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UEQ-BASED EVALUATION OF USER EXPERIENCE: A CASE STUDY ON ENGLISH READING WEBSITES DEVELOPMENT

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Abstract— *Technology has become essential in education, requiring specialized instructional media tailored to each subject. This study develops a web-based learning system designed specifically for English education, integrating both passive and interactive learning approaches to enhance engagement and effectiveness. This study contributes to showing that passive-interactive English learning websites can help users in both the advanced and non-advanced categories. However, before the system is publicly accessible, system testing focusing on user experience is important to achieve the intended learning objectives. The current study employed the User Experience Questionnaire (UEQ) framework, consisting of 26 questions across the categories of Attractiveness, Pragmatic, and Hedonic. The UEQ framework has been well-validated and widely used in various studies and professional industries for assessing user experience, ensuring that the user experience scores are objective. The findings showed that the system scored lowest in the "Hedonic" category due to a low "Novelty" score of 1.344, which was 31% lower than the highest score "Attractiveness" at 1.962. Interface that visually appealing and offers fresh, dynamic content, users are more likely to stay engaged. However, the overall average score across the three UEQ categories for the English learning system was 1.823, indicating a good user experience.*

Keywords: *learning system, system testing, technology, UEQ, user experience.*

Intisari— *Teknologi telah menjadi hal penting dalam pendidikan, yang membutuhkan media pembelajaran khusus yang disesuaikan dengan setiap mata pelajaran. Studi ini mengembangkan sistem pembelajaran berbasis web yang dirancang khusus untuk pendidikan bahasa Inggris, yang memadukan pendekatan pembelajaran pasif dan interaktif untuk meningkatkan keterlibatan dan efektivitas. Studi ini berkontribusi dalam menunjukkan bahwa website pembelajaran bahasa inggris yang pasif-interaktif dapat membantu pengguna baik dalam kategori mahir maupun tidak. Namun sebelum bisa diakses secara umum, perlu diadakan pengujian sistem yang berfokus pada pengalaman pengguna sehingga tujuan dibangun sistem pembelajaran ini dapat tercapai. Penelitian ini menggunakan framework kuesioner User Experience Questionaire (UEQ) yang berisi 26 pertanyaan seputar kategori Attractiveness, Pragmatis dan Hedonis. Framework UEQ sudah teruji dengan baik dan digunakan dalam pengujian pengalaman pengguna di berbagai penelitian dan industri profesional, sehingga penelitian ini pun menggunakan UEQ agar skor pengalaman pengguna yang didapatkan merupakan hasil yang objektif. Hasil yang didapatkan adalah sistem mendapat skor terendah pada kategori Hedonis yang disebabkan karena nilai Novelty hanya memperoleh nilai 1,344 yang mana nilai ini lebih rendah 31% bila dibandingkan dengan nilai tertinggi yaitu Attractiveness sebesar 1,962. Antarmuka yang menarik secara visual dan menawarkan konten yang baru dan dinamis, pengguna*

cenderung akan tetap terlibat kembali dalam sistem. Namun apabila dinilai secara umum maka nilai rerata dari 3 kategori UEQ terhadap pengalaman pengguna sistem pembelajaran bahasa inggris ini adalah sebesar 1,823 yang artinya baik.

***Kata Kunci**: sistem pembelajaran, pengujian sistem, teknologi, UEQ, pengalaman pengguna.*

INTRODUCTION

In the advancing digital era, information technology has become an essential part of various aspects in life, including education. One of the most significant innovations in modern education is online learning, or e-learning. Online learning has become an essential alternative for educational institutions, especially since the COVID-19 pandemic [1][2][3]. Learning websites offer broader and more flexible access for students to obtain materials, resources, and tools that support the teaching and learning process [4]. The use of educational websites has become a solution to address challenges in the education sector, termasuk pelajaran bahasa inggris. The importance of learning English globally [5] means that the material must be taught in a structured and interesting way [6]. Many English learning websites do not effectively adapt to individual learning styles, proficiency levels, and progress. Learning personalization is improving but still has limitations in context understanding and feedback [7]. Technology providing equitable access, flexible learning schedules, and higher interactivity [8] compared to conventional offline classroom methods, but still need feedback to fit its user's need.

