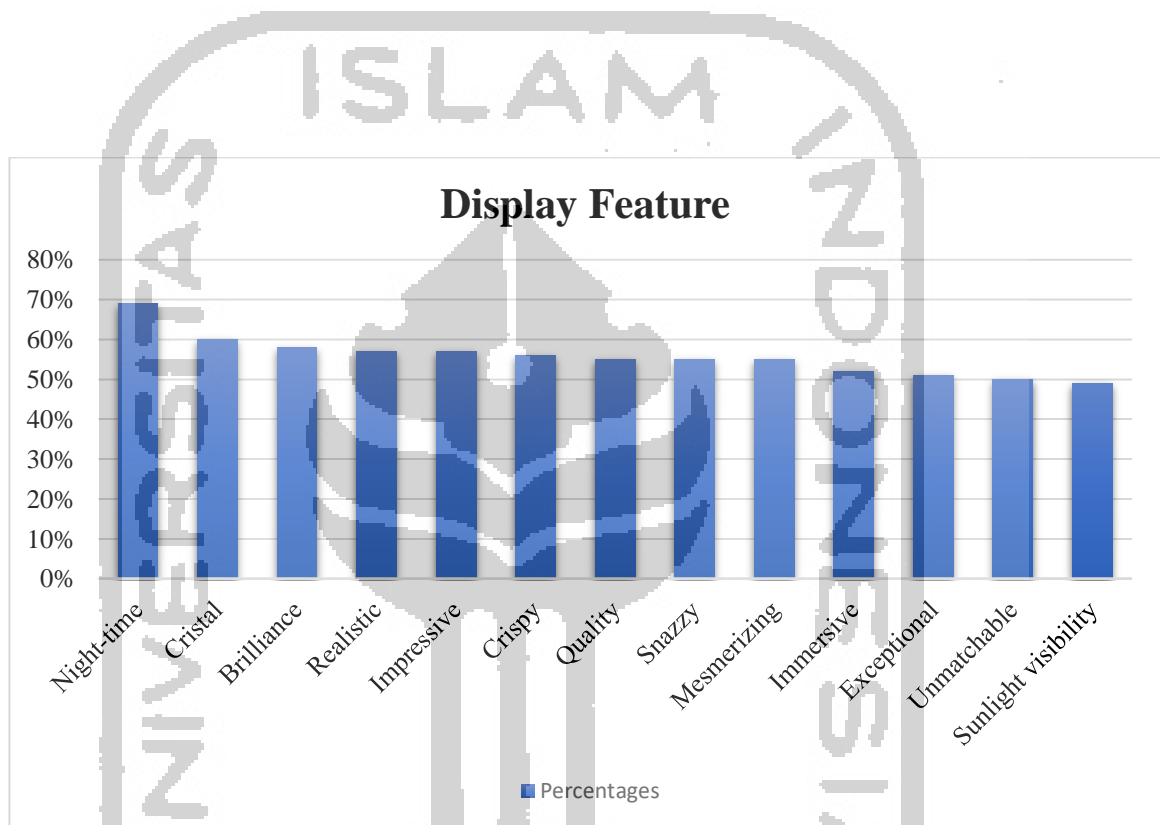
Figure 5. 17. Display feature of the other smartphone Kansei words

This display function shows some positive feedbacks from the customers. Which previously this feature is excluded from the list, but it is stated in other form as the screen. The researcher assumes that the term screen and display is almost identical feature, and it can be merged but with different sub-functions. However, the impression from the customer such as the night-time visibility from the other smartphone's brands demonstrates some positive words like crystal display, realistic, and crispy as a positive

