USER EXPERIENCE (UX) EVALUATION OF ALEXA MOTHER MATE CHATBOT FOR SKILL REFINEMENT

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Abstract— Access to evidence-based health information, presented in a clear and accessible manner, is crucial for empowering pregnant women to make informed decisions about their health and their baby's health. The Mother Mate Alexa Skill was designed following the Usability Engineering principles of design, starting with the conversational needs of pregnant women. The objective of the Mother Mate application is to provide a satisfying User Experience (Ux). To achieve this objective user feedback was actively used for evaluation and skill refinement. This paper presents the Usability Engineering process steps for designing and refining the application.

Keywords— Alexa Skill, Pregnancy, Chatbot, User Experience, Usability Engineering.

I. 1.0 INTRODUCTION

Pregnant women have unique informational and conversational needs that must be carefully considered when designing a pregnancy companion chatbot. They require timely, accurate, and relevant information to support their physical and emotional well-being throughout the pregnancy journey. Key informational needs include detailed week-by-week guidance on child development, nutritional advice tailored to each trimester, and tips for managing common pregnancy symptoms such as morning sickness and fatigue. They often seek information on prenatal exercises, safe medications, and preparing for child birth. Access to evidence-based health information, presented in a clear and accessible manner, is crucial for empowering pregnant women to make informed decisions about their health and their baby's health [1].

Along with informational support, pregnant women also have significant conversational needs that revolve around emotional support and personalized guidance. Pregnancy can be an emotionally intense period, and having a chatbot that provides empathetic and non-judgmental responses can be incredibly comforting. The Mother Mate Alexa Skill has been designed following the Usability Engineering principles of design, starting with the conversational needs of pregnant women.

The objective of the Mother Mate application is to provide a satisfying User Experience (Ux). To achieve this objective user feedback was actively used for evaluation and skill refinement. The Mother Mate Skill was designed not only to engage in meaningful conversations, but offering reassurance and addressing concerns with sensitivity. It is also be capable of personalized interactions, such as tracking individual progress, sending reminders for prenatal appointments, and adjusting advice based on specific health conditions or lifestyle choices. By understanding and catering to the informational and conversational needs, the Mother Mate Alexa Skill shall serve as a valuable resource and support system for pregnant women. Continuous evaluation skill refinement was conducted through user feedback, in line with the Usability Engineering principles.

The usage of chatbots in healthcare is a growing phenomenon. The purpose of using chatbots as a pregnancy companion is to provide continuous, accessible, and personalized support to pregnant women, enhancing their overall pregnancy experience. Chatbots offer several advantages, such as 24/7 availability, ensuring that users can access reliable information and support at any time. They can deliver tailored advice based on the user's specific stage of pregnancy, health conditions, and preferences, generating a sense of personalized care. By leveraging artificial intelligence, chatbots can adapt and learn from user interactions, continually improving their responses and recommendations, thus serving as an efficient, cost-effective, and scalable solution for prenatal care [1].

A lot of research work is needed to improve the user experience of CUI applications [2]. This research work is a step in this direction. For conducting the usability engineering experiments to improve the user experience, a new skill was designed in the Amazon Alexa Ecosystem to provide counselling support to pregnant women. This CUI application was designed to act as a communication companion for the would be mother. This paper provides an overview of the evaluation and continuous refinement process to enhance the benefits of this new Alexa skill. It was designed to be an intelligent partner, with all knowledge about child birth, and ready to discuss anything, anytime just at the call of a voice "Open Mother Mate Skill" to any Alexa enabled device.

II. 2.0 REVIEW OF RELATED WORKS

User experience issues for chatbots in healthcare can significantly impact their effectiveness and user satisfaction. UX is a major issue and depends mainly on the accuracy and reliability of information provided. Pregnancy chatbots must deliver evidence-based, up-to-date information, and any inaccuracies can lead to mistrust or even harmful consequences for users. Misinterpreting user input due to

natural language processing (NLP) limitations can result in incorrect advice or failure to address the user's actual concerns [1].

Another critical user experience issue is the chatbot's ability to provide empathetic and personalized interactions. Healthcare concerns are often sensitive and emotionally charged, requiring responses that are not only accurate but also compassionate and understanding. The users may find it frustrating or alienating if a chatbot fails to recognize their emotional state or respond in a human-like, empathetic manner [2].

The chatbot's design and usability play a crucial role; a complex or unintuitive interface can hinder users from effectively navigating the chatbot and accessing the necessary support. Another challenge was to ensure that the architecture goes along with prevailing user experience [3].

