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Moderate guerrilla for the user's understanding of the artificial intelligence-based user security awareness prototype

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ABSTRACT

To enhance user security awareness in response to the numerous cyberattacks targeting users, we developed an artificial intelligence (AI)-based prototype utilizing the naive retrieval augmented generation (RAG) method. In pursuit of this objective, we conducted user testing employing the usability testing method to evaluate users' comprehension of the developed prototype. We integrated moderate and guerrilla techniques in usability testing by engaging 20 randomly selected respondents from the government, private sectors, and industries. The majority of participants were male, aged 26-35 years, holding a bachelor's degree, and possessing 5-10 years of computer experience. The test data were analyzed using the USE assessment matrix, which includes four assessment parameters: usefulness, satisfaction, ease of use, and ease of learning (USE). The data were presented in tabulated form, with total and average values. The test results indicate that usefulness, satisfaction, ease of USE achieved a total value exceeding 4.00 and an average value of 4.29, within an interval range of 4.20-5.00, categorized as very good. The findings of this study have implications for enhancing user security awareness and provide feedback for refining the framework and prototype in subsequent research.

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1. INTRODUCTION

Cybersecurity encompasses three fundamental components: people, processes, and technology. The 'people' component pertains to individuals who develop, utilize, and engage with information technology (IT)-based applications and services. The 'process' component involves all organizational business steps and activities where these individuals are situated. The 'technology' component encompasses the deployment of technology within the organization, including software, hardware, computer networks, and systems [1]. Among these components, the human element is often considered the most vulnerable, susceptible to exploitation by malicious actors [2]. This vulnerability has led to an increase in cyberattacks and cybercrimes, as attackers exploit user weaknesses stemming from insufficient security awareness, including tactics such as social engineering, phishing, malware, and data theft [3]. From an ontological perspective, several factors contribute to the vulnerability of the human element in cybersecurity [4]. These include internal factors, such as behavior, habits, characteristics, and the level of user understanding, as well as external factors, such as environmental influences, societal pressures, and work-related stress.

Understanding cybersecurity and enhancing user awareness are critical components in mitigating cybercrimes and cyberattacks. We have developed a prototype utilizing artificial intelligence (AI) through the

naive retrieval augmented generation (RAG) method implemented in Python [5]. To evaluate the system's functionality, black box testing was conducted on both the design and the prototype. In alignment with the research objectives and prototype development, it is also essential to perform user-side testing. This is intended to assess user acceptance and comprehension of the developed prototype. We employed the usability testing method to evaluate the prototype from the user's perspective.

Numerous prior studies have examined the usability testing of software and prototypes through various methodologies and case studies. The first study was conducted online, with respondents independently engaging with the online nurse test for Indonesian nurse competency (ONT UKNI) application through unmoderated remote usability testing [6]. The second study employed usability testing through the system usability scale (SUS) and heuristic evaluation on the publisher's book stock application [7]. The third study assessed the website interface through ISO-9241-based usability testing, incorporating user psychology [8]. The fourth study undertook a systematic literature review (SLR), mixed-method approach, and heuristic evaluation, focus on prevalent usability evaluation methods for mobile applications [9]. A fifth study was conducted on a language learning application incorporating gamification features, utilizing the SUS and continuity use intention (CUI) metrics [10]. The sixth study conducted an evaluation of the website's user experience (UX) and user satisfaction by employing the UX questionnaire (UEQ) and the SUS to deliver a comprehensive analysis [11]. The seventh study assessed the Kampung Heritage e-book application through usability testing utilizing the SUS method, based on a questionnaire administered to 40 respondents [12]. The eighth study conducts a comprehensive SLR focusing on usability testing of mobile applications from the perspective of user satisfaction [13]. The ninth study employed usability testing through heuristic evaluation on the PeduliLindungi (Covid-19) application, concentrating on its flexibility and efficiency of use [14]. The tenth [15] and eleventh [16] studies employed the USE questionnaire method to conduct usability testing on case studies involving digital banks and high schools, respectively.

