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KANSEI ENGINEERING METHOD SURVEY PAPER IN DESIGNING AND IMPLEMENTING MARKET NEEDS

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Abstract
The appearance and design of the application was originally developed on the basis of its function and usability, as the development of the appearance of an application began to involve many aspects, including from the side of the user's feelings. In the journal survey, this paper discusses the journals that underlie the research using the Kansei Engineering method. Kansei Engineering itself is a design method that uses user feelings in making product designs. The method used in the research is literature study, where the existing data becomes information that is easy to understand and useful. The process of finding sources that are used as literature studies by browsing scientific books or articles from websites such as google scholar to get a journal index indexed by google scientists and the google.com search engine to get journal sources that are sometimes not indexed by google scholar Determination of an adequate number of respondents, complete analysis stages, recommendation metrics supported by the display of appropriate prototypes and specimens will produce optimal research results. Based on the results of the study, it can be concluded that 1. All surveyed papers have similarities in the results of the research in the form of a recommendation matrix that can be applied in making website-based applications and the method used is Kansei Engineering Type I. In terms of analyzing the results of the questionnaire, there are 2 journals that use multivariate analysis with the stages of Coefficient Correlation Analysis (CCA), Principal Component Analysis (PCA), Factor Analysis (FA), and Partial Least Square (PLS). While the other 3 each use different stages. Based on the results of the survey on each paper, it can be concluded that each paper has its own advantages and disadvantages, so that no one is included in the ideal category, such as the number of respondents involved in the study, the number of which is significant with a complete analysis stage. It is also important to display the prototype design to ensure the research results are as expected. For specimens can be adjusted to the needs.

Introduction

In the era of technology, anyone must understand, master or at least know technology, because nowadays all human activities are related to technology (Burzagli, Emiliani, Antona, & Stephanidis, 2021). Starting from the economic, social and educational sectors, currently everything is closely related to information systems

(Gojayeva, Huseynova, Babayeva, Sadigova, & Azizova, 2021) and information technology to support everything from technical to strategic matters, in order to achieve the goals that have been made (Tohara, 2021). In building information systems/information technology (Pakusadewa, Suryani, Ambarwati, & Bintang, 2021), there is one thing that must be considered, namely satisfaction. Therefore, an acceptable IS/IT is not only one that is good from the manufacturer's point of view and has the latest technology (Settembre-Blundo, González-Sánchez, Medina-Salgado, & García-Muiña, 2021), but also a product that has an emotional and psychological attachment to its users (Chen, Chen, Mu, & Yu, 2021). User needs must be understood which is then translated into a better technical aspect (Ali & Anwar, 2021). In its application, there is a known method, namely Kansei Engineering (Yudhi Raymond Ramadhan, Nugroho, & Anwar, 2022). Kansei Engineering or in Japanese Kansei Kougaku which means affective/emotional engineering, which can be interpreted as sensitivity related to what people think, so Kansei Engineering (KE) is a method that combines Kansei into Engineering (Coronado, Venture, & Yamanobe, 2021). Kansei Engineering will use customer needs or customer-oriented factors as the basis for designing or developing a product (Sembiring, Febrilliandika, Oktaviani, Siregar, & Azmi, 2021). In the process, an analysis of the wants and needs of customers or users will be carried out. Customers in choosing a product not only base their choice on logical reasons, such as the function of the product (Seo & Song, 2021), but also judge based on emotional factors and feelings, emotions and feelings of customers are important factors in determining the product to be chosen by him. The emotional factors, feelings, desires, and hidden desires of a person are referred to as affective factors. Kansei Engineering will focus on affective factors in a product in developing a product. The application of Kansei Engineering that is carried out correctly will produce a product that is not only efficient, but also has aesthetic value that can spoil the emotions of its customers.