In the context of English language learning, educational websites offer great potential for development. As a global language, English plays a significant role skill across various fields, including education, business, technology, and international communication. Consequently, many online English learning platforms have been developed to help students improve their English proficiency more efficiently and affordably [9], [10]. However, despite the availability of numerous English learning websites, the quality of the user interface and user experience plays a significant role in determining the effectiveness of these platforms. A website that is user-friendly, intuitive, and visually appealing can enhance users' motivation and improve the learning process [11]. Conversely, a poorly designed or user-unfriendly interface may hinder learning and reduce user engagement.

Case study is taken from Universitas Tidar that currently developed website focuses on English reading skills. The website is characterized as a passive-interactive website since it primarily offers reading materials and lacks active learning activities. It is considered passive because the content invites students to practice reading by exploring the materials on the website [12]. However, it also includes interactive elements [13] that students must engage with to access the learning materials [14]. Therefore, an attractive interface is essential to motivate students to enjoy reading and continue using the website.

ReadnRead is the name of the learning website being developed in this study. Before being publicly accessible, it is important to ensure its ease of use and ability to motivate students. This study involved testing and analyzing user experience using a questionnaire to evaluate the effectiveness, efficiency, and user satisfaction of the website. Evaluating user experience is vital to ensure that the developed interface meets users' needs and expectations. The testing employed the User Experience Questionnaire (UEQ) framework, which has been widely used internationally for user experience evaluations [15]. The framework, which has been well-validated since 2008, was implemented in this study to ensure that the results meet good user experience standards. The evaluation involves 53 prospective users, primarily students, aligning with the focus of this study on English language learning for university students.

LITERATURE REVIEW

The focus of this study is university students as the main user group of the website. [16] highlights various perspectives on e-learning, including students perceptions, identifying key barriers to successful implementation. These barriers include inadequate internet facilities, inflexible learning materials, and an overwhelming reading workload. The findings emphasize the importance of designing systems that address these challenges. During the COVID-19 pandemic, studies revealed that Indonesia education level had succesfully adopted e-learning platforms [17][18]. However, the needs of higher education might differ from the generic ones, thus customization of generic platforms to meet the specific needs of university programs is needed. In this case, the developed learning system is tailored to meet the demands of English language learning.

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The development of learning information systems has been extensively explored in numerous previous studies. For instance, [19] developed e-modules for fashion studies to address the needs for digital resources in custom fashion design lessons. Similarly, [20] emphasized the necessity of specialized systems for mathematics education, creating targeted solutions for elementary school-level instruction. These studies underscore the importance of customizing learning systems for specific fields to optimize the effectiveness of content delivery. In the context of English language education, research by [21] indicates that digital learning systems significantly enhance student participation in the learning process while improving monitoring and assessment capabilities. However, the success of the implementations is highly dependent on well-built system design and technical support. Study from 2022 untill 2024 [7][22] prove that system needed to retrieve feedback from early user so it can be more adaptable and increase engagement in further development. Study in early 2025 [23] showed that AI-driven systems still need continuous user feedback to improve user engagement. AI-driven systems also need user feedback, especially systems built conventionally by developers sure need more atention from user feedback.