Seamless voice-based data exploration and chatting with a pregnancy knowledge base system revolutionizes how pregnant women access and interact with essential information. This approach leverages advanced voice recognition technology to allow users to simply speak their queries and receive instant, accurate responses. The keywords that users speak to invoke those requests are termed as utterances [4].

Voice-based systems are particularly beneficial for users who may have limited time or find typing cumbersome, providing a more natural and intuitive way to seek information. By enabling hands-free interaction, these systems can be especially useful for pregnant women who may be multitasking or experiencing discomfort that makes traditional typing difficult. The integration of a comprehensive pregnancy knowledge base ensures that users can obtain reliable and personalized advice, covering everything from child development milestones to nutrition and symptom management [5].

The conversational nature of voice-based systems enhances the user experience by providing empathetic and context-aware responses. These systems can be programmed to understand and interpret natural language, recognizing the distinctions and emotional tones in users' voices. This capability allows the system to offer not only factual-information but also emotional support, addressing concerns with sensitivity and reassurance [6].

As the system learns from user interactions, it can tailor its responses to better suit individual preferences and needs, fostering a more personalized and engaging experience. By combining the convenience of voice technology with the depth of a specialized pregnancy knowledge base, this approach ensures that pregnant women have continuous, accessible, and supportive resources at their fingertips [7].

For these applications to be effective, they need to possess a thorough understanding of the correct interpretation of health-related information and communicate it clearly and assertively to the user. CUI Applications have the potential to automate the distribution of health information, serving as a cost-effective alternative for disseminating crucial information to pregnant women [8].

User experience (UX) issues in healthcare chatbots, particularly those designed for pregnancy support, can greatly impact their effectiveness and user satisfaction. The accuracy and reliability of the information provided are paramount, as any inaccuracies can lead to mistrust and even harmful consequences for users. Limitations in natural language processing (NLP) may result in misinterpretations of user input, leading to incorrect advice or unmet needs. Empathetic and personalized interactions are crucial for healthcare chatbots, given the sensitive nature of pregnancy-related inquiries. Chatbots that lack empathy in their responses may alienate users, as healthcare concerns often demand a level of understanding and compassion that mimics human interaction.

The usability engineering and intutive interface design of pregnancy support chatbots are also essential to ensuring users can easily navigate and obtain relevant information. Innovations in voice-based data exploration have revolutionized the accessibility of pregnancy knowledge, enabling users to interact with chatbots hands-free through spoken queries. This is especially beneficial for pregnant users who may experience discomfort or need to multitask. The integration of a comprehensive pregnancy knowledge base, coupled with voice technology, allows for personalized, context-aware responses, enhancing the empathetic and supportive nature of the interaction. As the system learns from user interactions, it can better tailor responses, ensuring continuous, accessible, and reliable support for pregnant women. This combination of accurate information, empathetic engagement, and seamless voice interaction holds great potential for transforming pregnancy care by providing cost-effective, round-the-clock access to essential health information.

The key motivations for creating an Alexa skill for pregnant women through usability engineering stem from the need to provide accessible, personalized, and empathetic support for users navigating the complexities of pregnancy. Usability engineering prioritizes user-centered design, focusing on intuitive interfaces, natural language processing, and voice-based interaction, which allow users to speak queries for hands-free, effortless access to information. This Alexa skill empowers the users with reliable, real-time guidance through a familiar, conversational interface, while usability engineering ensures that the skill is easy to navigate, responsive, and adaptable to the specific needs and emotional context of each user. By designing with empathy and accessibility in mind, this approach aims to create a trusted, user-friendly resource that enhances the pregnancy experience through seamless, supportive, and readily available digital assistance.

III. 3.0 METHODOLOGY FOR EVALUATION OF UX

The research methodology was designed with a focus to refine the Alexa skill "Mother Mate" through iterative usability engineering. The methodology involves a cycle of user-centered design, evaluation, and refinement based on empirical data from user feedback

The methodology adopts a mixed-methods approach, combining qualitative and quantitative techniques to capture a comprehensive view of usability issues

Phase 1 is the preparation and planning phase for User Persona Development. Detailed personas of potential users (pregnant women with varying levels of tech proficiency) were developed by conducting interviews with expectant mothers, caregivers, and healthcare professionals. This was done to develop an understanding of needs, expectations, and pain points of the users. Semi-structured interviews were

conducted to understand user needs, expectations, and challenges. A sample of 10 pregnant women with varying demographics and technical backgrounds was used for data collection. Questionnaires were used to collect feedback on user satisfaction, ease of use, and helpfulness of the chatbot. This was supplemented with one-on-one interviews with users to gain in-depth insights into their experiences, preferences, and pain points. The work-product of this phase was a set of user personas reflecting diverse needs and use cases. This was used to define the parameters of usability metrics (e.g., task completion rate, error frequency, user satisfaction score)

Phase 2 is the Iterative Usability Testing through task analysis and scenario creation. The method employed was to create task-based user scenarios. 5 key use cases for interaction with the skill were identified and the task flow and success criteria were documented. This generated the initial list of usability issues.

