



User Experience Analysis On Siliwangi University SIMAK Using Heart Metrics Framework Based On User Background

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Abstract— Academic Information System (SIMAK) Siliwangi University (UNSIL) is an information system developed by UPT TIK Universitas Siliwangi. SIMAK UNSIL is the main support for the activities of the academic administration process which is required to have informative value, be classified as an easy-to-use website, and have a good user experience. User experience can be a benchmark for acceptance of SIMAK. This research was conducted to evaluate the user experience on SIMAK UNSIL Tasikmalaya City based on user background and the entire cluster using the HEART Metrics Framework classified by level of usability. This study discusses the results of user experience based on the results of questionnaire data collection distributed to 7 faculties/clusters that act as user backgrounds with 100 respondents/clusters who are active students of Siliwangi University. Measurement of user experience using the HEART Metrics Framework per overall cluster characteristic on Happiness 0.73 (high), Engagement 0.73 (high), Adoption 0.70 (high), Retention 0.78 (high), and Task Success 0.70 (high). User experience based on the average background on each characteristic in each cluster is at a criterion value of more than 0.7 (high), but in the FAPERTA cluster the average is below 0.7 except for Retention, then in the FAI cluster the Retention characteristic has a value of 0.80 and in the FKIP cluster Retention has a value of 0.82 (very high). Based on these results, in further improvement or development, SIMAK UNSIL can pay more attention to aspects of the different backgrounds of its users..

Keywords— HEART Metrics, SIMAK UNSIL, Information System, User Experience.

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I. INTRODUCTION

The digital era is a form of technological advancement that has experienced very significant developments such as information and communication technology. The development and use of information technology will continue rapidly [1]. Developments in information technology in this era of globalization provide many benefits to the community when carrying out activities [1], [2]. Utilization occurs in terms of processing, managing, utilizing, and accessing large amounts of information using a relatively short time but still precise and accurate [3], [4].

User experience has an important role in the development of an information system by involving the experience of users to achieve the desired goals [5], [6]. Evaluation using this UX approach has a function to find out what users feel, such as whether users feel happy, depressed, or satisfied when using information systems [7]. Heart metrics is a framework that can be used to measure UX [5], [6], [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [17], [18], [19], [20], [21], the characteristics of Heart metrics that are evaluated can be

measured from the point of view of the level of usability [5], [8], [9], [14], [15]. User background is one of the factors that can influence when analyzing an application [2]. People from different cultures have different ways of thinking and behaving, and these differences affect their patterns of understanding, developing, and using computers [22]. User background can affect the results of analyzing an application also found in the literature [23], [24], [25], [26].

Siliwangi University has information technology that is used as a means of providing academic-related information, namely the Siliwangi University Academic Information System, which is then called SIMAK UNSIL based on the website. Playing an important role in supporting the main activities of the academic administration process, SIMAK UNSIL is required to have informative value, classified as a website that is easy to use, and has a good user experience and with a high level of usability [3], [27]. The inconvenience in accessing or using SIMAK UNSIL can be assumed that SIMAK UNSIL has services that are difficult to use or can be classified as not usable [3].

Previous research conducted on SIMAK UNSIL, one of which was by [3], [28], namely analyzing in terms of student

satisfaction levels using Structural Equation Modeling which shows that the service attributes of tangibles, responsiveness, and empathy have a significant influence on user satisfaction, Meanwhile, the reliability and assurance factors do not have a significant effect on user satisfaction, from these five factors it is found that the level of user satisfaction is 57%, therefore from the UNSIL Academic Information System (SIMAK) which needs to be improved for the quality of academic services on user satisfaction is in the tangibles, responsiveness, and empathy factors [28].

In 2022, research was also conducted by Andi Nur Rachman, Euis Nur Fitriani Dewi, Reynaldi Akbar Maulana, and Arif Muhamad Nurdin regarding the evaluation of the usability level of the SIMAK UNSIL website by utilizing the WEBUSE method in conjunction with Heuristic Evaluation which resulted in a usability level of “Good” or can be said to be good, but problems were found in terms of user-interface, navigation of the website, and help to overcome errors that could arise, this indicates that the usability of SIMAK is still not fully achieved because there are still indicators that give rise to low scores [3].