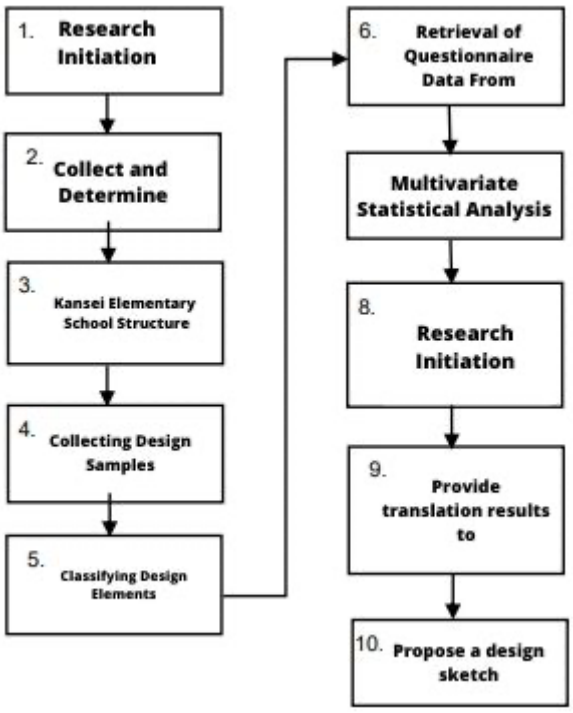
Research Method

The method used in the research is literature study, where the existing data becomes information that is easy to understand and useful. The process of finding sources that are used as literature studies is to browse books or scientific articles from websites such as google.scholar to get journal sources indexed by Google Scholar and the search engine Google.com to get journal sources that are sometimes not indexed by Google Scholar.

Searching sources on the internet uses the main keyword Kansei Engineering which is the method in the research that will be made, as well as other keywords such as website, interface design, and the HCI method which is also used in the application of the Kansei method.

The selected source must apply Kansei correctly, starting with determining one of the 8 Kansei models (Mohd Lokman, 2010), then determining the specimen and Kansei Word, taking data from respondents such as questionnaires and then analyzing it using multivariate statistics, the last step is translating the results of the analysis into the application of making systems or products, the final results will produce recommendations for the form of systems or products made based on Kansei Word or according to the dominant emotions of the respondents from the results of the analysis.

The Kansei Engineering method used for these four research journals is using the Kansei Engineering type I model, namely KEPack, with stages.



Picture 1. Stages of Kansei Engineering Type I.

Result and Discussion

After searching for books or scientific articles through website searches using google schoolar using the keyword "Kansei Engineering interface e learning" 343 results were obtained. Then from the 343 results selected Indonesian-language papers published since 2016, so finally 5 papers were selected. The 5 papers used as the object of the survey are as listed in the Study Characteristics table below.

Based on the condition of the masonry community who felt a significant impact on the implementation of PPKM, we conclude that the community is in a dilemma. The dilemma position referred to here is that when the community adheres to the PPKM policy, the community will experience economic devastation and even go to the stage of starvation. When people leave the public and do not comply with PPKM rules, the community will get two impacts: a high risk of exposure to Covid-19 and strict sanctions from the government.

Table 1. Study Characteristics.

No.	Name of Researcher / Origin of Institution	Research Type and Year	Research Title	Scope
1	(Afriq Yasin Ramadhan, Santosa, & Ferdiana, 2018) Informatics	Journal of 2019	Kansei Engineering Implementation in E-learning Applications for	• Using Kansei Engineering in analyzing the factors needed in designing the display design of the E-learning application

	Engineering, Faculty of Computer Science, Pasim . National University		Vocational High Schools	• Analyze design elements for the appearance of E-learning applications • Create a matrix of design element recommendations in the E-learning application display resulting from analysis using Kansei Engineering
2	Martanto, M. Kom. , Dr. Eng. Ana Hadiana	Journal of 2018	User Experience Analysis for Indigos User Interface Design Using the Kansei Engineering Method	• Analyze interface design related to user feelings • Analysis focuses on user experience • Creation of a user interface design matrix in accordance with the wishes of the user
3	Freedy Wicaksono Information Systems, Indonesian Computer University, Bandung	Journal of 2016	Application of Kansei Engineering in Web-Based E-Learning Interface Design (Case Study: STMIK CIC Cirebon	• Analyzing the interface design of the E-Learning website based on the feelings or emotions of students as users • The results of the analysis are in the form of a website display recommendation matrix and an E-Learning prototype that can be applied to the STIMIK CIC E-Learning application.
4	Indra Griha Tofik Isan, Indra Satriadi Information Management, Sriwijaya State Polytechnic	Journal of 2019	*Kansei Engineering in Designing Web-Based e-Commerce User Interface for MSME Products*	• Analyze based on multivariate analysis, ie Complexity consists of formal, natural and simple emotion factors; and Uniqueness consists of Comfortable, Soft and Unique which is poured into the recommendation matrix for the e-Commerce MSME Product user interface • Designing recommendations for e-Commerce user interfaces for MSME products, which use user psychological factors which are translated into user interface recommendations.
5	Afriq Yasin Ramadhan, Paulus Insap Santosa, Ridi Ferdiana Department of Electrical Engineering and	Journal of 2018	Analysis of Affective Responses to B2C M-Commerce User Interfaces Based on Gender and Study Background Using Kansei Engineering	• Kansei measurements • Gender-based analysis • Study background-based analysis • Multivariate analysis using PCA

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The discussion is carried out by surveying written works based on 3 categories, namely the research subjects discussed, research results, and problems that can be solved by the research. Furthermore, the 4 papers are compared to find out the differences and similarities as well as the advantages and disadvantages.

