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Affective design for evaluation instruments of agro-industrial training performance

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ABSTRACT

Affective design incorporates emotional and subjective aspects into product design to enhance user satisfaction. To design a performance evaluation instrument that aligns with user needs, Kansei engineering offers a method for translating subjective user preferences into tangible design element. This study aims to (1) identify user needs in the instructor performance evaluation attribute and (2) extract essential factors for developing performance evaluation instruments in agro-industrial training institutions. The input dataset was obtained through interview to acquire Kansei words. Data were collected and subsequently reduced through a Kansei word selection questionnaire, Aiken's test, and a semantic differential scale. Factor analysis was conducted to identify the attributes of performance evaluation and to extract the features necessary for the development of the instrument. As the result, the collected Kansei words related to performance evaluation attribute will be instructor competency, clarity of content, guiding participants, capability to answer, well dressed, punctuality, broadening perspectives, mutual support, respect and helpful. As for the feature considerations to develop the instrument, Kansei words used are online, substantive, on point, click and go, and measurable. The results of this study demonstrate the applicability of Kansei engineering in designing affective performance evaluation instruments that align with user needs.

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INTRODUCTION

Affective needs can be defined as the psychological responses of users or customers to the design details of a product. These needs are rooted in human values and judgment, making them a critical consideration in product design. Consequently, a product design that neglects affective aspects is likely to be suboptimal. Therefore, understanding both the functional and affective requirements of a product is essential to achieving user satisfaction (Schutte and Marco-Almagro 2022). Affective design incorporates emotions, subjective judgments, and visual perceptions into the design process. The complexity lies in effectively understanding and translating a product's intended affective responses so that it truly leads to product designs (Wang et al. 2018). Often, users may not be fully aware of their own needs. According to (Jordan 2000), consumer needs can be categorized into functional, usability, and pleasure levels. Kansei engineering offers a methodology for translating subjective user preferences (Kansei) into tangible design elements (Ushada et al. 2016).

To foster continuous improvement, organizations require work systems that support performance evaluation and provide meaningful feedback. Peer evaluation is a commonly used method in education and organizational performance evaluation. It offers several benefits, including promoting critical thinking, developing decision-making skills, ensuring accurate measurement, reducing evaluation burdens, integrating evaluation into ongoing processes, and emphasizing processes over outcomes (Sriyati et al. 2016). Comprehensive evaluation models yield accurate information, enhance trust, and foster collaboration among those being evaluated (Suhardoyo 2018).

Evaluations of work systems using an affective approach have been conducted; however, these analyses have predominantly concentrated on ergonomic systems and web design systems (Agustriana et al. 2017, Turumugon and Baharum 2018, Ginting and Hadiana 2018, Nababan et al. 2019). When identifying crucial attributes in performance evaluation, qualitative and quantitative survey approaches are more commonly utilized than the Kansei approach (Al-Mohaimeed 2018, Soroush et al. 2021), despite the notable advantages offered by the Kansei methodology. To implement a new instructor performance evaluation system, a suitable approach is therefore necessary to ensure improvements over existing systems. Kansei engineering can be employed to extract verbal and nonverbal parameters, identifying affective needs, preferences, and satisfaction with work systems. Fundamentally, Kansei engineering translates customers' affective profiles into concrete design solutions and parameters into product design. (Schutte and Marco-Almagro 2022).

Applying affective design for evaluating agro-industrial training performance lies in the complexity of identifying and understanding affective responses within this specific context. The affective profile of agro-industrial training instructor can be abstract and difficult to quantify, making the translation into clear evaluative parameters challenging. The objectives of this study are (1) to identify the essential instructor performance evaluation attribute and (2) to develop a peer evaluation instrument that aligns with the affective needs of its users.

METHODS

Bill of Material is a structure that describes all the components and parts needed to produce a final product that can be applied for various purposes including developing new products (Cinelli et al. 2020). To design a new product, its necessary to identify the user needs based on functional, usability and pleasure aspects (Jordan 2000, Ushada et al. 2016). For this research, needs identification were emphasized on functionality and usability, with pleasure being temporarily set aside as shown in Figure 1.

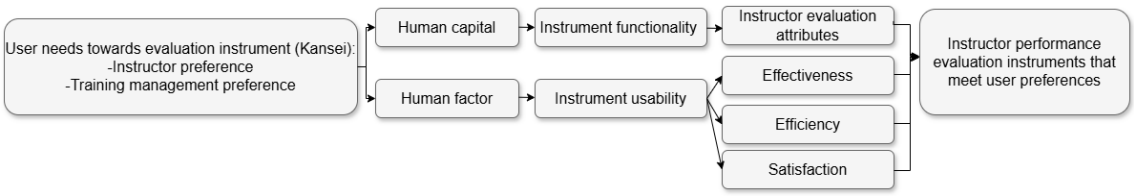


Figure 1 Conceptual design of the instrument

Table 1 Performance evaluation dimensions

Performance evaluation dimensions	Reference
Understanding of agroindustry	(BPSDMI, 2019; Permenaker 8, 2014)
Delivery of theoretical sessions	(BPSDMI, 2019; Permenaker 8, 2014)
Delivery of practical sessions	(Permenaker 8, 2014)
Answering participants' questions	(BPSDMI, 2019; Permenaker 8, 2014)
Instructor's appearance	(Permenaker 8 2014)
Time management	(BPSDMI, 2019; Permenaker 8, 2014)
Motivation provision	(BPSDMI, 2019)
Instructor collaboration	(BPSDMI 2019)
Instructor attitude	(BPSDMI 2019, PP 30 2019)

