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Assessing Financial Information System Usability Using System Usability Scale (SUS) and Usability Metric for User Experience-Lite (UMUX-Lite)

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Abstract

As the complexity and volume of financial transactions in the school and the Foundation grow, there is an increasing need for sophisticated Financial Information Systems (FIS) capable of efficiently managing these complexities. In response to this need, the schools and the Foundation are focusing on the development and deployment of robust FIS to streamline operations and improve financial management. This study evaluates the usability of developed web-based FIS for schools and the Foundation, designed to automate and streamline the management of student tuition fee records. The evaluation employs two prominent usability metrics: the System Usability Scale (SUS) and the Usability Metric for User Experience-Lite (UMUX-Lite). The SUS and UMUX-Lite are tools designed to quantitatively assess a system's usability and user satisfaction. The SUS provides a quick, reliable measure of a product's usability, while UMUX-Lite offers a concise evaluation of user satisfaction with less respondent time without compromising insight quality. Our research methodology included distributing questionnaires to 41 schools, employing SUS and UMUX-Lite questions to gather comprehensive feedback on the FIS's usability. Analysis of the data revealed a SUS score of 77.5, placing the system's usability in the "B+" category, indicative of good user satisfaction. The UMUX-Lite score was slightly higher at 81.69, reflecting excellent usability and aligning with user needs and ease of use. These results affirm the effectiveness of the developed FIS, highlighting its potential to significantly improve financial management processes within schools. The close correlation between SUS and UMUX-Lite scores underscores the system's robustness and intuitive design, suggesting that minor enhancements could further elevate its usability and overall user experience. This study contributes to the field by demonstrating the practical application of SUS and UMUX-Lite in evaluating the usability of FIS in educational settings, offering insights for future system enhancements and user-centered design practices.

Keywords: Financial Information System; System Usability Scale (SUS); Usability Metric for User Experience-Lite (UMUX-Lite); User Satisfaction; Usability Evaluation

1. Introduction

The complexity and volume of financial transactions in schools and the Foundation underscores the need for advanced computerized systems to efficiently manage these increasing demands. As they grapple with these growing financial complexities, the importance of adopting robust digital solutions becomes crucial. These systems are essential not only for enhancing accuracy and efficiency in financial management, as indicated by research (Anwar et al., 2021) (Liang, 2021), but also for ensuring higher accountability and operational transparency (Wiratama et al., 2023). Usability evaluation plays a pivotal role in this context, as it guarantees that these complex systems are user-friendly and effective (Christanto, 2022) (Christanto et al., 2023) for all stakeholders involved. By identifying and addressing potential usability issues, such evaluations help to prevent user frustration and enhance system adoption rates, which are critical for the system's long-term success. Furthermore, usability assessments contribute to ongoing system improvements (Alqurni, 2023), ensuring that the

systems continue to meet user needs. This proactive approach to system design and implementation helps schools and the Foundation to manage their financial transactions more efficiently.

Prior to the implementation of the integrated Financial Information System, schools used a variety of methods to manage financial data, which often led to inefficiencies. Many schools relied on spreadsheets for managing tuition and financial records; however, these systems were not integrated, complicating data consolidation and access. Additionally, a few schools still adhered to traditional methods, utilizing manual logbooks, which further exacerbated the challenges of timely data retrieval and increased the likelihood of errors in financial management.

Traditional methods fall short in addressing these needs, leading to inefficiencies and increased potential for errors. The necessity for such a system becomes evident when examining the manual processes employed by schools in managing tuition fee records. For instance, research might find that automated systems significantly reduce human error and processing time in financial transactions (Bahri, 2021) (Fitriani & Hwihanus, 2023) (Kurniawan et al., 2023). Utilizing spreadsheets for data management, schools face significant challenges, including human errors, time-consuming data entry, and difficulty in generating timely reports. These problems are compounded by the need to manage records for approximately 11,400 students across 46 schools, making manual processes impractical and error prone. The repetitive and meticulous nature of these tasks underscores the urgent need for a solution that can simplify and automate financial record management, ensuring accuracy and efficiency.