A. The journal "Implementation of Kansei Engineering in E-learning Applications for Vocational High Schools" was written by Yoga Megasyah.

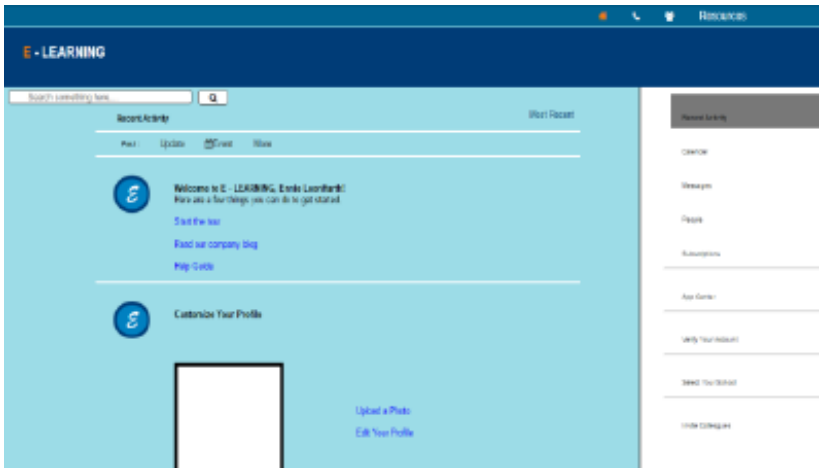
1. Research Subject

In this study, the subjects of the discussion were students of SMK PGRI 3 Cimahi and students of SMK 4 Padalarang. These students in the teaching and learning process use e-learning applications that are carried out online using the internet or offline using a projector. The study involved 8 e-learning specimens.

2. Research Results

In this journal, the author reveals the results of his research conducted on students of SMK PGRI 3 Cimahi and SMK 4 Padalarang regarding the use of e-learning applications with a total of 80 participants. This research resulted in 3 recommendations for the design of the e-learning application display, namely:

The design concept is sourced from all respondents who have the concept of emotion that has the strongest influence on it, which is "Dynamic".



Picture 2. Dynamic Design Concept.

The design concept is sourced from the respondents of SMK PGRI 3 Cimahi. The concept of emotion that has the strongest influence is "Innovative / Creative"

The design concept is sourced from respondents at SMK Negeri 4 Padalarang. The concept of emotion that has the strongest influence is "Fun".

Problems that can be solved

The problems that can be solved in this research are:

a. Knowing the factors needed in designing the display design of E-learning applications with the Kansei Engineering approach
b. K nowledge of design elements for the appearance of E-learning applications

c. Recommendations for the use of E-learning application display design elements generated through the Kansei Engineering approach that are in accordance with the wishes of students.

Journal of "User Experience Analysis for Indigos User Interface Design Using the Kansei Engineering Method" written by (Martanto & Hadiana, 2018).

Participants selected to fill out the questionnaire in this study were students of STMIK IKMI Cirebon majoring in Information Management (MI) and Computerized Accounting (KA) with an average age between 19-23 with details of 67 men, 96 women with a total 163 participants

1. Research Results

This research resulted in three Indigoes user interface design products which include Indigoes user interface design for all participants, Indigoes user interface design for student participants and Indigoes user interface design for female students.

The results of the analysis of this research is to produce the concept of emotion that has a strong influence on the alternative design of the Indigoes user interface. The concept of emotion that affects all participants is "Natural", while the concept of emotion that affects student participants is "Colorfull" and the concept of emotion that affects female participants is "Bright".

Group	Emotion Concept
All Participants	Nature
All Student Participant (Male)	Colorfull
All Student Participant (Female)	Bright

Picture 3. Concept of Emotion from Pca and FA Analysis.

Indigoes user interface design products are generated from the concept of emotion which has a variable value above the range value of each category for recommendations for making Indigoes user interface designs. Design products for all participants produce the concept of "Natural" emotions, while design products for student participants produce the emotional concepts of "Colorfull" and product designs for female participants produce the emotional concept of "Bright".

