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ANALYSIS OF ELEMENT AND DESIGN NEEDS FOR CONLERT MOBILE APPLICATION PROTOTYPE

Analisis Elemen dan Keperluan Reka Bentuk bagi Prototaip Aplikasi Mudah Alih CONLERT

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ABSTRACT

Academic events such as seminars, conferences, and workshops play a crucial role in facilitating knowledge exchange and fostering professional connections within the education sector. However, obtaining accurate and up-to-date information about these events often proves challenging due to fragmented and outdated sources. To address this gap, this study focuses on the development and evaluation of CONLERT, a mobile application prototype designed to simplify the discovery and management of academic events. Powered by artificial intelligence, CONLERT delivers personalised notifications tailored to user preferences, making it easier and more engaging to stay informed. This research specifically analyses the elements and design requirements for the CONLERT mobile application prototype. The Fuzzy Delphi method was employed to gain expert consensus in identifying the key components necessary for creating an effective and user-friendly application. Findings reveal a high level of agreement on all major design elements, including interface, content, text, graphics, audio, and the integration of artificial intelligence. Clear navigation, easily understandable language, and visual clarity emerged as top priorities in ensuring usability. These insights provide valuable guidance for developers in optimising user experience and enhancing CONLERT's effectiveness as a responsive, accessible platform for academic event information alert.

Keywords: Academic events; artificial intelligence; event notifications; mobile application.

ABSTRAK

Acara akademik seperti seminar, persidangan dan bengkel memainkan peranan yang penting dalam perkongsian ilmu serta membina jaringan profesional dalam sektor pendidikan. Namun demikian, akses kepada maklumat yang tepat dan terkini berkaitan acara-acara tersebut sering berhadapan dengan kekangan akibat sumber dari tempat yang pelbagai serta kurang dikemas kini. Sehubungan itu, kajian ini memberi tumpuan kepada pembangunan dan penilaian CONLERT, iaitu prototaip aplikasi mudah alih berasaskan kecerdasan buatan yang direka bentuk bagi memudahkan penemuan serta pengurusan acara akademik melalui pemberitahuan peribadi yang disesuaikan mengikut keutamaan pengguna. Analisis keperluan reka bentuk aplikasi ini telah dilaksanakan menggunakan kaedah Fuzzy Delphi bagi memperoleh persetujuan pakar berhubung elemen-elemen utama yang diperlukan. Hasil kajian

menunjukkan tahap penerimaan yang tinggi terhadap aspek antaramuka, kandungan, teks, grafik, audio dan integrasi kecerdasan buatan. Selain itu, navigasi yang jelas, penggunaan bahasa yang mudah difahami serta kejelasan visual dikenal pasti sebagai keutamaan dalam memastikan kebolehgunaan aplikasi. Dapatan ini seterusnya memberikan implikasi penting sebagai panduan kepada pembangun dalam usaha mengoptimumkan pengalaman pengguna serta meningkatkan keberkesanan CONLERT sebagai platform maklumat acara akademik yang responsive dan mudah dicapai.

Kata kunci: Acara akademik; aplikasi mudah alih; kecerdasan buatan; notifikasi acara.

INTRODUCTION

Academic events such as seminars, conferences, workshops, academic talks, and others are essential elements in the ecosystem of education and research. They provide opportunities for knowledge sharing, idea exchange, and the presentation of new research findings. As highlighted in Nurul Ibtisam et al. (2025), academic events such as seminars, conferences, and workshops serve as vital platforms for knowledge exchange, professional networking, and academic collaboration. In an increasingly global and technologically advanced world, academic events have evolved from physical gatherings to virtual events that can be accessed by participants worldwide. Information and communication technology has facilitated access to information and participation in these events without geographical limitations, creating new opportunities for more individuals to engage in academic discussions and knowledge development. However, with the increasing number of academic events organised each year, there is a growing need for a more efficient system to manage and disseminate information about these events. A mobile application designed specifically for this purpose can provide an effective solution. Such an application can collect, organise, and deliver the latest information on academic events to users, making it easier for them to stay informed and ensuring they always have access to up-to-date information.

Background of the Study

This research was conducted to examine the needs of the target users' academics regarding the use of a mobile application called CONLERT. The name CONLERT, derived from "Conference Alert," reflects its function not only as a platform for delivering conference notifications but also as a "one-stop centre." This means that the application will provide comprehensive information on various academic events within a single platform, including conferences, seminars, workshops, and more. The aim is to make it easier for academics to obtain the necessary information without having to search for multiple sources. By integrating various events into one platform, this application is expected to overcome the inefficiencies in information dissemination often faced by academics.