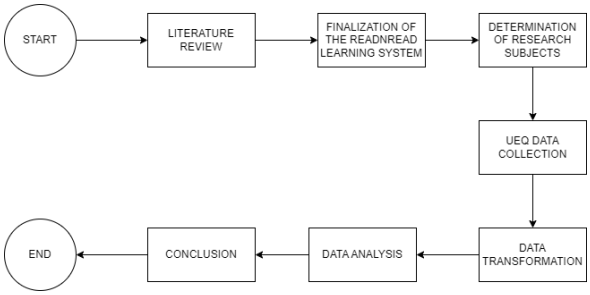
Building upon the findings from previous studies, this study emphasizes not only the development of an English learning system but also the incorporation of user experience testing prior to broader implementation. Utilizing the UEQ framework is one of the alternatives to evaluating user experience. The UEQ has proven effective in assessing user perceptions across various applications, including government platforms [24] and educational tools [25]. This study focuses on developing an English learning system specifically for university students. The participants involved in the testing phase were representative of the actual target users. The objective is to ensure that the system not only meets the usability standards but also aligns with the targets needs and expectations.

MATERIALS AND METHODS

The current study on user experience of the ReadnRead learning system was conducted using the UEQ framework.

The research stages are illustrated in
Source: (Research Results, 2024)

Figure *1*. The research methodology involved seven stages: a literature review, finalization of the ReadnRead learning system, determination of research subjects, data collection using the UEQ questionnaire, data transformation, data analysis, and conclusion.



Source: (Research Results, 2024)

Figure 1. Research Methodology

Literature Review

The literature review is used to identify the novelty of the study. Previous studies were reviewed systematically to address the importance of implementing learning systems, examples of existing systems, and the significance of user experience testing prior to the broader publication of a learning system. The literature review was restricted to studies published article within five years preceding this research to find the gap in english learning system in 5 year

Finalization Of The Readnread Learning System

System finalization and testing preparation were carried out simultaneously. Testing preparation required a highly mature system to ensure optimal results. The interfaces required for testing include the system's landing page and the learning materials page. When the system was ready, it was published and made accessible at https://readnread.id. Publishing the system facilitated user testing, allowing participants to access it independently through their devices. The system was designed to be modern and responsive to various devices, aligning with the literature review's focus on flexibility of access to learning materials.

Determination Of Research Subjects

Determining the research subjects was a crucial step, as testing required participants who represented actual users. The learning system was designed for the English language education department, which had an active student body of 90 students with average experience in website learning system and different grade. To ensure an adequate representation of the population, the required sample size was calculated using Slovin's formula, as shown in Equation (1) [26]. For this study, an error margin of 10% was used, resulting

in a minimum required sample size of 47 participants.

$$n = \frac{N}{1+N.e2} \quad (1)$$

$$n = \frac{90}{1 + 90.(0.1)^2} = \frac{90}{1 + 90.0.01} = \frac{90}{1 + 0.9}$$

$$= \frac{90}{1 + 1.9} \approx 47.37$$

UEQ Data Collection

The data were collected by distributing the UEQ questionnaire, comprising 26 items translated into Indonesian. The questionnaire items were sourced from the official UEQ website https://www.ueq-online.org and formatted into Google Forms for ease of distribution and data collection. The web-based system, combined with Google Forms, enabled respondents to independently use the system and answer the UEQ questions via their personal devices. The UEQ items in English are presented in Source: (Research Results, 2024)

Figure *2*. UEQ provides an overall quantitative measure of usability, stimulation, and attractiveness, but it lacks qualitative insights into why users feel a certain way. While UEQ is useful for quick User Experience evaluation, it will suit for current web development state that need quick feedback from users.