Refer to [3], [28] which discusses the analysis of services from SIMAK UNSIL, stating that there are still things that have not met user expectations and have not directly analyzed the user experience, so research will be conducted that has the aim of knowing the user experience by using 5 characteristics from Heart Metrics which the results will be according to the level of usability. This research will produce information on the value of user experience with the level of usability to be able to find problems that occur in SIMAK UNSIL in more depth. These results are grouped based on the Faculty of each student who acts as a user background at Siliwangi University and are expected to help SIMAK UNSIL developers in improving the quality of their website for the better when the user experience value with the level of usability is known based on the background of the users.

II. MATERIAL AND METHOD

The flow of the research method carried out is as shown in Figure - which begins with a literature study, determining research parameters, population and samples, instrument preparation, results and discussion, and making recommendations.

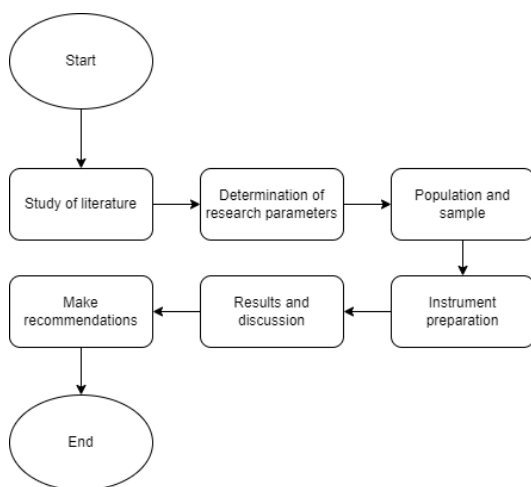


Figure 1 Research Stage

A. Study Literature

In the literature study stage, researchers collected references related to user experience research, analysis based on user background, the influence of culture on user experience, and the HEART Metrics Framework. The references used were journals, books, and articles from trusted websites.

B. Measurement Model

The measurement model chosen is the HEART Metrics Framework as a general framework that focuses on user experience in product use [10]. HEART Metrics tracks a selection of metrics that can help measure how successful a feature or product is and help prioritize a feature [29]. The HEART framework has 5 characteristics namely Happiness, Engagement, Adoption, Retention, and Task Success [10].

TABLE 1
CHARACTERISTICS HEART

HEART Metrics	Explanation
Happiness	Happiness is a metric that focuses on subjective aspects of user experience, such as satisfaction, visual interest, likelihood to recommend, and perceived ease of use.
Engagement	Engagement is a measurement of the level of user involvement in a product referring to the frequency, intensity, or depth of interaction over a period of time.
Adoption	Evaluate new users who start using the product over a period of time.
Retention	Track how many users from a certain timeframe are still loyal in the next few timeframes.
Task Success	It covers several traditional user experience behavioral metrics, such as efficiency (time to complete a task), effectiveness (percentage of tasks completed), and error rate.

Each characteristic measured in Heart Metrics is associated with a goal. Heart metrics identifies a goal from an assessment aspect (goals), identifying signals (signal) that indicate success or failure, and builds metrics (metrics) specifically to identify these signals, then the three processes are better known as the Goals-Signal-Metrics process [10]. Establishing Goals-Signals-Metrics is necessary as the first step before testing [10].

TABLE 2
GOALS-SIGNAL-METRICS

Framework HEART	Goals	Signal	Metric
Happiness	User Experience Kategori Happiness dengan Level of usability berada pada taraf Very High	Users are satisfied, make recommendations, and find it convenient	Happiness-oriented User Survey.
Engagement	User Experience Kategori Engagement dengan Level of usability berada pada taraf Very High	Users often use SIMAK UNSIL when they need it	Engagement-oriented User Survey.
Adoption	User Experience Kategori Adoption dengan Level of usability berada pada taraf Very High	Users are able to use and high frequency to increase the use of SIMAK UNSIL	Adoption-oriented User Survey.