In addition, CONLERT is enhanced with artificial intelligence (AI)-driven notifications to maximise the user experience. AI technology ensures that notifications received are relevant and tailored to the user's needs. This means users will receive alerts based on their academic interests and requirements, making their experience more personalised and effective.At the initial stage, this research focuses on two main aspects: first, analysing user requirements to understand what they need and expect from the application; and second, designing the application according to those needs and expectations. By understanding the needs of the target users, CONLERT can be better developed to ensure it truly fulfils its intended function and delivers an optimal user experience.Through this study, it is hoped that CONLERT will become an effective tool for academics to manage and keep up with academic events, thereby improving their productivity and engagement within the academic community.

PROBLEM STATEMENT

Academic events such as conferences, seminars, workshops, and symposiums are important platforms for knowledge dissemination, academic discourse, and professional development. However, one of the main challenges faced by academics is the difficulty in obtaining up-to-date and relevant information about these events. This issue has been discussed in various studies and literature reviews. According to research by Jones and Smith (2020), academics often struggle to access information about academic events due to the fragmentation of information sources. Information about these events is usually

scattered across different websites, emails, and social media platforms, making it difficult for academics to track and stay updated.

Furthermore, Kumar et al. (2019) found that inefficiencies in disseminating academic event information also contribute to this problem. They reported that much of the information is distributed through traditional channels such as emails and posters, which may not effectively reach all stakeholders. As a result, many academics miss the opportunity to attend events relevant to their field of research. In a literature review by Chen and Li (2021), it was highlighted that the suboptimal use of information technology further exacerbates the problem. Although many digital platforms exist to disseminate academic event information, their usage remains limited and poorly coordinated. Consequently, the available information is often outdated or incomplete.

To address this issue, there is an urgent need to develop a more efficient and integrated system for managing and disseminating information on academic events. Previous findings emphasized that access to accurate and up-to-date information on academic events is often hindered by fragmented and outdated sources, necessitating a more efficient solution through mobile technology (Nurul Ibtisam et al., 2025). The use of a mobile application specifically designed for this purpose has been identified as a potential solution. Such an application can provide timely notifications, facilitate event registration, and aggregate information from multiple sources into a single, easily accessible platform.A study by Zhang et al. (2022) showed that well-designed mobile applications can significantly improve accessibility and dissemination of academic event information. They found that applications offering real-time notifications and integration with personal calendars help academics better plan and manage their schedules, ensuring they do not miss important events.

Based on these previous studies, there is a need to develop the CONLERT application to deliver academic event information more systematically and efficiently, thus facilitating the work of academics.

RESEARCH OBJECTIVE

To analyse the elements and design requirements for the development of the CONLERT mobile application.

LITERATURE REVIEW

Academic events involve various activities designed to disseminate information, promote collaboration, and facilitate scholarly interaction within specific fields of study. Examples include conferences, seminars, workshops, innovation competitions, symposiums, and academic summits. Conferences are the most common form of academic gathering, bringing together researchers, scholars, practitioners, and students to share and discuss research findings, trends, and developments within a discipline (Li & Tan, 2020). Academic conferences are crucial platforms that enable lecturers, researchers, and professionals to present research findings, exchange ideas, and build collaborative networks. These events, also known as congresses, symposiums, workshops, or meetings, play a significant role in the advancement of knowledge and academia (Lestari & Jaya, 2021).

The development of mobile applications for academic event notifications involves key phases: design, implementation, testing, and deployment (Li & Tan, 2020). The factors for developers to consider include interface design, functionality, security, and compatibility across devices and operating systems (Kim & Yun, 2021). An important aspect is the alert mechanism, which provides real-time updates about programme changes, session revisions, and other important announcements (Cao et al., 2019). There is increasing interest in developing AI notification systems in academic event applications. These systems deliver personalised, timely alerts based on user preferences, behaviours, and contextual data (Chen & Zhang, 2020; Hosseini et al., 2019). Integrated with event management platforms, they streamline organiser–participant interaction and enable real-time multi-channel notifications, enhancing participation and engagement.