In response to these challenges, a Financial Information System was developed and implemented to streamline the management of student tuition fee records across the schools. This web-based system, developed using PHP and hosted on a cloud server, revolutionizes the way financial data is handled by reducing the amount of work significantly in transaction record-keeping and report generation. To ensure the system meets user expectations in terms of usability and efficiency, it is evaluated using the System Usability Scale (SUS) and the Usability Metric for User Experience-Lite (UMUX-Lite) methods.

The goal of using the System Usability Scale (SUS), as outlined by (Brooke, 1996) and empirically supported by (Bangor et al., 2008) , is to provide a reliable, quick, and easy-to-administer tool for evaluating the usability of a wide range of products and services –in this case the School Financial System, offering valuable insights into user satisfaction and the overall effectiveness of the system. In conjunction with SUS, UMUX-Lite is being used to support and complement the usability evaluation. UMUX-Lite is a short version of UMUX (Lewis, 2013). UMUX-Lite offers the distinct advantage of brevity, requiring less time from respondents without significantly sacrificing the quality of the usability insights. The benefit of using UMUX-Lite and SUS is that they both provide reliable measures of a system's usability (Lewis et al., 2013).

Various research has demonstrated the effectiveness of the System Usability Scale (SUS) across various fields, highlighting its versatility as a usability measurement tool. In previous research conducted by (Putri et al., 2024), the usability of the IBS Core accounting information system was evaluated using the System Usability Scale (SUS) alongside performance measurement and the retrospective think aloud (RTA) method. The SUS was instrumental in quantifying user satisfaction, effectiveness, and efficiency, providing a standardized benchmark with an "Excellent" rating indicating high usability and user appreciation for the system. The study underscores the benefit of employing SUS as a reliable and quick evaluative tool to derive actionable insights for system improvements and user-centric optimization.

Another research conducted by (Fergo & Ratnasari, 2023) explored the usability of the Octo Mobile application by Bank CIMB Niaga through the lens of the System Usability Scale (SUS) method. This study aimed to evaluate and analyze the user experience of the Octo Mobile app to inform future enhancements. Utilizing a combination of direct interviews and a questionnaire based on the SUS, involving 39 application users, the researchers were able to quantitatively assess usability, yielding a SUS score of 58.5%. This score indicated that while the app's usability was marginally acceptable, significant improvements were necessary. The use of the SUS method proved beneficial for its efficiency in providing a clear, numerical measure

of usability from the user's perspective, highlighting specific areas where the application could be optimized to enhance user satisfaction and overall experience.

Just as the System Usability Scale (SUS) has been instrumental in evaluating system usability across various applications, the Usability Metric for User Experience-Lite (UMUX-Lite) method has similarly contributed valuable insights in a myriad of research. The application of UMUX-Lite in previous research undertaken by (Borsci et al., 2020) demonstrated its effectiveness in rapidly assessing user satisfaction with new healthcare technologies. Focusing on the usability of six point-of-care products at various development stages, the study engaged 120 healthcare professionals to evaluate the products using UMUX-Lite and the Net Promoter Score (NPS) for gauging promotional intention. The research findings revealed UMUX-Lite as a reliable tool ($\alpha = 0.7$), showing a strong positive correlation with NPS, which suggests that UMUX-Lite is not only efficient in capturing user satisfaction but also provides actionable insights with minimal effort from respondents. This makes it particularly beneficial for the healthcare sector, where time is often limited, allowing for quicker iterations and improvements in product development based on user feedback.

Another significant study by (Nagro, 2023) further illuminates its value in public health contexts, specifically during the COVID-19 pandemic. This study assesses the Tawakkalna application's usability, vital for Saudi Arabia's pandemic management efforts, using both the System Usability Scale (SUS) and the Usability Metric for User Experience (UMUX). With a user base spanning various age group, the application's evaluation revealed a broad perception of good usability, evidenced by SUS and UMUX scores of 71.1 and 72.0, respectively. This underscores UMUX-Lite's utility in quickly and effectively gathering user feedback to enhance digital products' design and functionality, especially in critical public service applications where user experience can significantly impact public health outcomes and compliance.

