

SMKDAR.Ai School Chatbot for Students Secondary Level – Aspiration and Innovation For Student Advancement

Razman Dato' Salleh 26 August 2024



"Very beneficial. It's as if we're conversing with someone. Children who want accurate information can directly ask this chatbot. A very significant benefit for schools." – **Puan Rose Aliza Sutrisno, Principal, SMK Dato Ahmad Razali**

"The reception from students has been very encouraging. For me, during History and Business subject PDP (Teaching and Learning) sessions, this chatbot helped me obtain more comprehensive input for my PDP sessions." – **Puan Mazian Osman, Senior Head of Technical Subjects, SMK Dato Ahmad Razali**

"In my opinion, this chatbot can help students conduct research because it can provide information that is easier for us to understand or difficult to find." – **Maisha Sofea, Student, SMK Dato Ahmad Razali**

"With this Chatbot, I get information quickly. I ask and immediately get answers, unlike Google where I have to search and get many answers. Thank you!" – **S.N Alesya, Student, SMK Dato Ahmad Razali**

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Introduction Sekolah Menengah Kebangsaan Dato' Ahmad Razali (SMKDAR) is a secondary school located in Ampang Jaya, Selangor. The school aims to enhance student academic performance through the use of innovative AI technology.

Problems Faced by Students in General: Below are four problems that students may face which can be solved by the SMKDAR-AI Chatbot:

1. Difficulty understanding concepts, topics, or formulas in a subject.
2. Limited time and access to ask questions.

3. Less interactive learning experiences.
4. Limited learning resources.

These problems often pose challenges for students in achieving optimal academic performance.

Solution A committee was formed to coordinate and determine the direction for the development of this chatbot. The technical team conducted a detailed assessment to ensure the chatbot system could effectively serve over 700 students.

With the SMKДАР-AI Chatbot, students can gain quick and efficient access to high-quality learning guidance, strengthening their understanding in various school subjects such as Geography, Business, History, Islamic Education, Moral Education, and Malay Language.

1. SMKДАР-Ai: Smart Chatbot that Helps Facilitate Subject Understanding Quickly and Interactively This chatbot also helps students develop their potential by providing personalized support and comprehensive explanations in core subjects, enabling them to overcome learning challenges.

2. Reduction of Teacher Workload: By using the SMKДАР-AI Chatbot, teachers can plan learning activities more effectively and efficiently. This chatbot helps reduce teacher workload by automating routine tasks and providing additional support in the learning process, allowing teachers to focus on more targeted teaching aligned with current needs.

3. Developing the AI Industry at the School and Education Level: SMKДАР is committed to developing the AI industry at the school and education level, in line with the Digital Education Policy of the Malaysian Ministry of Education (KPM). This includes introducing AI technology into the school curriculum and providing opportunities for students to learn and develop skills in the field of AI.

Here are 5 important facts from the SMKDAR-AI Chatbot Survey Report:

- 1. High Satisfaction Level:** Out of 79 respondents, all (100%) believed that this chatbot could help improve their learning quality and enhance understanding in difficult subjects or topics.
- 2. Homework and Information Retrieval:** The primary uses of the chatbot were for doing homework (20%) and taking notes (20%), followed by research (17%) and revision (15%).
- 3. Responsive and Easy to Use:** Respondents appreciated the chatbot's ability to provide quick and relevant information, making it a time-saving and user-friendly tool for students.
- 4. Most Used Subjects:** The chatbot was most frequently used for Science and Mathematics (26% each), as well as History (26%), demonstrating its appeal in supporting learning in more complex subjects.
- 5. Overall Positive Rating:** The chatbot received an average rating of 4.92 out of 5, with 92% of respondents giving a positive evaluation, reflecting user satisfaction with the chatbot's functionality and benefits in the learning process.

Review: The SMKDAR-AI Chatbot Survey Report provides several important insights into how the chatbot functions as a learning tool among students. Here are five key facts, accompanied by more in-depth details:

- 1. High Satisfaction Level Among Respondents:** Out of a total of 79 survey participants, all (100%) were confident that this chatbot not only aids in learning quality but also significantly contributes to their understanding of subjects considered difficult. This demonstrates students' full trust in the effectiveness of technology in supporting the educational process and that they feel more comfortable mastering complex lesson modules with the help of this chatbot.

- 2. Primary Functions of Chatbot Usage:** The survey revealed that the main uses of the chatbot are divided into various categories, each with a significant percentage. Approximately 20% of respondents used the chatbot to complete homework, another 20% utilized the chatbot for note-taking, while 17% used it for research, i.e., seeking additional information. There were also 15% who used the chatbot for revision purposes. This indicates that the chatbot serves as a versatile tool that can adapt to various student learning needs.
- 3. Responsiveness and Ease of Use:** All respondents acknowledged and appreciated the speed and relevance of the information provided by the chatbot. These responsive features are highly valued by students who often need information quickly, making it a time-saving tool in their learning process, which is crucial for them, especially in situations requiring quick decision-making such as exam preparation or assignments.
- 4. Popular Subjects Using the Chatbot:** Chatbot usage was most focused on two subjects, namely Science and Mathematics, each reaching 26%. History followed with similar usage, indicating that this chatbot is more frequently used in subjects that tend to be more complex and require in-depth understanding, and highlights the important role of educational technology in helping students face academic challenges.
- 5. Overall Very Positive Evaluation:** The SMK DAR-AI Chatbot received an outstanding evaluation, with an average rating of 4.92 out of 5. Out of the total respondents, 92% gave a positive rating, which indicates a very high level of user satisfaction. This reflects the real functionality and benefits provided by the chatbot in supporting student learning, and strongly indicates the potential of this technology as an educational tool in the future.