Table 2 Usability dimensions

Usability dimensions	Detailed	Reference
Effectiveness	Task accomplishment	(Jordan 2020); (Alexander et al. 2021)
Efficiency	Clarity of features Accessibility	(Jordan 2020); (Sukmasetya et al. 2020)
Satisfaction	Comfort	(Jordan 2020); (Alexander et al. 2021)

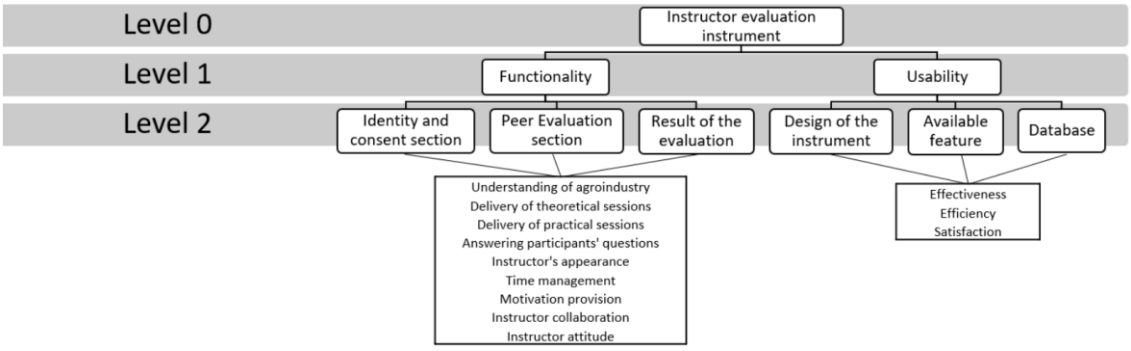


Figure 2 Bill of Material of the developed instrument

To identify the primary function of this product, which is a performance assessment instrument, its main function is to facilitate a comprehensive evaluation of instructor performance. The object of this study is a performance evaluation instrument designed for instructors at one of training institution under Badan Pengembangan Sumber Daya Manusia Industri (BPSDMI) Ministry of Industry that specializes in agro-industrial training. Therefore, the minimum content of performance evaluation should meet the standard used by BPSDMI and Ministry of Manpower related to vocational training as detailed in Table 1.

To identify the primary function of this product, which is a performance assessment instrument, its main function is to facilitate a comprehensive evaluation of instructor performance. The object of this study is a performance evaluation instrument designed for instructors at Balai Diklat Industri Makassar, a training institution under Badan Pengembangan Sumber Daya Manusia Industri (BPSDMI) Ministry of Industry that specializes in agro-industrial training. Therefore, the minimum content of performance evaluation should meet the standard used by BPSDMI and Ministry of Manpower related to vocational training as detailed in Table 1.

Usability can be defined as how easy a product is to use and consists of effectiveness, efficiency, and satisfaction. As explained by (Jordan 2020), effectiveness refers to the accomplishment of tasks, efficiency refers to the effort required to accomplish tasks, and satisfaction refers to the level of comfort while using the product. The detailed description of the usability aspect of this research as shown in Table 2. Based on component mentioned in Table 1 and

2, the BOM of the evaluation instrument, can be seen in the Figure 2

Adapting the process conducted by Rahayu et al. (2020) in Kansei engineering, which involves selecting respondents, collecting Kansei words, data reduction for Kansei word selection, using rating scales in Kansei word assessment, and conducting statistical data analysis, the process steps to compiling this research as shown in Figure 3.

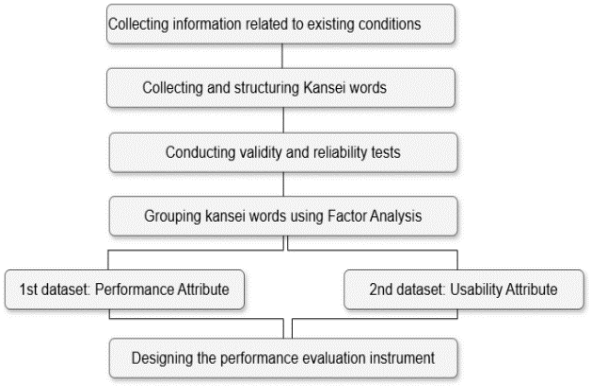


Figure 3 Research flowchart

Collecting information related to existing conditions.

Observations and studies of relevant regulations are needed for the development of theoretical frameworks to solve problems encountered during the research process. The product concept, respondent characteristics, research stages, and questionnaire design were established.

