Study of Ruangguru application based on human computer interaction principles and paradigm

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Abstract. This Ruangguru application study aims to determine the relevance of application functions based on the principles and paradigms of Human and computer Interaction (HCI). In this study, the aspects evaluated included aspects of human, technology, usability, and ergonomics. The interest in studying the Ruangguru application is based on several sources stating that Ruangguru is believed to be the “Best Education Platform”. So from that sentences, it was examined several aspects to determine the extent of the relationship between the Ruangguru application and HCI principle. After the study was conducted, the Ruangguru application was assessed to have fulfilled these aspects. So it’s no wonder the Ruangguru application is used as an online learning centre among Indonesian students.

1. Introduction

Entering the era of globalization that is synonymous with the term modernization, all aspects of life show change. Changes follow the development of technology that is classified as so fast. Today, technology is one of the most tempting offers for everyone. Globalization is a renewal process that covers all aspects of life, using technology as the main media. Technology as the main media, plays an important role in every development, including in the field of education. The implementation of education is intended to help people make themselves properly according to what they are capable of, and educators must be able to understand them in their actuality, possibilities and ideals and educators must know how to grow the changes they want [1]. Education has an important role in the progress of the nation and state, both developed and developing countries. The development and progress of a country can be seen from how education is able to form quality Human Resources (HR).

When science and technology develops very rapidly, the learning process is no longer monopolized by the presence of teachers in the classroom. Students can study anywhere and anytime. Students can learn anything according to their different interests and learning styles. A learning designer is required to be able to design learning by utilizing various types of media and appropriate learning resources so that the learning process takes place in a fun, effective, and efficient manner. Rossi and Biddle (1966: 3) suggest that learning media are all tools and materials that can be used for educational purposes, such as radio, television, books, newspapers, magazines, and so on. More specifically, the notion of media in the teaching and learning process tends to be interpreted as graphical, photographic, or electronic tools to capture, process, and reconstruct visual or verbal information [2].
In the current era of globalization, students are more familiar with technology, especially smartphones and on the other hand, it requires fair attitudes from both the teacher and society in general, which shows the identity and character of the teacher as a professional and educative member of the community [1]. The learning process is also familiar with the help of these smartphones, both using search engines (Google Chrome, Mozilla, Opera, and other web browsers) even through the help of android-based learning applications that can be easily obtained through play stores and app stores. With this technology, often students are happier to even understand learning using the help of online learning applications rather than conventional learning in the classroom. Information technology provides new media to disseminate information, namely digital media. Many educational institutions in Indonesia have used digital media to support learning, such as the use of the Ruangguru digital learning platform. The use of ruangguru application will not be separated from human interaction with computers. This ruangguru application is often used by many average students, especially in Indonesia. Ruangguru is considered a complete and easy learning facility because in addition to being able to be used as an online digital learning facility, learning can also be done anywhere and anytime.

Based on this background the author would like to conduct a study of the Ruangguru application based on the Human-Computer Interaction paradigm (HCI).

2. Methods
The methodology that used for this article are qualitative descriptive methods. The descriptive method of research is fact-finding with interpretation [3]. The purpose of this article is to reveal events or facts, circumstances, phenomena, variables and circumstances that occur when the research of the Ruangguru application based on the Human-Computer Interaction paradigm takes place by presenting what actually happened in the field. The data concerned with the current situation, attitudes and views that occur in the Ruangguru application based on the Human-Computer Interaction paradigm will be interpreted and described. The research activity includes collecting data, analysing data, interpreting data, and finally formulating a conclusion that refers to the analysis of the data.

3. Result and discussion

3.1. Human aspect on Ruangguru application

![Figure 1. Ruangguru application.](image-url)
Human aspects have a central role in the study of human and computer interactions [4]. In the Ruangguru application viewed in terms of the user interface it has been made very interesting and easy to understand by the user. Users can easily recognize the functions of the features provided in the Ruangguru application. Figure 1 shows the initial appearance of Ruangguru, where the interfaces shown are very easy to understand for each user. Users no longer need to read the manual book / application instructions and so on because every feature / icon presented in this application is equipped with easy-to-understand information. The use of fonts, colours and layout is adjusted to the needs and comfort of the user. Users only need to imitate behaviour according to their knowledge. In addition, Ruangguru also provides chat facilities between user learners and teaching users [5-7].

In terms of features, Ruangguru application offers features that are seen as user friendly with varied content ranging from material in the form of text, learning videos and even animated learning that is packaged with interest, making user (human) easier to understand material.

3.2. Technological aspects on Ruangguru applications

Some technological aspects that can be observed in Ruangguru applications include:

3.2.1. Input. In terms of input on the Ruangguru application it adapts to the devices installed on the application such as the keyboard and navigation. Pointing and text input devices also allow the system to copy / paste in the Ruangguru application. When going to do the input process, the keyboard that is raised (touchscreen) is in accordance with the work done (alphabet or number).

