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Acceptance Model of Cultural Aesthetic in Interface Design "Zi.Care" Healthcare Aplication for Hospital Staff

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Abstract

Using the Technology Acceptance Model (TAM), the study investigates the acceptance of the Zi.Care health application user interface by medical personnel in hospitals. The study was conducted through in-depth interviews with 30 doctors, nurses, and administrative staff from three hospitals in Indonesia. The focus of the research was to find out how users viewed Zi.Care applications as easy to use and easy-to-use, as well as how cultural adjustments in interface design affected acceptance of applications. The results of the study show that the Zi.Care interface is considered easy to use and user-friendly by most respondents. With the use of local languages, familiar symbols, and layouts that match Indonesian cultural preferences, the interface was well received by users. After they saw the app become easier to use, respondents said Zi.Care helped them manage patients' medical records better and reduced administrative burdens. However, the research also found technical problems, such as unstable internet connectivity and a lack of hardware. Besides, the need for more training and technical support is also a major concern. Overall, this research shows that a culture-based user interface helps people use the Zi.Care health app. These results give application developers and policymakers important insights into the importance of considering cultural elements when designing health technology to enhance adoption and use in hospitals. To ensure the successful implementation of this technology, adequate technical support and infrastructure are required.

Keywords: Technology Acceptance Model, design, culture, health applications, Zi.Care, user interface, hospital, technology reception

Introduction

Doctors, nurses, and hospital administrative staff often face challenges when using web-based health technology. These obstacles can include technical problems, infrastructure constraints, and the inability to adapt. Among the main obstacles that hinder the adoption of new technologies in the hospital environment are technical problems, such as problems with interface navigation and the system's inability to integrate with existing technologies (Cresswell et al., 2013). In addition, infrastructure problems such as unstable internet connectivity and hardware shortages can impede the use of web-based applications. Studies show that hospital environments often do not have sufficient technological infrastructure to support the full use of web-based health applications (Dobbins, DeCorby, et al., 2009).

Besides, resisting change is a huge challenge. Many medical personnel are reluctant to switch to new technologies because they feel comfortable with existing systems and

procedures. The diffusion theory of innovation (Rogers, 2015) says that people's opinions about the usefulness and convenience of new technology greatly influence the rate of adoption of new technologies. Therefore, it is important for hospital users to ensure that the introduced technology is not only useful but also easy to use for web-based health applications (Mao & Hovick, 2022).

Hospitals can gain many benefits from adopting web-based health applications; these include improved operational efficiency and quality of health care provided. However, this adoption must be widely accepted by all hospital stakeholders. According to Davis (1989), in the Technology Acceptance Model (TAM), people's perceptions of usefulness (considered useful) and ease of use (considered easy to use) are major factors that influence technology acceptance. Web-based health applications can improve productivity and quality of health care in a hospital context. Well-designed applications allow medical personnel to concentrate on more important clinical tasks by reducing the administrative burden (Holden & Karsh, 2010). Applications should be easy to use and learn. According to Venkatesh & Davis (2000), easy-to-use and user-friendly interfaces can enhance the adoption of new technologies in busy workplaces such as hospitals.

The acceptance and use of technology are significantly influenced by Indonesian culture. Because of the incredible cultural diversity in Indonesia, this must be considered when creating a user interface for health applications. How society accepts and uses technology can be influenced by cultural elements such as uncertainty, distance of power, and individualism versus collectivism (Hofstede & Bond, 1984). The philosophy of collectivism and dependence on high authority can influence the adoption of technology in Indonesia. Indonesians may be slower to adopt new technologies that disrupt existing social structures because they prefer social harmony. In addition, the interface design must have clear communication and visual understanding to ensure that technology is well accepted by users from a variety of cultural backgrounds.