side of display feature. Besides, a sunlight visibility sub-functions also reviewed on this dataset, and it gives a positive feedback also. Therefore, researcher suggests that the display function should have a good visibility in night-time and a good sunlight visibility, that can give a realistic view on what is displayed on the screen.
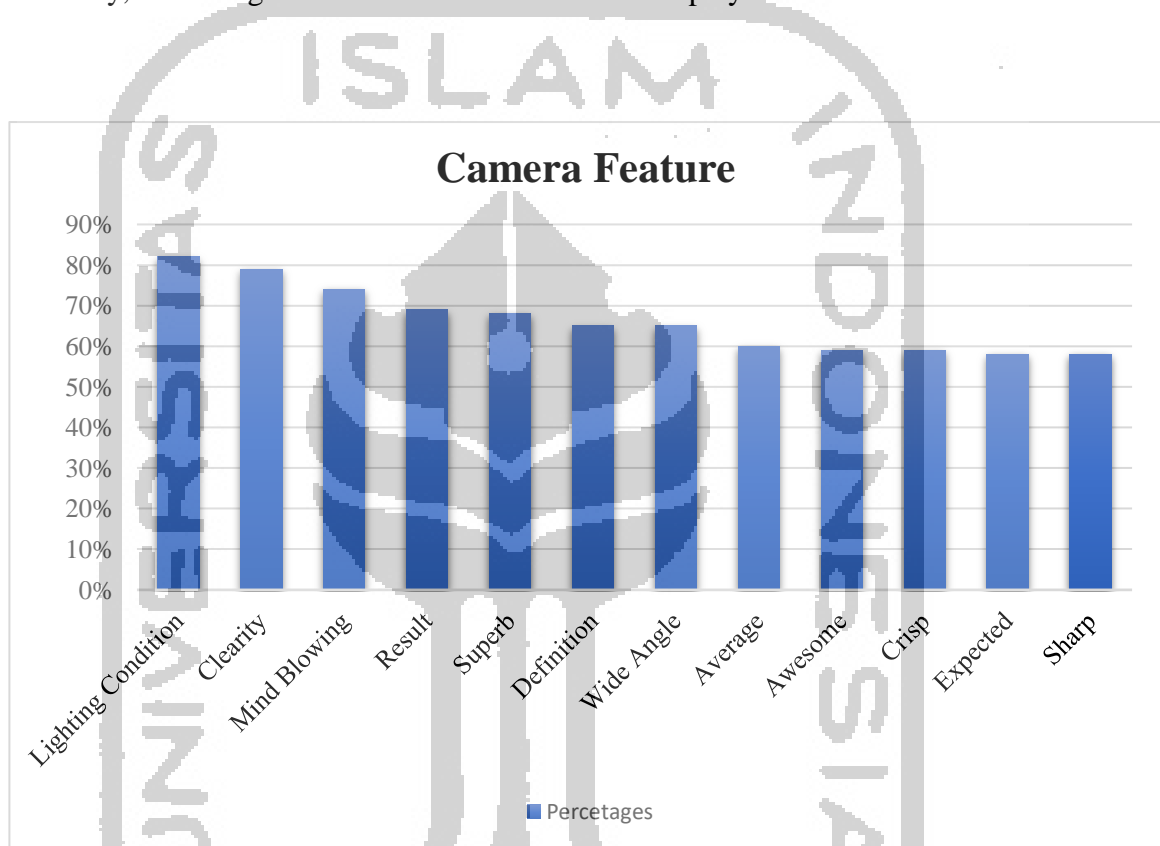
Figure 5. 18. Camera feature of the other smartphone and Kansei words

On the previous dataset, camera has also become one of the features on the list. It indicates a positive feedback on the feature. In this dataset, it also gives some insights of positive feedback on the feature. Some sub-functions like a wide-angle camera, clarity of the picture from the output of the camera, sharp camera result, crisp picture, and it is a mind-blowing quality indicate the positive feedbacks on this feature.

Therefore, researcher suggests the camera on the next improvement should be having a wide-angle covered camera, with a crisp, sharp and superb picture quality.
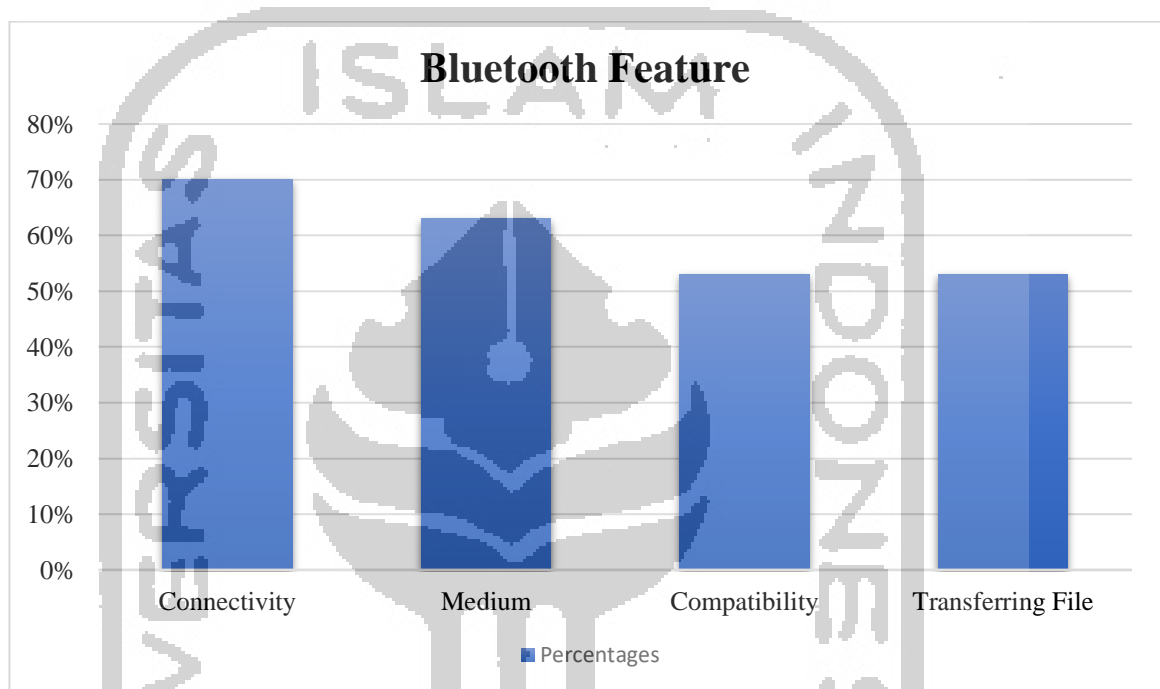
Figure 5. 19. Bluetooth feature the other smartphone and the Kansei words