	1	2	3	4	5	6	7		
annoying	O	O	O	O	O	O	O	enjoyable	1
not understandable	O	O	O	O	O	O	O	understandable	2
creative	O	O	O	O	O	O	O	dull	3
easy to learn	O	O	O	O	O	O	O	difficult to learn	4
valuable	O	O	O	O	O	O	O	inferior	5
boring	O	O	O	O	O	O	O	exciting	6
not interesting	O	O	O	O	O	O	O	interesting	7
unpredictable	O	O	O	O	O	O	O	predictable	8
fast	O	O	O	O	O	O	O	slow	9
inventive	O	O	O	O	O	O	O	conventional	10
obstructive	O	O	O	O	O	O	O	supportive	11
good	O	O	O	O	O	O	O	bad	12
complicated	O	O	O	O	O	O	O	easy	13
unlikable	O	O	O	O	O	O	O	pleasing	14
usual	O	O	O	O	O	O	O	leading edge	15
unpleasant	O	O	O	O	O	O	O	pleasant	16
secure	O	O	O	O	O	O	O	not secure	17
motivating	O	O	O	O	O	O	O	demotivating	18
meets expectations	O	O	O	O	O	O	O	does not meet expectations	19
inefficient	O	O	O	O	O	O	O	efficient	20
clear	O	O	O	O	O	O	O	confusing	21
impractical	O	O	O	O	O	O	O	practical	22
organized	O	O	O	O	O	O	O	cluttered	23
attractive	O	O	O	O	O	O	O	unattractive	24
friendly	O	O	O	O	O	O	O	unfriendly	25
conservative	O	O	O	O	O	O	O	innovative	26

Source: (Research Results, 2024)

Figure 2. The List of UEQ Items

Data Transformation

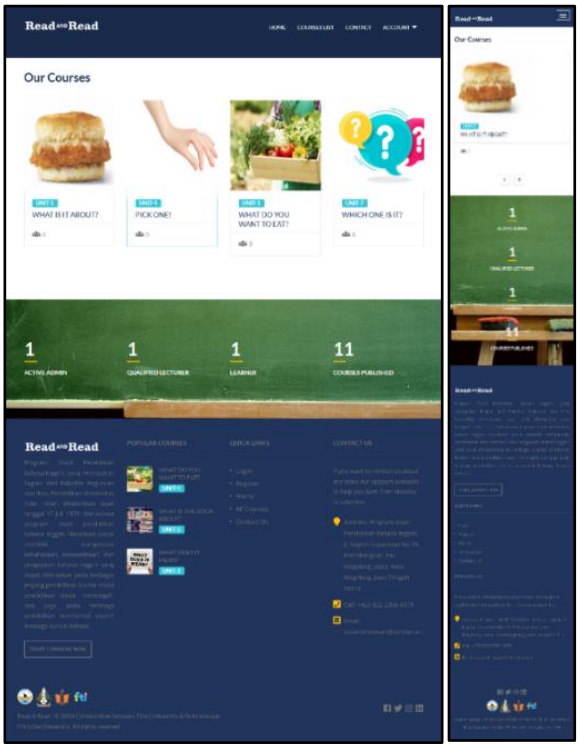
Data transformation was conducted using UEQ analysis tools. Data collected via Google Forms were manually inputted into the UEQ data analysis tools. High scores do not always indicate positive feedback, as the UEQ includes both positive and negative statements. For example, a low score on negatively worded items indicates a positive outcome, as seen in item 21, where "clear" appears on the negative side.

Data Analysis

Data analysis was performed using the UEQ tools to evaluate user assessments of the ReadnRead learning system. Six dimensions were analyzed: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. Based on the results, the system was categorized as “Excellent”, “Good”, “Above Average”, “Below Average”, or “Bad”.

RESULTS AND DISCUSSION

In accordance with the research framework, the finalized ReadnRead learning system features a responsive user interface for both desktop and mobile versions, as illustrated in Figure 3.