Based on previous research, the application of SUS provided valuable, quantifiable insights into user satisfaction and system usability, underscoring its utility as a versatile tool for user-centered design and optimization across varied digital platforms. These cases exemplify how SUS can serve as an efficient, reliable measure for evaluating and improving the usability of digital products, reinforcing its significance in the development process. In addition, highlighting the application of UMUX-Lite in previous studies underscores its utility in measuring user satisfaction and perceived usability with a concise set of questions. This streamlined approach not only simplifies the evaluation process but also effectively captures essential aspects of user experience, making it a practical tool for developers aiming to optimize their products. The forthcoming discussions will delve into specific instances where UMUX-Lite has been employed, illustrating its impact on guiding user-centered design improvements and strategic decision-making.

Reflecting on the diverse applications of SUS and UMUX-Lite across various studies, it becomes evident how these evaluation tools have significantly contributed to understanding and enhancing user experience with digital systems. These tools provide valuable insights into the system's performance from the user's perspective, highlighting areas of success and opportunities for further refinement. The evaluation is meticulously carried out by the finance departments of schools, who are both the stakeholders and end-users of the system, ensuring that the feedback is grounded in actual usage scenarios. This process guarantees that the insights gained are directly applied to refine and enhance the system, making it more attuned to the operational realities of schools and the Foundation.

2. Methodology

The development of the Financial Information System for schools employs a structured and iterative process, designed to ensure that the final system is closely aligned with the intricate needs of financial data management in schools and the Foundation settings. Initial interviews and requirement gathering sessions provided a deep understanding of the financial management challenges faced by schools. This informed the subsequent development and implementation of the web-based system, ensuring alignment with the specific operational context of schools. An extensive testing regimen, encompassing alpha, beta, and final testing phases, was employed to iteratively refine the system based

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on stakeholder feedback. The process concludes with a thorough evaluation employing the System Usability Scale (SUS) and Usability Metric for User Experience-Lite (UMUX-Lite), to quantitatively gauge the system's usability and effectiveness. The flow of development, implementation, and evaluation is shown in Figure 1.

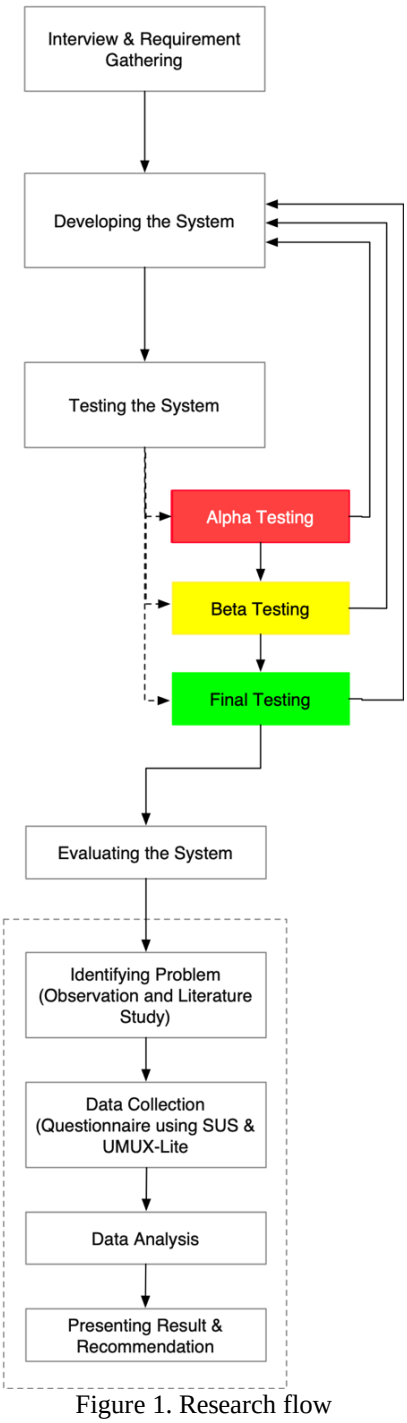

Figure 1. Research flow

2.1 Interview & Requirement Gathering

Stakeholder interviews and the collection of system requirements were conducted with a diverse array of participants from the school and the Foundation ecosystem. This included the Foundation's finance department who provide oversight, school's finance administrator, and school finance staff who are the ultimate end-users of the financial information. Their input is crucial in ensuring the system is designed to meet a variety of needs, such as generating tailored report for the Foundation finance department, user-friendly interfaces, and data accessibility at ease. Engaging with these stakeholders helps in developing a comprehensive feature set that aligns with the operational, instructional, and financial processes within the school's and the Foundation's environment.