3.2.2. Sensory register. A stimulus occurs to display the keyboard when the cursor / pointer is directed at the input column. Likewise, stimulation when there is content selection on the menu, will immediately appear options available / offered.

3.2.3. Storage. The storage technology used in Ruangguru applications is online storage in applications, whether the material (text / video, etc.) is stored online. Users can save / archive material to the File Manager feature. Judging from the size of the application, Ruangguru also has a relatively small capacity / size of application so that this application can be installed / used in various types of smartphone that are supported.

3.2.4. Output. There are several types of content presented, including the presentation of material in the form of text and video, as well as the available practice questions at each session. The output from the Ruangguru application in the form of text or video is displayed on the same screen (not through separate frames / tabs). Then at the end of each content / learning, the user is given an output in the form of a report / report on learning achievement. Through these reports the user can find out the extent to which the achievements and success of each content material being studied.

3.3. Aspects of usability in Ruangguru applications

Based on the aspects of usability, an application is expected to provide convenience for users. In reviewing this aspect we use the "Heuristic Evaluation" stage as an approach in evaluating a man-machine system related to usability. Heuristic evaluation is related to the compatibility between the system and the real world, consistent and standard, prevention of errors, flexibility and efficiency, related to beauty and minimalist design, assistance to the user if something goes wrong and how to improve and help and documentation.

3.3.1. Visibility of system status. A system should be able to provide information to users about what is happening. Before the user enters the Ruangguru Mobile App's home screen, it will display the background screen as the initial display. In this background screen the user has been able to identify that this view is part of loading the Ruangguru Mobile App system.
3.3.2. **User control and freedom (navigation).** There needs to be a function or button so that the user can "exit" from the system. If users accidentally choose menus that they don't want. Therefore, an "exit" button is needed. But the authors and designers in the manufacture of the Ruangguru mobile app do not apply the "exit" button because the platform used is mobile while on the mobile there is a "back / undo" button so there is no need to worry if the user incorrectly selects the user just press the back button then cancel if an error occurred in its use.

3.3.3. **Consistency and standard.** Avoid writing sentences, letters and other different situations so as to produce an impression that is not standard in a system. The system should not confuse users about words, different situations and behaviours can mean the same thing. This Ruangguru application has good consistency, each page has the same design, colour and theme. The header and menu bar are also always in the same location. This is related to the standard mobile site, which is simple, a minimalist theme and does not use a complicated graphic display.

3.3.4. **Error prevention.** Designs that can prevent users from making mistakes are important in a system. The Ruangguru application uses a button in the process selection, the input error can be minimized.

3.3.5. **Aesthetic and minimalist design.** It should be noted that four principles in display / visual design are contrast, repetition, alignment and light. A dialogue must not contain content or information that is irrelevant and not needed. Each component must contain meaning and function in accordance with the requirements. Ruangguru application is intended for mobile devices, so the design displayed is simple and minimalist.

3.3.6. **Help user recognize, diagnose and form error.** The error message displayed on the Ruangguru application is displayed in the form of a user language (not a code), directly identifying the problem and providing a solution.

3.4. **Ergonomic aspects of the Ruangguru application**

Some ergonomic aspects of the GUI that can be observed in the Ruangguru application include:

- Consistency / Consistent: the use of icons, fonts and colours on each application screen is always consistent and appropriate.
- Simplicity: application design uses familiar icons among users that facilitate the operation / implementation of the application.
- Human memory limitations: the application system often limits the amount of information to minimize memory load by providing a signal if there is a user operating error. (For example: warning if you enter a password when you log in).
- Cognitive directness: use icons that match the content or warnings given.
- Feedback / feedback: appears the feedback given by the system to the user in each action (For example: loading animation when the system is performing a process that requires time such as when logging in).
- System messages / System Messages: error messages provided by the system are easily understood using standard words.
- Attention: attention given to the Ruangguru application in accordance with the intent and purpose, attention to the background and colour is made consistently.
- Display issues / display issues: placement of icon functions is easy to understand and matches and the use of clear / unambiguous words.
4. Conclusion
Based on the results of the study through several aspects, namely human aspects, technology, usability, and ergonomics, Ruangguru applications are in great demand by users, especially students because this application provides easy learning with fun and interesting with offerings that are not only in the form of text but there are other forms of content such as videos, animations, and practice questions on each topic. Then at the end of the lesson presented a report on learning outcomes with interesting technology where the user can find out the extent of his ability on each topic he worked on. In addition, the functionality is also undoubted, because Ruangguru is an online learning platform that provides experienced private teachers who can be easily found through their learning services.

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