
User Centered Design in Analysis and Design of UI UX in the Simpeg Application of Dharmais Cancer Hospital

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ABSTRACT

Dharmais Cancer Hospital as a health service facility that is experienced in its field, of course, has human resources which are important, so to support employee performance in terms of employee rights such as employee leave, media is needed that really supports employee needs. Through the employee support system, namely the Employee Information System (SIMPEG) application, several problems were found in terms of appearance and the proposal process as well as the leave recapitulation process which did not exist in the previous SIMPEG application. From the problems found in the Personnel Information System (SIMPEG), a User Centered Design (UCD) method is offered which places the Personnel Information System (SIMPEG) users as the main consideration for building a new system. In the design process there are three steps that are carried out starting from the initial stage, the development stage and the final stage, where at the initial stage testing is carried out using a questionnaire, the average result is 53 which means OK but still low or not good, after the development of the system is carried out and the distribution of questionnaires was carried out again, the results were 71, which means Good. With the design of a Personnel Information System (SIMPEG) using the User Centered Design (UCD) method, it produces a new User Interface (UI) and User Experience (UX) design for the Personnel Information System (SIMPEG), which consists of a forgot password menu feature, leave recap and display easier to use for employees.

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INTRODUCTION

Hospital is a health care institution that provides public health services in principle providing hospitality, road care, and emergency services (Marthoenis, 2020) The Dharmais Cancer Hospital is the National Cancer Center, which began with the desire to provide the services of blurred cancer in Indonesia by cancer experts. This opportunity was opened in 1988 when the head of the Dharmais Father H.M. Soeharto Foundation asked Prof. Dr. Arry Haryanto R, Sp.PD. KHOM to think of a cancer hospital model in line with Indonesian society's needs.

At the moment, Dharmais Cancer Hospital has stood for about 29 years and has a staff of 1750. In 2010, the Dharmais Cancer Hospital was established as an institution that applied the Financial Management Model of the General Service (PPK-BLU), while the Dharmais Cancer Hospital was standing there was a power supply consisting of ASN and BLU officials. Every ASN or BLU official has rights and obligations against the Hospital One of the rights is a vacation official. The vacation is an unaccompanied state of work that is permitted during a suspended period. The type of official vacation consists of annual vacation,

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major vacation, sick leave, birthleave, important vacation, joint vacation and vacation abroad.

In previous research (Anggara, 2020) there were several differences in terms of appearance user complained on users The font is too small and thin, Appearance Backgrounds Uncouth, No Features Forgot the password and use the User Method Centered Design Based On Contextual Design.

Based on observation, complaints from the user of the SIMPEG application have been found, especially staff vacation problems. To ensure that the problem is interviewed by involving the SIMPEG user and to discuss directly what the user wants for the development of the SIMPEG Application especially the issue of official leave.

Based on the results of the interview found to be deficient, such deficiencies, if further developed, can make it easier to propose an official's leave, related to the problem of no counting of the remainder or large vacation crew, vacation outside the country's remit, The annual vacation and the important reason that has been taken over a year makes it difficult for officials and the department of responsibility to find out information about the vacation, there is no menu to print in the SIMPEG system for large vacations and vacations outside the country's responsibility that will be used for proposing vacations to the Ministry of Health and the National Agency. And other controls on that website-based SIMPEG Application do not forget the password menu that makes it difficult for the user to forget the password on that application, so the best solution to solve the problem is the Dharmais Cancer Hospital requires a good user interface design to improve user experience using the User Centered Design (UCD) method.

User Interface is a form of display that is directly connected to the user and functions as a bridge between the user and the system so that a device can be operated, while User Experience is an experience given by an application to its user in order to interact that is interesting and fun (Maulana, 2020). Based on the explanation above, the author takes the title "User Centered Design (UCD) In Analysis and Design User Interface (UI) and User Experience (UX) on the SIMPEG Kanker Dharmais Hospital Application" in this study using the User Centered Design method to make the use of SIMPEG based on a site that is appropriate to the needs.