Collecting and structuring Kansei words.

Open-ended questions in the designed questionnaire were used to gather Kansei words during interviews with eight selected expert judgements. The collected Kansei words were categorized into attribute dimensions and reduced using a Kansei word selection questionnaire. The top five Kansei words in each dimension were then validated for subsequent use in a semantic differential questionnaire (SD I). The SD I questionnaire consisted of three sections: (1) obtaining agreement and explanation of the questionnaire, (2) collecting basic information, and (3) measuring the importance of attributes. The third section utilized a seven-point Likert scale ranging from least to most important (Alfiani et al. 2023). A seven-point Likert scale was determined to be the most effective, accurate, and straightforward measurement method (Taherdoost 2019). The online questionnaire was subsequently distributed to 65 respondents selected via convenience sampling, comprising agroindustry training instructors and training management personnel.

Conducting validity and reliability tests, grouping Kansei words using factor analysis.

The validity of the questionnaire data was assessed to ensure its accuracy using the correlation coefficient of Pearson's table while reliability was evaluated using Cronbach's alpha. The reliability of the data was confirmed with a Cronbach's alpha value greater than 0.7, meeting the minimum R-count requirement.

Grouping Kansei words using factor analysis.

Factor analysis was conducted to identify the critical attributes for performance evaluation and the attributes to be included in the development of the instrument. As suggested by (Ghozali 2019), factor analysis is a statistical technique that can be employed to reduce data complexity and provide a concise summary of the data. Factor analysis, such as Principal Component Analysis (PCA), is a valuable tool for extracting meaningful information from multivariate data (Jollife and Cadima 2016). Principal Component Analysis (PCA) with Varimax rotation was employed as the extraction method. This enabled the reduction of several similar attributes influencing a single variable into a smaller number of primary factors (Vlontzos et al. 2018). In this study, variable similarity was evaluated based on their dimensions to ensure the adequacy of the established dimensions. This analysis yielded factors representing the user's perceptions regarding performance evaluation attributes and the usability attributes. All these steps were carried out using Microsoft Excel 2021 and SPSS version 25.

Designing the performance evaluation instrument

The final stage in Kansei Engineering is to visualize the results of the design. Kansei words associated with performance evaluation attributes served as the content of the instrument, while Kansei words related to instrument usability were used as the primary factors in the instrument design.

Table 3 Profile of semantic differential questionnaires respondents

Profile	Detail	Percentage (%)
Academic background	Highschool	19.3
	Diploma	12.3
	Bachelor	36.8
	Postgraduate	28.1
	Doctoral	3.5
Gender	Male	40.4
	Female	59.6
Domicile	Makassar (include Gowa and Maros)	64.91
	Karawang Regency	10.5
	Bone and Sinjai Regency	8.77
	Takalar and Jeneponto Regency	5.26
	Tasikmalaya Regency	5.26
	Other	5.27
Age	20--30 y.o	40.35
	31--40 y.o	31.57
	41--50 y.o	10.52
	51--60 y.o	12.28
	60 y.o <	5.26

Table 4 KMO and Bartlett's Tests First Dataset

		Iteration1	Iteration2	Iteration3	Iteration4
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.630	.653	.677	.702
Bartlett's Test of Sphericity	Approx. Chi-Square	2193.579	2158.780	2068.969	1943.975
	df	780	741	703	666
	Sig.	.000	.000	.000	.000

RESULT AND DISCUSSION

As a novel work system, this instructor performance evaluation model is particularly suitable for development using a Kansei Engineering approach. This is in line with previous research indicating that Kansei Engineering can be utilized to design and develop new work systems for improved productivity (Agustriana et al. 2017).

Collecting and structuring Kanseiwords

A total of 178 Kansei words were initially collected through interviews with eight purposefully selected respondents, including instructors and training management. The respondents were chosen based on their expertise and experience in the training field. These words were then reduced to 100 Kansei words through frequency analysis and the elimination of redundant terms, categorized based on predefined dimensions. Subsequently, a Kansei word selection questionnaire was administered to 59 instructors listed in the database to identify the top five Kansei words. Of these, 54 were returned. These selected words were then validated by 6 experts' judgement before used in a SD I questionnaire. Only the validated data were included in the subsequent SD I, as presented in Appendix 1.

The SD I questionnaire was administered to a convenience sample of 65 respondents, including instructors and training management personnel in the organization. A response rate of 84.6% was achieved, with 57 completed questionnaires returned. The majority of respondents were from Makassar (64.91%), aged between 20 and 30 years old (40.35%), and held a bachelor's degree (36.8%) (Table 3). Management's involvement in this stage was motivated by the need to align the developed evaluation instrument with the specific requirements of both instructors and the organization, fostering a sense of shared ownership among all stakeholders. As emphasized (Ushada et al. 2016), the success of new product development hinges on internal efficiency,

defined as the extent to which a product meets its specified requirements. By engaging instructors and relevant management, it was ensured that the instrument's performance was aligned with the organization's objectives and the needs of its users.

