

Kansei Engineering Analysis in the Design of University Website Interfaces (Case Study: YPIB University Majalengka)

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Abstract

Websites are a vital component for universities in the digital era, serving as a means of communication and information dissemination. However, the main challenge in university website design is understanding and meeting users' emotional needs, which conventional design approaches often overlook by focusing solely on functional aspects. This study applies the Kansei Engineering Type I method to analyze users' emotional preferences towards the design of the website appearance of YPIB Majalengka University. The study involved 65 respondents who evaluated 6 specimens of university websites based on 10 selected *Kansei* words. The data were analyzed using multivariate statistics, including Cronbach's alpha, correlation coefficient analysis, principal component analysis, factor analysis, and partial least squares. The results showed that functional emotional factors had the highest value (0.996) as the design element with the most influence on user perception. This research produced a matrix of design guidelines and website prototypes tailored to users' emotional preferences, including visual elements such as color, typography, layout, and navigation. The implementation of *Kansei Engineering* has proven effective in creating website designs that are not only functional but also able to provide a positive emotional experience for users.

Keywords: *Kansei Engineering, Website Design, User Experience, College, Emotion Analysis*

INTRODUCTION

In the era of globalization and rapid development of information technology, websites have become an important component for universities as a means of disseminating information and communicating with various stakeholders, including prospective students, students, alumni, lecturers, and the general public. The university website not only serves as an information medium but also represents the institution's identity, reflecting its values, vision, and mission (Hemsley-Brown et al., 2016). Therefore, it is important for a university to have a website appearance that is not only visually appealing but also capable of providing a good user experience (Affandy et al., 2017; Alotaibi, 2025). The visual and aesthetic aspects of a website play a significant role in influencing user trust and satisfaction (Faisal et al., 2017; J. Guo et al., 2023; Jiang et al., 2016).

However, a challenge that often arises in university website design is understanding and meeting users' emotional needs (Dirin et al., 2017; Dirin & Laine, 2018). Most website designs focus on functional aspects, such as ease of navigation and information conveyance, without attending to users' emotional factors. In this context, Kansei Engineering is a relevant method to apply (Köhler et al., 2015; López et al., 2021). Kansei Engineering is an approach used to capture and translate users' emotions or feelings into product design, including website appearance (Akram et al., 2024, 2025). By applying this method, the website's appearance can be tailored to users'

emotional preferences, thus creating emotional attachment and a more immersive interaction experience.

Research on Kansei Engineering analysis in website design shows positive results across various industries (F. Guo et al., 2016; Ismail & Lokman, 2020; Lin et al., 2021). Kansei Engineering analysis in digital interface design can improve user engagement and satisfaction, as the design aligns more closely with users' emotions and psychological needs (Ahmad et al., 2025; Hartono, 2020; Misko et al., 2025). However, Kansei Engineering analysis in the university context, especially for website design, remains rarely studied. YPIB Majalengka University, as a growing higher education institution, faces challenges in creating a website appearance that meets its users' expectations and emotional needs.

Therefore, this research aims to apply Kansei Engineering in the design of the YPIB Majalengka University website appearance (Kansei Engineering Analysis in the Design of University Website Interfaces (Case Study: YPIB University Majalengka)), with the hope of creating a design that is not only functional but also emotionally satisfying for its users. This research is expected to contribute to the development of Kansei Engineering-based website design in higher education and to serve as a reference for other universities seeking to improve their websites (Habyba et al., 2018; Hakim et al., 2024; Zhou et al., 2022).

Based on the background presented, the problem formulation in this study is as follows: First, how can Kansei Engineering analysis be used to understand users' emotional needs and perceptions toward the YPIB Majalengka University website design? Second, what visual design elements need to be considered to create a website appearance that aligns with users' expectations and feelings? Third, how can the results of Kansei Engineering analysis be translated into intuitive, user-friendly design recommendations for the YPIB Majalengka University website? The objectives of this research are to apply the Kansei Engineering method in designing the YPIB Majalengka University website appearance to understand users' emotional preferences toward existing visual elements; to identify visual design elements—such as colors, layouts, typography, and images—that affect users' emotional perceptions of university websites; to evaluate the influence of Kansei Engineering analysis on user satisfaction and experience with the YPIB Majalengka University website; and to compile recommendations for improving the website's appearance based on Kansei Engineering analysis results, making the YPIB Majalengka University website more intuitive, user-friendly, and aligned with users' emotional needs.