Method

Research after the survey is completed, statistical analysis is usually carried out to process data obtained from respondents (Rizky Wicaksono, 2022.). A selection of respondents is taken, as many as 30 respondents, consisting of users Zi.Care who have been using more than 1 year of doctor, nurse and pharmacy administrator, some statistical analyses are commonly done in this context among others, Qualitative analysis in TAM (Davis, 1989) case studies for web-based Zi.Care information systems can be done by looking at respondent answers to open questions in a lift or interview. The general steps in qualitative analysis are as follows:

1. Data transcription: Respondent responses to interviews or open mail are recorded and transcribed so that they can be read and analyzed easily.
2. Data classification and coding: Data that has been transcribed are classified and encoded into relevant themes or categories.
3. Development of findings: The findings from the data are analyzed and developed by linking categories and themes that emerge from the data.
4. Interpretation of findings: The results of qualitative analysis are interpreted to produce conclusions and recommendations for the development of web-based SDM information systems. The study uses a qualitative approach with a case study method in hospitals using the Zi.Care application. The systematic steps of this research include:

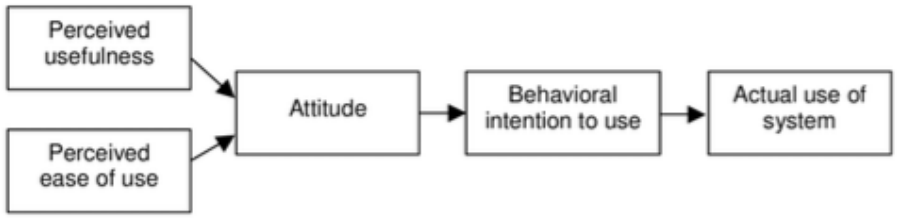

Figure 1. Tam 1 Diagram.

a. One important factor in the Technology Acceptance Model (TAM) is Perceived Ease of Use. Perceptions of ease of use are perceptions of how easy technology is to use. Some of the things measured in the perceived ease of use are learning ease, user convenience, and accuracy.

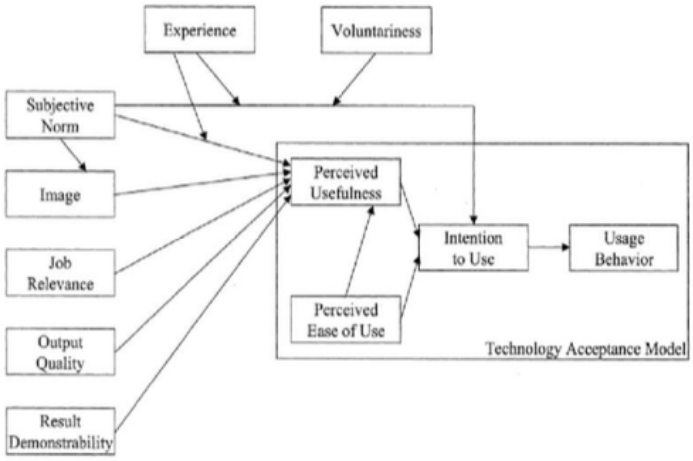

Figure 2. Tam 2 Diagram.

b. One important element in the Technology Acceptance Model (TAM) is the design of the Usability Perception Survey, which determines to what extent technology can help users perform brand tasks or achieve their goals.

c. Factor-to-factor analysis: The TAM approach is used to analyze the data obtained, which focuses on two main constructs: the perception of ease of use and the perception of usability. The aim of this analysis is to find the factors that influence the level of user acceptance of Zi.Care applications.

Result and Discussion

Research results show that a local culture-based interface makes the Zi.Care application more user-friendly and useful for users. An interface tailored to the cultural context, with the use of local languages and familiar symbols, makes it more convenient and helpful.