Conducting validity and reliability test

Data obtained from the SD I questionnaire underwent validity and reliability testing. The calculated R values for all items exceeded the critical R value of 0.266, confirming their validity. The Cronbach's alpha coefficient of 0.94, exceeding the recommended threshold of 0.7, indicates excellent internal consistency among the 45 Kansei words, thereby confirming the reliability of the data. The validity and reliability of the 45 Kansei words ensured their suitability for factor analysis. Subsequently the dataset was partitioned into two subsets. The primary objective of the first dataset was to get the salient factors contributing to instructor evaluations. The second dataset was analyzed to uncover the essential components required for the construction of a performance evaluation instrument.

Factor Analysis First Dataset

To identify the most significant attributes in performance evaluation, factor analysis was conducted on 40 items related to the evaluation performance attribute (first dataset). An iterative process was employed, involving four iterations to ensure that all items exhibited a Measure of Sampling Adequacy (MSA) value exceeding 0.5. At each iteration, the variable with the lowest MSA was eliminated. The final iteration (Table 4) yielded a dataset with a Kaiser-Meyer-Olkin (KMO) measure of 0.702 and a significant Bartlett's Test of Sphericity ($p < 0.001$). This result means that the Kansei words correlate with each other because the Bartlett test significance value is 0.000 <0.05. The KMO value obtained means that the Kansei words are good for factor analysis because the KMO value is >0.5, and the KMO value is in the range of 0.8 ─ 0.9. This fourth iteration resulted in a reduced dataset of 37 items suitable for factor analysis.

The PCA method is utilized to conduct a factor analysis. Based on the eigenvalues and factor loadings, the Kansei words were grouped. The number of factors was determined based on the eigenvalue criterion. Only factors with eigenvalues exceeding 1 were retained, ensuring that they captured the most significant variations in the data (Ghozali 2019). The analysis results of the total variance explained, and the number of factors formed can be seen in Table 5. As shown in Table 5, there are eight factors that have eigenvalue >1, forming eight new factors with total variance 77.10%. Rotation is then applied to facilitate the interpretation of the variables' factor loadings (Ghozali 2019). The values obtained indicate the strength of the relationship between the Kansei words and the resulting factors, with the highest value signifying the dominant factor for that Kansei word. For each factor, Kansei words were selected based on semantic similarity and the highest factor loadings (Hadiana and Lokman 2016). The selection of Kansei words for each component was guided by the dimensions of the evaluation attributes to ensure comprehensive coverage of the performance dimensions. The rotation process results can be seen in Table 6.

Table 5 Analysis Result of Total Variance Explained First Dataset

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	12.492	33.763	33.763
2	3.611	9.758	43.521
3	3.303	8.927	52.448
4	2.603	7.034	59.482
5	2.238	6.049	65.531
6	1.880	5.080	70.611
7	1.367	3.695	74.305
8	1.035	2.798	77.103
9	0.978	2.644	79.747
10	0.937	2.531	82.279
….	…..	…..	…..
37	0.011	0.031	100.00

Table 6 Result of Rotated Component Matrix First Dataset

	Component							
Code	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
X11	.015	-.044	**.803**	.147	.114	.056	.224	.174
X12	.095	.087	**.729**	.084	.246	.154	.184	-.029
X13	-.019	.238	**.**496	.308	.255	-.070	.037	.223
X14	.078	.397	**.767**	-.120	.082	.067	.017	-.040
X21	.114	**.813**	.163	.122	.098	.110	.084	.141
X22	.235	**.525**	.505	.232	.043	.085	.189	-.103
X23	.259	**.728**	.108	.022	.186	.155	.089	.319
X24	.034	**.701**	.123	.216	.375	.069	.343	.027
X25	.231	**.798**	.185	.036	.218	.139	.094	-.070
X31	.210	.204	.449	.072	.063	.088	.415	**.598**
X32	.055	.294	.375	.114	.266	.099	**.687**	-.025
X33	.084	-.106	.274	.367	-.007	-.002	**.777**	.218
X34	.105	.429	.246	-.121	.013	.102	**.751**	-.035
X35	.110	**.547**	-.051	-.014	.227	.118	.496	.387
X41	.158	.412	.098	-.067	.447	.208	.064	**.516**
X42	.273	.286	.301	.082	.038	.021	.459	.219
X51	.149	-.011	.137	**.921**	.093	.028	-.090	-.014
X52	.074	.035	.087	**.877**	.166	.025	-.005	.120
X53	.054	.050	.049	**.910**	-.080	.057	.120	.020
X54	.139	.265	-.064	**.813**	.040	-.040	.262	-.152
X62	-.005	-.055	.424	.140	**.548**	.044	.298	-.120
X63	.084	.088	**.745**	-.014	-.098	.097	.160	.092
X64	.426	.337	.156	.116	.308	.256	.183	.400
X65	.329	.283	.330	-.195	**.**394	.257	.197	.334
X72	.135	.188	.124	.106	**.750**	.142	-.078	.195
X73	.238	.258	.235	-.124	**.546**	.155	.367	.017
X74	.413	.118	.106	.103	**.703**	.172	.046	-.059
X75	.178	.348	-.072	.070	**.805**	.105	.074	.135
X81	**.738**	.188	.236	-.039	.264	.012	.098	.108
X82	**.796**	.217	-.027	.023	.118	.233	.230	.052
X83	**.810**	.104	.114	.188	.164	.016	.082	.077
X84	**.927**	.076	-.021	.115	.022	.038	.032	-.114
X85	**.890**	.076	.056	.124	.100	.097	-.047	.167
X92	.190	.226	-.032	-.038	-.014	**.886**	.091	.051
X93	.137	.200	.094	.056	.048	**.886**	.131	.077
X94	.130	-.040	.313	.013	.209	**.851**	.070	-.017
X95	-.118	.057	.030	.071	.448	**.772**	-.139	.097