Upon reviewing extant literature concerning software and prototype usability testing, which employs diverse methodologies and case studies, it becomes evident that there is a paucity of research integrating various assessment methods and metrics to evaluate user comprehension through mentoring during testing and direct feedback, particularly within the cybersecurity domain. To address this research gap, we conducted an evaluation of a prototype we developed, emphasizing user comprehension during usability testing. This study introduces a methodology that amalgamates two usability testing approaches: moderate and guerrilla usability testing. It incorporates four assessment metrics: usability, satisfaction, ease of use, and ease of learning (USE) to assess user engagement and comprehension. This novel approach has not been previously explored in the literature. The research question guiding this study was: what is the effect of integrating two usability testing methods (moderate and guerrilla) with the assessment metrics of usability, satisfaction, ease of USE on user comprehension of cybersecurity awareness?

The prototype under investigation is an AI-based user security awareness smart consultant utilizing Naive RAG. This prototype was designed to enhance user comprehension and awareness of cybersecurity. In alignment with this developmental objective, this study aimed to evaluate the impact of combining these two usability testing methods on the user evaluation of the prototype we developed.

2. METHOD

2.1. Research methodology

The research methodology employed in this study comprised six stages: problem formulation, data gathering, design and development, usability testing, and documentation. These stages are illustrated in the research flowchart presented in Figure 1.

In the initial phase, the problem addressed in this study is the necessity to enhance user security awareness through education, in response to the increasing prevalence of cyberattacks and cybercrime targeting users. Consequently, it is imperative to develop a framework and prototype utilizing AI that can comprehend the context of user inquiries and deliver responses that are easily comprehensible. The second phase, design and development, encompasses the creation and prototyping of the framework and prototype. The third phase, usability testing, employs a combination of moderate and guerrilla methods, utilizing USE assessment metrics, which include parameters such as usefulness, satisfaction, ease of USE, to evaluate user feedback and alignment with needs and objectives. The fourth phase, documentation, involves compiling the results, conclusions, reports, and paper publications.

2.2. Tool and materials

We have designed and developed a prototype utilizing a range of tools and materials, including Dell notebooks equipped with Intel i7 processors, 16 GB of RAM, and 512 GB SSDs; AMD EPYC server nodes; L4 GPUs; switches; modems; and routers, all operating on Linux Ubuntu systems. The software stack employed

includes Python, PostgreSQL pg-vector, Pinecone HNSW, Node JS, and Message Query Redis. For surveys, documentation, data collection, processing, assessment, and analysis, we utilized Google Forms, Google Office, LibreOffice, Dia Diagrams, Zotero, Mendeley, MathType, Publish or Perish (PoP), and GNU PSPP.

