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ANALYZING STUDENTS' EXPERIENCE IN LMS SPOT UPI USING THE UEQ

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Abstract: The rapid expansion of digital learning environments has increased students' reliance on Learning Management Systems (LMS), including SPOT UPI. However, limited studies have examined the platform's overall user experience across all User Experience Questionnaire (UEQ) dimensions. This study aims to evaluate the user experience (UX) of SPOT UPI, identify its strengths and weaknesses, and provide recommendations for system improvement. A quantitative-dominant mixed-method design was applied, involving 81 student respondents for the UEQ survey and two participants for follow-up semi-structured interviews selected through purposive sampling. The UEQ data were analyzed to generate mean scores for six UX dimensions, while interview data were thematically analyzed to support the interpretation of quantitative findings. The results indicate that Perspicuity (1.05) and Efficiency (0.78) achieved the highest scores, reflecting adequate clarity and functionality. In Contrast, Stimulation (0.50) and Novelty (-0.15) were the lowest, indicating limited engagement and innovation. Overall, pragmatic quality (0.84) outperformed hedonic quality (0.17), suggesting that users value functionality more than enjoyment. In conclusion, SPOT UPI is generally usable but lacks aesthetic appeal, emotional engagement, and innovative features, highlighting the need for interface redesign and performance optimization to enhance the overall learning experience.

Keywords: learning management system; user experience; user experience questionnaire

Abstrak: Perkembangan pembelajaran digital membuat mahasiswa semakin bergantung pada Learning Management System (LMS), termasuk SPOT UPI. Meski digunakan secara luas, evaluasi pengalaman pengguna secara komprehensif berdasarkan seluruh dimensi User Experience Questionnaire (UEQ) masih belum banyak dilakukan. Penelitian ini bertujuan untuk mengevaluasi user experience (UX) pada SPOT UPI, mengidentifikasi keunggulan dan kelemahannya, serta memberikan rekomendasi perbaikan sistem. Penelitian menggunakan desain penelitian mixed-method dominan kuantitatif, melibatkan 81 responden pada survei UEQ dan dua partisipan pada wawancara semi-terstruktur yang dipilih melalui purposive sampling. Data UEQ dianalisis untuk memperoleh nilai rata-rata pada enam dimensi UX, sedangkan data wawancara dianalisis secara tematik untuk memperkaya interpretasi temuan kuantitatif. Hasil menunjukkan bahwa Perspicuity (1,05) dan Efficiency (0,78) menjadi dimensi dengan skor tertinggi, mencerminkan bahwa SPOT UPI mudah dipahami dan cukup membantu dalam menyelesaikan tugas. Sebaliknya, Stimulation (0,50) dan Novelty (-0,15) memperoleh skor terendah, menandakan rendahnya tingkat keterlibatan dan inovasi yang dirasakan pengguna. Secara keseluruhan, pragmatic quality (0,84) lebih tinggi dibandingkan hedonic quality (0,17), menunjukkan bahwa pengguna lebih mengutamakan aspek fungsional daripada kenyamanan emosional. Temuan tersebut mengindikasikan bahwa SPOT UPI sudah layak digunakan secara fungsional, tetapi masih memerlukan peningkatan pada interface, pengalaman visual, dan fitur inovatif agar dapat memberikan pengalaman belajar digital yang lebih menarik dan optimal.

Kata kunci: learning management system; pengalaman pengguna; user experience questionnaire

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INTRODUCTION

The rapid expansion of digital learning ecosystems has significantly reshaped how universities deliver, manage, and support academic activities. Learning Management Systems (LMS) have become central infrastructures that enable online and hybrid learning through content distribution, assessment management, and communication between lecturers and students [1]. The increasing integration of digital technologies into university operations also reflects a broader transition toward digital institutions, where learning activities rely heavily on online platforms and institutional digital maturity [2]. In Indonesia, the acceleration of digital learning during and after the COVID-19 pandemic further strengthened the role of LMS in sustaining instructional continuity and supporting students' academic engagement [3]. Despite their widespread implementation, many LMS continue to face usability issues, such as complex navigation structures, non-intuitive interfaces, and limited engagement features, which negatively influence user satisfaction and learning outcomes.