Factor analysis revealed several distinct components as shown in Table 6. For Component 1, items X81, X82, X83, X84, and X85 were highly correlated and represented by item X84 (loading = 0.927), which pertains to the dimension of instructor collaboration. Item X64, with a loading below 0.5, was excluded. In Component 2, item X21 was selected to represent a group of items related to delivery of theoretical sessions, while item X35 was included to represent the delivery of practical sessions. Component 3 consisted of items related to the dimension understanding of agroindustry and time management, represented by items X11 and X63, respectively. Component 4 was defined by item X51, related to the instructor's appearance. Component 5 was primarily related to motivation provision and was represented by item X75. Component 6 focused on instructor attitude, with items X92 and X93 selected. Component 7 did not yield any significant items after considering the loadings and the representation of similar dimensions in previous components. Finally, Component 8 was defined by item X41,

representing the instructor's ability to answer participant questions.

Within the understanding of agroindustry dimension, instructor competency emerged as the most salient attribute. Compared to attributes such as knowledge of materials, instructor certification, and process knowledge, and alignment of perceptions this attribute was deemed crucial in competency-based training. The importance of instructor competence is further corroborated by research indicating that the human resource, or the instructor, is considered the most significant factor in ensuring better outcomes in the implementation of training programs (Mongcal et al. 2017).

Regarding the delivery of theoretical material, clarity of content was the selected attribute. This finding aligns with (Ergashevich and Mado 2023) assertion that clear content delivery in training sessions is pivotal to training success. Conversely, for practical sessions, participant guidance was considered as significant attribute. According to (Lacerenza et al. 2017), effective guidance during the learning process can help monitor each trainee's progress and adjust the learning experience as needed.

In the dimension of answering participant questions, the instructor's ability to provide answers was the chosen attribute. An instructor's skill in answering participant questions effectively shows their competency in the topic (Soroush et al. 2021)

Concerning instructor appearance, the attribute of well-dressed was deemed representative of other attributes such as wearing shoes, dressed modestly, and dressed simply. A neat appearance can boost confidence and positively impact instructor performance so that instructor should pay attention to their appearance (Soroush et al. 2021).

The instructor's punctuality during training was selected to represent the time management dimension. Punctuality can enhance instructor performance by ensuring efficient training and preventing incomplete coverage of the material.

In industry training, exposing learners to diverse perspectives and opportunities is crucial to broaden their horizons and enhance their understanding of potential future career paths. Consequently, instructors who provide opportunities for learners to explore new ideas, industries, and possibilities during training sessions are considered to exhibit strong performance.

Regarding instructor collaboration during training, the attribute of mutual support among colleagues is a critical component in assessing instructor performance. Instructors who can support their colleagues are deemed to have strong performance (Rus et al. 2015).

Furthermore, concerning the instructor's work attitude, instructors who can respect their colleagues, and offer helpful support are considered to demonstrate strong performance. A cooperative, supportive work environment characterized by mutual respect and assistance among team members can enhance overall team effectiveness and productivity (Porwal 2023). Work on high-performing teams emphasizes the importance of interpersonal skills, such as the ability to provide help and encouragement to colleagues.

Table 7 KMO and Bartlett's Tests Second Dataset

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.721
Bartlett's Test of Sphericity	Approx. Chi-Square	138.210
	df	10
	Sig.	.000

Table 8 Analysis Result of Total Variance Explained Second Dataset

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	3.209	64.188	64.188
2	.707	14.148	78.336
3	.564	11.282	89.618
4	.351	7.024	96.642
5	.168	3.358	100.000

