

# Journal Aggregator System Concept Using User Centered Design (UCD) Approach

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**Abstract**— Journal as a medium to explain the results of research. It has developed in such a way especially because of the rapid support of information and communication technology today. Various models of online-based journaling management can be easily operated by journals managers as well as writers / researchers who will include research results in the journal. It's just that with the number of journals that exist today, causing difficulties for the manager of journals to be able to promote the journals he managed, in addition to the manager of the journal sometimes difficult to get a researcher who would put his paper into the journal he manages. Meanwhile, with the number of journals that have been online, researchers will find it difficult to get information from the journals. Researchers should open their journal entries, read their profiles and publications, until they are interested to include papers in the journal. This problem is the background of the development of online journals aggregator system, which with this system will facilitate the meeting between journals, journal managers and writers or researchers. In order to develop an online journal aggregator system, a software development method is needed that directly captures the needs of its users. User Centered Design (UCD) is a philosophy in software design that puts users as the center of system development. The UCD approach has been supported by various techniques, methods, tools, procedures, and processes that help design a more user-centered interactive system. With UCD it is expected that the online journals aggregator system can produce a design that will make it easier for its users, both in terms of functionality and from the side of the system interface.

**Index Terms**— Journal, Aggregator, Online, User Centered Design (UCD)

## I. INTRODUCTION

Journals are an important information medium for science and technology. A journal is a collection of articles or papers that are published periodically, written by the researchers to present the results of research that has been done and reviewed by the best trusted partner. Therefore, the continuity of scientific journals becomes a very important thing for the development of science and technology in order to know the scientific development up to the latest [1].

The development of information and communication technology (ICT) providing assistance to the journal management with the online-based journal management system. On the one hand it helps journalists in disseminating information and manage their journals, on the other hand for research with the online version of journal makes it easy to perform a transaction related articles to be included in the journal. With increasing number of online journals, there are a problem that is often complained by the journal managers, researchers and public. For the journal managers, increasing number of online journal in the field of science, an effective promotion is needed to introduce the journal to the researchers. Meanwhile the researchers find it difficult and takes a long time to find and open one by one journal web pages to view the profile of the journal which are supposed to accept the results of the research he wrote. While the public needs an access to obtain an information related to the results of research in more detail and complete in the same places.

UCD is used as a method in system design, due to its ease in interaction mechanisms with users who are involved in the field by utilizing user opinions, patterns of user behavior [2], in this case is the journal manager, researchers and general public who need access to journals. The activities such as discussion, observation and literature study is used as a medium to find and provide solutions related problems.

The online journals aggregator system takes the concept of a web portal that will be a meeting system between journal managers, journal, researchers and general public. It's will facilitate the journal managers to be able to promote the journals he managed, inviting potential researchers to include their research article, and journal transactions inside it. For the researcher, online journals aggregator system will be a means to choose, like and keep journals that are considered according to the scientific field, so it will facilitate researchers to obtain information related to the journal. As for the general public, the online journals aggregator system will provide search facilities in journals, articles and authors in the same system [8].

## II. LITERATURE REVIEW

### A. Scientific Journal

Scientific journals are considered the primary source of information or the most important in science and technology. Scientific journals contain a collection of articles published periodically, written by research scientists to report on the results of his latest research. Therefore, the existence of scientific journals is essential to advance science and technology. Writing or articles published in scientific journals, has passed the process of peer-reviewed and rigorous selection of experts in their respective fields. This peer-reviewed process is run to ensure the quality and validity of the scientific articles that are published. Publication of research results is an important part of scientific methods. Writing in scientific journals is intended for researchers and other experts in the same field. Articles in a journal should be clear, so an independent researcher can repeat his experiment or calculation to verify the results of his research. Articles in journals will be part of the permanent scientific record [1].

### B. Aggregator System

Aggregator refers to a website or computer software that collects certain types of information from various online sources. As for the types of aggregator system [3]:

- Data aggregator, an organization which involved in collecting information from a detailed database of individuals and selling information to others.
- News aggregator, a computer software or website that collects news from other news sources.
- Search aggregator, software that runs on the computer user and retrieves, filters, and organizes searches from various search engines
- Video aggregator, a website that collects and organizes online video sources
- Blog aggregator, a website that collects and organizes the source of the blog
- Payment aggregator, a software which handles payment transactions and completes the final settlement.
- Smart grid aggregator, an entity that directly or indirectly controls the energy consumption of the various sources of energy distributed.