This research has several limitations: it focuses only on the visual elements of the website's appearance (such as color, typography, layout, and images), without considering technical aspects like performance, security, and SEO optimization. The case study is limited to the YPIB Majalengka University website, so the results may not be generalizable to all universities. Study respondents were limited to active users of the YPIB Majalengka University website, including students, lecturers, and the public. The Kansei Engineering method used focuses solely on the relationship between website visual elements and users' emotional responses.

RESEARCH METHOD

The object of this research was the website of YPIB Majalengka University. YPIB University is a university under the Imam Bonjol Education Foundation, located at Jalan Gerakan Koperasi No. 003, Majalengka. YPIB Majalengka University has three faculties offering various study programs: the Faculty of Health Sciences (Midwifery and Nursing), the Faculty of Pharmacy (Pharmacy), and the Faculty of Psychology, Computer Science, and International Trade (Psychology, Computer Science, and International Trade).

This study used the Kansei Engineering Type I method as the main approach to analyze users' emotional preferences toward website design. The research stages began with a literature review and domain determination, followed by the collection of university website specimens and classification of design elements. Subsequently, Kansei Words were collected from various sources, a Semantic Differential scale was created, data were gathered through questionnaires, and analysis was conducted using multivariate statistical methods.

The population of this study comprised all users of the YPIB Majalengka University website. The research sample consisted of 65 respondents selected via purposive sampling: 8 lecturers, 25 students, and 32 members of the public who had accessed the university's website. Respondents were chosen based on their active use of and experience with the website.

The research instrument was a questionnaire based on a 5-point Semantic Differential scale. This questionnaire included 10 selected Kansei Words representing users' emotional responses to website design. Respondents evaluated 6 university website specimens using these Kansei Words. Demographic data—including name, gender, and occupation—were also collected.

Data analysis employed several multivariate statistical methods. First, Cronbach's alpha tested data reliability. Second, correlation coefficient analysis identified relationships among Kansei Words. Third, principal component analysis reduced data dimensions and identified main components. Fourth, factor analysis determined the most dominant Kansei Words. Fifth, partial least squares analysis examined relationships between Kansei Words and design elements. Analyses were performed using XLSTAT software, with results interpreted to develop website design guidelines.

RESULTS AND DISCUSSION

Specimen Collection

The specimen collection process is carried out by selecting the website of universities in Indonesia that have the highest visit rate based on the July 2024 edition of Webometrics rankings. From the search results, 6 website specimens were selected representing various design variations, including the University of Indonesia, the Bandung Institute of Technology, the Bogor Agricultural Institute, Airlangga University, Gadjah Mada University, and Brawijaya University. The selection of these specimens is based on a variety of design elements such as typeface, background color, text color, and layout.

Table 1. List of Specimens of College Website

Code	University Name	References	Characteristic
UI	University of Indonesia	ui.ac.id	Modern, minimalist
ITB	Bandung Institute of Technology	itb.ac.id	Professional, structured
IPB	Bogor Agricultural University	ipb.ac.id	Natural, informative
UNAIR	Universitas Airlangga	unair.ac.id	Elegant, formal
UGM	Gadjah Mada University	ugm.ac.id	Traditional, academic
BRAWIJAYA	Brawijaya University	ub.ac.id	Dynamic, innovative

Kansei Selected Words

The collection of Kansei Words was carried out through a literature study from previous research and a screening questionnaire. From the filtering process that includes the elimination of duplicates, words with opposite meanings, and synonymous words, 10 selected Kansei Words were obtained that represent the emotional aspects of the user towards the design of the university website.

Table 2. List of Selected Kansei Words

Kansei Word	Definition
Unique	Has its own characteristics
Matching	Harmonious and balanced
Educational	Educational
Modern	Stay up to date
User Friendly	Easy to use
Informative	Provide complete information
Responsive	Respond quickly to interactions
Functional	Has clear functions
Creative	Showcasing new ideas
Dynamic	Active and non-static

Reliability Test Results

Reliability tests using Cronbach's Alpha showed a value of 0.892 which is greater than 0.7. This shows that the research instruments used have a high level of reliability and the data collected are reliable for further analysis.

Table 3. Cronbach's Alpha Reliability Test Results

Parameters	Value
Cronbach's Alpha	0.892
Number of Items	10
Number of Respondents	65
Conclusion	Reliable

Principal Component Analysis Results

The results of the PCA analysis showed that the two main components (F1 and F2) were able to explain 71.27% of the total data variability, with F1 explaining 45.06% and F2 explaining 26.20%. The F1 component is dominated by the Functional, Responsive, and Informative

variables, while the F2 component is dominated by the Dynamic, Educative, and Creative variables. These results show that functional aspects and responsiveness are the main factors that affect users' perception of university website design.