With this strong evidence, the SMKDAR-AI Chatbot Survey Report shows that chatbot technology is not only relevant but also highly effective in enhancing student learning experiences in schools through fast, informative, and efficient interaction.

Empirical Analysis

Assessing the Impact of AI Learning Chatbot (SMKDAR-AI): A Study on Student Usage, Engagement, and Satisfaction.

Prepared by: Razman Dato' Salleh 2024

Background

This study, conducted from August 8th to September 8th, 2024, aimed to evaluate the interaction of students from Sekolah Menengah Kebangsaan Dato Ahmad Razali with the SMKDAR-AI chatbot. The focus was on understanding usage patterns, types of queries, quality of responses, and overall satisfaction. These findings provide insights into how AI can enhance educational experiences and inform future developments in AI integration within the Malaysian education sector.

Study Objectives:

1. **Usage Frequency:** To measure how often students interact with the chatbot.
2. **Question Types:** To identify the nature of queries made by students.
3. **Response Quality:** To assess how effectively the chatbot meets student needs.
4. **User Satisfaction:** To gather feedback on overall satisfaction and suggestions for improvement.

Study Methodology:

1. **Usage Tracking:** Monitoring interactions to collect data on frequency and types of questions.
2. **Surveys:** Distributing questionnaires to capture student experiences and satisfaction levels.

Study Findings

1. **Demographics:** 49 students from Class 4 UIA participated, indicating concentrated usage.

2. Subject Usage

- **Results:** Students primarily used the chatbot for:
 - Science (19%)
 - Malay Language (19%)
 - Mathematics (18%)
 - Additional Mathematics (18%)
 - English Language (17%)

3. Commentary:

The chatbot is popular across core subjects, indicating it effectively meets diverse learning needs.

4. Understanding Concepts

- **Results:**

- Clear explanations helped 40% of students.
- Relevant examples were useful for 29%.
- Practice questions helped 19%.
- Motivational support helped 12%.

5. Commentary:

The chatbot effectively simplifies complex topics and encourages student engagement.

6. Academic Impact

◦ Results:

- Helped with assignments/projects (30%).
- Saved research time (30%).
- Improved understanding of material (28%).

7. Commentary:

The chatbot enhances efficiency and improves academic performance.

8. Stress Reduction

◦ Results:

- Provided quality study materials (30%).
- Allowed flexible note-taking (24%).
- Reduced homework anxiety (19%).

9. Commentary:

The chatbot helps reduce study-related stress, promoting a healthier learning environment.

10.Tasks Performed

◦ Results:

- Reviewing notes (32%).

- Summarizing material (28%).
- Solving exercises (21%).

11.Commentary:

The chatbot supports effective study habits, helping students actively engage with their learning.

12.Writing Assistance

◦ Results:

- Helped generate essay topics (28%).
- Assisted in structuring essays (26%).
- Improved writing clarity (12%).

13.Commentary:

The chatbot enhances writing skills, which are crucial for academic success.

14.Future Use

◦ Results:

- 52% of students plan to continue using the chatbot.

15.Commentary:

Strong interest in continued use indicates high satisfaction and potential for wider adoption of AI tools in education.

Analysis of Subject Usage

Data on SMK DAR-AI chatbot subject usage reveals interesting trends about student engagement across various academic disciplines. Below is a more in-depth analysis of the findings:

1. Balanced Distribution Across Core Subjects.

- **Observation:** Chatbot usage was relatively balanced across core subjects, with Science and Malay Language each at 19%, Mathematics and Additional Mathematics at 18%, and English Language at 17%.
- **Implication:** This balanced usage indicates that students sought support in various areas of their curriculum, suggesting that the chatbot is recognized as a versatile tool capable of meeting diverse educational needs.

2. Importance of Science and Language Skills.

- **Observation:** Science and Malay Language led in usage, each at 19%.
- **Implication:** High usage in Science suggests that students may find this subject challenging, requiring additional support. This is relevant in the Malaysian context where STEM education is emphasized for national development.

3. Mathematics as a Critical Focus

- **Observation:** Mathematics and Additional Mathematics were closely used at 18%.
- **Implication:** Mathematics is often considered a difficult subject for many students. High reliance on the chatbot for both subjects indicates that students are actively seeking assistance to improve their problem-solving skills.

4. Supportive Role of English Language

- **Observation:** English Language usage was slightly lower at 17%.
- **Implication:** A lower percentage might suggest that students feel more confident in their English language skills or receive sufficient support through other means, such as traditional teaching.

5. Potential for Focused Development.

- **Observation:** The distribution indicates potential areas for focused content development within the chatbot.
- **Implication:** With strong usage across these subjects, schools can analyze specific topics where students face the most difficulty.

6. Cultural and Educational Context

- **Observation:** The subjects reflect Malaysian educational priorities.
- **Implication:** Emphasis on core subjects aligns with Malaysia's educational framework which focuses on bilingualism and STEM education.

Conclusion

The analysis of subject usage indicates that the SMKДАР-AI chatbot effectively meets student needs across academic disciplines. Balanced usage demonstrates its versatility as an educational tool while highlighting areas where students seek additional support. By focusing on enhancing features related to Science, Mathematics, Malay Language, and English Language, schools can improve student engagement and learning outcomes, contributing to a more effective educational experience in Malaysia.

Overall Conclusion:

The SMKДАР-AI chatbot has shown significant potential in enhancing academic understanding, improving time management, and reducing stress among students.