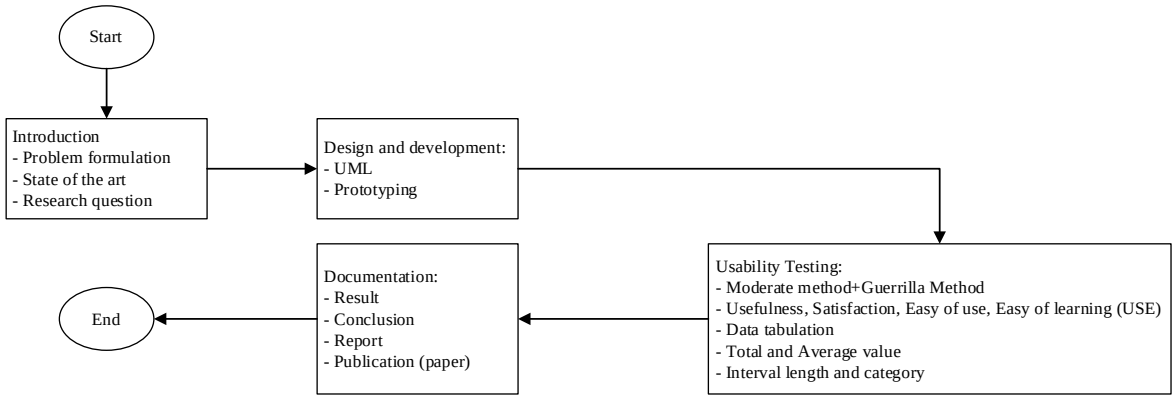

Figure 1. Research flowchart

2.3. Artificial intelligence and retrieval augmented generation method

AI particularly generative AI (GenAI) in the form of large language models (LLM), is predominantly utilized for the implementation of AI-based services [17]. LLM employ natural language processing (NLP) and deep learning (DL) through transformation architecture to learn and comprehend complex and structured patterns of language [18], as well as the semantic relationships between words and phrases [19]. In the deployment of LLM, one method employed is Naive RAG, which is based on a dataset and involves three steps: retrieval, which involves extracting information from user input (questions) and searching for contextual matches; augmentation, which involves adding text; and generation, which involves compiling answers or system responses for users [20]. This study utilized the Naive RAG method to develop an AI-based user security awareness prototype. The Naive RAG diagram is presented in Figure 2. In the implementation of the Naive RAG diagram into a prototype, we utilized a dataset comprising 100 documents (PDF) on cybersecurity, varying in size. This dataset served as the internal knowledge base for the prototype. Within the prototype, context is captured through a process of chunking the documents, followed by vectorization and storage in a vector database. User queries are then matched with the available knowledge in the vector database. We employed both the LLM language model and cosine similarity, implemented using Python on the Linux operating system.

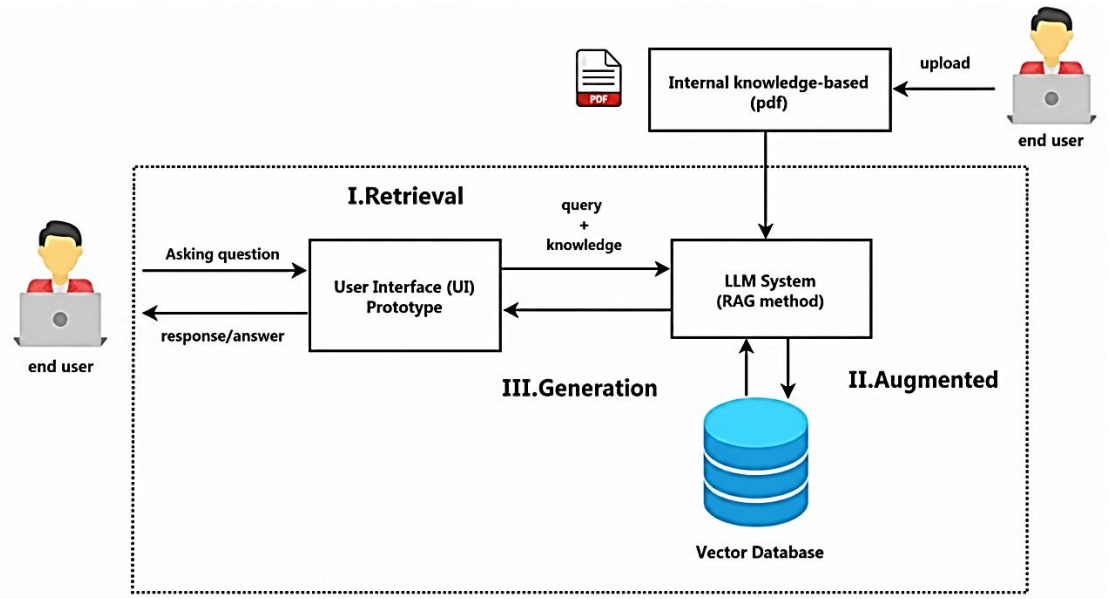

Figure 2. The Naive RAG diagram

2.4. Unified modelling language and prototyping development

The unified modeling language (UML) serves as a modeling and design tool, particularly beneficial for describing and designing systems within the realm of object-oriented programming [21]. UML diagrams can be represented as use-case diagrams, which delineate the relationship between actors and systems, elucidate the interaction of actors with the system, and define the system's functions [22]. Prototyping is a software development model that facilitates interaction between developers and users through a prototype [23], which represents the software under development to garner user feedback [24]. This approach simplifies the continuous development of software for developers and enables users to provide feedback during the development process for enhancement [25]. We engaged one actor (end user) with three use cases: uploading documents, inputting (asking) questions, and obtaining answers. In this study, prototyping was employed to develop a user security awareness prototype, incorporating user interaction and user testing based on the design.

2.5. Moderate guerrilla usability testing

Moderate usability testing is a method that involves providing mentoring sessions to participants during the testing process to assist them in overcoming obstacles encountered during prototype evaluation [26], [27]. Guerrilla usability testing, on the other hand, is employed to assess the effectiveness of a prototype, its functionality, and to gather direct user feedback [28]. This method is conducted in various locations without specific requirements or conditions for the participants involved [29]. This study integrates both guerrilla and moderate usability testing approaches, offering advantages such as ease and speed of execution, cost-effectiveness, and suitability for evaluating the initial version of a prototype to gather user assessments and feedback.