Retention	User Experience Kategori Retention dengan Level of usability berada pada taraf Very High	Users always return to using SIMAK UNSIL	Retention-oriented User Survey.
Task Success	User Experience Kategori Task Success dengan Level of usability berada pada taraf Very High	The user is always successful in running the feature being used or is always successful in obtaining the required files	Task Success-oriented User Survey.

C. Instrument

Instruments that are compiled looking at research references [5], [7], [8], [9], [10], This resulted in 20 statements that represented the 5 HEART Characteristics and served as the Metrics used.

TABLE 3
INSTRUMENT QUESTIONNAIRE

Code	Statement
H1	I feel satisfied after using SIMAK UNSIL
H2	I feel that the features provided by SIMAK UNSIL speed up the completion of my needs.
H3	I find SIMAK UNSIL easy to use
H4	I like the appearance or user interface of SIMAK UNSIL
H5	I recommend SIMAK UNSIL to other students
E1	I can use SIMAK UNSIL every time
E2	I need to use SIMAK UNSIL when I need academic documents
E3	I regularly access SIMAK UNSIL
E4	I always access SIMAK UNSIL as a means of information
A1	I know how to use SIMAK UNSIL the first time I use it
A2	I feel that SIMAK UNSIL can fulfill my needs
A3	I will increase the frequency of using SIMAK UNSIL
R1	I use SIMAK UNSIL not only at the beginning of the semester.
R2	I often use SIMAK UNSIL during my time as a student.
R3	I use SIMAK UNSIL not only on campus.
T1	I can use the features of SIMAK UNSIL smoothly
T2	It doesn't take me long to operate SIMAK UNSIL
T3	I can quickly get the academic administration documents I need
T4	I can shorten the time when I need a lecture schedule

This instrument has gone through the validity test stage which states that it is valid and the reliability test which states that it is reliable. The questionnaire statements were made by utilizing a Likert scale of 1 to 5, which starts from Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree [30].

TABLE 4
LIKERT SCALES

Kriteria Penilaian	Skala Likert
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strong Disagree	1

D. Analysis Techniques

The characteristics in the HEART Metrics Framework that are evaluated can be measured from the point of view of the level of usability [5]. The stages used to calculate the user experience with the level of usability are based on the background of the users:

1. Grouping data according to background, namely each faculty origin or cluster. Descriptive analysis of data based on faculty origin.
2. Determine the maximum value for each variable. This maximum value is the expected value. To obtain the

maximum value, it is obtained by multiplying the value to be achieved from each statement item by the total number of statement items in each variable, then multiplying by the total number of respondents [5].

3. Calculate the total value for each variable. This total value is obtained after all statements are filled in by respondents [5].
4. Calculate the value of the criteria. Calculating the value of the criteria is by adding up the total value that has been obtained then dividing it by the maximum value [5].
5. Measuring based on the level of usability point of view obtained from matching the criteria value on each variable that has been obtained previously with the table 5 [5].

TABLE 5
LEVEL OF USABILITY

Koefisien Korelasi	Level of usability
$0,81 \leq r < 1,00$	Very High
$0,61 \leq r < 0,80$	High
$0,41 \leq r < 0,60$	Natural
$0,21 \leq r < 0,40$	Low
$0,00 \leq r < 0,20$	Very Low

III. RESULT AND DISCUSSION

The questionnaire distribution was successful and met the minimum requirement of 100 respondents/cluster so that there were 700 respondents.

A. Respondent Demographics

The description of respondent demographics aims to provide a clear picture of the respondents' demographic conditions and their relationship to the problems and objectives of this study.

1. Based on Gender

Demographics of respondents grouped by gender with respondents after taking 100 respondents / clusters are in the table 6.