Source: (Research Results, 2024)

Figure 3. Landing Page ReadnRead (Desktop Version and Mobile Version)

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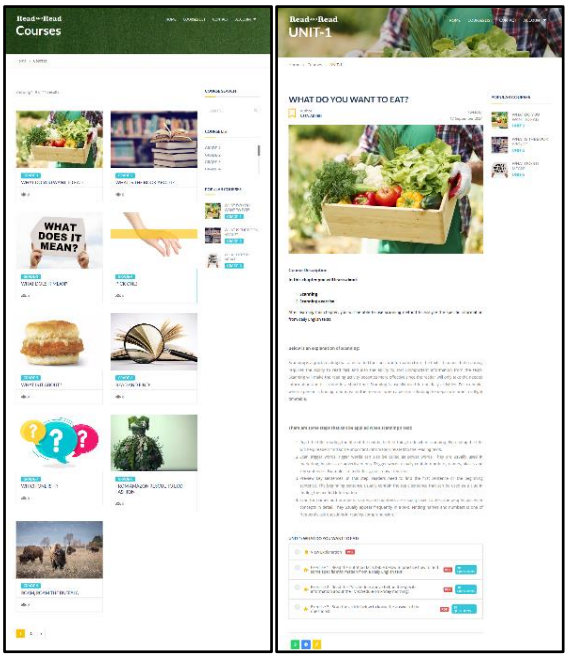
Based on Figure 3, the design ensures adaptability across various devices, including PCs, laptops, smartphones, and tablets, when accessed via a web browser. This flexibility addresses the need for a learning system that can be accessed anytime and anywhere. Internet connectivity is required to access the full functions of the website, yet the learning materials can be downloaded and viewed offline. Consequently, users without internet connectivity can still study previously downloaded materials. However, for a fully interactive experience with all system features, users are encouraged to access the ReadnRead system online.



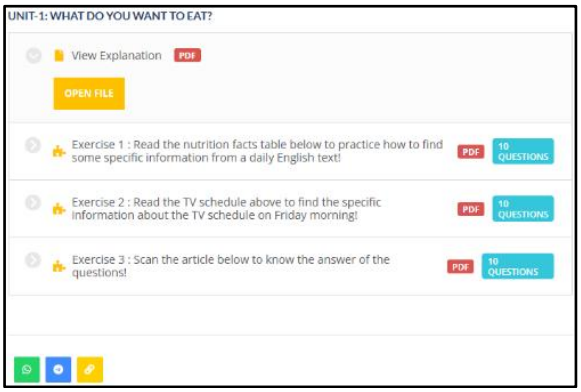
Source: (Research Results, 2024)
Figure 4. Course List Page

System flexibility require an easy, simple, and consistent interface. Therefore, a commonly used and uncluttered interface framework is used.

Table *1*. The research team successfully obtained 53 respondents to evaluate the ReadnRead learning system. This number exceeded the minimum requirement of 47 respondents, which was calculated using Slovin's formula.

The layout in Figure 3 and Figure 4 is divided into even grids, namely 2 and 4 grids in desktop mode and 1 grid in mobile mode. The purpose is to make the UEQ score high because the level of ease and comfort can be achieved.

The next components prepared for the system testing were the course list page and the detailed course page, as shown in Figure 4 and Figure 5, respectively. The detailed course page includes an offline access feature and material-sharing functionality. When users select the "Open File" option, the system redirects them to a page displaying the PDF file, which can be downloaded to their devices. Additionally, users can share course materials using three buttons integrated with third-party applications, such as WhatsApp, Telegram, and a URL copy feature. The WhatsApp and Telegram buttons automatically connect to the active accounts on users' devices, facilitating content sharing.



Source: (Research Results, 2024)
Figure 5. Offline Access and Material Sharing Features

The data collected via Google Forms were transformed into inputs for the UEQ data analysis tools, as seen in lculated using Slovin's formula.

