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Measuring the Quality of User Experience on Artificial Intelligence Website: A Quantitative Study at Misamis University

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Abstract:

The User Experience Questionnaire (UEQ) is used to assess the user experience of AI websites in the context of Misamis University students. The study aims to evaluate the usability and overall satisfaction with AI websites, identifying strengths and areas for improvement in terms of attractiveness, efficiency, perspicuity, dependability, stimulation, and novelty. The results provide valuable insights into how these websites are perceived by users, highlighting the positive aspects of design and functionality. This assessment offers important recommendations for enhancing the AI websites to improve user satisfaction, engagement, and overall experience.

Keywords **— AI websites, Attractiveness, Dependability, Efficiency, Novelty, User Experience Questionnaire (UEQ)**

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I. INTRODUCTION

The impact of artificial intelligence (AI) on society is complex and spans a number of areas, including economics, education, law, and ethics. AI technologies are developing at a rapid pace, posing both potential and risks that need for careful thought and regulation. In order to reduce any possible harm to people and society, for example, the research by (Akbar et al., 2023) emphasizes the significance of comprehending the ethical implications of AI systems and advocates for accountability and openness in their development. However, the rise of AI also raises significant ethical and legal concerns. The legal liability associated with AI's actions, questioning who should be held accountable for damages caused by autonomous systems (Kamyshanskiy et al., 2021). The need for robust legal frameworks to govern AI's integration into society is underscored by the potential for discrimination and inequality (Niemiec et al., 2022). Still, the primary concern here is the user experience of AI on the educational system.

It has been demonstrated that incorporating AI into learning environments improves individualized and creative learning experiences in the field of education. (Sari & Purwanta, 2021) underscore the efficaciousness of artificial intelligence (AI) in STEM-oriented creative education, stressing its function in cultivating cooperation and inventiveness within academic environments. Similar to this, Luo talks about how artificial intelligence (AI) technologies—such as big data and machine learning—have changed educational approaches by allowing computers to mimic human intellect and, in turn, changing conventional teaching and learning paradigms (Luo, 2023). This shift is essential because it equips students for a world where intelligent systems will increasingly rule the future. Artificial Intelligence (AI) have revolutionized the learning process in higher

education. However, there are several problems that have been identified in the use of AI or AI websites.

Artificial intelligence (AI) is having a wide-ranging effect on college students, affecting everything from engagement and academic performance to learning outcomes. AI innovations are changing the face of higher education and presenting students with both possibilities and difficulties as they develop. The integration of AI in educational settings has been shown to positively influence students' learning attitudes and engagement. According to the study by (Chichekian & Benteux, 2022), AI technologies can enhance overall learning outcomes by creating positive learning experiences that consider students' interactions with AI. This sentiment is echoed in the findings of a comprehensive evaluation model developed from a survey of students, which indicates that AI significantly impacts students' learning attitudes and effectiveness. Although, the rise of AI in education is not without its challenges. The dependency on AI tools can lead to negative consequences, such as decreased creativity and critical thinking skills among students. Zhang's research indicates that increased reliance on AI can result in academic laziness and a reduced capacity for independent thought (Zhang, 2024). Furthermore, concerns about academic integrity arise with the ease of access to AI-generated content, which may inadvertently encourage dishonest practices (Sallam, 2024). Therefore, while AI offers substantial benefits, it is crucial to address these potential pitfalls to ensure a balanced approach to its integration in education.

In addition to academic performance, AI also plays a role in enhancing students' social interactions and career guidance. The development and validation of assessment instruments for AI's impact on students reveal that AI influences various dimensions of the college experience, including motivation and self-reliance (Capinding, 2024). This holistic view of AI's impact underscores the importance of fostering an environment where students can leverage AI tools responsibly while developing essential skills for their future careers.