The development of mobile applications for academic events with AI notification systems has revolutionised how users access information about upcoming conferences, seminars, workshops, and competitions. These apps serve as one-stop centres for event information, allowing users to access schedules, speaker details, session topics, and more. The integration of AI enhances the user experience by offering tailored recommendations based on interests, past events, and engagement history, helping users discover relevant events and connect with like-minded individuals. AI-powered notifications provide real-time updates and reminders, ensuring users are promptly informed of last-minute changes. This proactive approach improves event organisation and reduces missed opportunities for networking and knowledge exchange. Overall, integrating mobile applications with AI notification systems has significantly transformed academic event management, making it more efficient and accessible.

The Fuzzy Delphi Method (FDM) has emerged as a robust approach in human–computer interaction (HCI) research, enabling structured expert consensus while addressing uncertainty in judgments (Yusof et al., 2022). Unlike the conventional Delphi technique, FDM integrates fuzzy set theory for example, using fuzzy rankings to quantify expert agreement resulting in more precise, efficient consensus values (Roldán et al., 2021). In mobile application evaluation, this method is especially valuable in assessing user interface (UI) components, content quality, and usability factors (Linstone & Turoff, 2019). Studies have shown that FDM is effective in educational and mobile learning contexts, such as the NumFlex App project, where defuzzification scores exceeding 0.95 demonstrated strong expert consensus on UI clarity and content relevance (Rosly et al., 2022). This aligns with the need for systematic evaluation methods in academic event applications, where stakeholder agreement ensures both functional and user-oriented design outcomes.

Interface design plays a critical role in shaping user perceptions, influencing trust, and determining adoption rates (Zieglmeier & Lehene, 2022). A minimalist layout with well-organised elements and harmonious colour schemes supports intuitive navigation, reducing cognitive load and enhancing task efficiency (Norman, 2022).FDM-based evaluations in mobile learning applications have consistently ranked clear navigation as the most critical UI element, with high defuzzification scores reflecting unanimous expert approval (Rosly et al., 2022). Additionally, interface aesthetics such as consistent button design and strategic placement of search bars are integral to promoting a seamless user experience (Shneiderman et al., 2016). These findings reinforce the principle that UI clarity is foundational for applications like CONLERT, where timely access to academic event information is essential.

Content is central to the perceived usefulness of an application. In the context of academic event applications, the focus must be on relevance, clarity, and accessibility of information. Prior research indicates that content tailored to the target audience significantly enhances engagement and satisfaction (Kim & Lee, 2011). FDM studies in educational settings have validated that clear, concise, and focused content ranks highly in expert evaluations (Rosly et al., 2022). In particular, easy-to-understand descriptions and language simplicity facilitate information processing, especially for diverse user groups (Nielsen, 2000). For CONLERT, ensuring the content directly addresses academic events and provides straightforward explanations aligns with best practices in content strategy for mobile platforms.

Text presentation, encompassing font type, size, and colour contrast, directly affects readability and user comprehension. As Günay (2024) emphasizes, accurate typographic design significantly elevates both the aesthetic appeal and communicative effectiveness of a layout. Similarly, Faliagka et al. (2015) demonstrate that well-considered typographic aesthetics can enhance perceived usability. Although often embedded within broader interface evaluations, FDM studies have highlighted that text legibility is essential for effective information delivery (Rosly et al., 2022). In mobile applications, particularly those serving an academic function, maintaining high readability across various screen sizes ensures consistent user experience (Bernard et al., 2003).

Graphics are more than decorative features; they function as cognitive cues that support learning and task completion (Mayer, 2020). In mobile application contexts, clear visuals, appropriate resolution, and

recognisable icons contribute significantly to usability (Shneiderman et al., 2016). FDM evaluations in UI design have confirmed that graphics meeting these criteria receive unanimous acceptance among experts (Rosly et al., 2022). These findings underscore the importance of aligning graphic design with functional objectives, ensuring that visuals enhance rather than distract from core application functions.

Audio feedback, such as notification tones, plays a supportive role in mobile application interaction. Recent work shows that spoken auditory cues can improve response speed and accuracy and that audio–visual cues often amplify this effect (Cinel et al., 2022). While FDM literature on audio is less extensive, the available evidence suggests that appropriate audio levels and tone selection contribute positively to user engagement and satisfaction (Rosly et al., 2022). For academic event alerts, well-calibrated notification sounds can ensure that users are promptly informed without causing disruption.