Table 1 Input Data from UEQ Respondents

Items																									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
4	4	4	4	1	4	4	4	4	4	4	1	4	5	6	5	5	1	2	7	1	7	1	1	1	7
6	7	1	3	2	7	5	6	1	1	5	2	6	7	7	5	1	2	3	5	3	5	4	2	2	5
6	7	2	5	3	5	5	2	2	1	6	1	6	6	7	5	1	2	2	6	2	7	1	2	2	6
7	5	6	2	5	6	7	5	1	2	7	3	6	6	7	4	1	2	1	6	2	5	1	2	2	6
6	7	3	1	2	5	5	6	1	2	7	2	6	7	5	7	2	1	1	6	2	7	2	1	2	7
6	7	1	2	1	7	5	5	1	3	7	1	6	7	4	7	1	1	3	7	2	6	2	1	2	6
7	4	1	2	3	5	6	6	2	2	6	2	6	6	7	5	1	2	1	5	1	6	1	2	1	5
6	6	3	2	1	5	5	7	3	3	6	1	6	6	7	6	2	2	1	5	2	7	1	3	1	6
6	7	1	2	1	5	5	7	1	3	6	1	7	5	6	7	1	2	1	6	2	7	2	2	1	6

Items																								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
6	7	2	2	2	5	6	6	1	3	7	1	6	7	6	5	2	3	1	6	2	6	1	1	2	5
6	6	3	2	1	6	6	6	1	2	6	1	7	7	7	5	1	2	1	6	2	6	1	2	1	6
7	5	1	3	1	5	6	6	1	1	6	2	5	7	6	5	1	3	2	5	1	5	1	3	1	7
5	6	2	2	1	6	6	6	3	2	7	2	6	6	6	6	7	2	2	6	2	7	1	2	2	6
6	7	2	2	1	6	7	7	3	2	5	2	7	6	7	7	1	3	1	6	1	7	1	3	1	5
6	7	2	3	2	6	7	6	2	2	7	2	6	7	6	5	2	2	1	7	2	6	2	2	3	2
7	7	2	2	1	7	7	7	2	2	7	2	7	7	6	6	2	1	2	6	2	6	2	2	1	6
7	7	2	2	1	7	7	6	2	6	6	1	6	7	7	6	3	1	2	6	2	7	1	2	2	7
7	6	2	2	1	6	7	7	2	1	7	3	7	6	7	6	2	1	1	6	1	6	2	1	1	6
7	6	2	1	2	6	7	6	2	5	7	2	6	7	6	6	1	1	2	6	2	6	2	2	2	2
6	7	2	2	1	7	7	6	2	2	7	1	7	6	6	6	1	2	2	6	2	6	1	1	1	2
2	2	5	6	6	3	2	3	6	6	1	6	1	2	5	1	7	6	5	2	6	2	5	5	6	6
1	2	6	7	7	2	2	2	7	6	1	7	2	2	6	2	7	6	5	2	6	2	7	6	7	2
1	1	6	6	7	2	2	1	6	7	1	7	1	2	6	1	7	6	6	1	7	1	7	6	7	2
7	6	7	7	1	6	6	6	1	1	7	1	6	6	6	7	1	2	2	7	1	6	2	2	1	7
5	6	2	1	1	5	6	6	1	2	7	1	6	5	6	6	1	1	2	6	1	7	2	2	1	7
6	7	2	1	1	6	6	6	1	1	7	1	7	6	6	6	1	1	2	6	1	6	1	2	1	6
6	6	7	2	3	5	6	6	2	6	6	2	5	6	6	5	2	2	2	5	3	6	3	2	1	6
6	6	2	2	3	6	6	7	3	2	7	2	6	7	6	7	2	2	3	6	2	7	2	1	1	5
7	6	2	2	3	7	5	6	3	2	6	3	6	6	2	6	3	2	2	6	2	5	1	2	1	6
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6	6	2	1	1	6	7	7	2	2	7	2	7	6	6	6	2	1	2	6	2	6	2	2	1	2
6	6	1	1	2	6	6	6	2	5	6	3	7	6	6	6	1	1	1	6	1	7	2	1	2	2
5	5	4	4	3	6	4	6	3	3	6	1	7	5	7	5	4	1	4	6	3	6	4	3	3	6
6	6	1	2	1	7	6	6	1	1	6	1	6	6	7	6	1	2	2	7	2	7	2	2	1	2
6	6	2	1	1	7	6	6	2	5	6	2	6	6	5	6	2	1	2	6	1	6	2	2	2	1
6	7	2	1	2	6	7	7	2	1	7	1	7	6	7	7	2	2	1	7	2	6	2	2	2	1
7	6	2	2	1	6	6	7	2	4	7	1	6	7	6	6	1	2	2	6	1	6	2	2	2	6
6	7	2	1	2	6	7	6	2	2	6	3	6	6	6	5	2	1	2	7	2	7	2	2	1	6
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6	7	2	1	1	7	6	7	2	3	6	2	6	7	6	7	2	2	6	6	2	7	2	1	1	6
7	5	3	1	2	5	7	2	2	1	7	2	7	6	7	6	1	1	2	6	2	7	2	2	1	6
7	6	2	2	1	7	6	7	2	1	6	2	7	6	6	6	2	1	2	6	2	7	2	2	1	2
7	6	2	2	1	6	7	6	2	3	7	3	7	7	6	7	2	1	2	7	2	7	2	1	2	2
7	6	2	1	2	6	6	7	2	3	7	2	7	6	7	6	1	1	2	6	2	6	2	2	1	6
6	7	2	1	1	5	7	5	2	1	7	2	6	7	6	7	1	2	1	7	2	6	2	1	2	6
7	7	2	1	2	7	6	6	2	6	7	2	7	5	6	5	1	1	2	6	3	6	2	2	1	6
7	6	1	1	2	6	6	7	1	7	7	1	6	6	6	6	2	1	3	6	2	6	2	2	1	1