Next part of this phase is the Think-Aloud Testing (Round 1) with the objective of collecting qualitative data on user thought processes while interacting with the skill. This was done as a pilot study by recruiting 10 participants. These users were encouraged to verbalize their thoughts while using the skill. The research method employed was Think-aloud protocol for the selected sample of users. Data Collection tools were observation and audio recording of user interactions which were later transcribed. This phase generated qualitative insights into user thought processes and pain points.

A Post-Test Survey was conducted using Likert-scale and open-ended questions and feedback prompts (for instance "How easy was it to complete the task?" or "What improvements would you suggest?") The purpose was to gather subjective feedback on usability, satisfaction, and perceived value. The participants of this survey were the same participants as Think-Aloud Testing. The work-product of this phase was Quantitative data on usability satisfaction and qualitative feedback

Phase 3 is the Analysis and Refinement phase by organizing user feedback into themes to identify patterns and major usability issues. The key activity was to group similar feedback into clusters such as "Voice Recognition Issues" or "Response Accuracy." Affinity diagramming with researchers and stakeholders was used to categorize usability issues and prioritize a list for refinement. Next was the Iteration and Prototype Refinement through Agile development cycle for iterative changes. The key activity of this phase was to implement changes to dialog flows, error handling, or voice feedback and also maintain a change log to track modifications. The outcome of this phase is the revised Alexa skill prototype incorporating user feedback.

Phase 4 was designed for Validation Testing through controlled testing. Data was collected for Task success rates, completion time, user satisfaction and other matrix. Comparative analysis was conducted for new vs. previous versions. Also, a Think-Aloud Testing (Round 2) was conducted. In this the think-aloud testing was conducted with new participants to test the validation of usability improvements. A final usability metrics report, readiness assessment report was generated.

The Data Analysis Techniques used were Qualitative Analysis and Thematic analysis for user feedback with affinity diagrams. The Quantitative Analysis included descriptive statistics, and comparative analysis testing metrics.

Due diligence was followed for ensuring the ethical considerations by ensuring voluntary participation and consent from all participants. Confidentiality and anonymity of user data was meticulously followed.

Survey questionnaires were administered after specific interactions to gather immediate feedback on user experience. Follow-Up Surveys were conducted at different stages of pregnancy to capture changes in user needs and satisfaction levels [9].

Usability Testing was conducted as Task-Based Testing by asking the users to complete specific tasks using the chatbot and observe how easily and efficiently they can do so. The users were encouraged to verbalize their thoughts while interacting with the chatbot to understand their decision-making process and identify any confusion or difficulties [10].

Usage Statistics was used to track how often users engage with the chatbot, the duration of interactions, and the features most frequently used [11]. The percentage of users who successfully complete key tasks or interactions was also measured. The Mother Mate Alexa Skill has built in features that allow users to report their mood or emotional state before and after using the chatbot.

By combining these methods, comprehensive data was collected on the user experience to identify areas for improvement, and make informed decisions to enhance the chatbot's usability, effectiveness, and overall user satisfaction.
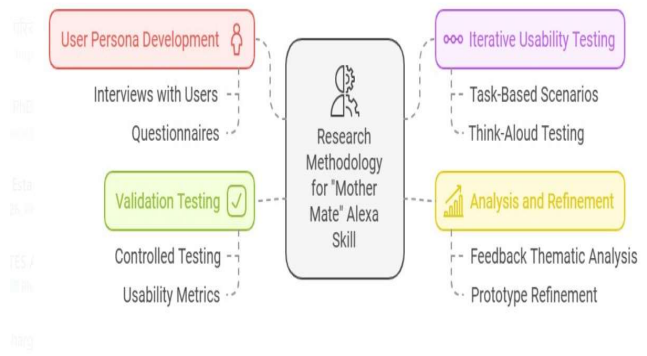

Figure 1: Graphic Representation of Methodology

A. *3.1 Overview of Questionnaire Tool*

The questionnaire tools were designed to assess the user satisfaction, identify any remaining issues, and gather insights for future improvements. The profiling variables were carefully designed to facilitate actionable insights. By segmenting users based on demographic, pregnancy-related, technological, behavioural, psychographic, health, and interaction variables the interaction was refined to meet diverse user needs effectively.