Picture 4. Prototype of Natural Concept Research Results.

Picture 5. Prototype of research results Bright Concept.

3. Problems that can be solved
Design elements in the research can be added in more detail so as to produce even better element metrics as recommendations for Indigoes user interface design concepts

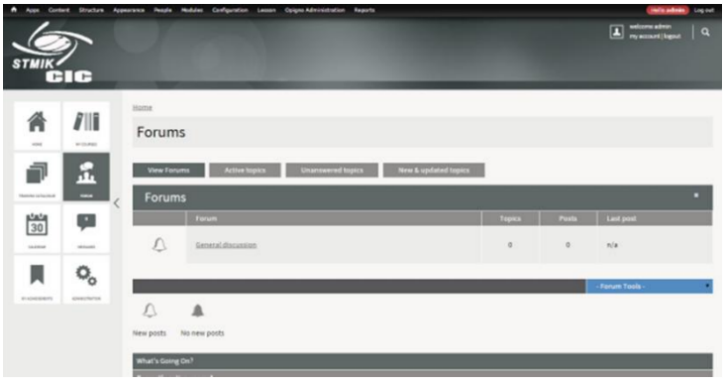
C. Journal of "Implementation of Kansei Engineering in Web-Based E-Learning Interface Design (Case Study: STMIK CIC Cirebon") written by Freedy Wicaksono

1. Research Subject
The subjects of this study were students of STMIK CIC Cirebon, amounting to 200 people as participants to determine the desired design elements. Compilation of a questionnaire based on 20 Kansei Words and 20 specimens of open source e-Learning software which was then selected 5 specimens based on needs analysis
2. Research Results
This study produces a matrix of recommendations for e-Learning display design and a prototype website display design based on psychological factors and two concepts of user emotions, namely modernity and cheerfulness.

No	Design Concept	Emotion	Background Color	Body		Header		
				Font Size	Font Type	Color	Logo	Image
1	MODERNITY	Mewah	Gray	10px	Arial	Green	N/S	Yes
		Serasi	Gray	10px	Arial	Green	N/S	Yes
		Indah	Gray	10px	Arial	Green	N/S	Yes
		Lembut	Gray	10px	Arial	Green	N/S	Yes
		Bergairah	Gray	10px	Arial	Gray	N/S	Yes
		Dinamis	Gray	10px	Arial	Gray	N/S	Yes
		Nyaman	Gray	10px	Arial	Gray	N/S	Yes
		Futuristik	Gray	10px	Arial	Gray	N/S	Yes
2	CHEERFULNESS	Unik	Gray	10px	Calibri	Green	N/S	N/S
		Colorful	Gray	10px	Calibri	Green	N/S	N/S

Picture 6. Modernity and Cheerfulness Design Elements.

The two emotion concepts are “Modernity” which consists of the emotional elements “Luxury”, “Sober”, “Beautiful”, “Soft”, “Passionate”, “Dynamic”, “Comfortable” and “Futuristic” and “Cheerfulness” which consists of of “Colorful” and “Unique” emotion elements. The following is a prototype display of the e-Learning website which was made based on the results of emotional factor analysis.



Picture 7. Interface Design Prototype.

3. Problems that can be solved

Analyzing the need for a website-based e-Learning application to support the learning process at STMIK CIC Cirebon. Apply Kansei analysis to select one of the appropriate open source e-learning applications. Make recommendations for Kansei based design element metrics.

D. Journal of "Kansei Engineering in Designing Web-Based e-Commerce User Interfaces for MSME Products" written by (Isa & Satriadi, 2019)

1. Research Subject

This study involved 40 participants, 20 Kansei Words and 10 e-commerce specimens for MSME products. The connection in this research is how to translate the psychological factors of e-commerce users of MSME products into user interface designs.

2. Research Results

After going through the stages, the results of the recommendations for the e-Commerce user interface for MSME products are obtained, as follows:

No	Konsep	Faktor *Emotion*	Body				Menu Utama	...
			Background Style	Background Color	Font Style	Font Color	Background Style	
1	Kompleksitas	Formal	Solid	Gray	Sans	Dark	Gradation	...
		Alami	Solid	Green	S.Seriff	Brown	Solid	...
		Sederhana	Solid	White	S.Seriff	Black	Solid	...
2	Keunikan	Nyaman	Solid	Pinkish	Sans	Cyan	Picture	...
		Lembut	Picture	Pinkish	Sans	Black	Solid	...
		Unik	Solid	Pinkish	Fantasy	Brown	Gradation	...

