I-METAC: Interactive Infographic Learning the Basics of Multilingual Speech

*[1]Mohd Zulkhairi Abd Hamid, [2]Muhamad Khairul Anuar Zulkepli, [3]Lee Chai Chuen, [4]Bawani Selvaraj, [5]Muhammad Ikhmal Mohd Jamil, [6]Basma A. S. Dajani

[1 2 3 4 5]Academy of Language Studies, University Technology MARA Cawangan Kedah, Kampus Sungai Petani, 08400 Merbok, Kedah, Malaysia

[6]Arabic Language and Literature, University of Jordan

*Corresponding Author

ABSTRACT

I-METAC is an interactive infographic containing basic speech phrases in multiple languages: Malay, English, Tamil, Arabic, and Chinese, integrating multimedia and interactive elements. Malaysia, as a multi-ethnic country, is rich in language diversity but lacks a platform that consolidates basic speech essentials in these five key languages. The shortage of basic speech learning materials makes it difficult for individuals, including students, the general public, and foreign tourists, to communicate effectively in multiple languages. To address this issue, i-METAC was developed as a user-friendly, flexible, and interactive self-learning medium. Its main features include compiled multilingual basic speech such as greetings, thank you phrases, and inquiries, presented interactively as infographics incorporating multimedia elements like text, graphics, animation, and audio. Users can select phrases and languages to learn, listen to accurate pronunciation audio, and practice independently. To test proficiency, reinforcement activities are included. i-METAC is capable of being commercialized either as a website or an app. This approach not only simplifies multilingual language learning in one platform but also has the potential to enhance communication skills, foster unity in a multicultural society, and introduce Malaysian culture to tourists worldwide. i-METAC supports technology-based learning and acts as a catalyst for social harmony and language inclusivity in the digital era.

Keywords: Interactive Infographics, Basic Speech, Multimedia Elements, Interactive

INTRODUCTION

Malaysia being multicultural and multilingual already has the national language Malay accompanied by English, Tamil, Arabic, and Chinese. Such language multiplicity is a characterization of the rich cultural heritage of the nation while serving as goodwill for social harmony and national unity (Aaron, 2024). However, one of the challenges faced is the lack of a new and interactive learning platform for basic speech consolidation in the five principal languages. This gap is what impairs individuals-the students, general public, as well as foreign tourists-from learning basic communication skills in these languages independently (Adnan et el., 2024; López Cupita & Puerta Franco, 2019).

With the ever-changing digital era, technology elements of medicine, such as interactive infographics and multimedia, enhance memory retention, comprehension, and engagement of learners in second-language acquisition (Wu & Kuwajima, 2022). Hence, the i-METAC platform is set up as a self-directed learning system that incorporates basic multilingual speech integrated into an interactive infographic medium comprising text, colorful graphics, animation, and audio. Hence, i-METAC not only facilitates learning Bahasa, so to say, but also promotes social cohesion while appreciating Malaysia's cultural diversity (Aaron, 2024).

Problem Statement

Since Malaysia boasts linguistic diversity, making multilingual communication a backbone, a universal platform with primitive speech necessities in five major languages is missing. Inadequate elementary language learning resources in these languages present a major bottleneck in communication for learners, the general populace, and visitors.

Objective

The objective is to develop i-METAC as an interactive, user-friendly, and flexible self-learning medium that compiles core multilingual speech phrases with multimedia and interactive elements. The platform intends to further design meaningful multilingual communication and has been aimed at language enhancement, promoting social unity, and internationalizing Malaysian culture.

PRODUCT DESCRIPTION & METHODOLOGY

The i-METAC (Interactive Malay, English, Arabic, Chinese, and Tamil) platform is designed as a multilingual learning tool combining five main languages into one system. The principal intention is to present inclusivity and intercultural communication through interactive modules that promote vocabulary and conversational practice within a structured yet fun environment for the learner.