The study engaged 20 randomly selected male and female participants from both government and private sectors, encompassing diverse age groups, educational backgrounds, and levels of computer experience. A moderate guerrilla testing approach, involving 20 diverse participants, was employed based on recent usability research. This research suggests that small to moderate sample sizes (approximately 15-30 users) are adequate to achieve thematic saturation and identify recurring interaction issues in formative evaluations of interactive systems. Contemporary studies in human–computer interaction highlight that increasing the sample size beyond this range often results in diminishing analytical returns when the aim is exploratory validation rather than statistical generalization [30]. Consequently, a sample of 20 participants facilitated a reliable assessment of responsiveness, contextual relevance, and user perception across heterogeneous profiles, while maintaining methodological efficiency and ecological validity.

2.6. Usefulness, satisfaction, ease of use and ease of learning metric assessment

The USE metric assessment serves as a methodological framework and evaluative matrix in usability testing [31]. USE is employed to gauge user evaluation and experience concerning the developed prototype or software [32]. This assessment considers the extent to which the prototype or software confers benefits to users, the magnitude of these benefits, the level of user satisfaction post-utilization, and the degree to which users can learn to operate the software or prototype. The four parameters of USE—usefulness, satisfaction, ease of USE —are also pertinent to innovation and user adoption levels. Consequently, developers must consider user evaluations beyond the technical and functional aspects of the software or prototype [33]. Among these parameters, USE particularly emphasizes the ease of use of the prototype or software under evaluation [34]. To compute the total and average values of each assessment parameter, (1) and (2) is applied:

$$\text{Total (T)}=\sum(Number\ of\ responses\ f\ or\ each\ Likert\ Scale\ X\ Likert\ Score) \quad (1)$$

$$\text{Average (A)}=\frac{T}{nr\times nq} \quad (2)$$

The total value (symbolized by T) was computed for each parameter. Within the USE assessment matrix, four T-values are associated with each parameter: usefulness, satisfaction, ease of USE. Subsequently, the average value (denoted by A) was derived for each parameter from the respective total value. In the context of the USE assessment matrix, there are four A-values for each parameter of usefulness, satisfaction, ease of USE, based on the T-value of each parameter, the number of respondents involved (symbolized by nr), and the number of questions posed for each parameter (symbolized by nq) [35], [36]. The average value of each parameter was then evaluated using the class interval length and category [37], [38] to determine the final value of moderate guerrilla usability testing, expressed as very low/low/pretty good/good/very good, respectively. The class interval lengths and categories are detailed in Table 1.

Table 1. Interval length and category

No	Interval length	Category
1	1.00–1.79	Very low
2	1.80–2.59	Low
3	2.60–3.39	Pretty good
4	3.40–4.19	Good
5	4.20–5.00	Very good

3. RESULTS AND DISCUSSION

3.1. Design and prototype

The design and prototyping phases of this study culminated in the development of a UML design, specifically a use case diagram, and a web-based user security awareness prototype. Figure 3 illustrates the use case diagram UML, while Figure 4 depicts the prototype.

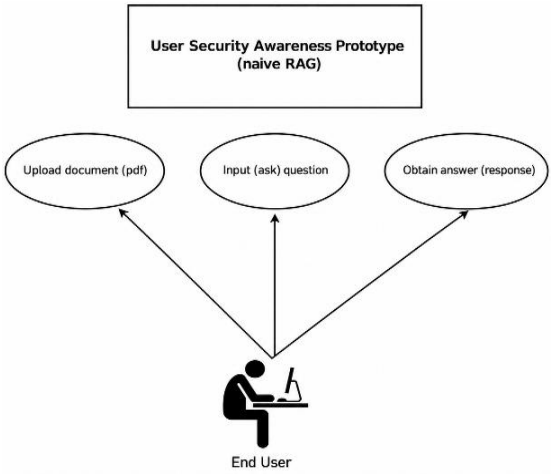

Figure 3. Use case diagram (UML)