### C. User Centered Design (UCD)

It is a new paradigm in the development of web-based systems. UCD is defined as “efficiency” The practice of designing a product so that users can perform required operation, service, and supportive

tasks with a minimum of stress and maximum of efficiency [4].

UCD or User-based design is a term used to describe design philosophy. The concept of UCD is the user as the center of the system development process and purpose/nature, context and environment systems are all based on user experience [5].

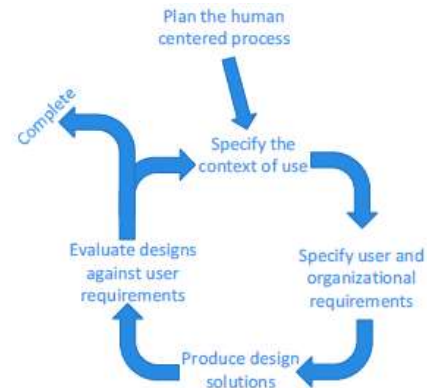


Fig. 1. UCD Working Process

The principle to be considered in UCD is [6]:

- Focus on the user  
Design must be directly related to the actual user or prospective users, for example through interviews, surveys. The objective is to understand the cognition, character, and attitudes of users and characteristics. Its main activities include data retrieval, analysis and integration into user design information about task characteristics, technical environment or organization.
- Integrated design  
The design should include the user interface, help system (how to use), and technical support such as software and hardware required.
- From the beginning continues on user test  
The only successful approach to designing user-centered system is empirically necessary observations about user behavior, evaluation of feedback carefully, insightful solutions to the existing problems, and a strong motivation to change the design.
- Interactive design  
The system being developed must be defined, designed, and performed multiple tests. Based on the results of behavior tests of the function, it will also be drawn of conclusions about the success rate of the product (application).

### D. Web Technology

The terminology of a website is a collection of web pages, usually summarized in a domain or subdomain within the World Wide Web (WWW) on the internet. A web page is a document written in HTML (Hyper Text Markup Language), which is

almost always accessible via HTTP, a protocol that conveys information from the servers of those websites can form a very large information network. The pages of the website will be accessible through a URL which is called the homepage. This URL sets the pages of the site to be a hierarchy, even though the hyperlinks on the page set up the readers and tell them the whole composition and the current part of the information flow. Some websites require a subscriptions (input data) so that users can access the site. [7]

### III. RESEARCH METHODOLOGY

#### A. Data Collection Method

The method of data collection and design of information systems are as follows, shows in figure 2:

- Interview: are conducted to interact directly or indirectly with parties involved in the journal community that is journal managers, authors / researchers and community members who need access to journal.
- Observation: this observation is done by observing directly on the research object and the developed unit. Because researchers are in a position that is also as a user, then this activity is relatively easier to do. In addition, online systems in the field of journal into a medium to make comparisons with systems to be developed.
- Literature review: the literature used, either in the form of library books, research results and other sources.

#### B. System Design Method Using UCD

The method used in the software design is the User Centered Design (UCD) method. This method is a method that sets the user as the center of system development. The process of User Centered Design (UCD) Method which includes 5 processes as follow:

- Plan the human centered process  
At this stage a discussion of the people who will work on the project, to get a commitment that the project development process is centered on the user. The project will have the time and task to engage users in the beginning and end of the process or where they are needed. And also the people who work on the project should be know well about this User Centered Design (UCD) method through literature, training or seminar studies.
- Specify the context of use  
Identify the person who will use the resulting product. This will explain for what and what conditions they will use the product.
- Specify user and organizational requirements  
Identify user needs and organizational requirements.

- Product Design Solutions  
Build design as a solution of the product that is being analyzed.
- Evaluate design against user requirements  
To evaluate the design whether the user and organizational objectives have been achieved.