Figure 1. Introduction

The slide conveys the universal greeting "Hi," exhibiting i-METAC's goodwill of beginning with simple and accessible expressions. To aid beginners- the platform chose to lower barriers by initiating language learning with a friendly, recognizable word from the multicultural spectrum. Here, learners work on saying something about themselves and asking, "What's your name?". This activity highlights social interaction and personal bonding as vital so the learner gains confidence in starting a conversation in another language. This slide demonstrates how people commonly ask after others' well-being through phrases like "How are you?". Hence, i-METAC places importance on incorporating polite and culturally appropriate phrases that carry learners toward the deeper points of everyday communication.
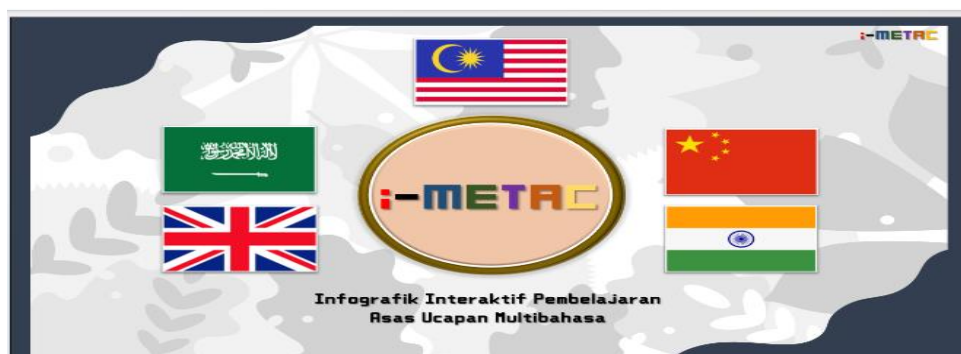
Figure 2

Figure 3

Figure 4

The slide showcases learners using greeting phrases and polite expressions like Selamat Pagi, Selamat Petang, Selamat Berkenalan, Terima Kasih, and Selamat Tinggal/Jumpa Lagi, enhancing social skills and building respectful relationships. It also features numbers 1-10, serving as basic counting tools and a starting point for learning new words, enabling mastery of advanced language patterns.

Figure 5

This study involves several main phases within the design-based research. Initially, the needs analysis tried to identify requirements and gaps that the user sees in the basic speech learning materials for the major languages spoken in Malaysia. The subsequent phase was the actual design and development of the interactive infographic platform i-METAC, combining multimedia elements such as text, graphics, simple animation, and audio with proper pronunciation in Malay, English, Tamil, Arabic, and Chinese.

The platform is built for users to choose their target language and commonly used basic phrases required for everyday use; listen to exact audio pronunciations; and practice independently to build language proficiency. To further ensure the understanding and interactive implementation of the learned language, reinforcement activities have been added. (López Cupita & Puerta Franco, 2019). The analysis further studies the usability and acceptance level of i-METAC by way of surveys and observation in the field. Finally, the research analyzes the potential tractions of i-METAC as a flexible, easy-to-use self-study medium website or mobile app, as prophesied by current trends in technology-enhanced language learning (Wu & Kuwajima, 2022).

Potential Findings and Commercialisation

Educational Market Demand

Multilingual learning is a global trend, especially in Southeast Asia, the Middle East, and Africa. There is strong demand from schools, tuition centers, international schools, and language institutes. It can even be extended to tourists, foreign workers, and immigrants as an introductory learning tool.

Productization Possibility

The current prototype is based on PPT + audio + QR-linked Quizizz. In the future, it can be packaged as a mobile application, micro-course, or modular learning tool. It may also adopt a freemium model: a free basic version and a paid premium version with additional languages and interactive games.

Expansion Potential

Currently, the tool supports five languages: Malay, English, Tamil, Arabic, and Mandarin. It can be expanded to include Korean, Japanese, Thai, French, Spanish, and other international languages. The learning scope can also grow from basic greetings and numbers to daily conversations and workplace communication.