The Bluetooth feature that is previously excluded from the list, later presented with minimum insight on the Kansei words. However, a word like the compatibility of the Bluetooth that assumed as the compatibility in connecting Bluetooth to various functions should be functional. The process of transferring files and connectivity that indicate a good connectivity of the Bluetooth also should be functional. But, due to the less meaningful words about whether it is positive or negative feedbacks, researcher decides to exclude this feature from the list and considers this function as neutral.
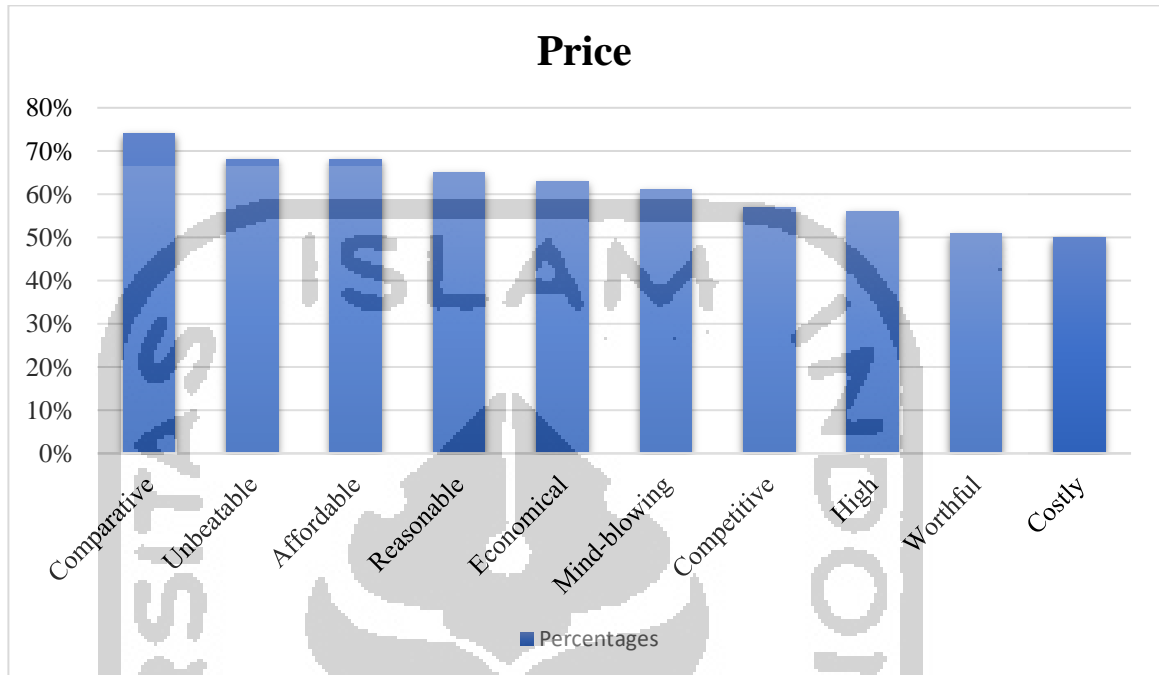
Figure 5. 20. Price feature of the other smartphone and Kansei words

The previous dataset also gives some insights about the price feature of the phone. In here, the result also gives somewhat identical insights to the previous dataset. But some words that indicate the feedbacks like word of worthful, provides assumption that it has a lot of meaning such as the phone should be in a good price and worthful towards the other overall features of the phone. But also, some words like costly price, that indicate a high cost gives a negative impression based on the researcher assumption and it should not be sold in a costly price. Therefore, researcher suggests in making the price to be more worthful and reasonable, not to be costly.