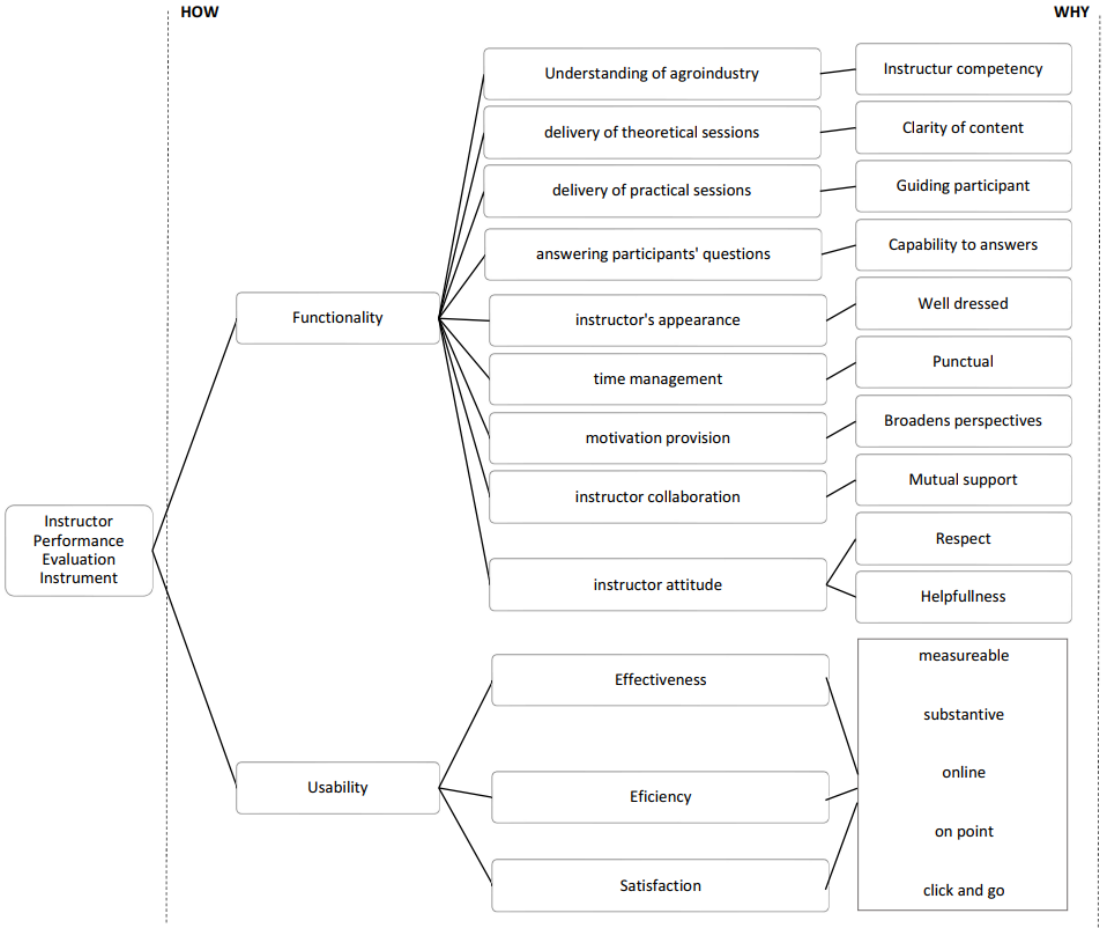


Figure 4 FAST diagram of instructor performance evaluation instrument

Factor Analysis Second Dataset

To develop an evaluation instrument, factor analysis was conducted on 5 items related to the instrument usability as follows 'online,' 'substantive,' 'on point,' 'click and go,' and 'measurable.' A single iteration was sufficient to obtain a Kaiser-Meyer-Olkin (KMO) measure of 0.721 and a significant Bartlett's Test of Sphericity ($p < 0.001$) (Table 7), indicating that the data was suitable for factor analysis. As shown in Table 8, there is one factor that have eigenvalue >1, with total variance 64.18%. The factor analysis revealed a single component, suggesting that all five Kansei words could be grouped together. Consequently, these terms were incorporated into the development of the performance evaluation instrument.

Designing the evaluation instrument

Based on the conceptual framework elucidated through factor analysis, a performance evaluation instrument was designed. For the content of performance evaluation instrument, the Kansei words used will be instructor competency, clarity of content, guiding participants, capability to answer, well dressed, punctuality, broadening perspectives, mutual support, respect and helpful. As for the feature considerations to develop the instrument, Kansei words used are online, substantive, on point, click and go, and measurable.

A FAST diagram is a visual tool that illustrates the interconnectedness of a product's functions and subsystems. It helps break down complex systems into manageable tasks. This structure provides a clear overview of the product's technical aspects (Nababan et al. 2019, Dwiutami et al. 2023). It is typically composed of output, objective functions, primary attributes, secondary attributes, and detailed input. The objective functions will be functionality and usability of the instrument. The primary attributes represented the instrument's core function while secondary attributes functioned as supportive elements for achieving the primary attributes. In this research, the Kansei words served as the input or detailed information to making the concept of

the output. The output of this diagram is an instructor performance evaluation instrument design that not only aligns with user preferences but also serves as a comprehensive assessment tool, considering overall user experience aspects. The FAST diagram of instructor performance evaluation instrumen is presented in Figure 4.