Artificial intelligence (AI) in mobile applications facilitates personalised experiences through mechanisms such as keyword-based recommendations and profiling-based content delivery. According to Jannach et al. (2021), such AI-driven personalisation increases relevance and engagement by tailoring content to user preferences and behaviour patterns. Although direct FDM studies on AI integration are limited, its inclusion in expert evaluation frameworks reflects the growing recognition of AI's strategic value in enhancing application utility (Rosly et al., 2022). In the CONLERT application, AI could refine event suggestions, making the system more responsive to individual user needs.

Usability, defined by ISO 9241-11, encompasses effectiveness, efficiency, and satisfaction in a specific context of use. Mobile application usability is strongly influenced by ease of use and learnability, which remain central determinants of user satisfaction and adoption (Zhou et al., 2019). FDM-based studies have validated that applications which require minimal time to learn and operate are more likely to achieve sustained adoption (Rosly et al., 2022). In contexts such as academic event management, ensuring intuitive usability supports wider acceptance and consistent user engagement.

METHODOLOGY

Population and Study Subjects

This study focuses on a different target group, which are subject matter experts in the fields of design, application development, and artificial intelligence. These experts are expected to provide valuable insights that bridge technical requirements with conceptual understanding, ensuring that the study's recommendations are both practical and theoretically sound.

Sample of the Study

A total of 13 experts participated in this study, comprising 5 specialists in design, 5 specialists in application development, and 3 specilists in AI. The experts were selected purposively based on the criterias such as a minimum of five years' professional or academic experience in their respective fields, direct involvement in research or projects related to mobile applications or AI, and familiarity with user-centred design principles. This diverse yet focused sample size aligns with recommendations in Fuzzy Delphi research, where 10–15 experts are considered sufficient to establish consensus reliability (Birko et al., 2015; Pazilah et al., 2024).

Research Instrument

The questionnaire items were designed based on insights gathered from a review of relevant literature in prior studies.

Data Analysis Technique

Data analysis for this study was carried out using the Fuzzy Delphi Analysis.

FINDINGS AND DISCUSSIONS

Respondent Background

Table 1 below shows gender distribution and percentages. A total of 53.8% of respondents were male, while the remaining 46.2% were male.

Table 1: Gender Frequency and Percentage Distribution

Gender	Frequency	Percentage (%)
Male	7	53.8
Female	6	46.2

Analysis of Interface Element

Table 2 presents the fuzzy score analysis for interface elements. This analysis shows that all items evaluated have reached a very high acceptance level, with absolute consensus among experts at 100%. This indicates a strong agreement on the importance of these elements in interface design. Based on the fuzzy score (A) analysis, Item 2 recorded the highest score of 0.958, making it the element considered most significant by the experts. This was followed by Item 1 (score = 0.948), Item 3 (score = 0.939), and Item 5 (score = 0.930). Although Item 4 received the lowest score (0.900), it still falls within the high acceptance range, indicating that experts still consider it an important element. Overall, these results reflect a high level of professional consensus and further reinforce the reliability of the study's findings on the needs and priorities of the evaluated interface elements.

The FDM analysis aligns with previous studies (Nielsen & Norman, 2020; Shneiderman & Plaisant, 2016; Lim et al., 2019) highlighting that clear, intuitive, and responsive user interfaces with easy navigation, clear icons, and organized layouts enhance usability, reduce cognitive load, and sustain user engagement.

Table 2: Fuzzy Score Analysis for Interface Elements

No.	Item/Element	Triangular Fuzzy Numbers		Fuzzy Evaluation Process				Expert Consensus	Element ACCEPTED	Ranking
		Threshold Value, d	Percentage of Expert Consensus, %	m1	m2	m3	Fuzzy Score (A)			
1	Minimalist user interface (UI) design with well-arranged elements and harmonious colours to facilitate user interaction.	0.045	100.0%	0.864	0.982	1.000	0.948	ACCEPT	0.948	2
2	Clear navigation allowing users to use the CONLERT mobile application easily, without too many steps to access functions or information.	0.025	100.0%	0.882	0.991	1.000	0.958	ACCEPT	0.958	1
3	Buttons in the CONLERT mobile application should be clear, prominent, and designed with consistent shape, size, and colour to aid recognition.	0.061	100.0%	0.845	0.973	1.000	0.939	ACCEPT	0.939	3
4	The search bar in the CONLERT mobile application is placed in an easily visible location so that users can access it quickly without searching.	0.127	100.00%	0.791	0.927	0.982	0.900	ACCEPT	0.900	5
5	Readable typography and contrasting colours to ensure text and visual elements are easily understood by users.	0.071	100.00%	0.827	0.964	1.000	0.930	ACCEPT	0.930	4