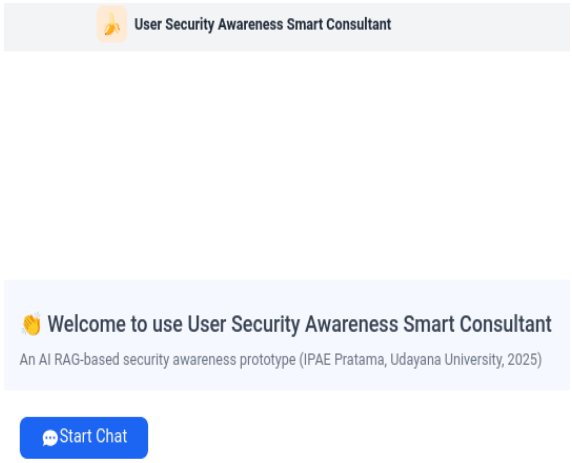

Figure 4. User security awareness prototype

The use case diagram presented in this study comprises a single actor, the end user, and three distinct use cases: uploading a PDF document, inputting or posing a question, and obtaining an answer or response. The developed prototype features a homepage that allows users to initiate inquiries by selecting the \"Start Chat\" button.

3.2. Respondents profile

In this study, we engaged 20 participants selected randomly through a combination of Guerrilla usability testing and moderate usability testing methodologies. The participants varied in age, gender, educational attainment, and computer experience. Table 2 present participant profile of age, gender, educational background, and computer experience, respectively. According to Table 2, the majority of respondents are male, aged between 26 and 35 years, possess a bachelor's degree as their highest level of education, and have accumulated 5 to 10 years of experience in computing.

Table 2. Respondents profile

Age range (in year)	n	%	Gender	n	%	Last education	n	%	Computer experience (in year)	n	%
18-25	1	5	Male	13	65	Diploma	6	30	<5	7	35
26-35	10	50	Female	7	35	Bachelor	14	70	05-Oct	10	50
36-45	8	40				Master/Doctor	0	0	>10	3	15
>45	1	5									
Total	20	100	Total	20	100	Total	20	100	Total	20	100

3.3. Likert scale

We establish the assessment scale employed for respondent evaluation as a Likert scale, comprising five categories of assessments with corresponding weights. The Likert scale is presented in Table 3.

Table 3. Likert scale

No	Statement	Weight
1	Strongly agree	5
2	Agree	4
3	Neutral	3
4	Disagree	2
5	Strongly disagree	1

3.4. Question list

During the moderate guerrilla usability testing, we accompanied each participant as they interacted with the prototype. Additionally, we prepared a set of five questions, available in both Indonesian and English, which the participants could pose to the system. Table 4 presents the list of these five questions.

Table 4. Question list

No	Question (Indonesian)	Question (English)
1	*Jelaskan ke saya mengenai ransomware dan cara menghindarinya*	Explain to me about ransomware and how to avoid it
2	*Jelaskan bagaimana virus komputer menyebar melalui jaringan internet kantor*	Explain how computer viruses spread across office internet networks
3	*Apa yang dimaksud dengan phising? Berikan contohnya dan cara menghindarinya*	What is phishing? Give examples and how to avoid it
4	*Sebagai pimpinan, aturan apa saja yang perlu saya terapkan di kantor untuk menghindari ransomware dan pencurian data?*	As a leader/boss, what rules do I need to implement in the office to avoid ransomware and data theft?
5	*Sebagai karyawan, apa yang harus saya lakukan untuk mewujudkan keamanan siber di kantor tempat saya bekerja?*	As an employee, what should I do to realize cyber security in the office where I work?

3.5. Usefulness question list

For each participant in the moderate guerrilla usability testing, we prepared seven usefulness question lists, as presented in Table 5.

Table 5. Usefulness question list

No	Usefulness question list
USE1	Prototypes help me to better understand about cybersecurity.
USE2	The responses given by the prototype to the questions I asked were clear and easy to understand.
USE3	The prototype does a lot of what I hope it increase cybersecurity insight and awareness.
USE4	Q&A and consultation regarding cybersecurity on the prototype are very flexible and save time compared to reading guides and attending training.
USE5	The prototype fulfills my need to increase my knowledge of cybersecurity.
USE6	The prototype understands the context of the questions that I ask.
USE7	Prototype makes the cybersecurity learning process easier, to deal with cyber threat and cybersecurity awareness.

3.6. Satisfaction question list

For each participant in the moderate guerrilla usability testing, we prepared four satisfaction question lists, as presented in Table 6.

Table 6. Satisfaction question list

No	Satisfaction question list
SAT1	The prototype has a good/nice graphical user interface (GUI)/display.
SAT2	I need to use the prototype to increase my knowledge regarding cybersecurity awareness.
SAT3	I am satisfied using the prototype.
SAT4	I felt comfortable reading the clear and concise responses from the prototype.