RESEARCH METHOD

A. User Interface (UI)

User Interface is a form of display that is directly related to the user and functions as a bridge between the user and the system so that a device can be operated, while User Experience is the experience that an application provides to its users so that interaction occurs. What is done is interesting and fun (Maulana, 2020).

User interface or User Interface (UI) is a term

used to describe a display of a computer machine that interacts directly with the user. Interface design and design needs to be watched to produce a good view. (Ghiffary et al., 2019). The form of communication or interaction between the user and the system must be able to provide user friendly interactions. If the User Interface on an application is easy to use, then the user refuses to switch to a similar application, otherwise if the application has a User Interface that is difficult to understand the user, then it is highly likely that the application will be abandoned.

B. User Experience (UX)

Implementation in the context of User Experience (UX) is a critical phase in the product development cycle that leads to realizing it in a form that can be accessed and enjoyed by users. This process involves implementing a previously created UX design into an actual product or service (Hajizah, 2024).

User experience or UX design is the process of designing and developing a product or service that focuses on user experience. The main goal of UX design is to increase user satisfaction and create more effective and efficient products or services. (Hasanuddin & Dkk, 2023)

According to ISO 2010, User Experience (UX) is the perception or response of a person produced from the use or anticipation of a system or service product, covering all emotions, beliefs, choices, preceptions, physical and psychological responses, behaviour, and user success and after system use. There are three factors that affect the user's experience

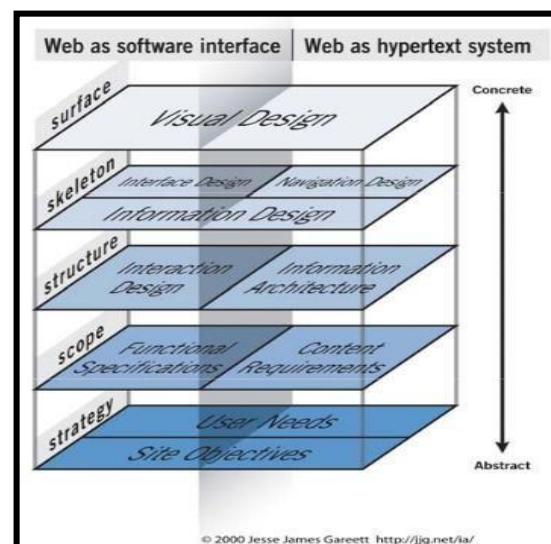


Figure 1. source: (Tinur, 2021)

In Figure 1, system, user and user context. According to Garrett & James UX, five basic elements are.

C. User Centered Design (UCD)

User Centered Design (UCD) is a design methodology where user needs, desires and limitations focus on all stages of design processes and design cycles. Developed products use UCD methods to adjust user needs. Where design and evaluation are built from initial steps to continuous implementation.

D. Personnel Information System

A system is a group of people who work together with systematic and structured rules to form a single unit that carries out a function to achieve a goal. The system has several characteristics or properties consisting of system components, system input, system output, system processing and system targets (Pangestu et al., 2020).

System analysis is defined as understanding and specifying in detail what the system must do. Meanwhile, system design is defined as explaining in detail how the parts of the information system are implemented (Fatta and Amikom, 2020).

Systems are component parts that have relationships with each other, both physical and non-physical, that work together to achieve the desired goals in harmony (Prehanto & Nuryana, 2020).

According to the Home Secretary's decision No. 17 of 2000 on the Departmental Information System and the Developer mentioned that the next Staff Information Management System installed by SIMPEG is a totality consisting of a rejection device comprising collections, procedures, recruitment energy and software, The storage device comprises data centres and databanks and related, interdependent and mutually defined communication devices in the information providers' ranks in the field of responsibility.

E. System Usability Scale (SUS)

System Usability Scale (SUS) is the most commonly used tool to assess the use of a system or product according to John Brooke (2013). (Setiawati et al., 2018). To measure using the System Usability Scale (SUS) consisting of 10 questions with a scale of 1 to 5 there are odd numbers of questions containing positive tones and exact numbers containing negative questions. The SUS value is obtained from the average value of the response using the following calculation: (Bimananda Cavanaugh, 2021)

Average Value \bar{x} Is the responden score value N Is the number of respone Assessment based on 3 categories:

1. Not Acceptable = skor 0 - 50,9
2. Marginal = skor 51 – 70,9
3. Acceptable = skor 71 – 100

F. Cluster Sample

Cluster samples are even smaller proportions of group sampling and have the exact same effect as the area probability sampling that was just mentioned. In a cluster sample the unit sample consists of individuals other than groups of individuals or clusters. (Riyanto & Hatmawan, 2020).