Picture 8. Matrix of MSME e-Commerce User Interface Recommendations.

3. Problems that can be solved

Two main concepts were obtained based on multivariate analysis, namely Complexity consisting of formal, natural and simple emotion factors; and Uniqueness consists of Comfortable, Soft and Unique which is poured into the recommendation matrix for the e-Commerce MSME product user interface which consists of 8 main parts, namely body, main menu, header, top menu, left menu, right menu, footer and sound and divided into 65 design elements,

E. Journal of "Analysis of Affective Responses to B2C M-Commerce User Interfaces Based on Gender and Study Background Using Kansei Engineering" written by Afriq Yasin Ramadhan, Paulus Insap Santosa, Ridi Ferdiana.

1. Research Subject

In this study involved 65 participants with an age range of 22-27 years consisting of 39 women and 26 men. As for the study background of Mathematics Education 18 people, Informatics Engineering 32 people, and Psychology as many as 15 people. The specimens used were 5 specimens, namely:

- Lazada
- Matahari Mall
- Shopee
- Open
- Tokopedia

2. Research Results

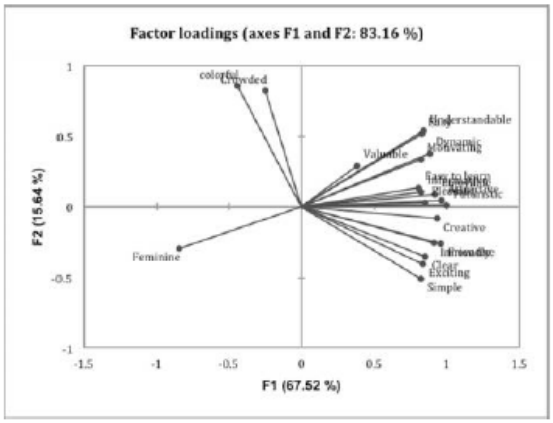
In this research take 2 analytical approaches, namely:

a. Analysis Based on Male Gender

Based on the results of the Principal Component and the results of the PC loading, the male group shows the recommended Kansei structure in the m-commerce user interface is 2 components, namely attractiveness and modernity. The following table shows the principal components and their PC loading:

	F1	F2	F3	F4
Eigenvalue	13.50	3.13	1.89	1.48
Variability (%)	67.53	15.64	9.44	7.40
Commulative %	67.53	83.16	92.60	100.00

Picture 9. Male PCA Results.



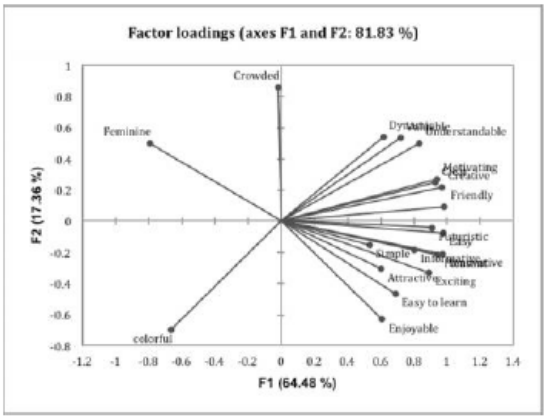
Picture 10. Male PC Loading Results.

b. Analysis Based on Female Gender

Based on the table of Principal Components and PC loading below, for the female group, the recommended Kansei structure in the m-commerce user interface is 2 components, namely cheerfulness and modernity.

	F1	F2	F3	F4
Eigenvalue	12.89	3.47	2.70	1.04
Variability (%)	64.47	17.36	12.98	5.19
Commulative %	64.47	81.83	94.81	100.00

Picture 11. Female PC Results.



Picture 12. Female PC Loading Results.