2.2 Developing the System

Based on the insights acquired from previous step, the development phase unfolds where a web-based Financial Information System is crafted. This phase is oriented towards translating the collated requirements into a functional digital solution, with the primary goal being to create an application that streamlines the management of school finances, such as tuition fee processing, bank-transaction tracking, and financial reporting. The development process involves setting clear technical specifications, designing a user-friendly interface, and ensuring data integrity and security. The end goal is to construct a system that not only fulfills the specific needs identified by various stakeholders but also integrates seamlessly into the existing school administrative framework, ultimately improving financial transparency and efficiency.

2.3 Testing the System

In this phase, the Financial Information System undergoes a comprehensive testing regime with key stakeholders to ensure all features operate correctly. This phase commences with alpha testing, where stakeholders are closely guided to assess new functionalities, ensuring they meet the pre-defined requirements. This is followed by beta testing, during which stakeholders interact with the system using simulated data to test the functionality. The final testing stage involves stakeholders using actual data to validate the

complete functionality of the system in real-world scenarios. The iterative nature of this process is underscored by the feedback loop represented by the back-arrow in the flowchart. This arrow signifies that insights from any stage of testing can prompt a return to the development phase for adjustments. This feedback loop ensures that the system is refined based on direct stakeholder input, enhancing functionality and user experience before the final rollout. The purpose of this structured approach is to rigorously vet the system at every development stage, with a consistent group of stakeholders, to detect and resolve any issues, thereby confirming the system's readiness for deployment. Each testing phase aims to progressively move the system towards operational excellence, with stakeholder feedback directly shaping the refinement process.

2.4 Implementing the System

After testing phase is completed, the Financial Information System undergoes implementation, which is the process of deploying the software to a cloud-based server environment. This crucial phase is about transferring the developed system from a controlled test environment to a live, operational setting accessible by the intended users. The implementation process includes configuring the cloud infrastructure, ensuring proper integration with other school data systems, and setting up secure access protocols. The overarching goal is to establish a reliable platform that enables seamless access to the system's functionalities, paving the way for real-time financial management and reporting across the schools and the Foundation.

2.5 Evaluating the System

This phase is a multi-layered process designed to thoroughly assess the performance and user satisfaction of the Financial Information System. Here's a detailed explanation of each part of this evaluation phase:

2.5.1 Identifying the Problem

This step focuses on detecting usability challenges within the Financial Information System. It involves a deep dive into identifying any operational issues or usability challenges with the system. It includes observing users as they interact with the system and reviewing existing literature on best practices and common challenges faced by similar systems. This step is crucial for laying the groundwork for targeted improvements.

2.5.2 Data Collection

During this phase, a questionnaire was distributed to 41 schools for the purpose of evaluating the usability of the developed Financial Information System. The questionnaire was composed of a set of 10 standardized questions from the System Usability Scale (SUS) and an additional 2 from the Usability Metric for User Experience-Lite (UMUX-Lite), ensuring a comprehensive evaluation. The questions used for the SUS and UMUX-Lite is shown in table 1 and 2.

Table 1. The questions for SUS (Brooke, 1996)

No.	Questions
1	I think that I would like to use this system frequently.
2	I found the system unnecessarily complex.
3	I thought the system was easy to use.
4	I think that I would need the support of a technical person to be able to use this system.
5	I found the various functions in this system were well integrated.
6	I thought there was too much inconsistency in this system.
7	I would imagine that most people would learn to use this system very quickly.
8	I found the system very cumbersome to use.
9	I felt very confident using the system.
10	I needed to learn a lot of things before I could get going with this system.