User experience (UX) has become a critical component in evaluating digital learning environments. Prior studies consistently show that LMS platforms perform better on pragmatic dimensions such as perspicuity, efficiency, and dependability than on hedonic dimensions such as stimulation and novelty. Indonesian LMS evaluations reflect this pattern: although systems support task completion, they often lack interactive, motivating, or innovative features that enhance engagement [4][5]. Similar results appear in e-library studies using the UEQ, which report low hedonic scores and limited user enjoyment [6]. Large-scale evaluations of platforms such as Moodle and institutional systems like CLASS-IPB further confirm these findings, demonstrating strong clarity and efficiency but weak stimulation and innovation [7][8].

Beyond usability, enhancing UX is essential for strengthening the digital learning ecosystem. The digital learning space framework highlights that effective digital education depends on the integration of technological, pedagogical, and social components into cohesive environments [9]. Digital transformation also demands systems capable of supporting efficient business processes and academic workflows, underscoring the need for structured evaluation and continuous improvement [10]. Methodologically, cross-country reviews of LMS research show the use of varied analytical frameworks, indicating the importance of context-specific approaches and rigorous UX assessment [11]. Design thinking studies further reveal persistent issues in interface design such as visual monotony and limited user-centered principles that continue to hinder digital learning experiences [12].

Although numerous UX studies have been conducted across LMS platforms, including Moodle [7], CLASS-IPB [8], SLiMS [6], and several Indonesian campus LMS [4], a significant gap remains. No existing research has specifically evaluated the user experience of SPOT UPI, the primary LMS used at Universitas Pendidikan Indonesia, using the complete UEQ framework across all six dimensions. Given the consistently reported weaknesses in hedonic qualities across LMS platforms, it is essential to determine whether SPOT UPI exhibits

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similar UX challenges or presents distinct patterns due to its interface design and learning workflow. This gap is particularly relevant because SPOT UPI supports thousands of UPI students daily, making its UX quality crucial for ensuring effective digital learning.

Therefore, this study aims to evaluate the user experience of SPOT UPI using the User Experience Questionnaire (UEQ). The objectives of this research are: (1) to measure students' perceptions of SPOT UPI across pragmatic and hedonic dimensions; (2) to compare results with previous LMS UX studies; and (3) to propose recommendations to improve usability, interface quality, and user engagement to support UPI's digital transformation efforts.

METHOD

This study employed a quantitative-dominant mixed-method design to obtain a comprehensive evaluation of students' user experience (UX) when using the SPOT UPI platform. A mixed-method approach was selected because it enables numerical UEQ results to be supported with qualitative insights, producing richer and more validated interpretations [13]. The quantitative phase used the User Experience Questionnaire (UEQ), while semi-structured interviews were conducted for the qualitative phase.

The UEQ consists of 26 bipolar items rated on a seven-point semantic differential scale and grouped into six dimensions: Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty [14]. The questionnaire was distributed online via Google Forms to active UPI students, resulting in 81 valid responses. Two respondents were then selected through purposive sampling to participate in follow-up interviews.

	1	...	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 1. UEQ Instruments

Quantitative data were processed using the official UEQ scoring procedure. First, all raw item scores (1-7) were transformed into the UEQ standardized scale (-3 to +3) using the following formula (1).

$$x_{standard} = x_{raw} - 4 \quad (1)$$

Where:
$x_{standard}$ = the UEQ score after being converted into the -3 to +3 scale
x_{raw} = the original respondent score on the 1 to 7 scale

After the transformation, the mean score for each UEQ dimension was calculated by averaging the standardized item values (2).

$$x = \frac{1}{n}\sum_{i=1}^{n} x_i \quad (2)$$

Where:

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x = the average score of a UEQ dimension
x_i = the transformed score of each item within that dimension
n = the total number of items in the respective dimension

For the quantitative phase, UEQ data were processed using the UEQ Data Analysis Tool to obtain descriptive statistics, confidence intervals, and benchmark classifications.

For the qualitative phase, semi-structured interviews conducted via Google Meet were transcribed and analyzed thematically following Creswell's coding and interpretation procedures [13].

RESULT AND DISCUSSION

A total of 81 sets of respondent answers for each questionnaire attribute collected via Google Form were input into the "Data" tab of the Data Analysis Tool (DAT). At this stage, the responses remained in their original numerical form, representing scores on a seven-point scale, as illustrated in Table 1.

Subsequently, the Data Analysis Tool (DAT) processes the input to evaluate the level of user experience (UX) through statistical computations based on the UEQ framework. To interpret these results effectively, further analysis of the collected data is carried out to obtain a comprehensive understanding of the system's performance across all measured dimensions, as illustrated in Table 2.