TABLE 6
GENDER DEMOGRAPHICS

Gender	Respondent
Male	195
Female	505

Based on the calculations that have been carried out by deciding 100 respondents/cluster from 7 existing clusters, it is found that 195 are male and 505 are female. Depicted in the following diagram:

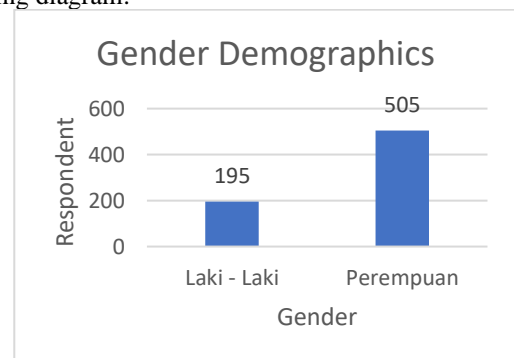


Figure 2 Gender Demographics

Figure 2 illustrates that rather than men, women dominated in participating in the questionnaire.

2. Based on Generation

Demographics of respondents grouped by Force with respondents after taking 100 respondents/cluster are in the table ---

TABLE 7
GENERATIONS DEMOGRAPHICS

Generations	Respondent
2019	76
2020	158
2021	131
2022	130

Table - explains the results of research on respondent data based on class which concludes that the 2019 generation has the fewest respondents with 76 respondents and the 2023 generation has the most respondents with 205 respondents, then there is the 2020 generation with 158 respondents, the 2021 generation has 131 respondents, and the 2022 generation with 230 respondents. Depicted in the following diagram:

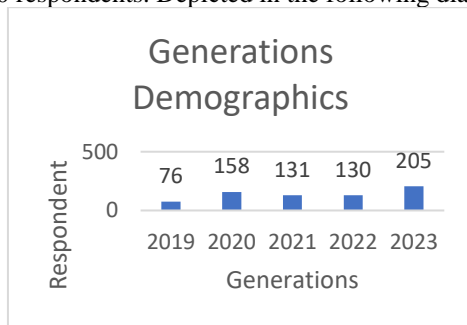


Figure 3 Generations Demographics

The total number of respondents is 700 according to the 7 existing clusters and has 100 respondents/cluster.

3. Based on Cluster

The description based on clusters intends to provide an explanation that respondents have demographic differences. The data based on this cluster after taking 100 respondents/cluster is in the table --.

TABLE 8
CLUSTER DEMOGRAPHICS

Cluster	Respondent
FIK	100
FT	100
FAI	100
FISIP	100
FAPERTA	100
FEB	100
FKIP	100

The following diagram shows the data:

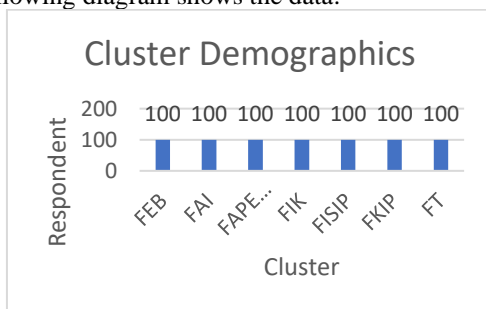


Figure 4 Cluster Demographics

The data proves that the minimum requirement has been met, namely 100 respondents/cluster.

B. HEART Analysis by Cluster

The data has been collected by meeting the requirements of validity, reliability and the minimum number of respondents per cluster, then the next HEART per Cluster

analysis is carried out to find the results of the user experience value in each existing HEART per cluster characteristic.

1. Engineering Cluster

The Engineering Cluster has 100 data to be analyzed. The results of testing the SIMAK UNSIL user experience on Engineering Cluster Students can be seen in the table 9.

TABLE 9
Engineering Cluster

Characteristics	Number of Statements	Max Score	Total Score	Criteria Score	Level of Usability
Happiness	5	2500	1717	0,69	High
Engagement	4	2000	1425	0,71	High
Adoption	3	1500	1051	0,70	High
Retention	3	1500	1176	0,78	High
Task Success	5	2500	1683	0,67	High

From the test results listed in table 9 above, the SIMAK UNSIL user experience shows satisfactory average results. This is indicated by the criterion value for each characteristic that gets the level of usability with Happiness 0.69 (high), Engagement 0.71 (high), Adoption 0.7 (high), Retention 0.78 (high) and Task Success 0.67 (high), but the Retention characteristic with a value of 0.78 is close to the level of usability 'very high'.

2. Teacher Training and Education Cluster

Teacher Training and Education Cluster has 100 data to be analyzed. The results of testing the SIMAK UNSIL user experience on Engineering Cluster Students can be seen in the table 10.