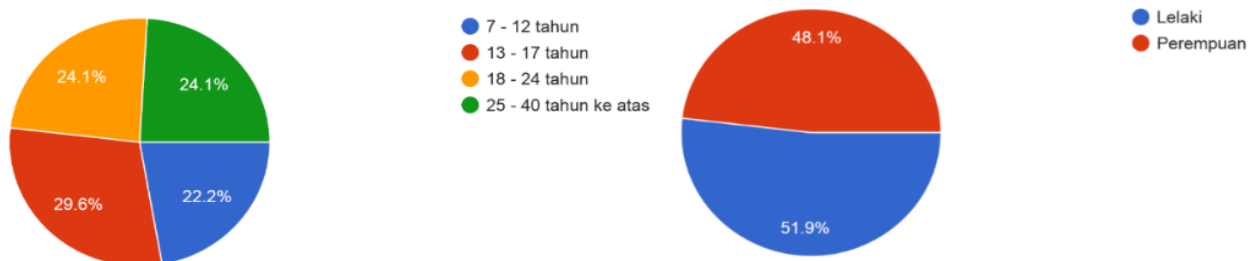**Social Value + Commercial Value Integration**

The innovation promotes multicultural exchange (reflecting Malaysia's diversity and aligned with UN SDG4 – Quality Education). At the same time, it carries strong commercialization value as an educational content and

technology-based product.

# FINDINGS AND DISCUSSIONS

Demographics

Figure 1. Demographics

The survey collected responses from 54 participants, of whom 28 were males and 26 were females, with gender equalized. The respondents' ages were fairly well dispersed into four main clusters: 7-12 years, 13-17 years, 18-24 years, and 25-40 and above, with each group having around 12 to 16 participants. Such a varying demographic profile enabled the study to gather views from children, teens, young adults, and adults to have a broad perspective that reflects the impact of the infographic across age groups and gender.

Interactive Infographic Design

Figure 2. Interactive Infographic Design
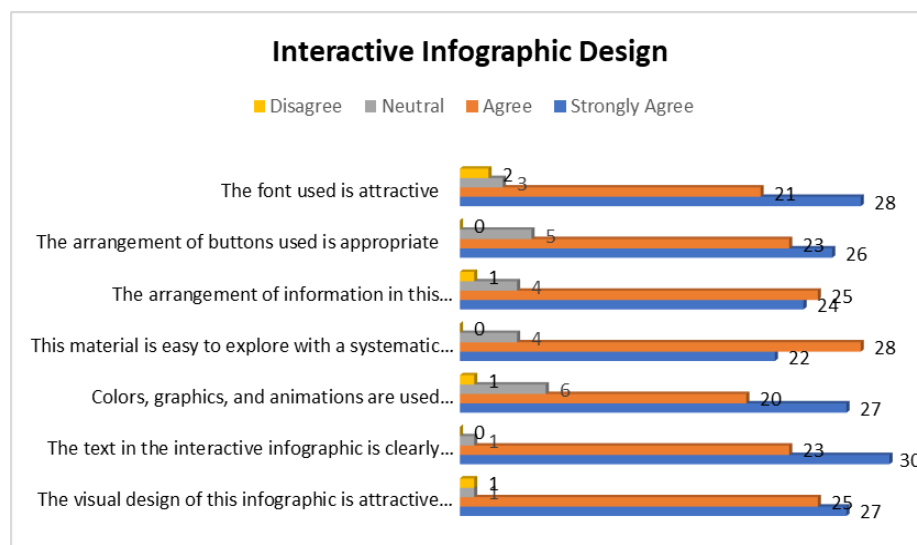
The i-METAC interactive infographic attracted positive feedback from users because most of them found the design both visually appealing and user-friendly. The text's clarity along with its color scheme and graphic elements and animated features proved effective for understanding according to Wu and Kuwajima (2022), who demonstrated that students achieve better learning outcomes through enhanced multimedia content. Menus and formats of the documents were rated as logical and systematic, suggesting that structured guidance is important for fostering learner autonomy: system and navigation proceed thematically. This points emphasis on the need for user-centered design. Recent studies show that interactive infographics with easy access navigation increase satisfaction and engagement, particularly in digital language learning.

The i-METAC platform presents information through its font and layout which users find easy to read and visually attractive. The integration of multimedia design principles with Mayer's Cognitive Theory of Multimedia Learning results in improved student understanding and memory retention according to Mayer's research from 2021. The i-METAC infographic design achieves an optimal balance between visual elements

and interactive features and clear layout structure and user-friendly interface which supports students who learn multiple languages. The study supports current findings which show that students need intuitive graphical user interfaces which merge scientific methods with creative design elements.