Source: (Research Results, 2024)

Aligned with the research stages, the final step involved processing the data using UEQ analysis tools to determine whether the developed learning system met the user experience expectations of the target users—students from the English language education department.

Table 2. Average Scores in UEQ Aspects

Category	Average Scores	UEQ Aspects	Average Scores
Attractiveness	1,96	Attractiveness	1,962
Pragmatic	1,94	Perspicuity	1,939
		Efficiency	1,929
		Dependability	1,943
Hedonic	1,65	Stimulation	1,962
		Novelty	1,344

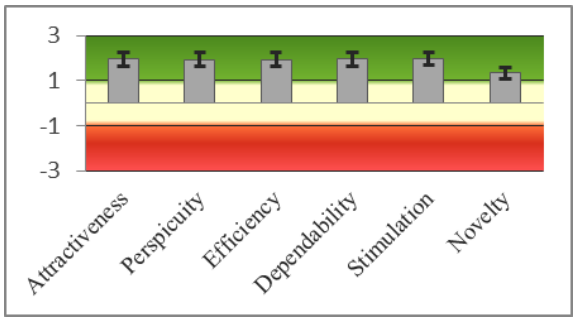
Source: (Research Results, 2024)

The average scores from the 26 UEQ statements are presented in Table 2, while the comparative analysis of each UEQ aspect can be seen in Figure 6.

The results in Table 2 and Figure 6 show that the overall user experience scores for the ReadnRead learning system were positive and consistent across most categories, except for the "Novelty" aspect under the "Hedonic" dimension. Although the graph indicates that all aspects scored well, the highest scores were achieved in the "Attractiveness" and "Stimulation", followed by "Dependability", "Perspicuity", and "Efficiency", with "Novelty" receiving the lowest score. The findings suggest that respondents generally perceived the ReadnRead system positively, as the average scores in all aspects exceeded 0.8. Specifically, the system was evaluated as visually

Accredited Rank 2 (Sinta 2) based on the Decree of the Dirjen Penguatan RisBang Kemenristekdikti No.225/E/KPT/2022, December 07, 2022. Published by LPPM Universitas Nusa Mandiri

appealing (Attractiveness) and easy to use (Perspicuity, Efficiency, and Dependability). However, it seemed slightly less effective in motivating users (Stimulation and Novelty) compared to other categories. These results highlight areas of strength in the system design and also identify areas for improvement, particularly in enhancing user engagement and novelty to create a more stimulating learning experience.