TABLE 10
Teacher Training and Education Cluster

Characteristics	Number of Statements	Max Score	Total Score	Criteria Score	Level of Usability
Happiness	5	2500	1917	0,77	High
Engagement	4	2000	1515	0,76	High
Adoption	3	1500	1088	0,73	High
Retention	3	1500	1232	0,82	Very High
Task Success	5	2500	1783	0,71	High

From the test results listed in table 10 above, the SIMAK UNSIL user experience shows satisfactory average results. This is indicated by the criterion value for each characteristic which gets a level of usability with Retention 0.82 (very high), followed by Happiness 0.77 (high), Engagement 0.76 (high), Adoption 0.73 (high), and Task Success 0.71 (high), but the Happiness characteristic with a value of 0.77 is also close to the 'very high' level of usability.

3. Health Science Cluster

Health Science Cluster has 100 data to be analyzed. The results of testing the SIMAK UNSIL user experience on Engineering Cluster Students can be seen in the table 11.

TABLE 11
Health Science Cluster

Characteristics	Number of Statements	Max Score	Total Score	Criteria Score	Level of Usability
Happiness	5	2500	1830	0,73	High
Engagement	4	2000	1434	0,72	High
Adoption	3	1500	1060	0,71	High
Retention	3	1500	1164	0,78	High
Task Success	5	2500	1745	0,70	High

From the test results listed in table 11 above, the SIMAK UNSIL user experience shows satisfactory average results. This is indicated by the criterion value for each characteristic which gets a level of usability with Happiness 0.73 (high), Engagement 0.72 (high), Adoption 0.71 (high), Retention 0.78 (high) and Task Success 0.7 (high), but the Retention characteristic with a value of 0.78 is close to a very high level of usability.

4. Social and Political Science Cluster

Social and Political Science Cluster has 100 data to be analyzed. The results of testing the SIMAK UNSIL user experience on Engineering Cluster Students can be seen in the table 12.

TABLE 12
Social and Political Science Cluster

Characteristics	Number of Statements	Max Score	Total Score	Criteria Score	Level of Usability
Happiness	5	2500	1784	0,71	High
Engagement	4	2000	1457	0,73	High
Adoption	3	1500	1028	0,69	High
Retention	3	1500	1156	0,77	High
Task Success	5	2500	1812	0,72	High

From the test results listed in table 12 above, the SIMAK UNSIL user experience shows satisfactory average results. This is indicated by the criterion value for each characteristic that gets the level of usability with Happiness 0.71 (high), Engagement 0.73 (high), Adoption 0.69 (high), Retention 0.77 (high) and Task Success 0.72 (high), but the Retention characteristic with a value of 0.77 is close to the level of usability 'very high'.

5. Agriculture Cluster

Agriculture Cluster has 100 data to be analyzed. The results of testing the SIMAK UNSIL user experience on Engineering Cluster Students can be seen in the table 13.

TABLE 13
user experience on Engineering Cluster Students

Characteristics	Number of Statements	Max Score	Total Score	Criteria Score	Level of Usability
Happiness	5	2500	1718	0,69	High
Engagement	4	2000	1379	0,69	High
Adoption	3	1500	1024	0,68	High
Retention	3	1500	1116	0,74	High
Task Success	5	2500	1681	0,67	High

From the test results listed in table 13 above, the SIMAK UNSIL user experience shows satisfactory average results. This is shown from the criteria value for each characteristic that gets the level of usability with Happiness 0.69 (high), Engagement 0.69 (high), Adoption 0.68 (high), Retention 0.74 (high) and Task Success 0.67 (high), so it can be seen that only the Retention characteristic has a criteria value above 0.7.

6. Economy and Business Cluster

Economy and Business Cluster has 100 data to be analyzed. The results of testing the SIMAK UNSIL user experience on Engineering Cluster Students can be seen in the table 14.