Table 1. Raw UEQ Responses

No	Questionnaire Attribute								
	1	2	3	4	…	23	24	25	26
1	7	7	7	1	…	1	4	1	4
2	6	6	5	7	…	3	6	6	4
…	…	…	…	…	…	…	…	…	…
80	6	6	2	2	…	2	2	3	6
81	4	6	7	6	…	3	4	1	2

Table 2. Transformed UEQ Data (Standardized Scores)

No	Questionnaire Attribute								
	1	2	3	4	…	23	24	25	26
1	3	3	-3	3	…	3	0	3	0
2	2	2	-1	-3	…	1	-2	-2	0
…	…	…	…	…	…	…	…	…	…
80	2	2	2	2	…	2	2	1	2
81	0	2	-3	-2	…	1	0	3	2

To obtain a deeper understanding of how user familiarity influences the evaluation results, the UEQ data were

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also grouped according to student entry year. This comparison distinguishes between the 2019-2021 cohorts, who have used SPOT UPI for a longer period, and the 2022-2024 cohorts, who represent relatively new users of the platform.

Table 3. UEQ Scores by Cohort

UX Dimension	2019 - 2021	2022 - 2024	Total Mean
Attractiveness	0.74	0.45	0.60
Perspicuity	1.15	0.93	1.05
Efficiency	0.99	0.54	0.78
Dependability	0.83	0.51	0.68
Stimulation	0.72	0.24	0.50
Novelty	0.10	-0.43	-0.15

As shown in Table 3, students from the 2019-2021 cohorts reported consistently higher UX scores, especially in Perspicuity (1.15) and Efficiency (0.99), indicating that longer use of SPOT UPI improves system familiarity and task performance. In contrast, the 2022-2024 cohorts scored lower, particularly on Stimulation (0.24) and Novelty (-0.43), showing that newer users perceive the platform as less engaging and less innovative. These results suggest that UX is shaped not only by system design but also by users' adaptation over time.

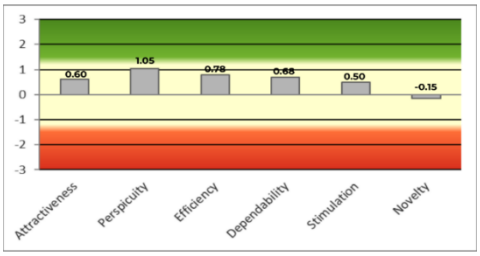

Figure 2. Mean UEQ Dimension Ratings

Figure 2 shows that Perspicuity received the highest mean score (1.05), indicating that users generally found SPOT UPI easy to understand. Efficiency (0.78) and Dependability (0.68) were moderate, reflecting adequate but not yet optimal functionality and reliability. Attractiveness scored 0.60, suggesting a mildly positive impression, whereas Stimulation (0.50) was low, pointing to limited engagement. Novelty scored slightly negative (-0.15), indicating that users perceived the platform as lacking innovation.

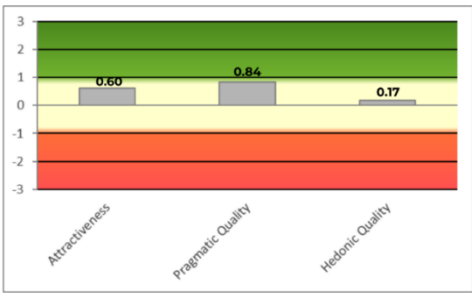

Figure 3. Pragmatic vs Hedonic Quality

Figure 3 shows that Pragmatic Quality achieved the highest mean score (0.84), indicating a moderate but clearly dominant level of usability compared to other aspects. Attractiveness (0.60) reflects a generally positive yet unenthusiastic user impression. In contrast, Hedonic Quality scored very low (0.17), suggesting minimal enjoyment, stimulation, and innovation. Overall, these results demonstrate that users prioritize practicality over aesthetic or motivational elements, with SPOT UPI's UX strongly driven by pragmatic rather than hedonic qualities.

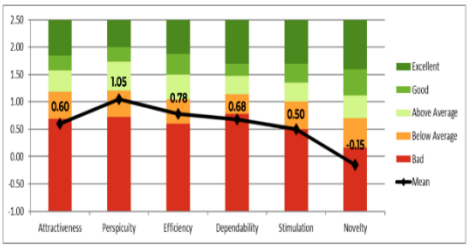

Figure 4. Benchmark Comparison

Figure 4 indicates that SPOT

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UPI's UX scores fall below established benchmarks across all dimensions. Perspicuity (1.05) and Efficiency (0.78) were rated Below Average, suggesting that although the platform is moderately clear and functional, is still behind typical usability standards. The other dimensions, Attractiveness (0.60), Dependability (0.68), Stimulation (0.50), and Novelty (-0.15) were classified as Bad, reflecting perceptions of limited engagement, weak visual appeal, and minimal innovation. Overall, the benchmark comparison shows that SPOT UPI performs below global averages, underscoring the need for substantial improvements in both pragmatic and hedonic UX aspects.