1. The Demographic Variables provide insight into the user's background and general characteristics.

Variable	Description	Example Values
Age	User's age group	18–24, 25–34, 35–44, 45+
Occupation	User's primary occupation	Student, Homemaker, Professional, Teacher
Education Level	Highest level of education completed	High School, Bachelor's, Master's
Geographic Location	User's living environment	Urban, Suburban, Rural
Socioeconomic Status	Estimated financial situation	Low, Middle, High

2. Pregnancy-Related Variables focus on pregnancy-specific information critical to user needs.

Variable	Description	Example Values
Pregnancy Stage	Current trimester of pregnancy	1st Trimester, 2nd Trimester, 3rd Trimester
Pregnancy Status	First-time or experienced pregnancy	First-time, Second pregnancy, Third+
Health Concerns	Presence of specific health conditions	None, Gestational Diabetes, Hypertension
Support System	Level of support from family/friends	Strong, Moderate, Limited
Emotional State	Typical emotional state during pregnancy	Calm, Anxious, Excited

3. Technological Proficiency Variables assess users' comfort and experience with technology.

Variable	Description	Example Values
Tech Proficiency Level	Familiarity with technology	Low, Moderate, High
Device Usage	Types of devices used regularly	Smartphone, Smart

Variable	Description	Example Values
		Speaker, Smartwatch
Alexa Experience	Experience using Alexa or other voice assistants	None, Occasional, Frequent
Preferred Interaction	Preferred method of interacting with technology	Voice, Touch, Visual (screen)
Digital Confidence	Confidence in using digital tools independently	Low, Moderate, High

4. Behavioral Variables explore users' habits, routines, and preferences.

Variable	Description	Example Values
Information Seeking	How users prefer to access information	Quick Answers, In-depth Explanation
Daily Routine	Integration of Alexa into daily life	Core Part, Occasional Use, Rarely Used
Task Completion Style	Approach to completing tasks	Sequential, Exploratory
Privacy Concerns	Level of concern about data privacy	High, Moderate, Low
Motivation for Use	Primary reason for using the skill	Information, Emotional Support, Convenience

5. Psychographic Variables delve into users' attitudes, values, and psychological traits.

Variable	Description	Example Values
Personality Type	General personality trait	Analytical, Empathetic, Social
Emotional Resilience	Ability to handle stress and uncertainty	High, Moderate, Low

Variable	Description	Example Values
Interaction Preference	Preferred interaction tone/style	Friendly, Professional, Reassuring
Attitude Toward Innovation	Openness to trying new technology	High, Moderate, Low
Knowledge Style	Preferred way of absorbing information	Auditory, Visual, Kinesthetic

6. Health and Lifestyle Variables capture information about the user's health habits and lifestyle.

Variable	Description	Example Values
Physical Activity Level	Frequency of physical activity	Low, Moderate, High
Nutrition Awareness	Awareness and practice of nutritional guidelines	Low, Moderate, High
Sleep Patterns	Typical sleep duration and quality	Adequate, Inadequate, Irregular
Stress Management	Techniques used to manage stress	Meditation, Exercise, None
Health Information Usage	Frequency of seeking health information	Rarely, Occasionally, Frequently

7. Interaction Variables explore how users engage with the skill in various contexts.

Variable	Description	Example Values
Usage Context	Primary setting where Alexa is used	Home, Work, On-the-go
Frequency of Use	How often the user interacts with the skill	Daily, Weekly, Sporadically
Preferred Features	Most-used features of the skill	Information Lookup, Reminders, Tracking

Variable	Description	Example Values
Feedback Expectations	Type of feedback expected from Alexa	Immediate, Detailed, Brief
Customization Desire	Interest in personalized experiences	High, Moderate, Low

The first assessment of User Experience was for the ease of usage and navigation. The respondents were asked a direct question "How easy is it to navigate the chatbot?" The response choices ranged from Very easy / Easy / Neutral / Difficult / Very difficult.

The next evaluation was for the Satisfaction level on response fluency, response time and efficiency by asking a question "How satisfied are you with the response time of the chatbot? The respondent may select from a list Very satisfied / Satisfied / Neutral / Dissatisfied / Very dissatisfied

Another evaluation was for the quality and accuracy of informational content in response to the conversation that was happening. The respondent was offered to assess the accuracy level of the conversational Mother Mate Application through the question "How accurate do you find the information provided by the Mother Mate chatbot?" The Response choices were Very accurate / Accurate / Neutral / Inaccurate / Very inaccurate

The next question was "How helpful is the Mother Mate chatbot in answering your questions and concerns?" The response choices were Very helpful / Helpful / Neutral / Unhelpful / Very unhelpful

A similar set of questions was for assessing the features and functionality of the CUI application. The respondent was asked to evaluate the most frequently used features through the question "Which features of the chatbot do you use most frequently?" The respondent was permitted to select more than one features or even select all features as per the response choice. The key features and functionalities of the Mother Mate application are Symptom tracking, Nutritional advice, Exercise and fitness guidance, Appointment reminders, Emotional support, Child development updates, Labor and delivery information, Postpartum support etc.

