

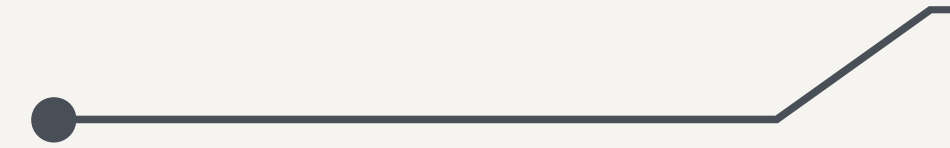
# DEVELOPMENT OF GEMINI AI AS A VIRTUAL ASSISTANT IN STUDENT'S WHATSAPP DISCUSSION GROUP

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# Introduction



*WhatsApp is widely used in Indonesia for communication and discussion*

*Students often use WhatsApp groups for sharing information and discussing tasks*

*Not all groups have teachers as members, creating a need for virtual assistance*

*Proposal: Integrate Google Gemini AI with student WhatsApp discussion groups*



# Literature Review



*Education is fundamental for social progress and reform*

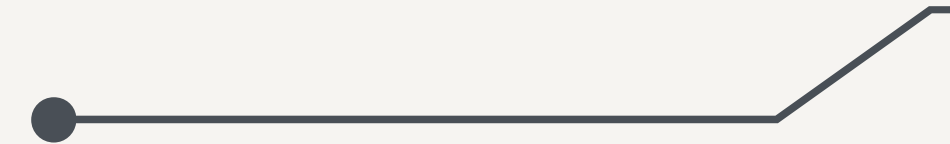
*Discussion is crucial for knowledge sharing and understanding*

*WhatsApp is the most used messaging app in Indonesia (90.9% of users)*

*Gemini AI has shown high learnability (92%) and satisfaction (85.52%)*



# Method



*Waterfall method for system development*

*Six steps: Requirements, Design, Implementation, Verification, Deployment & Maintenance*

*Black Box Testing for system verification*

*Qualitative comparison with recent studies*

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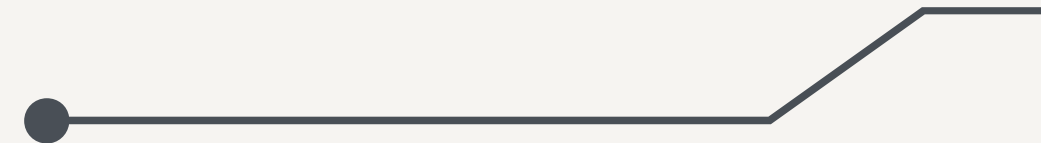
# Findings - System Development

**Successfully developed virtual assistant "Vita" using WhatsApp bot and Gemini AI**

**Vita responds to mentions in group chats and all messages in private chats**

**Image generation feature triggered by "!image" command**

**Deployed on a virtual private server with limited free Gemini AI usage**



# Findings - System Testing

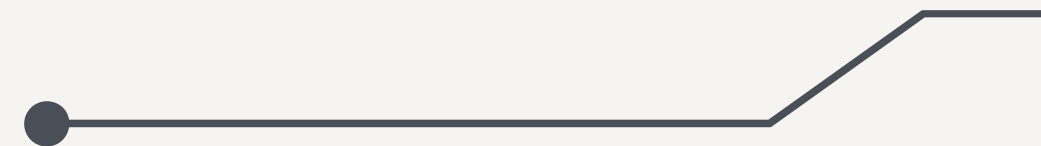
**Black Box testing conducted on four main functions**

**Successful response to questions after being mentioned (3s response time)**

**Successful image generation after trigger (60s response time)**

**Correct differentiation between group and private chats (2s response time)**

**Successful scheduled message sending**



# Discussion - Comparison Studies

*Improved upon limitations of previous NLP-based chatbots*

*Leveraged familiarity of WhatsApp to reduce technology adoption barriers*

*Addressed challenges of introducing new tech in educational settings*

*Supported by research showing Gemini AI's positive impact on learning*



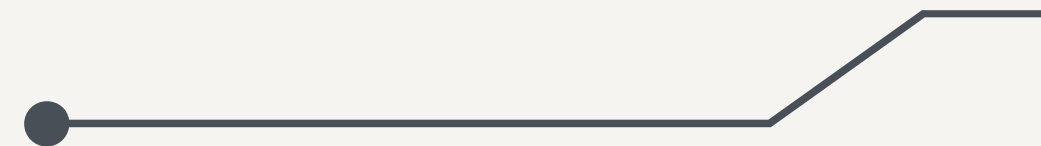
# Discussion - Benefit & Limitation

**Real-time assistance and image generation enhance learning experience**

**Familiar interface lowers barriers to technology adoption**

**Continuous improvement through Gemini AI's learning capabilities**

**Limitations: API limits, response time, operating costs, and security concerns**





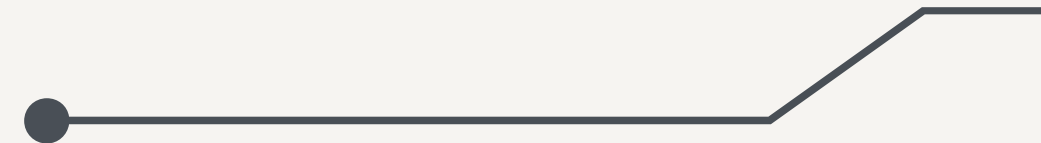
# Conclusion

*Successfully developed Vita, a virtual assistant using WhatsApp and Gemini AI*

*Provides quick responses (2-6 seconds) for questions and image requests*

*Limited to educational material to prevent misuse*

*Future research should address API limitations, costs, and security*



# References

**Arslan, H. (2018). *An Introduction to Education*. Cambridge Scholars.**

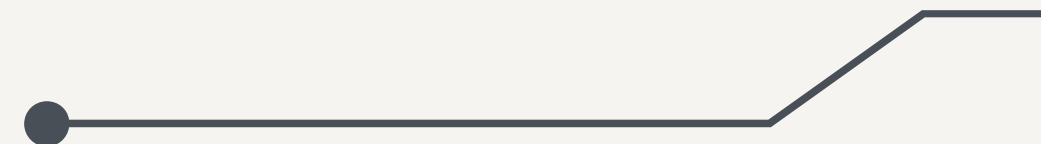
**BPS Statistics. (2023). *Indikator Kesejahteraan Rakyat*.**

**Imran, M. (2024). *Google Gemini as a Next Generation AI Educational Tool*.**

**Suryana, R. (2022). *Pengembangan Kecerdasan Buataan Whatsapp Chatbot untuk Mahasiswa*.**

**Suryanto, A. E. (2024). *Transformasi Pendidikan Melalui Penggunaan Chatbot*.**

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