Analysis of Content Element

Table 3 presents the fuzzy score analysis for content elements. For the content element, the analysis shows slight differences in the level of expert consensus, with agreement percentages ranging from 81.8% to 90.9%. Although it did not reach the absolute consensus obtained in the interface element, all items remain in the high acceptance range and are considered suitable and relevant by the experts involved. Based on the fuzzy score (A) analysis, Item 3 obtained the highest score of 0.864, indicating that this element is seen as the most important in the context of application content. Item 4 ranked second with a score of 0.824, followed by Item 2 (0.815), while Item 1 had the lowest score at 0.779. Although Item 1's score is the lowest, it still exceeds the acceptance threshold, indicating a good level of consensus. Overall, these findings show that experts recognise all content elements as significant components that contribute to the effectiveness and functionality of the developed application content.

These findings align with previous studies (Lim et al., 2019; Muhammad et al., 2020; Chen et al., 2021) that emphasize the importance of relevant, clear, and engaging content in enhancing user interaction, ensuring sustained use, and enabling users to access information quickly and effectively.

Table 3: Fuzzy Score Analysis for Content Elements

No.	Item/Element	Triangular Fuzzy Numbers		Fuzzy Evaluation Process				Expert Consensus	Element ACCEPTED	Ranking
		Threshold Value, d	Percentage of Expert Consensus, %	m1	m2	m3	Fuzzy Score (A)			
1	The CONLERT mobile application content focuses on two types: administrators and users.	0.250	81.8%	0.627	0.800	0.909	0.779	ACCEPT	0.779	4
2	The CONLERT mobile application content focuses on searching for information regarding academic events.	0.181	90.9%	0.664	0.836	0.945	0.815	ACCEPT	0.815	3
3	The use of language in the CONLERT mobile application effectively helps deliver information about academic events.	0.154	90.9%	0.736	0.891	0.964	0.864	ACCEPT	0.864	1
4	Explanations provided in the CONLERT mobile application are easy to understand.	0.190	90.91%	0.682	0.845	0.945	0.824	ACCEPT	0.824	2

Analysis of Text Element

Table 4 shows the fuzzy score analysis for text elements. For text elements, all experts agreed on the evaluated elements (100%), indicating consensus on the importance of these elements in application design. Based on the fuzzy score (A) analysis, Item 3 recorded the highest score of 0.897, followed by Item 1 with a score of 0.891. Meanwhile, Item 2 had the lowest score of 0.858, but this score is still in the high range, indicating good acceptance. Overall, these results show that experts place significant emphasis on text elements, confirming that the aspect of delivering information through text is seen as a critical component in ensuring communication effectiveness and user understanding of application content.

The importance of clear and concise text is supported by previous studies (Nielsen and Norman, 2020; Lim et al., 2019; Chen et al., 2021), which highlight its role in enhancing user comprehension, sustaining meaningful interaction, reducing confusion, and lowering cognitive load. The findings of this study are consistent with prior research, affirming text as a key component in improving usability and the effectiveness of messages in mobile applications.

Table 4: Fuzzy Score Analysis for Text Elements

No.	Item/Element	Triangular Fuzzy Numbers		Fuzzy Evaluation Process				Expert Consensus	Element ACCEPTED	Ranking
		Threshold Value, d	Percentage of Expert Consensus, %	m1	m2	m3	Fuzzy Score (A)			
1	The CONLERT mobile application uses appropriate font types.	0.125	100.0%	0.773	0.918	0.982	0.891	ACCEPT	0.891	2
2	The CONLERT mobile application uses appropriate text sizes.	0.134	100.0%	0.718	0.882	0.973	0.858	ACCEPT	0.858	3
3	The CONLERT mobile application uses appropriate text colours.	0.097	100.0%	0.773	0.927	0.991	0.897	ACCEPT	0.897	1

Analysis of Graphic Element

Table 5 shows the fuzzy score analysis for graphic elements. All experts agreed with all items (100%), indicating full acceptance of the evaluated elements in this category. Based on the fuzzy score (A) analysis, Items 2 and 3 recorded the same high score of 0.891, making them the most important elements according to expert evaluation. Item 1 recorded a slightly lower score of 0.882, but still within the high acceptance range, indicating strong agreement on its importance. These findings show that all graphic elements in this study have met expert expectations in terms of suitability, visual clarity, and their role in supporting user understanding of application content. The overall acceptance of graphic elements further supports the view that visual aspects play an important role in shaping a positive user experience, particularly in the context of effective and user-friendly application design.