3.7. Ease of use question list

For each participant in the moderate guerrilla usability testing, we prepared seven ease of use question lists, as presented in Table 7.

3.8. Ease of learning question list

For each participant in the moderate guerrilla usability testing, we prepared four ease of learning question lists, as presented in Table 8.

Table 7. Ease of use question list

No	Ease of use question list
EOU1	The prototype is easy to use.
EOU2	The prototype requires a few steps when I want to use it; I just type the question or problem of cybersecurity.
EOU3	The prototype is practical to use.
EOU4	I can use the prototype without instructions or guidance.
EOU5	I can use this prototype both in my notebooks and smartphones.
EOU6	Using the prototype does not require a lot of effort.
EOU7	Questions can be asked to prototype in Indonesian or English so there are no problems.

Table 8. Ease of learning question list

No	Ease of learning question list
EOL1	I was able to quickly learn how to use the prototype.
EOL2	The prototype is easy to learn.
EOL3	I quickly became proficient in using this prototype.
EOL4	Responses and explanations of the prototype are easy to understand in Indonesian and English.

3.9. Moderate guerrilla usability testing process

Moderate guerrilla usability testing was personally conducted by respondents from both governmental and industry/private sectors. Figures 5 to 8 illustrate the moderate guerrilla usability testing process, including screenshots of the questions posed and the corresponding system responses (in Indonesian and English). We have obtained permission to display the faces of both respondents.

Figure 5. Moderate guerrilla usability testing (government)

Figure 6. Moderate guerrilla usability testing (private/industry)

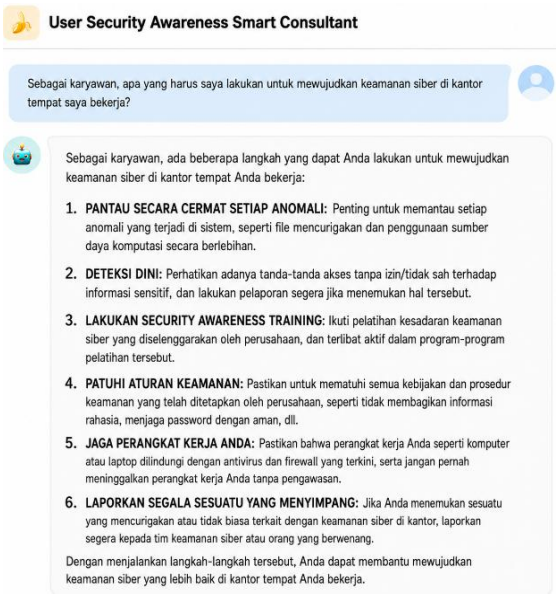

Figure 7. Sample questions (in Indonesia)

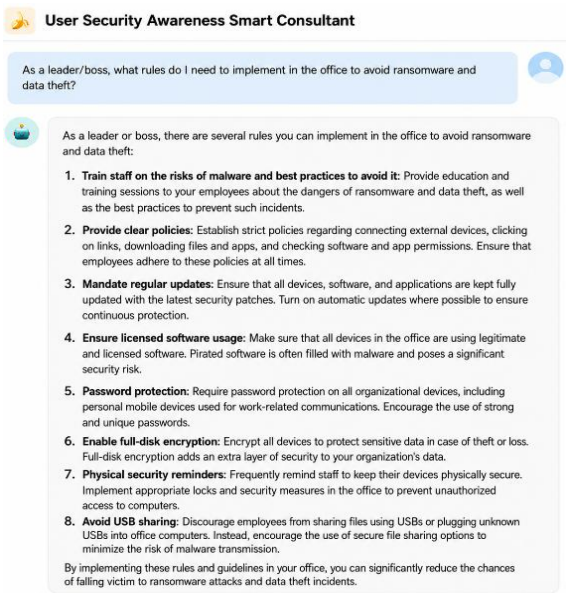

Figure 8. Sample questions (in English)

3.10. Data tabulation

The data obtained from respondents' questionnaires were systematically processed. The tabulation of data was conducted for the parameters of usefulness, satisfaction, ease of USE, as detailed in Table 9 (usefulness), Table 10 (satisfaction), Table 11 (ease of use), and Table 12 (ease of learning).