For understanding specific choice of the respondent an open-ended interview question was asked. The question was "Are there any features you find particularly useful? If yes, please specify. A few more open-ended questions to delve deep into the feature engineering were "Are there any features you rarely or never use? If yes, please specify." "Are there any additional features you would like to see in the chatbot?" Iterative refinement of product features was implemented in line with the Usability Engineering Principles by acting on the responses of the respondents.

Another focus was the Usability and Design of the application. The respondents were asked to evaluate "How would you rate the overall design and layout of the chatbot?" The Response choices were: Excellent / Good / Neutral / Poor / Very poor

Next evaluation was about the language and tone of the Mother Mate Alexa Skill. The question was designed to

express the level of agreement for the statement "The language and tone of the chatbot is appropriate and empathetic?" The Response choices were : Strongly agree / Agree / Neutral / Disagree / Strongly disagree

The next set of evaluation was about technical issues if any. Open ended response was invited for the question "Have you encountered any technical issues while using the chatbot? If yes, please describe."

The final set of questions was for discovering the Satisfaction and Improvement suggested in the Mother Mate Application. For judging the overall satisfaction level, the question offered was "Overall, how satisfied are you with the pregnancy companion chatbot?" The response choices were: Very satisfied / Satisfied / Neutral / Dissatisfied / Very dissatisfied

To judge whether the user was really satisfied with the performance of the application and would like to recommend the use to other users a question was asked "Would you recommend the chatbot to other pregnant women?" The response choices were: Definitely Yes / Probably / Not sure / Probably not / Definitely not.

The respondents were also requested to give open ended advice /comments and suggestions related to the improvement of the Alexa Mother Mate Skill. The question was "Please provide any additional comments or suggestions for improving the chatbot."

IV. 4 FINDINGS AND DISCUSSION

More than 271 respondents have expressed their feedback for the Mother Mate Alexa Skill chatbot. A detailed analysis of the responses is beyond the scope of this publication. An overview of the research response is presented below to share the insights related to the research.

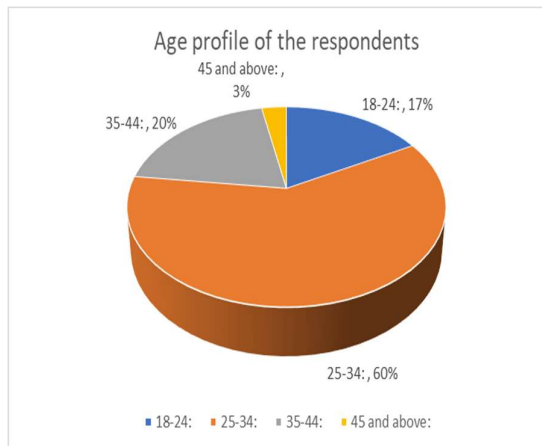### A. 4.1 Age profile of the respondents:

Figure 2: Age profile of the respondents

17% of the respondents were from the age group 18-24. Majority of the respondents were from the age group 25-34 with 60% respondents. 20% of the respondents were from the age bracket 35-44 and the remaining 3% were from age group 45 and above.

B. 4.2 Pregnancy Stage:

Pregnancy stage and related demographic variables were used for Persona development and semantic mapping. Persona development involves creating detailed profiles of representative users to guide design decisions and ensure the

pregnancy companion chatbot effectively meets the needs of its target audience. These personas are based on comprehensive user research, including demographic information, behaviour patterns, goals, motivations, and challenges. For instance, one persona might be a first-time mother in her late 20s, seeking extensive guidance on prenatal care, nutritional advice, and emotional support. Another persona could be a working professional in her early 30s, balancing career and pregnancy, requiring efficient symptom tracking and timely appointment reminders. By understanding these diverse user profiles, the design of chatbot's features was refined, interface, and content to provide a personalized, empathetic, and user-friendly experience [12]. This approach ensured that the responses of Mother mate skill resonate with its users, addressing their unique needs and enhancing their overall pregnancy journey. The data collected on pregnancy stage also helps in tracking the changes in needs and satisfaction level of multistage users. At initial stage of multistage iterative data collection the pregnancy stage data was: First trimester (0-12 weeks): 25%, Second trimester (13-26 weeks): 40%, Third trimester (27-40 weeks): 30%, Postpartum: 5%.