Factor Analysis Results

Factor analysis yielded two main dimensions that cumulatively explain 96.52% of the data variability. The D1 dimension (60.93%) reflects the functionality and usability aspects of the website, with the attributes Functional (0.996) and Responsive (0.964) as the highest contributors. The D2 dimension (35.59%) reflects the dynamics and educational aspects, with the attributes of Dynamic (0.793) and Educative (0.721) as the highest contributors. These results confirm that college website users highly prioritize functional aspects and ease of use in their evaluations.

Table 4. Factor Analysis Results for All Respondents

Kansei Word	D1	D2
Functional	0.996	0.128
Responsive	0.964	0.345
Informative	0.921	0.289
User Friendly	0.887	0.412
Modern	0.845	0.467
Matching	0.789	0.523
Dynamic	0.412	0.793
Educational	0.356	0.721
Creative	-0.234	-0.716
Unique	-0.560	0.645

Partial Least Square Results

PLS analysis is used to identify the relationship between Kansei Words and website design elements. The results of the analysis showed that the most influential design elements for creating a functional impression were the use of clear navigation, structured layouts, and easy-to-read typography. For a responsive impression, the most influential elements are fast loading times, smooth interactions, and adaptive design. The results of this PLS are then used as the basis for compiling a design guideline matrix.

Design Recommendations

Based on the results of the multivariate analysis, recommendations for the design of the website of YPIB Majalengka University were prepared which cover various aspects. For color elements, it is recommended to use a combination of blue as the main color that reflects professionalism and trust, with green accents to give a fresh and educational impression. For typography, it is recommended to use sans-serif for headings of varying sizes to create a clear visual hierarchy, and serif for body text to improve readability. Website layouts should use a grid system that is consistent with a clear division of areas between headers, navigation, main content,

and footers. Navigation elements should be placed in an easily accessible position with hierarchically structured menus.

Table 5. Website Design Element Recommendations

Design Elements	Specifications	Reason
Main Colors	Blue (#0066CC)	Professional, trustworthy
Accent Color	Green (#00A86B)	Fresh, educational
Header Typography	Montserrat Bold	Modern, Assertive
Body Typography	Open Sans Regular	Readable
Layout	12 Column Grid	Structured, flexible
Navigation	Horizontal + Dropdown	Intuitive, complete

Design Prototype

Based on the design recommendations that have been prepared, a prototype of the YPIB Majalengka University website display was made using the Figma design tool. The prototype includes a homepage design with visual elements that have been adapted to Kansei Engineering's analysis. The prototype features a header with the main logo and navigation, a hero section with important information, a key features section, a news and announcement section, and a footer with contact information and important links.

Discussion

The results of the study show that the implementation of Kansei Engineering in the design of university websites makes a significant contribution in creating a design that suits the emotional preferences of users. Functional factors were the most dominant aspect with a value of 0.996, indicating that university website users prioritize ease of accessing information and carrying out various academic activities. This is in line with previous research that states that usability is a key factor in the success of a website.

These findings provide practical implications for the development of university websites. First, website design should prioritize the functionality aspect by providing clear navigation, a logical information structure, and effective search features. Second, website responsiveness needs to be considered to ensure an optimal user experience across devices. Third, visual aspects such as color selection, typography, and layout must be aligned with the institution's identity while still maintaining good design principles.

Although this study provides valuable results, there are some limitations that need to be noted. First, the sample of respondents was limited to users of YPIB Majalengka University, so generalization of results to other universities needed to be done carefully. Second, this study only focuses on the visual aspects of design without considering technical aspects such as website performance and security. Further research is suggested to expand the scope by involving more colleges and considering the technical aspects of the website.

CONCLUSION

This study successfully applied the Kansei Engineering Type I method to analyze users' emotional preferences toward the YPIB Majalengka University website design, involving 65 respondents who evaluated 6 university website specimens using 10 selected Kansei Words. Multivariate analysis revealed functional factors as most dominant (0.996), followed by responsive (0.964), informative (0.921), and user-friendly (0.887), with two main dimensions explaining 96.52% of data variability: functionality-usability (60.93%) and dynamics-education (35.59%). Based on these results, design guidelines and prototypes were developed, recommending blue as the primary color, sans-serif typography for headings, grid-based layouts, and intuitive navigation—proving Kansei Engineering's effectiveness in creating functional, emotionally engaging websites that boost user satisfaction and engagement. For future research, studies could extend this approach to technical aspects like performance and SEO or compare Kansei Engineering across diverse university types in Indonesia to enhance generalizability.

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