Table 9. Usefulness data tabulation

No	Likert scale					N	Min	Max	Mean
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree				
USE1	7	13	0	0	0	20	4	5	4.35
USE2	7	13	0	0	0	20	4	5	4.35
USE3	6	12	2	0	0	20	3	5	4.20
USE4	6	12	2	0	0	20	3	5	4.20
USE5	7	13	0	0	0	20	4	5	4.35
USE6	7	12	1	0	0	20	3	5	4.30
USE7	8	12	0	0	0	20	4	5	4.40

Table 10. Satisfaction data tabulation

No	Likert scale					N	Min	Max	Mean
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree				
SAT1	7	13	0	0	0	20	4	5	4.35
SAT2	6	14	0	0	0	20	4	5	4.30
SAT3	7	13	0	0	0	20	4	5	4.35
SAT4	8	12	0	0	0	20	4	5	4.40

Table 11. Ease of use data tabulation

No	Likert scale					N	Min	Max	Mean
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree				
EOU1	9	11	0	0	0	20	4	5	4.45
EOU2	6	13	1	0	0	20	3	5	4.25
EOU3	8	12	0	0	0	20	4	5	4.40
EOU4	5	12	2	1	0	20	2	5	4.05
EOU5	7	13	0	0	0	20	4	5	4.35
EOU6	6	14	0	0	0	20	4	5	4.30
EOU7	8	12	0	0	0	20	4	5	4.40

Table 12. Ease of learning data tabulation

No	Likert scale					N	Min	Max	Mean
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree				
EOL1	5	13	2	0	0	20	3	5	4.15
EOL2	6	14	0	0	0	20	4	5	4.30
EOL3	6	13	1	0	0	20	3	5	4.25
EOL4	9	11	0	0	0	20	4	5	4.45

3.11. Total value and average value

Following the tabulation process, the total value (T) for each assessment parameter—usefulness, satisfaction, ease of USE —was determined using (1):

T usefulness=240+348+0+0+0=588

T satisfaction=140+208+0+0+0=348

T ese of use=245+348+9+2+0=604

T ease of learning=130+204+9+0+0=343

Subsequently, the average value (A) for each assessment parameter was calculated using (2):

A usefulness=588/140=4.2

A satisfaction=348/80=4.35

A ease of use=604/140=4.31

A ease of learning=343/80=4.29

3.12. Interval length and category

Table 13 presents the final results of a moderate guerrilla usability test conducted on four parameters: usefulness, satisfaction, ease of USE. This evaluation involved 20 respondents, each achieving an average score exceeding 4.00, thereby categorizing them as very good. The total value (T) and average value

(A) for each parameter were calculated and then matched with the class interval length and category as outlined in Table 1. Figure 9 provides a bar chart illustrating the comparison of the USE dimensions.

Table 13. Interval length and category for each parameter

No	Parameter/variable	Total value (T)	Average value (A)	Category
1	Usefulness	588	4.2	Very good
2	Satisfaction	348	4.35	Very good
3	Ease of use	604	4.31	Very good
4	Ease of learning	343	4.29	Very good
Average parameter/variable value			4.29	Very good