C. 4.3 User Experience on Ease of Navigation:

A large majority of users endorsed the ease of use and navigation. 45% expressed it as Very easy and another 40% reported it as easy. Neutral option was selected by 10% respondents, Difficult by 3% and Very difficult by 2%.
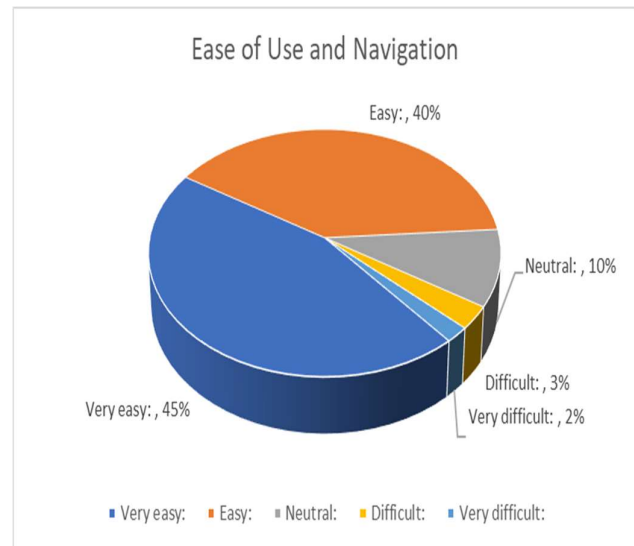

Figure 3: Ease of Use and Navigation

Ease of use and easy navigation through voice interactions are highly important for a pregnancy companion chatbot, as they directly influence the user experience and accessibility for pregnant women. Voice interactions provide a hands-free, intuitive way for users to access information and support, particularly beneficial for those experiencing physical discomfort or multitasking. An effective voice interface allows users to effortlessly ask questions, receive personalized advice, track symptoms, and manage appointments without the need for typing or complex navigation [13]. This simplicity and convenience

significantly enhances the user satisfaction, ensuring that pregnant women can quickly and easily obtain the information and reassurance they need. By prioritizing ease of use and seamless voice navigation, the Mother Mate chatbot was designed and refined to be a more reliable and supportive tool, catering to the unique needs of its users during a crucial period in their lives.

4.4 UX on Satisfaction with Response Time:

Improving the response fluency, spontaneity, response time, and efficiency of a Mother Mate Skill running on an Alexa device involves several strategies, leveraging both technological enhancements and user experience optimizations. Advanced training of NLP algorithms was implemented in the Mother Mate Alexa Skill for better understanding and processing of user inputs. This includes improving the skill's ability to recognize and interpret various accents, speech patterns, and colloquial terms related to pregnancy.

A comprehensive set of predefined conversation paths was developed for common questions and concerns. This helped the skill in providing immediate, relevant responses without unnecessary delays. Step next was to streamline data retrieval processes by indexing frequently accessed information and using in-memory databases for quicker access. Predictive text and speech capabilities were also implemented to anticipate user questions and provide faster responses.

Most of the user respondents were highly satisfied (Very satisfied: 50%, Satisfied: 35%) with the response time. This happened after several iterations of evaluation and refinements with response logic and response path upgradation.
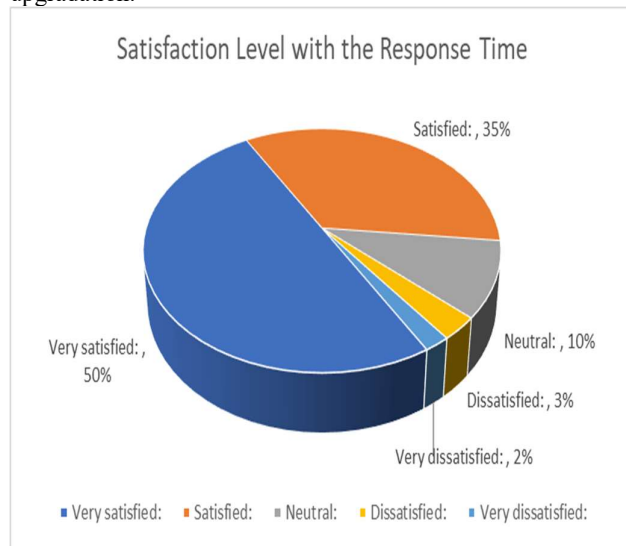

