

Implementation of Telegram Chatbot as an Effective Communication Means at SMK PGRI 1 Tangerang

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Abstract

The use of technology in education continues to grow in response to demands for efficiency and effectiveness of communication in the school environment. This research aims to investigate the application of Telegram chatbots as an effective means of communication at SMK PGRI 1 Tangerang. The research method used is descriptive qualitative, focusing on collecting data through observation, interviews and content analysis of the use of Telegram chatbots among students, teachers and school administration staff. The research results show that the application of the Telegram chatbot as a means of communication has made a significant contribution to increasing interaction and access to information in the educational environment of SMK PGRI 1 Tangerang. Students, teachers and administrative staff showed a positive response to the use of Telegram chatbots as an efficient communication alternative, facilitating the exchange of information regarding schedules, assignments and other important information. Qualitative findings support the idea that Telegram chatbots have become an effective means of communication at SMK PGRI 1 Tangerang, opening up new opportunities for more dynamic interactions and easier accessibility of information among the school community. The implications of these findings indicate that the integration of communication technology such as the Telegram chatbot can be an innovation that has the potential to change the communication paradigm in the educational environment.

I. INTRODUCTION

The use of technology in the educational context continues to experience significant development in response to the need for effective communication in the school environment.[1] One of the latest innovations is the implementation of the Telegram chatbot as a means of communication at SMK PGRI 1 Tangerang. [2] In an era where digital connectivity has become an inseparable part of everyday life, it is hoped that exploring the use of this technology can make a positive contribution to strengthening interaction and access to information in the educational environment.[3]

Education in the current era is no longer just focused on transferring knowledge, but also on how technology can facilitate the teaching and learning process. In this context, the use of the Telegram chatbot at SMK PGRI 1 Tangerang is an innovative step that is expected to speed up the distribution of information, minimize communication barriers, and increase active involvement between students, teachers and administrative staff.[4][5]

Commitment to creating an educational environment that is responsive to technological developments is the main thrust of this research. Thus, research on the application of Telegram chatbots at SMK PGRI 1 Tangerang is relevant to explore the extent to which this technology can play a role in creating effective communication networks among educational stakeholders.[6]

This background raises questions regarding the effectiveness, acceptance and contribution of Telegram chatbots as a means of communication in the educational environment of SMK PGRI 1 Tangerang. By focusing on this exploration, this research is expected to provide in-depth insight regarding the impact and potential of using Telegram chatbots in increasing interaction and access to information in the school environment[7].

Within the framework of a broader understanding of the importance of effective communication in education, this research targets to make a real contribution to our understanding of how technology, especially Telegram chatbots, can act as an effective means of communication at SMK PGRI 1 Tangerang.[8]

II. RELATED WORKS/LITERATURE REVIEW

A. *Effective Communication in Education*

Theories of effective communication in educational contexts. This includes aspects of communication required in a school setting, between students and teachers, as well as between peers in the educational environment. Communication models, such as the Shannon-Weaver model or transactional communication model, provide a framework for understanding communication processes in educational contexts. This model highlights important elements such as sender, message, communication channel, recipient, and feedback.[9]

Effective communication in education refers to the ability to convey information, openly, and understandably by students. It involves a process of mutual exchange of information between teachers and students that enables a good understanding of the subject matter.[10]

Concept about the role of technology in strengthening communication in educational environments. Focus on how technology, especially Telegram chatbots, can improve interactions and access to information in schools.[11]

B. *Acceptance of Technology in Educational Environments*

Technology acceptance theory which includes aspects of acceptance of new technology among students, teachers and administrative staff. The concept of acceptance, adoption, and factors that influence the level of adoption of new technology in the educational context. An overview of the advantages and limitations of using chatbots in the context of communication in schools. Focus on the chatbot's ability to provide information, respond to questions, and the limitations it may face.[12]

The concept of an interactive communication model can be applied in the context of using chatbots in educational environments. How the interaction between users and chatbots can be analyzed using existing communication models.[13]

C. *Technology-Based Education*

Understanding technology-based education and how the use of technology, including chatbots, can improve the quality of the teaching-learning process and administration in schools. This theoretical foundation will provide a solid framework for connecting the use of Telegram chatbots with existing concepts in related literature.[14] This will help in evaluating and interpreting the effectiveness and contribution of the Telegram chatbot as a means of communication at SMK PGRI 1 Tangerang.[15]

Current research and theory highlight how technology, such as chatbots, social media, and other digital communication platforms, can be used to improve communication in educational settings.[16] The theoretical basis of effective communication in education helps us understand the importance of good communication in the context of learning, school management, and relationships between all parties involved in the educational process. This is important to ensure information is conveyed clearly and efficiently and to create an educational environment that supports student growth and development.[17]

D. *ICT Theory and Educational Transformation*

This theory highlights that technology is not just a tool, but also can fundamentally change the way we learn and teach. Proper technology integration can increase interaction, provide access to a wider range of information, and create a more dynamic and inclusive learning environment. The use of technology in education can increase student engagement[18]. Through the use of interactive platforms, game-based learning applications, or educational chatbots, students can engage in learning that is more engaging, interactive, and relevant to their world.[19]