At its core, UX is concerned with the subjective experiences and emotional responses users have when interacting with a product. It is defined as the overall perception and reaction of users, which includes their feelings of satisfaction, comfort, and usability (Yusof et.al, 2021). This perspective is critical because it acknowledges that user experiences are not static; they evolve over time and are influenced by various contextual factors, including the user's environment and prior experiences (Sánchez-Adame et al., 2020).

The User Experience Questionnaire (UEQ) is a widely recognized tool utilized for assessing the user experience of interactive products. It is designed to measure both pragmatic and hedonic quality, making it suitable for various applications across different fields, including education, healthcare, and technology. The UEQ consists of 26 items categorized into six subscales, which have demonstrated high reliability and construct validity, as evidenced by multiple studies (Solmaz et al., 2023). The questionnaire can be administered in both its full and short forms, with the UEQ-S being an 8-item version that captures the subjective impressions of users effectively (Böttinger et al., 2023).

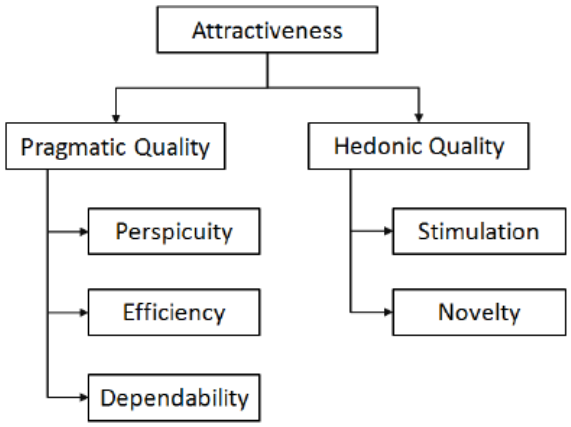

Figure 1. UEQ Scale Structure

The User Experience Questionnaire (UEQ) is a well-established tool designed to evaluate user experience across various interactive products. The structure of the UEQ is composed of 26 items that are categorized into six distinct scales: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty. Each of these scales measures specific aspects of user experience, allowing for a comprehensive assessment of how users perceive and interact with a product (Ratmoko & Pakereng, 2022). The Attractiveness scale assesses the overall appeal of the product, capturing users' immediate impressions and emotional responses. Perspicuity evaluates how easy it is for users to understand and navigate the product, reflecting its clarity and intuitiveness. Efficiency measures the effectiveness of the product in enabling users to achieve their goals with minimal effort. Dependability focuses on the reliability and trustworthiness of the product, while Stimulation gauges the ability of the product to engage and excite users. Finally, Novelty assesses the uniqueness and innovativeness of the product (Hinderks et al., 2019).

Research has demonstrated the reliability of the UEQ scales, with Cronbach's alpha values typically exceeding the acceptable threshold of 0.7, indicating strong internal consistency across the different scales (Pas et al., 2020; Kushendriawan et al., 2021). This reliability is crucial for ensuring that the insights gathered from the UEQ can be confidently used to inform design improvements and enhance user satisfaction. Furthermore, the UEQ's construct validity has been supported through various studies, confirming that the scales effectively measure the intended dimensions of user experience.

The study explores the user experience of college students at Misamis University when interacting with the AI Website, utilizing the User Experience Questionnaire (UEQ) framework. This research aims to assess various dimensions of the website's usability, including its ease of use, functionality, and overall appeal. The primary objectives are to evaluate the quality of the students' interactions with the platform, identify areas for potential improvement, and measure their satisfaction levels to ensure the website meets their expectations and needs effectively.

The study is to evaluate the quality of use experience of students using the website. By making this study, it hopes to give significant insights that can inform and help the Misamis University college students' overall experience. The specific objectives are;

- To determine respondent profile according to gender, age and college department.
- To assess the specific dimensions of user experience such as attractiveness, efficiency, perspicuity, dependability, stimulation, and novelty on artificial intelligence website.
- To determine the difference towards the user experience when group according to their profile.