Figure 4: Satisfaction Level with Response Time

D. 4.5 User Experience on Accuracy of Information:

Several interventions were implemented based on user feedback to improve the accuracy of the Mother Mate Skill. Alexa NLP models and techniques were used to better understand the user queries. This includes implementing transformer-based models which can provide more accurate and context-aware responses. NLP model were continuously trained the with a diverse set of pregnancy-related queries and responses in line with the feedback provided by the users. A detailed and comprehensive knowledge base was build and continuously upgraded specific to pregnancy knowledge. The refinements based on feedback was to ensure it covers a wide range of topics, from symptoms and nutrition to emotional support and child development related queries. The application also allows the users to input their personal health data, such as weight, height, and medical history, to receive more personalized and accurate advice. The eventual user response with respect to accuracy was Very accurate: 55%, Accurate: 30%, Neutral: 10%, Inaccurate: 3%, Very inaccurate: 2%
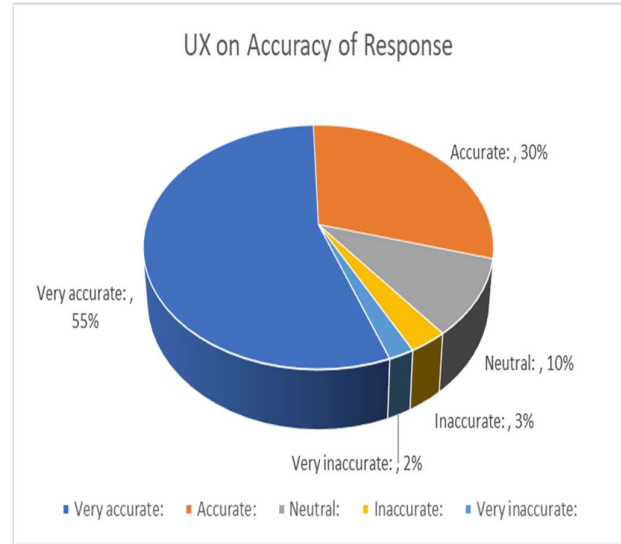

Figure 5: UX on Accuracy of Response

Similar was the response on "Helpfulness in Answering Questions"

E. 4.6 Features and Functionality Analysis

The Analysis of response for Features and Functionality with Most Frequently Used Features revealed some interesting insights. The data tally is provided in the table given below:

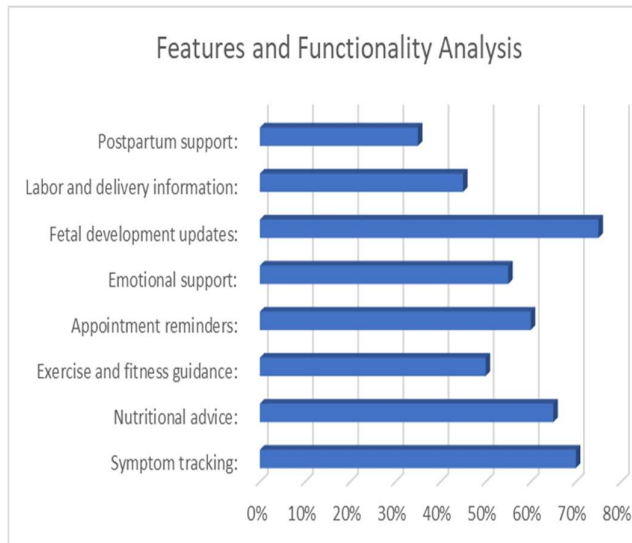|	
Symptom tracking:	70%
Nutritional advice:	65%
Exercise and fitness guidance:	50%
Appointment reminders:	60%
Emotional support:	55%
Fetal development updates:	75%
Labor and delivery information:	45%
Postpartum support:	35%

Table 1: Most Frequently Used Features

Figure 6: Features and Functionality Analysis

Figure 7: Overall Design and Layout Rating

Symptom tracking and child development updates were mentioned as frequently used features or as particularly useful features.

Rarely or Never Used Features were Labor and delivery information as the respondents rarely used this feature, and Postpartum support was availed only by 25% of respondents and was a rarely used feature.

Additional Features Requested were

- ✓ Integration with wearable devices for better health monitoring.
- ✓ More personalized emotional support options.
- ✓ Expanded postpartum support.

F. 4.7 Usability and Design Evaluation

Overall Design and Layout Rating was positive. Users were highly appreciative of the overall design and layout of the Mother Mate Alexa Skill, frequently highlighting its intuitive interface and user-friendly navigation. The skill's clear, organized structure made it easy for users to find relevant information and access features seamlessly, enhancing their overall experience [14]. The aesthetically pleasing design, combined with well-thought-out functionality, ensured that users could quickly engage with the skill without any confusion or frustration.