These findings are in line with prior studies that highlight the pivotal role of visual design in enhancing user experience, facilitating comprehension, and improving application usability (Marcus, 2018; Perrig et al., 2023). Collectively, the results underscore that graphic elements extend beyond mere aesthetics; they function as critical components in shaping positive user experiences, strengthening content delivery, and ensuring that the CONLERT mobile application remains effective, accessible, and user-friendly.

Table 5: Fuzzy Score Analysis for Graphic Elements

No.	Item/Element	Triangular Fuzzy Numbers		Fuzzy Evaluation Process				Expert Consensus	Element ACCEPTED	Ranking
		Threshold Value, d	Percentage of Expert Consensus, %	m1	m2	m3	Fuzzy Score (A)			
1	Graphics display in the CONLERT mobile application should be clear to facilitate usage.	0.119	100.0%	0.755	0.909	0.982	0.882	ACCEPT	0.882	3
2	Uploaded graphics in the CONLERT mobile application have suitable resolution to ensure clarity across various screen sizes.	0.125	100.0%	0.773	0.918	0.982	0.891	ACCEPT	0.891	1
3	The CONLERT mobile application should have icons that are easily identifiable in terms of function.	0.125	100.0%	0.773	0.918	0.982	0.891	ACCEPT	0.891	1

Analysis of Audio Element

Table 6 shows the fuzzy score analysis for the audio element. For audio, there is only one item evaluated, which obtained a fuzzy score (A) of 0.809, with an expert agreement rate of 90.9%. Although this score is slightly lower compared to elements in other categories such as interface, graphics, and text, it is still within the high acceptance range and above the minimum score commonly used in expert analysis. This shows that the audio element is still considered significant by the majority of experts in the context of the studied application development. The importance of this element may lie in its role in enhancing user experience through information delivery, supporting various learning styles, and strengthening user understanding and engagement. Thus, these findings highlight audio as a complementary component with potential to contribute to the overall effectiveness of application design, even if it is not categorised as a core element by all experts.

This finding is supported by previous studies (Mayer and Moreno, 2003; Ismail and Hassan, 2021; Clark and Mayer, 2016), which highlight that clear and relevant audio can enhance user comprehension, reduce cognitive load, support visual elements, and improve learning and interaction. The results of this study align with prior research, affirming audio as a key factor in developing effective and user-friendly applications.

Table 6: Fuzzy Score Analysis for Audio Elements

No.	Item/Element	Triangular Fuzzy Numbers		Fuzzy Evaluation Process				Expert Consensus	Element ACCEPTED	Ranking
		Threshold Value, d	Percentage of Expert Consensus, %	m1	m2	m3	Fuzzy Score (A)			
1	The CONLERT mobile application uses suitable audio and sound levels for notification alerts.	0.202	90.9%	0.664	0.827	0.936	0.809	ACCEPT	0.809	1

Analysis of Artificial Intelligence Element

Table 7 shows the fuzzy score analysis for artificial intelligence elements. The AI element also shows a high level of consensus among experts, with an agreement percentage of 90.9% for both evaluated items. Item 1 obtained a higher fuzzy score (A) of 0.879, while Item 2 recorded a slightly lower score of 0.873. Although there is a small difference between the two scores, both are within the high acceptance range, indicating that all elements under the AI category are considered relevant and important by experts. This consensus indirectly shows the role of AI in enhancing the functions, usability, and capabilities of the application. This is consistent with current developments in digital technology, where AI integration is increasingly becoming a key element in smart application design that is responsive and adaptable to user needs. Therefore, these findings further strengthen the need to seriously consider AI elements in the application development process, especially to ensure that the developed application remains relevant and competitive in a constantly evolving technological environment.

This finding is supported by previous studies (Brown et al., 2022; Russell and Norvig, 2021; Huang and Rust, 2021), which emphasize that AI integration enhances responsiveness, personalization, and real-time data processing, thereby improving usability and sustaining user engagement. The results of this study align with prior research, affirming AI as a critical component in the development of effective and user-friendly modern applications.