To fill out the System Usability Scale (SUS) questionnaire, respondents are asked to rate their agreement with 10 statements about the system based on their experience. Responses are given on a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). It's important for participants to answer all questions honestly and based on their immediate impressions, as the SUS is intended to reflect the user's subjective assessment of the system's usability.

Table 2. The questions for UMUX-Lite (Lewis et al., 2015)

No.	Questions
1	This system’s capabilities meet my requirements.
2	This system is easy to use.

Respondents rate their agreement with these statements on a Likert scale, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). The first statement evaluates the system's capability to meet the user's needs, focusing on its effectiveness and efficiency. The second statement valuates the system's usability, which includes the ease of learning and overall efficiency of use. It measures how intuitively users can interact with the system and accomplish their goals without facing unnecessary complexity or confusion. This streamlined approach allows participants to quickly convey their overall satisfaction with the system's usability without the need for detailed feedback on specific aspects.

2.5.3 Data Analysis

In this step, we embark on a comprehensive evaluation of the responses gathered through the SUS and UMUX-Lite questionnaires from the schools using the Financial Information System. This step is pivotal in translating the raw data into insightful findings that reflect on the system's usability and user satisfaction levels. To analyze the collected data from questionnaire using SUS, we calculate an overall usability score based on the SUS scoring system. For each response, we will apply these equations:

For each question with odd number (Qo), we use following equation:

$$Qo = \sum_{i=1,3,5,7,9} x - 1 \tag{1}$$

For each question with even number (Qe), we applied:

$$Qe = \sum_{i=2,4,6,8,10} 5 - x \tag{2}$$

$x =$ value from questionnaire,

Subsequently, each SUS score per response will be calculated by the following equation:

$$S = (Qo + Qe) * 2.5 \tag{3}$$

Finally, to get the final SUS Score from all response, we use following equation:

$$SUS = \frac{\sum_{i=1}^{n} S_i}{n} \tag{4}$$

$n =$ total number of responses.

In summary, the equation used to calculate the final SUS score is as followed:

$$SUS = \frac{\sum_{i=1}^{n}(\sum_{i=1,3,5,7,9} x - 1 + \sum_{i=2,4,6,8,10} 5 - x) * 2.5}{n} \tag{5}$$

The final SUS score will be used to grade the result of system usability based on a grading scale which will be discussed in the next section.

To supplement the findings from the SUS analysis, we will also incorporate the UMUX-Lite as an additional evaluative approach. For each response of questionnaire using UMUX-Lite, we will perform a calculation to align the scores with the final SUS score, ensuring consistency in our usability metrics evaluation. The equation used is as followed:

$$UMUX - LITE = \frac{\sum_{i=1}^{n} 0.65 * ((x + y - 2) * \frac{100}{12})) + 22.9}{n} \tag{6}$$

$x =$ value from question 1,
$y =$ value from question 2,
$n =$ total number of responses.

The UMUX-Lite scores, matched to correspond with the SUS scores, will serve as a basis for evaluating the system's usability grade. This grade will be interpreted according to a specified grading scale, details of which will be elaborated in the subsequent section.

3. Result & Discussions

Beginning on the analysis of our questionnaire, we delve into responses from 41 individuals who have been engaging with the developed Financial Information System over a period. This cohort, representative of the system's active users, provides invaluable insights into the usability and overall experience of utilizing the system in real-world scenarios.

3.1 SUS Analysis Result

By following the analysis steps detailed in equation (1)-(5) in previous section, the result of questionnaire implementing SUS method is shown in table 3. The original value in questions column

(Q1, Q2, …, Q10) were taken from Likert scale ranged from 1-5 from the questionnaire and converted using equation (1) and (2). The value in SUS score column is calculated using equation (3) which showing score for each recorded response. Lastly, to get the final SUS score in bottom row, we use equation (4) which basically calculating the average value from every SUS score in each response.