Cluster sampling is usually less expensive than simple random sampling, but it is less accuratte. remember that each stage in cluster sampling introduces sampling errors, so a multistage cluster sample has more sampling errors than a one-stage random sample (Peter B. Kraska, John J. Brent, 2020).

RESULTS AND DISCUSSION

1. Research Methodology

In conducting research, the methodology used is the User Centered Design (UCD) method.

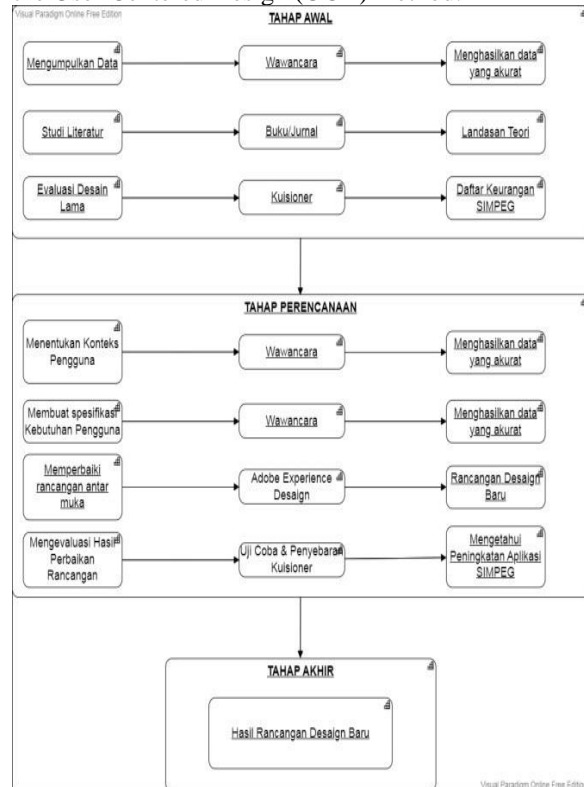


Figure 2: Research Level Line Design

In Figure 2, the stages in solving the problem are described.

A. The Initial stage consists of:

1. Collecting Data
2. Studi Literatur
3. Design Evaluation

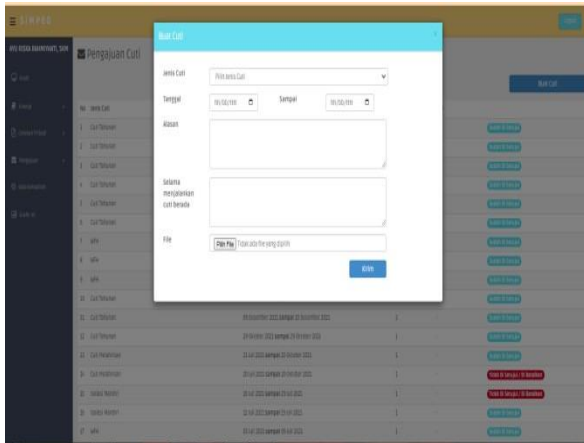


Figure 3: Simpeg Leave Submission Display

In Figure 3, At the design evaluation stage it is conducted with the dissemination of the missionary with the following questions

Tabel 1 Question Items Table

No	Question
1	I like to place features in the SIMPEG Application
2	I feel I can easily propose a vacation using the SIMPEG application
3	I can easily understand the SIMPEG usagestrng especially in features for vacation
4	I can get details of the rest of the vacation quickly and easily
5	I can learn SIMPEG applications especially holiday applications easily
6	I can easily see the holiday recordings of the previous years
7	The special SIMPEG holiday application has a simple and understandable navigation line
8	I can easily print important vacations, big vacations and vacations abroad
9	I feel relieved by the existence of a SIMPEG app especially about official vacation
10	The entire SIMPEG application displays good features.