No	D1	D2	D3	N1
Q1	Slow Response of System	Error System	Connectivity Issue	Hidden Features Issue
Q2	Familiarity on Icon & Language	Intuitive Menu	Button Layout (consistency)	Good Tutorial & Guidance
Q3	Clean & Good UI Color	Modern & UI too Small	Clean & Intuitive UI	Need Personalization for Each Department
Q4	Adding Features (Direct Chat to Doctor)	Adding Features (Scheduled Meet)	Adding Features (Status Recipe)	Adding Features (In-depth Analysis)
Q5	User-Friendly	Need time to use (Familiarity)	Good Learning Curve & Tutorial	Need time to use (Familiarity)
Q6	Need Guidance on Start	Good Instruction to Use	Need help during System Issue	Need Guidance on Start
Q7	Satisfy Enough	Very Satisfy on Daily Task	Comfort	Comfort but need more Tweak on Features
Q8	Flexible Use	Need more Adjustment on Features	Flexible	Flexible but have Restrictions on some Features
Q9	Good in Collecting & Searching Data	Very Helpful in Recording Data	Very Helpful in Recording Data	Very Helpful in Accessing Data
Q10	Very Satisfy on Daily Use	Need more Adjustment on Features	Very Satisfy on Daily Use	Very Satisfy on Daily Use

Table 1. Perceived Usefulness of Zi.Care. (full data available due to page full)
Source: authors

No	D1	D2	D3
Q1	Patient Data Features	Patient Data Features	Schedule Meet Features
Q2	Statistic Features Have Issue	Medicine Status Features Have Issue	Financial Statements Features Have Issue
Q3	Intuitive Navigation	Intuitive Navigation	Navigation is Okay
Q4	Good Tutorial and Apps Guidance	Good Tutorial and Apps Guidance	Good Tutorial and Apps Guidance
Q5	Relevant Menu	Relevant Menu and Layout	Relevant Menu and Layout
Q6	Easy Learning Time	Easy Learning Time	Moderate Learning Time
Q7	Bad Integration to Other System	Setting Have Issue	Analysis Data Have Issue
Q8	Easy Accessibility	Easy Accessibility	Easy Accessibility
Q9	Easy to Use	Easy to Execute a Task	Efficient
Q10	Easy to Use	Easy to Use	Easy to Use

Legend:

	High Interest & Acceptance
	Medium Interest & Acceptance
	Low Interest & Acceptance
	Suggesting

Table 2. Perceived Ease of Use of Zi.Care. (full data available due to page full)
Source: authors

User perceptions of the Zi.Care application as shown in the following table and figure:

Factor	User-friendliness perception	Usability perception
Local Language	High	High
Cultural symbols	Medium	High
Simple navigation	High	High
Technical Support	Medium	Medium

Table 3. Usage of Zi.Care

Source: authors

This explanation suggests that culturally-based interface changes can help medical personnel better accept technology. In the end, this can lead to improved quality and efficiency of health care in hospitals. Respondent profile: This study involved thirty respondents—doctors, nurses, and administrative staff—from three hospitals that have been using Zi.Care. Most respondents are between 30 and 50 years old and have been working in the medical field for more than ten years.

Most of the people interviewed said that Zi.Care's user interface was easy to use. They like an easy-to-understand interface and easy navigation. In addition, respondents said that customizing the language and local symbols of the interface helped them understand and use the application better. According to the doctors, the Zi.Care interface is very easy to use. "I'm more comfortable using this app because of its easy-to-understand language and familiar icons." This statement is in line with research by Venkatesh & Davis (2000), which states that ease of use is the key to technology acceptance. In addition, respondents stated that the Zi.Care application was very helpful in improving their work productivity. The doctors and nurses said, "Zi.Care helped me in managing patient data quickly and accurately." "Very helpful in my work, especially when I have to deal with many patients at once." These results support research by Holden & Karsh (2010) which showed that effective health technology can improve the quality of health care and operational efficiency.