In the functionality aspect, all the collected Kansei in the first dataset can be automatically inputted as the content of the instrument. Therefore, the evaluation attribute will be agroindustry instructor competence, clarity of theoretical material, guiding of participants in practical session, capability to answer participant questions, well dressed, punctuality, provision of motivation in the form of broadening perspectives, mutual support, as well as having a respectful and helpful attitude. The Kansei word was then adjusted to form a question for performance evaluation while preserving the clarity of its attribute. Therefore, based on the collected Kansei words, ten performance evaluation attributes were formed

Regarding the usability aspect of the instrument, five Kansei words were identified for achieving an effective, efficient, and satisfying instrument: 'online,' 'substantive,' ‘on point' 'measurable,' and ‘click and go’.

Kansei ‘measurable’ in the instrument is indicated by the assessment attribute which is equipped with a Likert 5 scale shown in Figure 5. With quantifiable data, it becomes simpler to categorize performance levels into Unsatisfactory, Needs Improvement, Meets Expectations, Exceeds Expectations, and Outstanding.

The Kansei word ‘substantive’ is indicated by performance assessment components that are in accordance with the needs of instructor evaluation and do not cause multiple interpretations.

The Kansei ‘on point’ is used to describe the main function of the evaluation instrument. The instrument developed has two main features, namely the “Instructor Performance Evaluation” which is used to provide peer assessment to fellow instructors at the same training and the “Performance Evaluation Results” feature which shows the results of evaluations given by colleagues. Feature limitation is needed so that the instrument becomes more efficient, and users can focus more on the evaluation process.

The Kansei ‘on-line’ is used to explain an online-based instrument that allows users to conduct assessments anytime, anywhere, and simplifies data management for post-training agroindustry instructor performance evaluations.

The Kansei ‘click and go’ refers to the assessment process that is simple click-through actions for each question. Just click provides comfort to the user in using the instrument developed. The design of the evaluation page is presented in Figure 5 and the design of instructor performance evaluation instrument is presented in Figure 6.

#	Atribut Penilaian	Tidak Memuaskan	Kurang Memuaskan	Netral	Memuaskan	Sangat Memuaskan
1	Instruktur memiliki kompetensi agroindustri pada pelatihan yang diajarkan	○	○	○	○	○
2	Instruktur menyampaikan materi teori secara jelas	○	○	○	○	○
3	Instruktur mendampingi peserta pelatihan pada kegiatan materi praktik	○	○	○	○	○
4	Instruktur bisa menjawab pertanyaan yang diajukan oleh peserta	○	○	○	○	○
5	Instruktur berpakaian rapi	○	○	○	○	○
6	Instruktur tepat waktu selama kegiatan pelatihan	○	○	○	○	○
7	Instruktur memberikan motivasi berupa pengembangan wawasan kepada peserta pelatihan	○	○	○	○	○
8	Instruktur mampu bekerjasama dan saling support	○	○	○	○	○
9	Instruktur sangat membantu (helpful) selama kegiatan pelatihan	○	○	○	○	○
10	Instruktur menghargai rekan kerja dan peserta pelatihan	○	○	○	○	○