Table 3. SUS Analysis Result

Respondents	Questions										SUS Score
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	
R1	4	3	3	2	3	3	3	3	2	2	70
R2	4	4	4	0	4	4	4	4	4	4	90
R3	3	1	3	2	4	2	3	3	2	1	60
R4	3	4	3	2	2	1	4	4	3	2	70
R5	4	3	4	3	3	3	4	3	2	2	77.5
R6	4	4	4	4	4	4	4	4	4	0	90
R7	4	4	4	3	3	3	4	4	4	4	92.5
R8	4	4	4	2	4	4	4	4	4	3	92.5
R9	4	3	3	1	4	3	2	4	3	1	70
R10	4	4	4	1	4	3	4	4	4	0	80
R11	4	4	4	3	4	4	4	4	4	1	90
R12	3	1	3	2	3	1	3	3	3	1	57.5
R13	4	3	4	2	4	1	4	3	4	1	75
R14	3	3	3	3	3	3	3	3	3	1	70
R15	4	3	4	1	4	4	3	4	3	1	77.5
R16	4	4	4	0	4	4	4	4	4	0	80
R17	4	1	3	0	4	1	4	1	4	0	55
R18	4	2	3	0	4	1	2	2	2	1	52.5
R19	4	3	4	2	4	1	3	3	3	1	70
R20	4	4	4	0	4	4	4	4	3	0	77.5
R21	3	3	3	2	4	2	3	3	3	1	67.5
R22	4	4	4	2	4	4	4	4	4	2	90
R23	4	4	4	4	4	0	4	4	4	4	90
R24	4	4	4	4	4	4	4	4	4	0	90
R25	4	4	4	3	3	3	2	3	4	2	80
R26	4	4	4	4	4	4	4	4	4	1	92.5
R27	4	2	4	2	4	2	4	2	4	2	75
R28	4	3	3	3	3	3	3	4	3	3	80
R29	4	4	4	4	4	4	4	4	3	2	92.5
R30	4	4	4	0	4	4	4	4	4	0	80
R31	4	4	4	4	4	4	4	4	4	4	100
R32	4	4	4	1	4	1	4	3	4	0	72.5
R33	4	4	2	0	4	2	4	4	4	0	70
R34	4	4	4	3	3	3	3	3	3	2	80
R35	4	3	3	2	3	2	3	3	3	2	70
R36	2	1	4	2	4	2	3	1	4	0	57.5
R37	4	4	4	4	3	2	3	4	3	2	82.5
R38	4	4	4	4	4	4	3	4	4	2	92.5
R39	4	4	4	0	4	4	4	4	4	0	80
R40	4	4	4	0	4	3	4	4	4	0	77.5
R41	3	3	3	1	2	2	2	3	3	2	60
									TOTAL		**77.5**

Referencing table 3, the developed Financial Information System has achieved a final SUS score of 77.5. To classify this score into specific categories, we will apply the general grading scale for interpreting SUS scores, as outlined by (Sauro & Lewis, 2016). The grading scale is shown in table 4.

Table 4. Curved Grading Scale Interpretation of SUS Scores (Sauro & Lewis, 2016)

SUS Score Range	Grade	Percentile Range
84.1-100	A+	96-100
80.8-84.0	A	90-95
78.9-80.7	A-	85-89
77.2-78.8	B+	80-84
74.1-77.1	B	70-79
72.6-74.0	B-	65-69
71.1-72.5	C+	60-64
65.0-71.0	C	41-59
62.7-64.9	C-	35-40
51.7-62.6	D	15-34
0.0-51.6	F	0-14

The final score 77.5 places the usability level of the developed Financial Information System in the B+ category with percentile range between 80-84. This indicates that the system is considered to have good usability, with users generally satisfied with their experience. It suggests that the system is well-designed, user-friendly, and only requires minor improvements to reach an even higher level of user satisfaction and usability excellence.

3.2 UMUX-Lite Analysis Result

Utilizing the analytical procedure outlined in equation (6) from the preceding section, the outcomes of the questionnaire employing the UMUX-Lite approach are presented in table 5. The value in colum Q1 and Q2 were taken from questionnaire data. The UMUX-Lite score and its final score is calculated using equation (6).