Technology integration supports collaboration between students, teachers, and even parents. Online platforms, discussion forums, and online collaboration tools enable collaboration across geographic boundaries, expand learning networks, and promote a more effective exchange of ideas.[20]

Technology also allows the adoption of a more personalized approach to learning. By using adaptive algorithms, learning platforms can adapt learning materials and methods according to each student's needs and learning pace.[21]

The integration of technology in education not only functions as a tool, but also as a paradigm shifter in the way we access information, interact and build knowledge. By understanding these theories, we can optimize the role of technology to improve the quality of education, facilitate more adaptive learning, and prepare students for the challenges of an ever-evolving world.[22]

E. *The Advantages of Chatbots in Communication*

Responsive and Fast Ability: Chatbots have the advantage of providing fast responses to questions or requests for information from users.[23]

1. 24/7 Availability: Chatbots can provide services continuously without time constraints, increasing the accessibility of information whenever needed.
2. Routine Task Automation: Able to handle routine tasks and provide basic information automatically, freeing up time and human effort for more complex tasks.
3. Scalability and Consistency: The chatbot's ability to provide consistent and the same information to each user regardless of the number of concurrent users.

Limitations of Chatbots in Communication

1. Limited Understanding of Context: Chatbots may have limitations in understanding context or certain nuances in a conversation, which can result in answers that are less relevant or less accurate.
2. Limitations in Complex Problem Resolution: When faced with complex questions or problems, chatbots may be unable to provide adequate solutions due to limitations in information processing.
3. Dependence on Available Data: The quality of answers from a chatbot depends on the data and information available in its database. Data limitations can reduce the quality of chatbot responses.
4. Difficulty in Human Interaction: Chatbots may have difficulty interpreting emotions or nuances in conversations, which can reduce the quality of interactions in certain situations.

Understanding the advantages and limitations of chatbots in communications is important for their effective use and understanding of situations where chatbots can add significant value as well as where their limitations lie. This helps in managing user expectations and ensures that the chatbot implementation meets their needs and desired goals.[24]

III. METHODS

A. Research Methodology

The research will use a descriptive qualitative approach to gain an in-depth understanding of the implementation and impact of Telegram chatbots as a communication tool at SMK PGRI 1 Tangerang. This methodology focuses on collecting detailed data through observation, interviews, and content analysis to comprehensively analyze the use of Telegram chatbots among students, teachers, and administrative staff, aiming to reveal the nuances of its effectiveness and efficiency within the educational environment.

B. Data collection technique

1. In-Depth Interviews: Use one-on-one interviews to gain a deeper understanding of an individual's experiences and views regarding chatbot use.
2. Observation: Direct observation of interactions between users and chatbots in a school environment to evaluate daily use.
3. Content Analysis: Analyze the history of conversations with the chatbot to evaluate the types of frequently asked questions and the effectiveness of the chatbot's answers.
4. Data Analysis: Qualitative Analysis: The data collected will be analyzed qualitatively through coding and grouping findings based on themes that emerge from interviews, observations, and content analysis.
5. Evaluation and Interpretation: Drawing Conclusions: The results of the analysis will be used to conclude the effectiveness of using the Telegram chatbot at SMK PGRI 1 Tangerang
6. Practical Implications: Interpret the findings to provide suggestions and recommendations regarding developing or increasing the use of chatbots in educational environments.

C. Research Quality Evaluation:

1. Triangulation: Using multiple data collection methods to validate and strengthen findings.
2. Reflectivity: Identifying and reflecting on the researcher's positions and perspectives that may influence the interpretation of the data.

This methodology aims to gain a holistic and in-depth understanding of the implementation of Telegram chatbots in the educational environment of SMK PGRI 1 Tangerang. With a combination of interviews, observations, and content analysis, this research is expected to provide comprehensive insight into the effectiveness and potential of chatbots in improving communication in schools.

IV. RESULTS AND DISCUSSION

A. System implementation

The implementation of the chatbot system at SMK PGRI 1 Tangerang involves several important features to ensure its successful use in the SMK PGRI 1 Tangerang environment.

System implementation



Fig. 1 AbsenRobot

Absenrobot functions for student and teacher absences when entering school, the absence data will be entered into the teacher and student attendance database. Every time you make an absence you have to enter the menu with the symbol /mulai_wib, and then the absence will be recorded in the absence database.