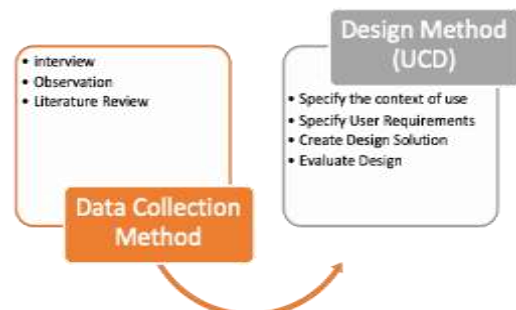


Fig. 2. Research methodology

### IV. RESULT AND DISCUSSION

System development method used in this research is by performing step by step on User Centered Design (UCD) method. This method focuses on the user's aspect, so there is often a misperception in pairing it with other software development methods, such as prototype, waterfall and so on. This method can stand-alone or be used in conjunction with another methods.

#### A. Plan The Human Centered Process Component

At this stage the researchers conducted a literature study. The activities conducted by reading and understanding the textbooks, scientific journals, and other media related to data processing systems in general. This is to emphasize that the design of an application system using User Centered Design (UCD) method can meet the wishes and expectations of the users.




#### B. Specify The Context Of Use

Entering this stage, the researcher will identify the users who will use the system and explain for what and what conditions they will use this product through the technique of identify stakeholders. This journal aggregator system is designed to provide information that is primarily concerned with the needs of journal managers, researchers and the general public. The information presented on this web portal system contains data:

- Journal profile data
- Journal manager data
- Researcher profile data
- Journal transaction data
- Abstract and paper data
- Journal category data
- News data

The user target of the online journals aggregator system consists of 3 users, shows in table 1.

Table 1. Target User Of Aggregator Journal Online System

| No | User   | Function  |
|----|--|---|
| 1  | <br>Journal Manager   | Users who can input data journal, can find and inform Potential Authors, can favor author's abstract, inviting partner, do journal transactions with author |
| 2  | <br>Author/Researcher | Users can search for journals according to the field, can favor the journal, uploading abstract, do journal transactions with journal manager               |
| 3  | <br>Visitor          | Users who can search the journal, find the author's information, and download the paper   |

#### C. Specify User And Organizational Requirements

Entering this stage the researcher identifies the list detailed of user's need. Based on a survey of potential users of the system there is an information that is required related to the activities of system design, such as :

Functional needs:

- The system can process the data of the researcher / author
- The system can process journal manager data
- The system can process the profiles data of researchers / authors
- The system can process journal data
- The system can process journal category data
- The system can perform a search of the journal
- The system can search the researcher / author
- The system can upload abstract papers
- The system can favor the journal
- The system can be distributed journal invitations
- The system can favor an abstract paper
- The system can provide confirmation paper
- The system can spread news related to the journal

Non-functional needs:

- The system was built using MySQL database with PHP programming language, CSS and web framework
- The system works well as long as it's connected to the internet with standard bandwidth

- There is no specific users to use this system.
- This system requires an operating system (Windows, Linux) and a web browser to access the system
- It has an user friendly interface that is easy to understanding user
- The system should be able to protect data from unauthorized access.

#### D. Product Design Solutions

It is the stage of design solutions, where researchers build the design form as a solution of the system to be developed. The prototype system is started from the global to the detailed form will be elaborated on this aspect.

- Main display which include : Login interface, Manage Journal interface, Manage Journal details, Spread the journal invitation interface, Manage News interface, Manage User interface, Search the Author/ Researcher interface, Journal Search interface, Journal View interface, Upload Abstract interface, Manage Papers interface, Manage Researcher Profile interface, Favorite journal interface, Search interface
- Additional displays that include information about links coming from various external sources of the organization. For example from Dikti, LIPI, Arjuna, OneSearchID, and so on.

#### E. Evaluate Design Against User Requirements

This stage is the evaluation stage of the design that has been done tailored the users needed. This evaluation was conducted to find out the design progress generated in accordance with the user needed.

## V. CONCLUSION

By using UCD method for designing online journals aggregator system, the resulting system gives more satisfaction to users and increases the usefulness of the system itself because since the beginning the user has been involved. The main key to the success of system design using the method is to develop a harmonious proximity between system developers or programmers with users, in order to obtain the actual needs and desires of the user. For systems that require precision and high accuracy, collaboration is required with other software development methods so the perspective is used as a benchmark in system design not only from the user side only.

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