Table 5. UMUX-Lite Analysis Result

Respondents	Questions		UMUX-Lite Score
	Q1	Q2	
R1	6	6	77.07
R2	7	7	87.90
R3	5	5	66.23
R4	5	6	71.65
R5	5	7	77.07
R6	7	7	87.90
R7	7	7	87.90
R8	7	1	55.40
R9	6	7	82.48
R10	7	7	87.90
R11	7	7	87.90
R12	7	7	87.90
R13	7	6	82.48
R14	6	6	77.07
R15	6	7	82.48
R16	7	7	87.90
R17	6	7	82.48
R18	6	2	55.40
R19	7	7	87.90
R20	7	7	87.90
R21	6	6	77.07
R22	7	7	87.90
R23	7	7	87.90
R24	7	7	87.90
R25	6	6	77.07
R26	7	7	87.90
R27	7	5	77.07
R28	7	7	87.90
R29	7	7	87.90
R30	7	7	87.90
R31	7	7	87.90
R32	7	7	87.90
R33	7	7	87.90
R34	6	6	77.07
R35	5	6	71.65
R36	7	2	60.82
R37	7	7	87.90
R38	7	7	87.90
R39	7	7	87.90
R40	7	7	87.90
R41	6	6	77.07
TOTAL			**81.69**

Upon completing the analysis of the questionnaire data, a final UMUX-Lite score of 81.69 from table 5 was obtained. This score is classified within grade A. The UMUX-Lite score was adjusted to align with the SUS scoring system, enabling the use of the SUS grading scale for interpretation. It allows for a direct comparison and indicates a high level of usability and user satisfaction with the Financial Information System, as reflected in the UMUX-Lite score.

The results, showcasing a SUS score of 77.5 and a UMUX-Lite score of 81.69, illustrated in figure 2, indicate a high level of usability and user satisfaction with the Financial Information System. The close alignment between these two scores underscores the system's robust design and intuitive

user interface. The higher UMUX-Lite score suggests a slightly more favorable user perception of the system's effectiveness and ease of use. Overall, these findings affirm the system's strong usability standing, signaling a positive reception from its user base.

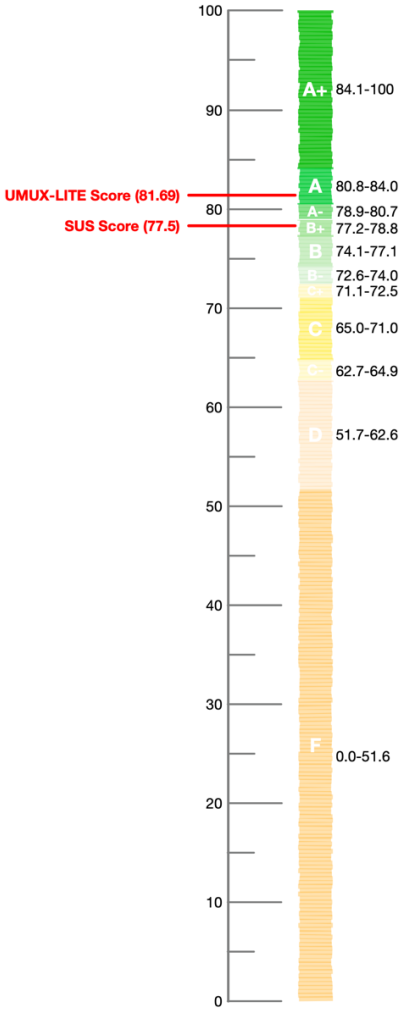

Figure 2. SUS & UMUX-Lite score based on the Curved Grading Scale Interpretation of SUS Score

4. Conclusion

From the obtained results, with a SUS score of 77.5 and a UMUX-Lite score of 81.69, several inferences can be made about the Financial Information System's usability. The SUS score suggests that the system is generally well-received by users, falling into a good usability category, indicating that most users are likely to find the system satisfactory for their needs. The slightly higher UMUX-Lite score reinforces this positive reception, suggesting an even stronger alignment with user requirements and ease of use. The difference between the SUS and UMUX-Lite scores may highlight specific areas where perceptions of usability and user experience diverge, possibly due to UMUX-Lite's focus on functionality and ease of use. Overall, these scores reflect a system that is effective and efficient for its intended user base, with room for minor enhancements to elevate user satisfaction further. This alignment across both metrics underscores the system's success in meeting its usability goals, setting a solid foundation for future improvements.

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