Students and instructors, at Misamis University may all benefit from the information this study offers. Enhancing the platform's usability, engagement, and happiness is the goal of assessing students' experiences using the AI Website. The results can enhance students' academic performance and learning experience. Administrators and teachers may utilize the information to improve the platform's functionality and offer more assistance for successful learning. Moreover, effective UX design is instrumental in enhancing customer loyalty and satisfaction. By focusing on the usability and pleasure derived from interactions, UX design aims to create seamless and enjoyable experiences that meet users' needs and expectations.

II. METHODOLOGY

The study's research framework (figure 2) begins with data collection, when participants were handed questionnaires. AI Websites were assessed by the respondents. Following the collection of data, the researcher used the UEQ tool, an Excel file that lets

the researcher enter data and automatically provides the findings that serve as the starting point for interpretation.

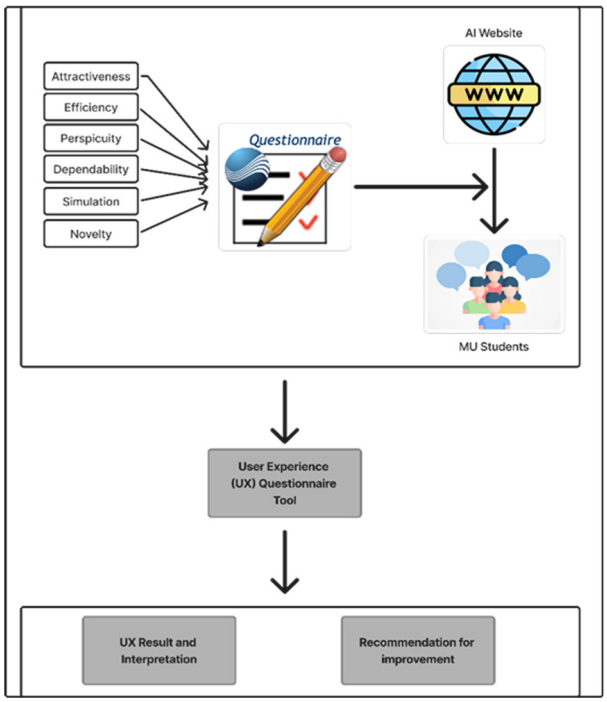

Figure 2. Research Framework of the Study

A. Questionnaire Development

The three primary components of the questionnaire are: (1) User Profile; (2) AI Website UEQ. Since the standard User Experience Questionnaire (UEQ) was used in this study without any modifications, it contains twenty-six (26) questions total and all six (6) scales [6]. Thus, it evaluates the attractiveness, efficiency, perspicuity, dependability, stimulation, and novelty (in this case, the AI Websites). The variables utilized in the study, which are actually scales, are defined in Table 1 and are taken from the standard User Experience Questionnaire (UEQ). The typical UEQ is shown in Figure 3.

Table 1. Variable used in the Study

Variable / Scale	Definition	Items
Attractiveness	Common opinion or impression concerning the website. This gives an idea if the users like or dislike the AI Websites	1. annoying - enjoyable 2. good - bad 3. unlikable - pleasing 4. unpleasant - pleasant 5. attractive -unattractive 6. friendly - unfriendly
Efficiency	This measures if the AI Websites are efficient and fast. It measures how effective and organize the user interface of the AI websites.	1. fast - slow 2. inefficient - efficient 3. impractical - practical 4. organized - cluttered
Perspicuity	A scale that shows how easy to understand The AI Website.	1. not understandable - understandable 2. easy to learn - difficult to learn 3. complicated – easy 4. clear - confusing
Dependability	A scale to measure the security and predictability aspects of AI Websites.	1. unpredictable - predictable 2. obstructive - supportive 3. secure - not secure 4. meets expectations - doesn't meet expectations
Stimulation	This measures if the AI Websites grab the interest and excitement of the users. It reflects if the user feels inspired or motivated in suing further the web services.	1. valuable - inferior 2. boring - exiting 3. not interesting – interesting 4. motivating - demotivating
Novelty	Are the AI Website innovative and creative? Do the web services grab the interest of the users?	1. creative - dull 2. inventive - conventional 3. usual - leading edge 4. conservative - innovative

The scales examine three practical or goal-focused aspects: (1) perspicuity, (2) efficiency, and (3) dependability. Conversely, novelty and stimulation stand for qualities that are non-goal oriented or pleasure-focused. Users' perceptions of the other elements influence how they react to attractiveness, which is the website's level of attraction. Users select the word that most accurately describes their experience from pairs of opposing terms that make up the questionnaire items.