The users praised the thoughtful inclusion of visual and auditory cues that guided them through various interactions, making the entire process feel smooth and effortless. This positive feedback underscores the importance of a well-designed interface in improving user satisfaction and ensuring that the skill effectively meets the needs of its audience.

Excellent:	40%
Good:	45%
Neutral:	10%
Poor:	3%
Very poor:	2%

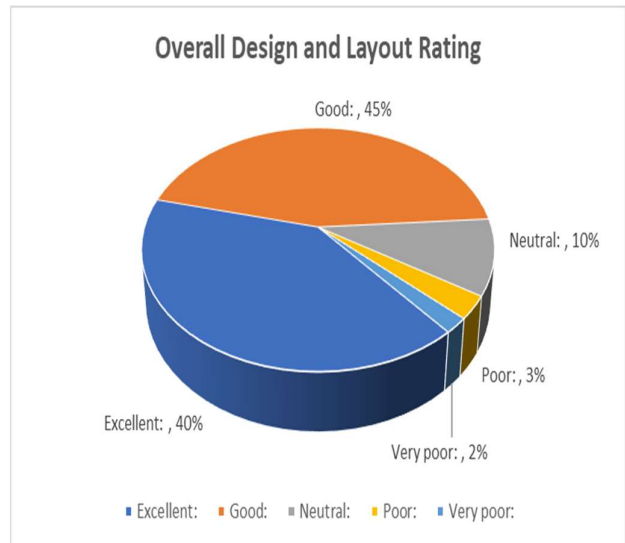Table 2 Usability and Design Evaluation

The users also expressed satisfaction with the "Appropriateness of Language and Tone"

Only 5% of respondents reported encountering technical issues, such as occasional lag and misinterpretation of voice commands.

G. 4.8 Satisfaction and Improvement

Overall Satisfaction Level for the experience was rated as Highly Satisfying. Users were highly satisfied with the usage of the Mother Mate Alexa skill, praising its responsiveness, accuracy, and convenience. The skill's ability to provide timely and reliable information on various pregnancy-related topics, such as symptom management, nutritional advice, and child development, was particularly valued. Users appreciated the personalized interactions, where the skill remembered their stage of pregnancy and previous queries, offering tailored advice that felt relevant and supportive. The ease of accessing this information through voice commands, especially during moments of physical discomfort or multitasking, significantly enhanced the user experience. The combination of practical functionality, empathetic responses, and user-friendly design contributed to high levels of satisfaction, making the application an desirable tool for expectant mothers.

Very satisfied:	50%
Satisfied:	35%
Neutral:	10%
Dissatisfied:	3%
Very dissatisfied:	2%

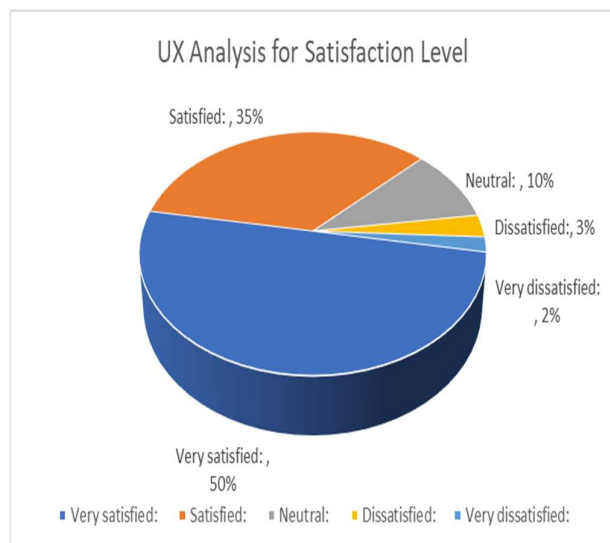Table 3: UX Analysis for Satisfaction Rating

Figure 8: UX Analysis for Satisfaction Level

When questioned if they would like to recommend the Mother Mate chatbot to Others 55% respondents said "Definitely", 30% said "Probably". 10% were Not sure. A small 5% respondents said they would not recommend the use of the application to others.

V. 5. CONCLUSION

The respondents appreciated the chatbot's user-friendly interface and helpful features and suggested improving the accuracy of voice recognition and adding more localized content. As a further improvement the users requested more interactive and customizable features, such as personal health dashboards and integration with healthcare providers.

The overall feedback indicates that the Mother Mate Alexa Skill Chatbot is very useful, with high satisfaction levels among users. Key strengths include the ease of navigation, accuracy of information, and helpfulness in addressing user concerns. Areas for improvement include enhancing voice recognition accuracy, adding more personalized and localized content, and integrating with wearable devices and healthcare systems. This analysis provides a clear direction for further development and refinement of the chatbot to better serve the needs of its users.

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