TABLE 14
The results of testing the SIMAK UNSIL user experience on Engineering Cluster Students

Characteristics	Number of Statements	Max Score	Total Score	Criteria Score	Level of Usability
Happiness	5	2500	1861	0,74	High
Engagement	4	2000	1501	0,75	High
Adoption	3	1500	1060	0,71	High
Retention	3	1500	1181	0,79	High
Task Success	5	2500	1762	0,70	High

From the test results listed in table 14 above, the SIMAK UNSIL user experience shows satisfactory average results. This is indicated by the criterion value for each characteristic that gets the level of usability with Happiness 0.74 (high), Engagement 0.75 (high), Adoption 0.71 (high), Retention 0.79 (high) and Task Success 0.7 (high), but the Retention characteristic with a value of 0.79 is close to the level of usability 'very high'.

7. Islamic Religion Cluster

Islamic Religion Cluster has 100 data to be analyzed. The results of testing the SIMAK UNSIL user experience on Engineering Cluster Students can be seen in the table 15.

TABLE 15
Social and Political Science Cluster

Characteristics	Number of Statements	Max Score	Total Score	Criteria Score	Level of Usability
Happiness	5	2500	1886	0,75	High
Engagement	4	2000	1490	0,75	High
Adoption	3	1500	1065	0,71	High
Retention	3	1500	1196	0,80	High
Task Success	5	2500	1861	0,74	High

From the test results listed in table 15 above, the SIMAK UNSIL user experience shows satisfactory average results. This is indicated by the criterion value for each characteristic that gets the level of usability with Happiness 0.75 (high), Engagement 0.75 (high), Adoption 0.71 (high), Retention 0.80 (high) and Task Success 0.74 (high), but the Retention characteristic with a value of 0.80 is very close to the level of usability 'very high'.

C. HEART Analysis by Characteristics

Analysis of HEART Framework Characteristics which aims to see the value of user experience per characteristic possessed by HEART in each cluster.

1. Happiness

Happiness characteristics focus on aspects of satisfaction, visual interest, recommendation opportunities or ease of use can be seen in the table 16 [10].

TABLE 16
Analyze Happiness Characteristics

Cluster	Happiness Criteria Score	Level of Usability
FIK	0,73	High
FT	0,69	High
FAI	0,75	High
FISIP	0,71	High
FAPERTA	0,69	High
FEB	0,74	High
FKIP	0,77	High

7 The existing clusters have the same level of usability which is 'high' and does not have a significant difference in value, but the FKIP cluster has the highest Happiness criteria value among other clusters with a value of 0.77, while the FT

cluster and FAPERTA cluster have the lowest value of 0.69, then when compared, the difference is 0.08.

2. Engagement

Engagement characteristics focus on measuring the level of user involvement in a product that refers to the frequency, intensity, or depth of interaction can be seen in the table 17 [10].

TABLE 17
Analyze Engagement Characteristics

Cluster	Engagement Criteria Score	Level of Usability
FIK	0,72	High
FT	0,71	High
FAI	0,75	High
FISIP	0,73	High
FAPERTA	0,69	High
FEB	0,75	High
FKIP	0,76	High

7 The existing clusters have the same level of usability which is 'high' and does not have a significant difference in value, but the FKIP cluster has the highest Engagement criteria value among other clusters with a value of 0.76, the FAPERTA cluster has the lowest value of 0.69, then when compared, the difference is 0.07.

3. Adoption

Adoption characteristics focus on evaluating the user's first time use can be seen in the table 18 [10].

TABLE 18
Analyze Adoption Characteristics

Cluster	Adoption Criteria Score	Level of Usability
FIK	0,71	High
FT	0,70	High
FAI	0,71	High
FISIP	0,69	High
FAPERTA	0,68	High
FEB	0,71	High
FKIP	0,73	High

7 The existing clusters have the same level of usability which is 'high' and does not have a significant difference in value, but the FKIP cluster has the highest Adoption criteria value among other clusters with a value of 0.73, the FAPERTA cluster has the lowest value of 0.68, then when compared, the difference is 0.05.

4. Retention

Retention characteristics focus on user loyalty can be seen in the table 19 [10].