Komentar

Perlu ditingkatkan lagi

Figure 5 Design of the performance evaluation page

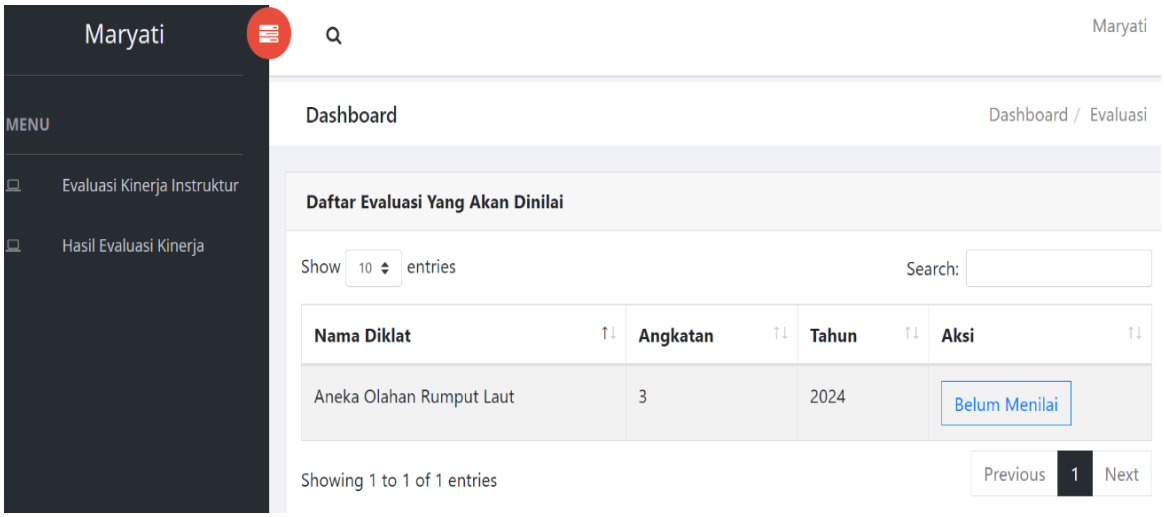


Figure 6 Design of instructor performance evaluation instrument

CONCLUSION

Based on the result of the research, it can be concluded that as the content of performance evaluation instrument, the competencies will be agroindustry instructor competence, clarity of theoretical material, mentoring of participants in practical session, ability to answer participant questions, well-dressed, punctuality, provision of motivation in the form of broadening perspectives, mutual support, as well as having an appreciative and helpful attitude. As for the feature considerations to develop the instrument, Kansei words used are online, substantive, on point, click and go, and measurable. The results of this study demonstrate the applicability of Kansei engineering in designing affective performance evaluation instruments that align with user needs. The periodic application of this performance appraisal instrument in the future can support continuous improvement within the organization. The evaluation results obtained can then serve as a basis for analyzing the competency development needs of training instructors and also as a foundation for establishing Training Instructor Work Standards within the organization

The identification of user needs for the developed instrument is limited to its functionality and usability, with a notable absence of inquiry into the deeper dimension of pleasure. Therefore, future research should aim to explore the pleasurable aspects of the instrument to significantly bolster user satisfaction. To maintain continuous improvement within the organization, it is crucial to continually develop instruments that align with user and organizational needs.

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Appendix

Appendix 1 Collected Kansei word

Dimension	Code	Kansei word	Description	Validity
understanding of agroindustry	X11	Instructor Competency	The instructor is an expert in agroindustry.	Valid
	X12	Knowledge of Materials	The instructor understands the materials used in training.	Valid
	X13	Instructor Certification	The instructor is certified to teach the training.	Valid
	X14	Process Knowledge	The instructor knows about food processing.	Valid
	X15	Alignment of Perceptions	Everyone understands the same thing.	Not Valid
delivery of theoretical sessions	X21	Clarity of content	The instructor explains the theory clearly.	Valid
	X22	Maintaining Attention	The instructor keeps students interested.	Valid
	X23	Delivery Method	The instructor's teaching style is effective.	Valid
	X24	Comprehensibility	The theory is easy to understand.	Valid
	X25	Practical Application	The theory links to practical sessions.	Valid
delivery of practical sessions	X31	Understanding of Processing Theory	The instructor understands the theory related to the product	Valid
	X32	Understanding of Procedures	The instructor knows the steps to make the products	Valid
	X33	Alignment of Perceptions	Instructors have same perceptions related to the practical sessions	Valid
	X34	Engaging participant	The instructor engages the participants in the practical sessions.	Valid
	X35	Guiding participant	The instructor guides the participants throughout the practical sessions	Valid
answering participants' questions	X41	Capability to answer	The instructor should answer questions.	Valid
	X42	If Relevant	The instructor answers only relevant questions.	Valid
	X43	Instructor Competency	The instructor knows the answers due to their competency	Not Valid
	X44	Theoretically Sound Responses	The answers are correct based on theory	Not Valid
	X45	Engaging in Discussions	The instructor discusses answers.	Valid
instructor's appearance	X51	Well dressed	The instructor dresses neatly.	Valid
	X52	Wearing shoes	The instructor wears shoes.	Valid
	X53	Dressed modestly	The instructor is dressed modestly.	Valid
	X54	Dressed simply	The instructor is dressed simply	Valid
	X55	Wearing the required GMP attire	The instructor follows food safety rules.	Valid
time management	X61	Flexibility	The instructor is flexible.	Not Valid
	X62	Early arrival	The instructor arrives before time	Valid

Dimension	Code	Kansei word	Description	Validity
	X63	Punctual	The instructor is punctual.	Valid
	X64	Effective Training	The instructor maintains the effectiveness of the training	Valid
	X65	Time Management	The instructor manages time well.	Valid
motivation provision	X71	Providing success story	The instructor tells success story.	Not Valid
	X72	Industry Motivation	The instructor talks about industry.	Valid
	X73	Entrepreneurial Motivation	The instructor encourages business.	Valid
	X74	Benefits of Training	The instructor explains the benefits of training	Valid
	X75	Broadens perspectives	The instructor broadens perspectives.	Valid
instructor collaboration	X81	Effective Communication	Instructors communicate.	Valid
	X82	Division of Labor	Tasks are divided.	Valid
	X83	Team Briefings	Instructors meet to plan.	Valid
	X84	Mutual Support	Instructors support each other.	Valid
	X85	Professionalism	Instructors are professional.	Valid
instructor attitude	X91	Friendliness	The instructor is friendly.	Valid
	X92	Respect	The instructor is respectful.	Valid
	X93	Helpfulness	The instructor is helpful.	Valid
	X94	Maintaining Attention	The instructor keeps students engaged.	Valid
	X95	Building Relationships	The instructor maintains relationships.	Valid
instrument development	X101	Online	The evaluation is online.	Valid
	X102	Substantive	The questions are relevant.	Valid
	X103	On-point	The instrument is clear.	Valid
	X104	Click and go	The instrument is easy to use.	Valid
	X105	Measurable	The scale is clear.	Valid