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**DESIGNING A POETIC VOICE COMPANION TO
IMPROVE ADULT LEARNER'S
SELF-CONFIDENCE: KAVY**

B S Cooray

238012H

Degree of Master of Science (With a major component of
research)

Department of Computer Science and Engineering
Faculty of Engineering

University of Moratuwa
Sri Lanka

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DECLARATION

I declare that this is my own work and this Thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text. I retain the right to use this content in whole or part in future works (such as articles or books).

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The supervisors should certify the Thesis with the following declaration.

The above candidate has carried out research for the Degree of Master of Science (With a major component of research) Thesis under our supervision. We confirm that the declaration made above by the student is true and correct.

Name of Supervisor: Dr. Chathuranga Hettiarachchi

Signature of the Supervisor:

Date:

Name of Supervisor: Ms. Vishaka Nanayakkara

Signature of the Supervisor:

Date:

Name of Supervisor: Prof. Suranga Nanayakkara

Signature of the Supervisor:

Date:

DEDICATION

This thesis is dedicated to my family and friends. To my parents, for their endless love, support, and sacrifices that have allowed me to reach this milestone. To my mentors and professors, whose guidance and wisdom have inspired and challenged me. To my friends, who have motivated and helped me in various aspects of everyday life, especially in my academic journey. And to all those who believed in me and supported me along the way, thank you for being by my side. This work represents one small step toward the successful journey ahead.

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I also acknowledge the tremendous support provided by my colleague, Yasith Samaradivakara, who developed the early version of the proof-of-concept app.

I am grateful to all my colleagues at the Augmented Human Lab for their participation in the pilot study, their constructive feedback, and the fruitful discussions that led to the engineering of the prompts. Your contributions have been instrumental in the completion of this work.

Additionally, I would like to thank Denys Matthies for his contributions to the research paper titled "Kavy: Fostering Language Speaking Skills and Self-Confidence Through Conversational AI," which was published at the Augmented Humans 2024 conference.

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ABSTRACT

Conventional chatbots, such as Siri, have predominantly been based on the question-and-answer model, where a communicator seeks a specific answer to accomplish a specific task. The conversational capabilities of chatbots offer great potential to promote English language learning, particularly in developing countries, such as Sri Lanka, where many young adults lack confidence in speaking English. This is due to limited exposure to conversational-style learning and a lack of opportunity to practice without social anxiety, which is often rooted in the fear of making mistakes.

A conversational chatbot, Kavy, was developed as a companion to help these individuals practice English. In a study with 40 users, the effectiveness of Kavy in improving communicators' proficiency (e.g., verbal expression, conversation length, quality of speech) and self-confidence was investigated, using both poetic and non-poetic conversational styles. It was found that users were highly motivated by the poetic version, resulting in a significant increase in vocabulary. However, the poetic chatbot also faced challenges, as it could be confusing when the learner's level of English was rather low.

This pioneering work is seen as a first and promising approach that should continue to be investigated in the future.

Keywords: Social Chatbots, Conversational AI Agents, Voice Interfaces, Artificial Intelligence, Language Studies, Self Confidence, Poetry, Cognitive Augmentation

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LIST OF ABBREVIATIONS

Abbreviation	Description
AI	Artificial Intelligence
API	Application Programming Interface
FLSE	Foreign Language Self-Efficacy
GPT	Generative Pre-trained Transformer
JSON	JavaScript Object Notation
LLM	Large Language Models
MQL	Mongo Query Language
NodeJS	Node Java Script
NUS	National University of Singapore
QR	Quick Response
UI	User Interface
URL	Uniform Resource Locator

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