TABLE 19
Analyze Retention Characteristics

Cluster	Retention Criteria Score	Level of Usability
FIK	0,78	High
FT	0,78	High
FAI	0,80	High
FISIP	0,77	High
FAPERTA	0,74	High
FEB	0,79	High
FKIP	0,82	Very High

6 The existing clusters have the same level of usability which is 'high', then the FKIP cluster has the highest Retention criteria value among other clusters with a value of 0.82 with a level of usability of 'very high', while the FAPERTA cluster has the lowest value of 0.74, then when compared, the difference is 0.08.

5. Task Success

The Task Success characteristic focuses on traditional user experience behaviors such as efficiency, effectiveness and error rate can be seen in the table 20 [10].

TABLE 20
Analyze Task Success Characteristics

Cluster	Task Success Criteria Score	Level of Usability
FIK	0,70	High
FT	0,67	High
FAI	0,74	High
FISIP	0,72	High
FAPERTA	0,67	High
FEB	0,70	High
FKIP	0,71	High

7 The existing clusters have the same level of usability which is 'high' and does not have a significant difference in value, but the FAI cluster has the highest Task Success criteria value among other clusters with a value of 0.74, while the FAPERTA and FT clusters have the lowest value of 0.67, then when compared, the difference is 0.07.

D. Overall HEART Analysis

The HEART analysis per characteristic has been completed and it can be seen that there are differences in characteristic values in each cluster. The next analysis is to combine all characteristics and clusters in one table to see the criteria value of each overall characteristic can be seen in the table 21.

TABLE 21
Analysis HEART

Characteristics	Cluster							Criteria Score	Level of Usability
	FIK	FAI	FKIP	FEB	FIK	FAI	FKIP		
H	0,73	0,75	0,77	0,74	0,71	0,69	0,69	0,73	High
E	0,72	0,75	0,76	0,75	0,73	0,69	0,71	0,73	High
A	0,71	0,71	0,73	0,71	0,69	0,68	0,70	0,70	High
R	0,78	0,80	0,82	0,79	0,77	0,74	0,78	0,78	High
T	0,70	0,74	0,71	0,70	0,72	0,67	0,67	0,70	High

IV. CONCLUSION

Based on the research that has been done, it can be concluded that the value of SIMAK UNSIL user experience based on user background can be measured with the HEART Metric Framework. SIMAK UNSIL user experience with the HEART Metric Framework as a whole cluster has an average criterion value of 'high' level of usability. The Happiness characteristic has a criterion value of 0.73 (high), the Engagement characteristic has a criterion value of 0.73 (high), the Adoption characteristic has a criterion value of 0.70 (high), the Retention characteristic has a criterion value of 0.78 (high), and the Task Success characteristic has a criterion value of 0.70 (high), then with Goals stating that it reaches 'very high', the Goals have not been achieved so it is recommended for SIMAK UNSIL developers to make some improvements.

User experience analyzed per cluster has a difference but not too significant. The criterion value of the characteristics per cluster is on average in the value range of 0.69 - 0.8 which means that it has a 'high' level of usability which means that it has not achieved the expected Goals, but it is different from the criterion value of the Retention characteristic of the FKIP cluster which has a criterion value of 0.82 and includes a 'very high' level of usability. The FAPERTA cluster has almost all

of its characteristic criteria values below 0.7 except the Retention characteristic criteria value which is 0.74. There are several suggestions related to this research that can be considered by various parties such as the research object institution, academics, and future researchers. Based on the results that have been concluded, the SIMAK UNSIL website manager or related stakeholders need to conduct further research to find the reasons or causes of clusters that have lower criteria values in each characteristic than others so that it is clearer and more detailed regarding what is dissatisfied and examine clusters that have higher criteria values in each characteristic than others as a comparison to determine the direction of development so that low criteria values can increase, but do not reduce the high criteria values and users have a good user experience. Then explore more deeply related to the HEART Metric Framework in order to find Goals-Signals-Metric that are more relevant to be applied as the best solution, and the object under study can be specific to certain features and to find out more specific results as well and also in research using the HEART Metric Framework can conduct discussions with the object developer directly or with stakeholders who both know the purpose of the object of research so as to get Goals-Signals-Metric that are more relevant to the purpose.

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