With the number of responses 45 with the Pegawai status of non-fixed PNS BLU equivalence and PNSRS obtained an average result of 53 using the System Kanker Usability Scale (SUS) can be said below the average Dharmai (less good), with the previous

SIMPEG applications displayed as follows:



Figure 4: Login Menu

In figure 4, The main menu display or login menu is the user's first step in entering the application.

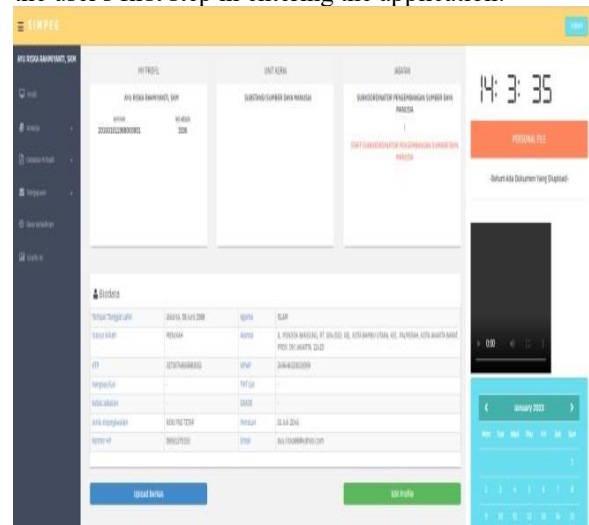


Figure 5: SIMPEG menu Display

In Figure 5, The home menu display is the front page after logging in which contains several menu options for the user's destination.

B. The planning stages consist of:

Table 1. Planning stages

User Type	Needs Before Evaluation	Needs After Evaluation
Part SDM	a. Holiday records for the number of vacation data taken by the staff membe	a. recording of vacation data for the number of vacations taken by officials in 1 period
	b. There are print features for the holiday proposal	b. Print feature for proposing important holidays, big holidays, and holidays outside the country's responsibility to be sent to KEMENKES
Hospital employee	a. Show the rest of the annual holiday data	a. Display the remaining annual holiday data can be seen in the holiday proposal
Dharmais Cancer	b. Add forget password menu	b. Add menu to forget password when an official forgets his personal password

Table 1. shows the **The planning stages, which consist of:**

- a. Specifies User contex
- b. Create User Needs Specification
- c. Improving interface design
- d. Evaluating the design improvements

C. Final Stage

Generates new design designs that are easy to use by users of SIMPEG applications.

2. Research and Language Result

The method used in this research is the User Centered Design (UCD) to determine the results of the research and division.

A. Hasil Penelitian

The data used in this research for the development stage in the SIMPEG application



Figure 6: Leave Application Menu

In Figure 6, comes from interviews and missionary fillings filled in by the respondent to determine user specifications and so on.

an improvement of the interface design must be made using the Adobe Experience Desaign application, then evaluated by testing using a re- sensor to find out the upgrades of the SIMPEG application in particular about employee leave as far as the user needs.

A. User Interface

User interface design (UI, User Interface) in an accounting system is an important aspect that influences the way users interact with the system (Tarigan et al., 2023). designing an effective and attractive user interface (UI) is an important element in the development of a successful information system. Interface design principles are the cornerstone of creating an intuitive and efficient user experience (Priono et al., 2017; Tumanggor, 2021)

At this development stage an interface design is created on the SIMPEG application. The colour used in the SIMPEG application view for the interface view according to the Dharmais Cancer Hospital identity, with the result of the interface view as follows:



Figure 7: Show New SIMPEG Login

In Figure 7, login menu display after updating, which adds several images so it looks more attractive.



Figure 8: Show Admin Break Record Menu

In Figure 8, the SIMPEG application, a new feature has been added, namely employee leave recaps, which are placed in the employee leave recap menu, where recap data that can be taken monthly and annually can be summarized in Excel and PDF format.