To provide a clearer visual context for the UX results, the first illustration presents the main entry point of the SPOT UPI platform. Figure 5 displays the primary dashboard interface, where students access their enrolled courses, navigate learning modules, and begin most academic interactions within the system.

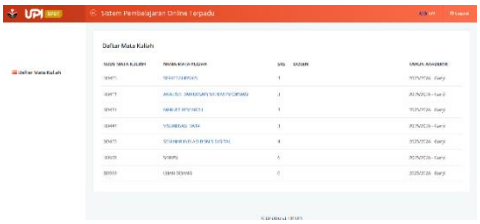

Figure 5. SPOT UPI Dashboard

A second illustration is included to highlight the interface most frequently referenced in students' feedback related to task management. Figure 6 shows the assignment submission page, which students rely on to view deadlines, upload files, and complete coursework requirements.

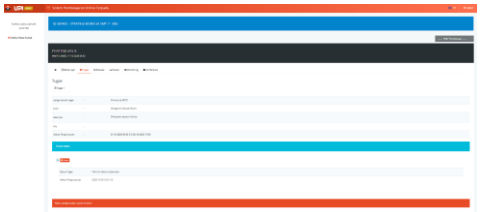

Figure 6. Assignment page in SPOT UPI

To complement the quantitative UEQ results, qualitative insights were obtained through semi-structured interviews with two participants. Thematic analysis identified users' perceptions across the six UEQ dimensions. Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, and Novelty, offering a deeper understanding of how students experienced SPOT UPI.

Participants generally viewed SPOT UPI as functional and easy to access but visually unappealing. [P1] noted the need for clearer displays of ongoing assignments and deadlines, while [P2] described the interface as "standard" and lacking aesthetic appeal, reflected in the modest Attractiveness score (0.60) and in contrast to the more dynamic designs of CLASS-IPB [8] and BINUS LMS [4].

In terms of clarity, the platform becomes understandable with repeated use, though new users may initially find it confusing. This aligns with the Perspicuity score (1.05), indicating adequate clarity but limited intuitiveness. Efficiency issues were also evident, with users reporting slow loading, upload failures, and unreliable submission processes, consistent with the moderate Efficiency score (0.78) and weaker performance compared with CLASS-IPB and BINUS LMS.

Dependability was a major concern, as participants experienced inconsistent performance, unclear submission feedback, and occasional server errors, mirroring the Dependability score (0.68).

Emotionally, SPOT UPI was described as unstimulating, aligning with the low Stimulation score (0.50). Participants also highlighted the lack of innovative features, particularly tools for tracking assignments, which corresponds with the negative Novelty score (-0.15).

Overall, the qualitative insights reinforce the quantitative results. SPOT UPI performs better in pragmatic aspects but remains weak in hedonic qualities, with students valuing its basic functionality yet expressing dissatisfaction with its visual design, stability, and limited engaging features.

CONCLUSION

The evaluation results show that the overall user experience (UX) of SPOT UPI remains below international benchmarks, particularly in the hedonic dimensions of stimulation and novelty. Pragmatic dimensions (perspicuity, efficiency, and dependability) performed relatively better, indicating that students perceive the platform as generally clear and usable, though still hindered by technical delays and navigation issues. These findings are consistent with previous evaluations of LMS platforms such as CLASS-IPB [8] and BINUS LMS [4], which similarly revealed stronger performance in pragmatic aspects than in hedonic qualities.

Improvements are therefore needed to enhance both functionality and user engagement. Students highlighted the importance of a more intuitive and visually appealing interface, as well as better visibility of ongoing tasks and deadlines. Technical issues such as slow loading and failed submissions should also be prioritized to strengthen system reliability. In addition, features that support task tracking, such as personalized dashboards, progress indicators, and real-time notifications may help improve both usability and motivation.

Future research should involve broader stakeholder groups, including lecturers and administrative staff, and incorporate complementary methods such as usability testing or heuristic evaluation to provide a more comprehensive understanding of the LMS ecosystem.

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