The following can be seen the results of the analysis recapitulation by gender below:

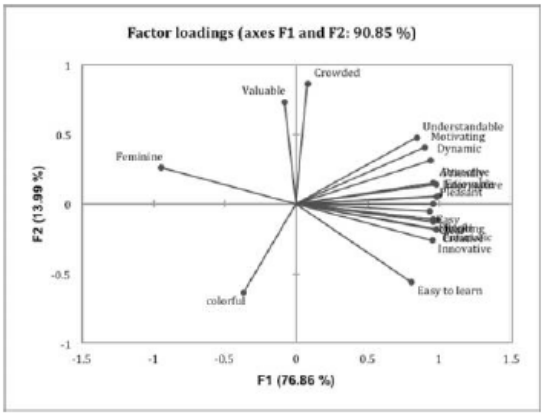
Group		1st axis	2nd axis
Jenis Kelamin	Laki-laki	*Attractiveness*	*Modernity*
	Perempuan	*Cheerfulness*	*Modernity*

Picture 13. Recapitulation of Analysis by Gender.

c. Analysis Based on Informatics Engineering Study Background

	F1	F2	F3	F4
Eigenvalue	15.38	2.91	1.22	0.49
Variability (%)	76.91	14.56	6.09	2.44
Commulative %	76.91	91.47	97.56	100.00

Picture 14. Principal Component Results of Informatics Engineering.



Picture 15. Results of PC Loading Informatics Engineering.

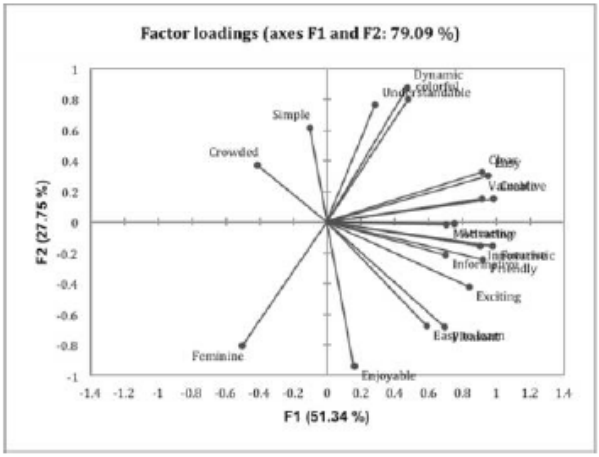
If you look at the Principal Component table and PC Loading results, it is recommended that the results of the Informatics Engineering group have 2 components, namely cheerfulness and modernity for the Kansei structure of m-commerce user interface designers.

d. Analysis Based on Mathematical Study Background

The results of the mathematics group show that the recommended Kansei structure in the UI m-commerce planning consists of two components, namely attractiveness and modernity. The results can be seen in the table and figure below:

	F1	F2	F3	F4
Eigenvalue	10.27	5.55	2.81	1.37
Variability (%)	51.34	27.75	14.96	6.85
Commulative %	51.34	79.09	93.15	100.00

Picture 16. Mathematics Education PC Results.



Picture 17. Results of PC Loading Mathematics Education.

e. Analysis Based on Psychological Study Background

In the Kansei structural psychology group in planning UI m-commerce, attractiveness and Cheerfulness components are recommended. The results of the analysis can be seen below:

	F1	F2	F3	F4
Eigenvalue	7.34	6.80	4.38	1.48
Variability (%)	36.70	34.02	21.89	7.39
Commulative %	36.70	70.72	92.61	100.00

Picture 18. Psychological PC Results.

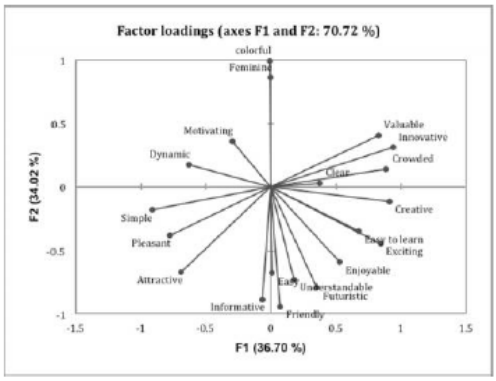


Figure 19. Results of PC Loading Psychology.

The results of the analysis recapitulation based on the background of the study are as follows:

Group		*1st axis*	*2nd axis*
Latar Bela-kang Studi	T. Informatika	*Cheerfulness*	*Modernity*
	P. Matematika	*Attractiveness*	*Modernity*
	Psikologi	*Attractiveness*	*Cheerfulness*

Figure 20. Recapitulation of Analysis Based on Studies.

As written in the table above, on the first axis there are 2 groups who recommend the same concept in designing affective applications in m-commerce except for the informatics engineering group. While on the second axis, there are also 2 groups who suggest the same concept except for the psychology group.