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

Figure 3. The Standard User Experience Questionnaire (UEQ)

B. Sample Selection

The profile of the respondents is displayed in Table 2. One hundred fifty Misamis University (MU) college students participated in the survey as respondents. Respondents had prior exposure with AI websites. In particular, respondents are enrolled in any of the institution's undergraduate programs.

C. Data Collection, Validity, and Reliability

The online survey, which requires the students to score their experience using the AI website and submit their profile, was made available to them. Since the items were grouped in pairs of terms with opposite meanings, the respondents were given a brief instruction on how to handle the standard questionnaire in order to provide legitimate and trustworthy responses. Numerous studies examined the validity and reliability of the conventional UEQ scales and found that they were adequately reliable. Additionally, Cronbach's alpha value was used to demonstrate the tool's consistency and reliability.

Table 2. Respondents of the Study

Respondents	Description	Frequency
Undergraduate Students	These are students enrolled in IT, business, arts and sciences, dentistry, criminology, nursing, engineering, education, maritime, agriculture, and medical technology.	362

D. Data Analysis

The UEQ scale ranges from -2 to +2. As a result, the greatest positive response is +2, the most negative is -2, and the neutral is 0. Positive user input is shown by a value above +1, and negative user feedback is indicated by a figure below -1. When a scale's mean is close to +1, it indicates that respondents had a positive opinion. Computing the means of the six scales served as the main driving force behind the UEQ study. It does not take into account the computation of the overall mean of all scales as this number cannot be comprehended, and it does not include the entire UX score because factor analysis was employed to construct it. In normal interpretation, numbers between -0.8 and 0.8 indicate a neutral opinion, estimates of numbers above 0.8 indicate favorable opinions, and values less than -0.8 indicate unfavorable opinions. Furthermore, a high-quality viewpoint for a scale is indicated if its mean value falls between 1.5 and 2.

E. Results

Based on the results of the questionnaire data collection conducted online through social media platforms using Google Forms, a total of 392 college students from Misamis University participated as respondents. Although the total number of recommended respondents based on Raosoft was 362, the total responses gathered are deemed sufficient for the study. This sample size ensures reliable and valid results, providing a robust foundation for meaningful analysis and valuable insights into the research objectives.

F. Respondent's Demographic Data

The respondents' responses are critical to the study's effectiveness. However, it is equally crucial for researchers to thoroughly analyze and comprehend the demographic characteristics of their respondents. To accomplish this, the study conducts an assessment of the respondents' profiles, concentrating on crucial characteristics such as gender and the college course or program in which they are enrolled. By evaluating these profiles, the researchers hope to acquire a better understanding of the study's findings and ensure that they are understood appropriately.

Table 3 Number of Respondents in Terms on Gender

Gender	Frequency	Percentage
Male	213	54.34
Female	179	45.66
Total	392	100

A thorough breakdown of the responses by gender is given in the table 3. Males made up 54.34% of the sample, with 213 out of 392 individuals being male. There were 179 female responders, or 45.66% of the total. This suggests that there were slightly more men than women among the study's respondents.