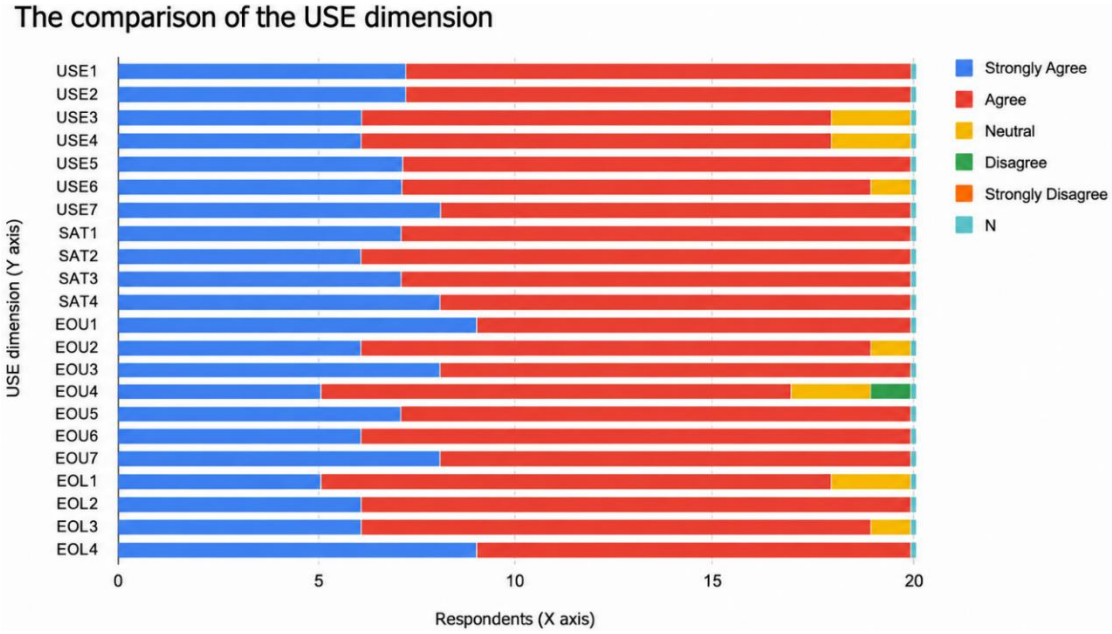

Figure 9. The bar chart illustrating the comparison of the USE dimension

3.13. Discussion

This study investigates the impact of integrating moderate and guerrilla usability testing methods on evaluating a Naive RAG-based smart consultant user security awareness prototype from the user perspective. While previous research has explored usability testing through various methodologies and case studies, none have employed a combination of methods, including moderate and guerrilla testing, to assess their impact on a cybersecurity case study. The results obtained from the tests revealed scores for each parameter. Usefulness achieved a score of 588, with an average of 4.2, which is considered very good, indicating that respondents comprehended the role and benefits of the prototypes in facilitating cybersecurity learning. Satisfaction garnered a total score of 348, with an average of 4.35, also deemed very good, suggesting that respondents were satisfied with the prototype's features and services, as well as its appealing and user-friendly GUI. Ease of use scored 604, with an average of 4.31, considered very good, indicating that the prototype's menu layout and design were user-friendly. The prototype offers support in both Indonesian and English and provides easy access via computers, laptops, and smartphones through a web browser and internet connection. The ease of learning achieved a total score of 343 and an average of 4.29, which is very good, indicating that users can easily learn about cybersecurity by interacting with the prototype and receiving assistance during testing. Respondent demographics also influenced the assessment, with the majority of respondents aged 26-35, holding a bachelor's degree, and possessing 5-10 years of computer experience.

The combination of moderate and guerrilla methods yielded superior results compared to previous studies. Our findings suggest that user understanding and satisfaction are influenced by the prototype's user interface design, along with the assistance and explanations provided during testing. This study has limitations in confirming user understanding of cybersecurity in greater detail, particularly concerning the potential for hallucinations (biases) in system responses. Future research should explore techniques for addressing hallucinations in system responses and their impact on users. Our findings underscore the significant role of assistance and guidance for users during the testing process.

4. CONCLUSION

The integration of moderate and guerrilla usability testing techniques, alongside the USE assessment framework—which evaluates usefulness, satisfaction, ease of USE —demonstrates a significant impact on users. This approach facilitates users' interaction with the prototype and enhances their understanding of cybersecurity, surpassing traditional methods such as consulting manuals, seeking assistance, or participating in training sessions. The findings of this study suggest that prototype support can effectively elevate user security awareness and offer valuable insights for refining the framework and prototype in subsequent research endeavors. Future research will focus on refining the four stages of the RAG method to enhance the system's response validity in bolstering user security awareness. This will be complemented by black box testing, usability testing/user acceptance testing, and human evaluation.

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AUTHOR CONTRIBUTIONS STATEMENT

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I Made Oka Widyantara	✓	✓			✓	✓	✓		✓	✓				
Linawati					✓				✓	✓		✓		
Nyoman Gunantara						✓			✓	✓			✓	

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
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P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

The authors state no conflict of interest (financial/non-financial, personal, or professional) in connection with manuscripts.

INFORMED CONSENT

We have obtained informed consent from all individuals included in this study. Informed was secured from all participants engaged in this study. Participants were apprised of the study's objectives, and their involvement was entirely voluntary. All responses were anonymized and utilized exclusively for research purposes, with strict adherence to maintaining participant confidentiality.

ETHICAL APPROVAL

This research was conducted in strict adherence to the relevant ethical principles and institutional research guidelines. The privacy and confidentiality of participants were rigorously upheld throughout the duration of the study.

DATA AVAILABILITY

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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