5.3. Kansei Words Matching and Comparison

This comparison analysis is designated to analyse the features that are not present in the first dataset compared with the second dataset and modifying the current feature and its Kansei words to be compared with the second dataset result about the features of the other smartphone's brand and the Kansei words. This matching and comparison result later will be used on the product improvement guideline list. The features and the Kansei words from the two datasets can be seen in Table 5.21 and 5.22 respectively.

Table 5. 1. Samsung S9 features improvement and its guidelines

No	Features	Guidelines
1	Bixby button	Remove Bixby button due to less usability
2	Battery life	Long lasting life, and fast on charge the battery
3	Picture quality	Strong pixel and resolution picture
4	Screen	Curvy screen designed, big resolution of the screen and wide-spaced screen with less debris
5	Camera	Well-placed and designed camera on the phone, with a clear picture result and fast-loading camera
6	Speaker	Clear sound from phone speaker and good quality of the calling speaker
7	Colour	Keep the colour options design with purple colour, blue colour phone and the black colour phone as a reference.

| 8 | Price | Worth to buy matched with the quality of the phone and its specifications. |

Table 5. 2. Other smartphone comparison features for improvement and its guidelines

No	Features	Guidelines
1	Battery Life	The battery should have long-lasting duration, and efficient usage of the battery from the phone.
2	Speaker	The speaker feature should be not scratchy, muffling, and not garbling with a crystal-clear sound booming and audible in noisy environment
3	Network	Reliable and compatible with various service providers and a good network quality that covers a nationwide area and good connectivity in rural areas
4	Charger	Good charger with reliable materials yet convenient and moves-able while in use.
5	Software	Refined from the previous model, less-bloatware (useless software which usually is the factory installed software) and less buggy and crashing firmware.
6	Colour	should be equipped with vivid and vibrant colour, with a good sharpness and crisp phone colour, and natural colour options.
7	Keypad	The keypad feature should be well-designed, and not complicated design to prevent miss-input with a good sensitivity on touch from the user.
8	Display	Should have a good visibility in night-time and a good sunlight visibility, that can give a realistic view on what is displayed on the screen.
9	Camera	Having a wide-angle covered capability of the camera, with a crisp, sharp and superb picture quality

10	Price	The price of the phone worthful, not to be costly and reasonable.

From the two tables above, it can be seen there are some features that are similar to one another, but with different Kansei words most of them. Researcher decides to combine these two tables, whether it is derived from the features or also the Kansei words related to the features. The comparison analysis gives a better guideline for the product improvement of Samsung S9, and enables the product to see the competitors' condition on the market from a bigger size dataset that is used as the comparison. So, this comparison analysis can cover up the not identified features from Samsung S9 review dataset, or could find the gap in the competitor's side on their smartphone product.

Some of the features that will be added to the final guideline, such as network of the phone, charger (which ignored in Samsung S9 dataset due to less-meaningful result presented), Keypad and Display. And the current features that already existed on the Samsung S9 dataset also, will be modified by adding the result of the Kansei words from the comparison dataset. It will create complete and more reliable guideline list.

5.4. Product Improvement Guidelines

This guideline will be the result from the matching and comparison analysis. Through the analysis and discussions mentioned above, the Samsung S9 product improvement guidelines for the smartphone features can be proposed and summarized in Table 5.24.

Table 5. 3. Product improvement guideline

No	Features	Guidelines
1	Bixby button	Remove Bixby button due to less usability.
2	Battery life	Long lasting life, and fast on charge the battery, and efficient usage of the battery from the phone.
3	Picture quality	Strong pixel and resolution picture.
4	Screen	Curvy screen designed, big resolution of the screen and wide-spaced screen with less debris.
5	Camera	Well-placed and designed camera on the phone, fast-loading camera, having a wide-angle covered capability of the camera, with a crisp, sharp and superb picture quality.
6	Speaker	Clear sound from phone speaker, good quality of the calling speaker, and should be not scratchy, muffling, not garbling with a crystal-clear sound booming and audible in noisy environment.
7	Colour	Should be equipped with vivid and vibrant colour options, with a good sharpness and crisp phone colour, and natural colour options.
8	Price	The price of the phone worthful, not to be costly and reasonable.
9	Network	Reliable and compatible with various service providers and a good network quality that covers a nationwide area and good connectivity in rural areas.
10	Charger	Good charger with reliable materials yet convenient and moves-able while in use.
11	Software	Refined from the previous model, less-bloatware (useless software which usually is the factory installed software) and less buggy and crashing firmware.

12	Keypad	The keypad feature should be well-designed, and not complicated design to prevent miss-input with a good sensitivity on touch from the user.
12	Display	Should have a good visibility in night-time and a good sunlight visibility, that can give a realistic view on what is displayed on the screen.