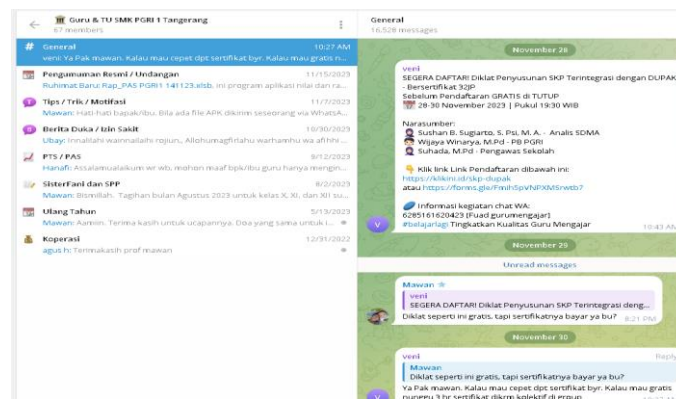


Fig. 2 ChatbotGuru and TU of SMK PGRI 1 Tangerang

In Figure 2, there is a form of active communication between teachers and administrators, regarding information related to teaching and learning activities, student absences, teacher absences and assignment grades for each teacher.



Fig. 3 Homeroom Teacher Chatbot

The homeroom teacher chatbot in Figure 3 explains the homeroom teacher's activities to check students in their class by checking student attendance with the attendance chatbot, and all homeroom teacher activities are recorded on the homeroom teacher's chatbot, apart from student attendance, a list of each student's school fee payments is recorded. student grades for each subject.



Fig. 4 Student Chanel Chatbot

The Student Chanel chatbot in Figure 4 functions to communicate between students and the school regarding information about the school.

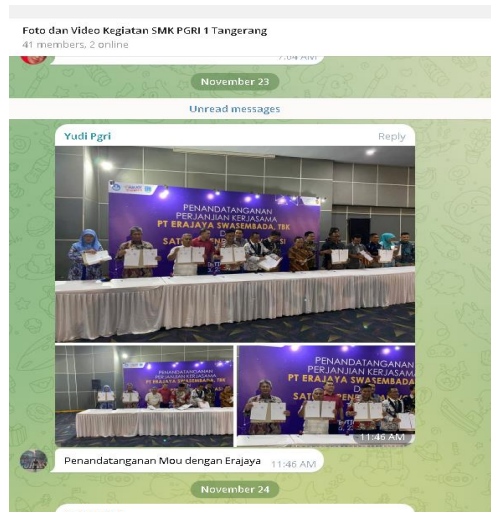


Fig. 5 Activity Photo Chatbot

Figure 5 activity photo chatbot functions to provide information on school activities in the form of images/photos of each activity that takes place at SMK PGRI 1 Tangerang.

V. DISCUSSION

The results of the discussion show that the use of the Telegram chatbot at SMK PGRI 1 Tangerang has succeeded in increasing information accessibility for students, teachers and administrative staff. This is reflected in the ease of obtaining information regarding schedules, assignments and other important information.

Discussions with users show a positive response to the use of Telegram chatbots. The majority of users feel comfortable and helped by the chatbot in getting the information they need. The research results may indicate a positive response from users towards the Telegram chatbot as a communication tool, which is reflected in the user's comfort in interacting with it.

Telegram chatbots have proven effective in providing basic information with fast and accurate responses, such as school schedules, activity information and other important announcements. Findings may indicate that Telegram chatbots are effective in providing basic information, such as school schedules, assignments, and other administrative information quickly and accurately.

One of the results of the discussion revealed that chatbots may face obstacles in handling complex questions or require a deeper understanding of the context. Data may show that chatbots face difficulty in handling complex questions or those that require a deeper understanding of context.

Administrative staff acknowledge that the use of chatbots has helped in reducing workload related to routine inquiries, allowing focus on more complex administrative tasks.

The discussion also highlighted the importance of being aware of the limitations of chatbots in handling questions that require understanding context or solving more complex problems. Research may show that the use of Telegram chatbots also contributes to the efficiency of school administration by reducing the workload of administrative staff regarding routine inquiries.

The results of this discussion provide a comprehensive picture of how the Telegram chatbot has made a positive contribution to increasing information access and communication efficiency in the educational environment of SMK PGRI 1 Tangerang. However, awareness of its limitations is also important to optimize users' use and expectations of chatbots in educational contexts.

VI. CONCLUSIONS

Research shows that the use of Telegram chatbots has proven itself as an effective communication alternative in the educational environment of SMK PGRI 1 Tangerang. This chatbot succeeded in increasing information accessibility for students, teachers and administrative staff. Telegram chatbots have succeeded in making a significant contribution to administrative efficiency by handling routine questions so that administrative staff can focus more on more complex tasks. Apart from that, chatbots also make it easier for users to access information regarding schedules, tasks and other important information.

The use of Telegram chatbots has received a positive response from users. The majority of them feel helped and comfortable using chatbots to get the information they need. While effective at providing basic information quickly, chatbots also have limitations in handling questions that are complex or require a deeper understanding of context. Awareness of these limitations is important to manage user expectations realistically.

Based on the findings, it is recommended to continue developing the chatbot by improving its context understanding and ability to handle more complex questions. Increasing the content and response capabilities of chatbots also needs to be considered to expand the scope of services provided. Thus, this conclusion confirms that the implementation of the Telegram chatbot has provided significant benefits in improving communication, information access and efficiency in the educational environment of SMK PGRI 1 Tangerang. However, further development is still needed to maximize the potential of chatbots to support future communication needs.

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