3. Problems that can be solved

From the research that has been done, it turns out that in the design of m-commerce, it is not only how advanced it is, how easy it is to use m-commerce or the convenience of using it, but also how psychologically m-commerce attracts people to use it. Because basically from the results of research conducted, gender differences, age differences and educational background differences also affect everyone's psychology.

f. Differences and Similarities with Other Research Results

1. Difference

The differences that exist in the 5 journals discussed are:

a. Number of different specimens and respondents

b. The process of multivariate analysis carried out was different. Fredy and Afriq used the PCA and FA stages, Indra used the PCA, FA, PLS, and CA stages, and Martanto and Yoga used the CCA, PCA, FA, and PLS stages.

c. The results made by Fredy, Indra, and Yoga include a prototype design or website display if you apply recommendation metrics, while the results of Martanto and Afriq only include a recommendation matrix of design elements without providing a prototype of the website appearance.

2. Equation

The equations in the 5 journals discussed are:

a. Using the Kansei Engineering type I . method

b. The results of the research in the form of a recommendation matrix that can be applied in making website-based applications

c. The journal created by Martanto and Yoga has similarities in analyzing the results of the questionnaire with Multivariate statistical analysis with the stages of Coefficient Correlation Analysis (CCA), Principal Component Analysis (PCA), Factor Analysis (FA), and Partial Least Square (PLS).

g. Strengths and Weaknesses with Other Research Results

1. Advantages

a. Fredy Research

- Using 200 respondents to determine the desired design elements, so that the results of the questionnaire will be able to represent the majority of students' personalities
- Using specific specimens by preparing 20 specimens of the open source e-Learning software which was then selected 5 specimens based on needs analysis
- The results of the study provide a prototype of the appearance of the website that can be applied by the place that is the object of research

b. Indra's Research

- The analysis result is stronger because it uses 4 stages of multivariate analysis, namely Principal Component Analysis (PCA), Factor Analysis (FA), Partial Least Square (PLS), and Cluster Analysis (CA).
- The research description is written clearly and easily understood

c. Martanto's Research

- The results of the study provide a prototype of the appearance of the website that can be applied by the place that is the object of research
- The analysis result is stronger because it uses 4 stages of multivariate analysis, namely Principal Component Analysis (PCA), Factor Analysis (FA), Partial Least Square (PLS), and Coefficient Correlation Analysis (CCA).

d. Yoga Research

- The results of the study provide a prototype of the appearance of the website that can be applied by the place that is the object of research
- The analysis result is stronger because it uses 4 stages of multivariate analysis, namely Principal Component Analysis (PCA), Factor Analysis (FA), Partial Least Square (PLS), and Coefficient Correlation Analysis (CCA).
- Generate 3 recommended metrics for website display based on the type of respondent, that is, out of all respondents, the concept of emotion that has the strongest influence is “Dynamic”. The design concept is sourced from the respondents of SMK PGRI 3 Cimahi. The concept of emotion that has the strongest influence is “Innovative/Creative”. And the design concept sourced from the respondents of SMK Negeri 4 Padalarang has the concept of emotion that has the strongest influence on it is "Fun"

e. African Research

- The multivariate analysis process is explained in detail using diagrams

2. Weaknesses

a. Fredy Research

• The process of analyzing respondent data only uses 2 stages of multivariate analysis, namely Component Analysis (PCA) and Factor Analysis (FA).

b. Indra's Research

• The research results are only in the form of a matrix table of design element recommendations that can be used by the research object without making a prototype implementation design of the matrix

• The number of participants is small if the object under study has a large to international scale, with the collection of 40 questionnaire subjects it is felt that they do not represent the target MSME users for both domestic and foreign markets.
3. Research Martanto
• Research uses 30 to 50 respondents which is considered less when compared to using the system at the research object
• The design elements used in the research are less detailed
• The research results are only a recommendation matrix without making an interface design prototype
• Few stages of multivariate analysis
4. Yoga Research
• Research only uses 15 Kansei Words, where in a similar study it has at least 20 Kansei Words
5. Afriq Research
• The research results are only a recommendation matrix without making an interface design prototype
• Participants' backgrounds are not diverse, so the data obtained is less accurate
• Few stages of multivariate analysis.

Conclusion

Based on the results of the study, it can be concluded that all surveyed papers have similarities in the results of the research in the form of a recommendation matrix that can be applied in making website-based applications and the method used is Kansei Engineering Type I, in terms of analyzing the results of the questionnaire, there are 2 journals that use multivariate analysis with the stages of Coefficient Correlation Analysis (CCA), Principal Component Analysis (PCA), Factor Analysis (FA), and Partial Least Square (PLS). While the other 3 each use different stages and based on the results of the survey on each paper, it can be concluded that each paper has its own advantages and disadvantages, so that no one is included in the ideal category, such as the number of respondents involved in the study, the number of which is significant with a complete analysis stage. It is also important to display the prototype design to ensure the research results are as expected. For specimens can be adjusted to the needs.