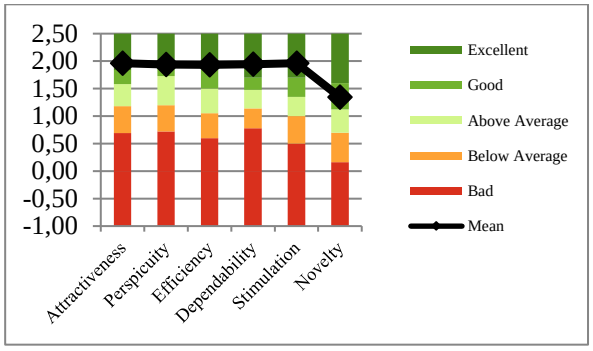
Source: (Research Results, 2024)
Figure 6. Comparison Charts of UEQ Aspects

The ReadnRead application uses a commonly used interface template with the aim of making it easier for users. It is proven in other parts besides Novelty getting a high score. Novelty as the lowest scorer from the UEQ feedback results is a new thing related to the novelty of the interface. This needs to involve frontend interface experts so that it can be more unique in providing learning materials. However, if using something new that has not been encountered by many users, user usability testing is needed. This is not easy because technically it will be repeated to find out the standard of user ease of use.

Table 3. Quality Category of UEQ Aspects

Scale	Mean	Comparison to benchmark	Interpretation
Attractiveness	1,96	Excellent	In the range of the 10% best results
Perspicuity	1,94	Good	10% of results better, 75% of results worse
Efficiency	1,93	Excellent	In the range of the 10% best results
Dependability	1,94	Excellent	In the range of the 10% best results
Stimulation	1,96	Excellent	In the range of the 10% best results
Novelty	1,34	Good	10% of results better, 75% of results worse

Source: (Research Results, 2024)



Source: (Research Results, 2024)
Figure 7. UEQ Benchmark Chart

In addition to assessing user perceptions, the UEQ also generates a benchmark chart that illustrates the quality of the six UEQ dimensions for the ReadnRead learning system. The values and categories can be seen in Table 3 and the visual representation is provided in Figure 7. Based on the benchmark results in each category, it can be concluded that, in general, the ReadnRead learning system has been successfully developed, providing a good user experience within the top 10% range in terms of "Attractiveness", "Perspicuity", "Efficiency", and "Dependability". For the "Hedonic" aspects, including "Stimulation" and "Novelty", the system performed slightly lower than the other four dimensions. However, these scores still fall within the "Good" category, positioning them in the top 10% of systems and the bottom 75%, based on the UEQ dataset benchmarks.

CONCLUSION

The development of the ReadnRead learning system has successfully provided a positive user experience, as indicated by the UEQ categories of "Attractiveness", "Pragmatic", and "Hedonic" quality. However, the "Hedonic" dimension scored the lowest, primarily due to the "Novelty" aspect, which received a score of 1.344 — 31% lower than the highest scores for "Attractiveness" and "Stimulation", both at 1.962. Despite this, the overall average score across the six UEQ dimensions was 1.823, indicating a generally good user experience. To maintain and improve these results, regular user testing is essential. The findings highlight the need to redesign certain business processes and user interface to stimulate user motivation and engagement with the system. Additionally, the "Novelty" aspect requires enhancement through innovative approaches to digital learning. One possible strategy to address both user motivation and novelty is gamification. The limitation in this study is only do user experience feedback through

UEQ. For fully understand what user need in another aspect, can do another user testing like usability testing. Future research will focus on integrating gamification elements as a key feature in improving and expanding the capabilities of the ReadnRead learning system. Another option to improve "Hedonic" quality can implement multisensory learning experiences using AR/VR. The limitation in this study is only do user experince feedback trough UEQ. For fully understand what user need in another aspect, can do another user testing like usability testing.

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