Rekap Cuti Seluruh Pegawai									
TAHUN: 2022									
NO	NO ABSEN	NAMA	JABATAN	UNIT	JENIS CUTI	TGL PENGALUAN	TGL AWAL	TGL AKHIR	JUMLAH
1		HAFFITRA HARDI SALUKYA	TAJIR BUDIDIGRIS RELAYAWI DAN PARIWAS BUKIT	INSTALASI PARIWAS BUKIT	Cuti Tahunan	08/01/2023	18/01/2023	02/02/2023	12

Figure 9: Show annual holiday records

In Figure 9, This monthly leave recap menu is to see the remaining leave and leave that has been covered in the current month.

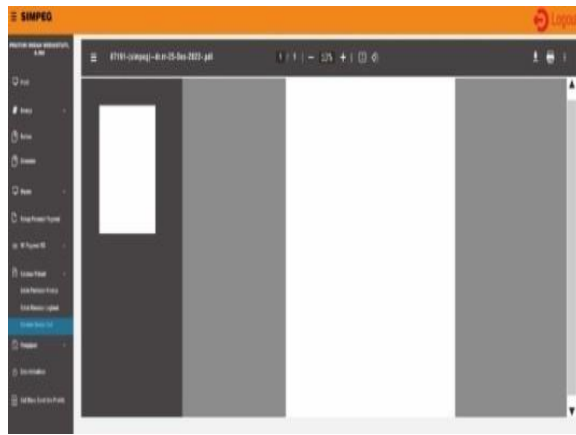


Figure 10: Print Menu

In Figure 10, the print menu you will find a leave form which will be printed as proof that you have applied for leave where the signature of the proposal is electronic

B. System Testing

In the system test above the researcher will make the missionary for the staff as a sample material that will use the SIMPEG application. testing is the process of analyzing a software entity to detect differences between existing conditions and desired conditions and evaluating the features of the software entity (Erlangga & Sabine, 2023).

Testing is an execution process to find errors in the system, then make improvements. This stage is an important stage in system development because at this stage it is the stage to ensure that the testing strategy is determined (Erlangga & Sabine, 2023).

If this sensor is present, it will then be used as the basis for the results of the test system. The quantum distribution results limited to the amount of responses consisting of administrative and service energy were obtained by 40 responses to determine the test results calculated using the System Usability Scale (SUS) method. From the quantum results with the number of responders up to 40 people, the average result of the prototype SIMPEG application was 71 with acceptable and Good results.

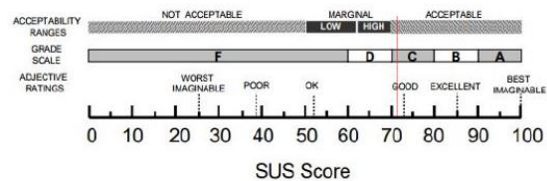


Figure 11: SUS Calculation Result

In Figure 11, From the results of questionnaire calculations with a total of 40 respondents, the average SIMPEG application prototype result was 71 with acceptable and good results.

C. Final Stage Result

At the final stage after all stages are done using the User Centered Design (UCD) method, then the next research documentation process. Research documentation produces reports of Scripture and Science Journal data.

CONCLUSION

Based on the results of the dissemination of missionaries to all staff at Dharmais Cancer Hospital and interviews with Dharmais Cancer Hospital Sub-Coordinator and Head of the Hospital Room, Dharmais can be collected from a Scripture study entitled "Analysis and Design User Interface (UI) & User Experience (UX) using the User Center Design (UCD) method of the SIMPEG application in the Hospital. "Dharmais DKI Jakarta Cancer" can conclude as follows:

The results of the User Interface (UI) & User Experience (UX) plan find a solution to the problems found in the research, namely by adding password-forgetting features, adding the popup features to the rest of the official's annual vacation, and adding both monthly and annual recording features.

In accordance with the design evaluation results with the System Usability Scale (SUS) and with the calculation of the SUS score, based on the SUS quantifier results from the initial evaluation results on the SIMPEG application get the value "OK" with a score 53 which means there needs to be an improvement in the SIMPEG application. Then design was made on the SIMPEG application, the results of the SIMPEG application quantification on the final evaluation reached end 71 with acceptable results and Good which means there has been a very good change and meets the needs of the staff.

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