Table 4 Number of Respondents in Terms in Age

Years of Age	Frequency	Percentage
18-20yrs	177	45.15
21-23yrs	159	40.56
24-26yrs	41	10.46
27 and older	15	3.83
Total	392	100

The table shows the distribution of responses according to their age group. Among the 392 respondents, the plurality (45.15%) is between the ages of 18 and 20, accounting for 177 individuals. This is followed by the 21-23 age group, which accounts for 159 responders (40.56% of the total). The 24-26 age group accounts for 10.46% of respondents, with 41 persons. Finally, the smallest proportion of responders, 3.83% or 15 people, are 27 or older. These results show that the majority of responders are younger, notably between the ages of 18 and 23.

Table 5 Number of Respondents in Terms on College Department

College Department	Frequency	Percent
College of Agriculture and Forestry	17	4.34
College of Arts and Sciences	27	6.89
College of Business and Management	32	8.16
College of Computer Studies	122	31.12
College of Criminology	44	11.22
College of Dentistry	22	5.61
College of Education	25	6.38
College of Engineering and Technology	28	7.14
College of Maritime Education	24	6.12
College of Medical Technology	26	6.63
College of Nursing, Midwifery & Radiologic Technology	25	6.38
Total	**392**	**100**

The table highlights the distribution of 392 respondents across various college departments. The College of Computer Studies had the highest participation, accounting for 31.12%, followed by the College of Criminology at 11.22% and the College of Business and Management at 8.16%. Other departments contributed less, with the College of Agriculture and Forestry having the lowest participation at 4.34%. This shows a strong representation from technical and computer-related programs compared to other fields.

Table 6 Descriptive Statistics

Variable	Mean	StDev	Remarks
User Experience of Artificial Intelligence	4.3040	0.5977	Excellent

Note: 4.50 - 5.00 (Excellent); 3.50 - 4.49 (Good); 2.50 - 3.49 (Fair); 1.50 - 2.49 (Poor); 1.00 - 1.49 (Very Poor)

The table presents descriptive statistics for the user experience of artificial intelligence. The mean score is 4.3040, which falls within the "Excellent" category based on the provided rating scale. This indicates that, on average, users perceive their experience with artificial intelligence very positively. The standard deviation of 0.5977 reflects a moderate level of variability in the responses, suggesting that while most users rated their experience as excellent, there was some variation in their perceptions. Overall, the data suggests that artificial intelligence provides a consistently high-quality user experience for the majority of respondents.

G. Means of UEQ Scales for AI Website

Using the UEQ tool and the data from 392 respondents, the table 7 shows the means of the six attributes for the evaluation of the AI website while figure 7 show its bar graph.

Table 7. Six Means of UEQ Scales for AI Websites

Scale/Variable	Mean
Attractiveness	1.625
Efficiency	1.665
Perspicuity	1.665
Dependability	1.645
Stimulation	1.67
Novelty	1.665

Table 7 depicts that all six scales of the User Experience Questionnaire (UEQ) for AI websites scored consistently high, with mean values ranging from 1.625 to 1.67. Among the scales, Stimulation achieved the highest mean (1.67), suggesting that users found the AI websites particularly engaging and exciting. Similarly, Efficiency and Novelty scored closely at 1.665, indicating that users perceived the websites as both effective and innovative. Other scales, including Perspicuity, Dependability, and Attractiveness, also received high ratings, reflecting positive user experiences in terms of clarity, reliability, and overall appeal. These results demonstrate a generally favorable perception of the AI websites across all evaluated dimensions.