Table 7: Fuzzy Score Analysis for Artificial Intelligence Elements

No.	Item/Element	Triangular Fuzzy Numbers		Fuzzy Evaluation Process				Expert Consensus	Element ACCEPTED	Ranking
		Threshold Value, d	Percentage of Expert Consensus, %	m1	m2	m3	Fuzzy Score (A)			
1	The CONLERT mobile application is integrated with keyword-based AI, providing suggestions based on user preferences.	0.128	90.9%	0.755	0.909	0.973	0.879	ACCEPT	0.879	1
2	The CONLERT mobile application is integrated with profiling-based AI, using machine learning algorithms to analyse user interests and behaviours, and then provide relevant event recommendations.	0.160	90.9%	0.755	0.900	0.964	0.873	ACCEPT	0.873	2

Analysis of Usability Element

Table 8 shows the fuzzy score analysis for usability elements. This element also shows a high level of consensus among experts, with both evaluated items receiving agreement percentages above 80%. Item 1 obtained the highest fuzzy score (A) in this category at 0.933, with a 90.9% agreement level, making it an element considered very important to ensure the application can be used easily and effectively. Item 2 recorded a score of 0.848 with an expert agreement rate of 81.8%. Although its score and consensus level are lower than Item 1, it is still within the high acceptance range, indicating that this item is still considered significant by the majority of experts. Overall, these findings emphasise that usability is an important component in application design, especially in terms of user-friendliness and comfort. Emphasising usability not only helps improve the user experience but also contributes to greater acceptance and usage of the application among its target users.

This finding is consistent with previous studies (Davis, 1989; Venkatesh et al., 2003; Nielsen and Norman, 2020) which emphasize ease of use as a critical factor influencing technology acceptance, user satisfaction, and sustained application usage. The results confirm ease of use as a significant factor in the successful adoption of the CONLERT application.

Table 7: Fuzzy Score Analysis for Usability Elements

No.	Item/Element	Triangular Fuzzy Numbers		Fuzzy Evaluation Process				Expert Consensus	Element ACCEPTED	Ranking
		Threshold Value, d	Percentage of Expert Consensus, %	m1	m2	m3	Fuzzy Score (A)			
1	The CONLERT mobile application should be easy to operate.	0.081	90.9%	0.845	0.964	0.991	0.933	ACCEPT	0.933	1
2	The CONLERT mobile application should require little time to learn and master.	0.228	81.8%	0.736	0.873	0.936	0.848	ACCEPT	0.848	2

CONCLUSION

This study identified the essential elements and design requirements for the CONLERT mobile application prototype through expert consensus using the Fuzzy Delphi Method. The findings revealed high levels of acceptance across all categories including interface, content, text, graphics, audio, artificial intelligence, and usability, thereby underscoring the importance of clear navigation, concise text, relevant content, supportive visuals, appropriate audio cues, and AI-driven personalisation in enhancing user experience.

Extending earlier research on user needs, this study translates those requirements into concrete design priorities and demonstrates how usability and functionality can be strengthened through systematic evaluation. The results provide practical guidance for developers to refine the CONLERT prototype into a more effective and user-friendly platform for academic event management. Furthermore, the study highlights CONLERT's potential not only within academia but also across broader contexts of education, research, and professional development, reinforcing its role as a versatile tool for accessible and responsive information delivery.

Based on these consensus findings, a preliminary prototype of CONLERT is currently under development. The subsequent phase will involve usability testing with potential users, such as lecturers, postgraduate students, and academic event organisers. Acceptance and effectiveness will further be assessed using questionnaires adapted from the Technology Acceptance Model (TAM), focusing on perceived usefulness, ease of use, and intention to adopt. Collectively, these evaluation strategies will ensure that the application is validated in real-world academic contexts.

Nevertheless, several technical and practical challenges must be anticipated in deploying CONLERT. From a technological perspective, maintaining real-time data accuracy, and integrating reliable AI algorithms remain critical tasks. From a practical perspective, resource implications such as continuous funding for server hosting and application updates may affect long-term sustainability. Furthermore, issues related to data privacy and security, particularly in relation to user profiling and personalised notifications, necessitate robust safeguards to maintain user trust. Addressing these challenges will be vital to ensure the successful implementation and sustained adoption of CONLERT.

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