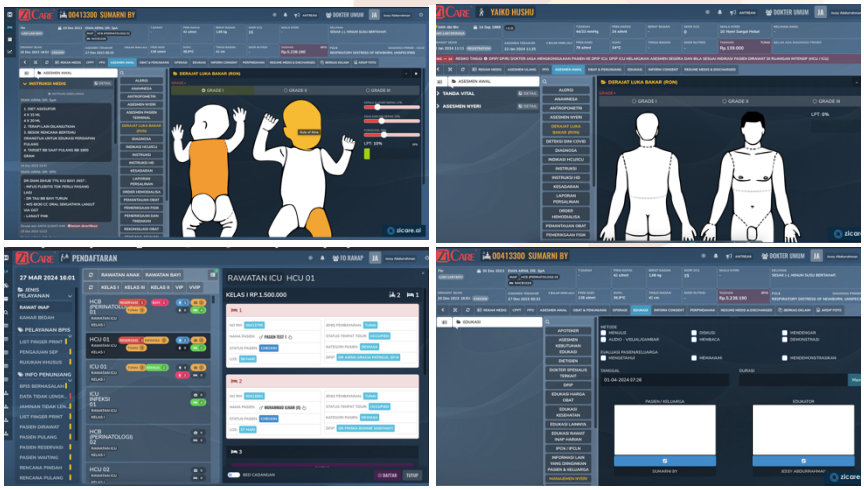

Figure 2. Zi.Care interface view.
Source: authors

The Zi.Care application was very welcome because of the cultural adjustment. Respondents thanked for the use of colors, symbols, and layouts that fit the Indonesian cultural context. They believe that interfaces that take into account local principles and standards make

applications more convenient and increase their confidence. "The use of soft colors and familiar icons like pictures of local hospitals makes me feel like this app was designed specifically for our needs in Indonesia," said an administrative employee. This is in line with the perspective (Hofstede & Bond, 1984) that emphasizes that cultural adjustment is necessary when making technological designs to conform to local principles.

Disadvantages and Challenges: Although the majority of respondents like Zi.Care, there are some problems still facing. Often, technical problems such as problems with internet connections and inadequate hardware are mentioned. In addition, a number of participants stated that better technical support and training are needed to ensure that the application is used optimally (Sumarlin et al., 2021). According to a doctor, "Unstable internet connections often block my access to the app." "I also hope there's more training so we can make the most of all the features possible. " It shows that adequate technical support and infrastructure are essential to the implementation of health technology (Dobbins, Hanna, et al., 2009). Most respondents said they wanted to continue using Zi.Care in the future. They are confident that this application will continue to improve productivity and quality of healthcare. According to Hall et al. (2015) A positive perception of the usefulness of the application and its ease of use is a key factor driving the intention to use it in the future. "I am sure by continuing to use Zi.Care, my work will be more efficient and the quality of patient care will improve," one nurse said. This statement supports the research hypothesis that the perception of utility and ease of use of applications increases the desire to use them.

Perceptions of ease of use and usability: The results of this study show that an important factor in the acceptance of Zi.Care by medical staff in hospitals is easy to use. An important factor in the adoption of this technology is its easy-to-use and understandable interface, as well as tangible benefits in improving work efficiency. This finding is in line with the TAM model proposed by Davis (1989) and further research by Venkatesh & Davis (2000).

To increase technology acceptance, cultural adjustment in interface design is crucial. Applications designed with local culture in mind make users feel more comfortable and confident when using them. This is in line with the idea of how important cultural adjustment is in technological design (Hofstede & Bond, 1984). Research shows that the perception of ease of use and usability is enhanced by the use of local languages, familiar symbols, and layouts that match cultural preferences according to ALsswey et al. (2018)

Although Zi.Care received positive feedback, but there are some technical constraints and the need for additional training. The two main obstacles to the use of the application are problems with the internet connection and hardware constraints. To maximize the use of the application, adequate technical support and training are required. It shows that the

implementation of health technology requires adequate infrastructure and sustained support. Intentions for Future Uses: It is highly likely that Zi.Care will continue to improve the operational efficiency and quality of health care in hospitals. A positive perception of the usefulness of the application and its ease of use are the main factors driving the intention to use it in the future. It supports the research hypothesis that the perception of utility and ease of use of applications increases the desire to use them.

Conclusion

The study found that Zi.Care's culture-based user interface design helped medical personnel in hospitals see applications that were more user-friendly and useful. To increase technology acceptance, cultural adjustment in interface design is crucial. Despite the technical constraints and the need for additional instructions, a positive perception of the usability and ease of use of the application encourages the intention to use it again. So, this research tells health app developers and policymakers how important it is to adjust culture when creating user interfaces. The findings also suggest that the successful implementation of health technology in hospitals requires adequate technical support and infrastructure.

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