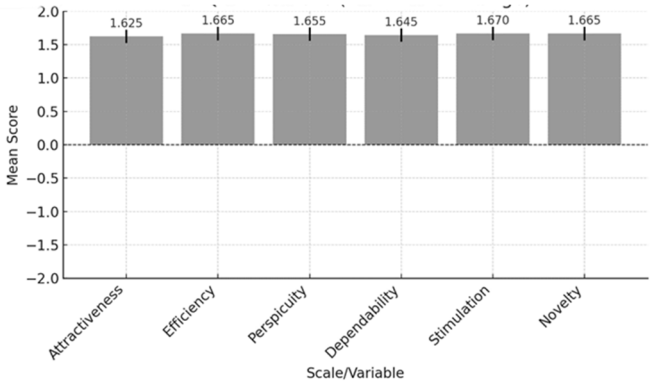

Figure 4 Bar Graph of the Six Means of UEQ Scales for AI Websites

H. Discussion

The study's findings show that respondents have a highly positive opinion of artificial intelligence (AI), with a mean score of 4.3040 for user experience, placing it in the "Excellent" category. This suggests that the vast majority of the 392 respondents viewed their contacts with AI to be quite positive. The standard deviation of 0.5977 indicates some variety in responses, but the overall consensus remains overwhelmingly positive. These findings highlight the potential for AI technology to deliver consistent and high-quality user experiences that meet or surpass users' expectations.

The User Experience Questionnaire (UEQ) is also used to evaluate AI websites, which validates similar findings. All six dimensions—Attractiveness, Efficiency, Perspicuity, Dependability, Stimulation, and Novelty—had consistently high mean ratings, with Stimulation scoring the highest (1.67). This demonstrates visitors' enthusiasm for the interesting and innovative parts of AI websites, as well as their clarity, dependability, and general appeal. The consistently strong performance across all dimensions demonstrates the well-rounded nature of these AI platforms, which provide not just useful but also delightful and memorable experiences.

III. CONCLUSION

This study evaluated the user experience of AI websites using the standardized User Experience Questionnaire (UEQ) across six dimensions: Attractiveness, Efficiency, Perspicuity, Dependability, Stimulation, and Novelty. Based on the analysis of responses from 392 college students at Misamis University, the results indicate a consistently positive perception of the AI websites, with all six scales achieving high mean scores ranging from 1.625 to 1.67. Among the dimensions, Stimulation received the highest score, suggesting that users found the websites particularly engaging and exciting. Efficiency and Novelty also scored

highly, indicating that users perceived the websites as effective and innovative. The remaining dimensions, including Perspicuity, Dependability, and Attractiveness, further emphasized the websites' clarity, reliability, and aesthetic appeal.

However, despite the overall positive results, there is room for improvement. The close alignment of the scores across dimensions suggests a lack of standout differentiation that could help the websites leave a more distinct impression in certain areas. For instance, while Stimulation and Novelty were rated favorably, further innovations in interactive elements or personalized experiences could enhance user engagement. Similarly, Dependability, while rated positively, might benefit from features that build even greater trust, such as clearer data privacy policies or improved error-handling mechanisms. Finally, the relatively modest score for Attractiveness, compared to other dimensions, implies that there may be opportunities to refine the visual design to make the websites even more appealing.

In keeping with the goals of the study, it also included information on the gender and course-specific profiles of the students, which can help with the creation of inclusive and focused teaching methods. The study provides practical suggestions for enhancing the MU-OLE system's usability, functionality, and general appeal by finding variances in acceptance and satisfaction. It also clarifies the wider ramifications for instructional tactics, highlighting the necessity of adding more captivating and inventive elements to the platform in order to fill in the gaps in novelty and stimulation.

Therefore, while the AI websites were well-received and provided a strong and balanced user experience, future iterations should focus on enhancing areas such as interactivity, trustworthiness, and visual appeal to further elevate user satisfaction and engagement. These improvements can help ensure that the websites remain competitive and meet evolving user expectations in a dynamic digital landscape.

IV. RECOMMENDATION

The AI website shows an excellent response in terms of performance. Although it is recommended to expand and deepen the scope of the study to provide additional insights into user experience with AI websites. Specifically:

Explore Broader User Demographics: Respondents from a range of age groups, occupations, cultural backgrounds, and geographic regions should be included in future research. This wider focus would offer insights into creating for a more inclusive audience and assist in identifying how user experiences with AI websites varied among various user profiles.

Investigate Specific Features of AI Websites: Researchers should focus on evaluating specific functionalities of AI websites, such as chatbot interactions, personalization options, or accessibility features. This targeted approach would help identify how individual features contribute to the overall user experience and highlight areas for further enhancement.

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