References

Ali, Bayad Jamal, & Anwar, Govand. (2021). The Effect of Marketing Culture Aspects of Healthcare Care on Marketing Creativity. *Ali, BJ, & Anwar, G.(2021). The Effect of Marketing Culture Aspects of Healthcare Care on Marketing Creativity. International Journal of English Literature and Social Sciences*, *6*(2), 171–182.

Burzagli, Laura, Emiliani, Pier Luigi, Antona, Margherita, & Stephanidis, Constantine. (2021). Intelligent environments for all: a path towards technology-enhanced human well-being. *Universal Access in the Information Society*, 1–20.

Chen, Ching Fu, Chen, Yi Xuan, Mu, Po Jen, & Yu, Yu Huan. (2021). Beyond adoption of shared bike: A case study on antecedents and consequences of brand attachment in Taiwan. *Research in Transportation Business & Management*, *40*, 100574.

Coronado, Enrique, Venture, Gentiane, & Yamanobe, Natsuki. (2021). Applying kansei/affective engineering methodologies in the design of social and service robots: A systematic review. *International Journal of Social Robotics*, *13*(5), 1161–1171.

Gojayeva, Elmira, Huseynova, Shahla, Babayeva, Saida, Sadigova, Ulker, & Azizova, Reyhan. (2021). Information Platforms and the Global Network Economy.

SHS Web

Isa, Indra Griha Tofik, & Satriadi, Indra. (2019). Kansei Engineering dalam perancangan User Interface e-Commerce produk UMKM berbasis web. *Prosiding Seminar Nasional Hasil Litbangyasa Industri II*, *2*(2), 96–104.

Martanto, M., & Hadiana, Eng Ana. (2018). Analisis User Experience Untuk Perancangan User Interface Indigoes Menggunakan Metode Kansei Engineering. *KOPERTIP: Jurnal Ilmiah Manajemen Informatika Dan Komputer*, *2*(2), 68–75.

Mohd Lokman, Anitawati. (2010). Design & emotion: The kansei engineering methodology. *Malaysian Journal of Computing (MJOC)*, *1*(1), 1–14.

Pakusadewa, Putu Gede, Suryani, Erma, Ambarwati, Rita, & Bintang, Muhammad Ridho. (2021). Selection of Information System Strategy Recommendations in Information Technology Company. *2nd International Conference on Business and Management of Technology (ICBMT 2020)*, 184–194. Atlantis Press.

Ramadhan, Afriq Yasin, Santosa, Paulus Insap, & Ferdiana, Ridi. (2018). ANALISIS RESPON AFEKTIF TERHADAP USER INTERFACE B2C MCOMMERCE BERDASARKAN JENIS KELAMIN DAN LATAR BELAKANG STUDI MENGGUNAKAN KANSEI ENGINEERING. *SEMNASTEKNOMEDIA ONLINE*, *6*(1), 1–8.

Ramadhan, Yudhi Raymond, Nugroho, Imam Maruf, & Anwar, Imam Khaerul. (2022). Redesign the User Interface of the Purwakarta Disdukcapil Mobile Application Using Kansei Engineering. *Sinkron: Jurnal Dan Penelitian Teknik Informatika*, *7*(1), 66–75.

Sembiring, N., Febrilliandika, B., Oktaviani, H., Siregar, L. S., & Azmi, N. N. (2021). Designing Souvenir Products Berastagi Clothes with Kansei Engineering Method. *IOP Conference Series: Materials Science and Engineering*, *1115*(1), 12017. IOP Publishing.

Seo, HaeJin, & Song, Tae Ho. (2021). The differential motivation and context effects of cause-related marketing in the hotel industry: The moderating role of consumption value. *International Journal of Hospitality Management*, *95*, 102721.

Settembre-Blundo, Davide, González-Sánchez, Rocío, Medina-Salgado, Sonia, & García-Muiña, Fernando E. (2021). Flexibility and resilience in corporate decision making: A new sustainability-based risk management system in uncertain times. *Global Journal of Flexible Systems Management*, *22*(2), 107–132.

Tohara, Abdul Jalil Toha. (2021). Exploring Digital Literacy Strategies for Students with Special Educational Needs in the Digital Age. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, *12*(9), 3345–3358.