Interactive Infographic Content

Figure 3. Interactive Infographic Content
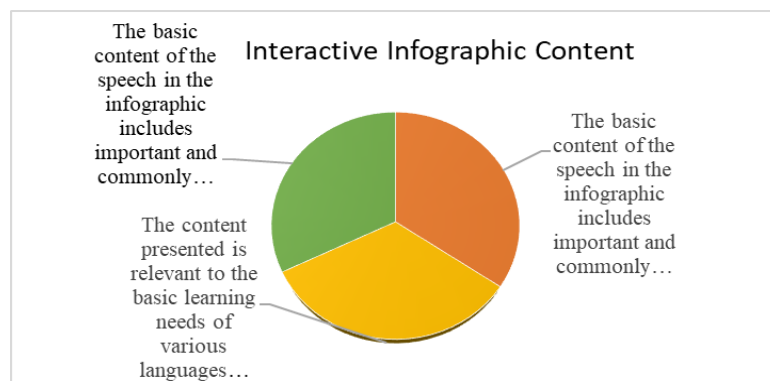
I-METAC's interactive infographic content includes functional phrases in Malay and English and Tamil and Arabic and Chinese which users have praised for its useful communication features and audio pronunciation tools that help students improve their speaking abilities (Metruk, 2024). Research indicates that mobile language learning environments which incorporate gamified vocabulary activities through quizzes and interactive reinforcement tools help students improve vocabulary retention and stay motivated and find learning more enjoyable (Fithriani, 2021). The infographic design presents actual content to boost student participation and communication abilities which aligns with contemporary digital language education standards that promote real-world learning experiences (Godwin-Jones, 2024). The educational platform i-METAC stands as a result of these design elements which unite contemporary technology with cultural diversity to support language acquisition and cross-cultural communication.

Interactive Assessment

Figure 4. Interactive Assessment
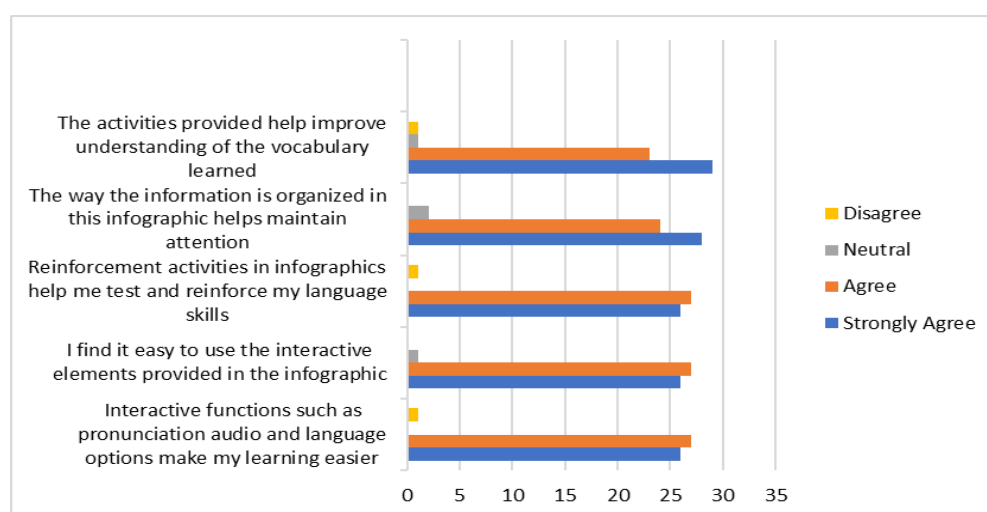
The interactive assessment system includes pronunciation audio and language selection tools which users have praised because of its easy-to-use interface and supportive learning features. The platform shows success in boosting student participation and self-directed learning because technology-based formative assessment with digital tools proves effective for vocabulary education. The i-METAC infographic shows Malaysian educational content in two languages through a visually pleasing design which helps people learn better and stay more engaged. The multimedia interactive method improves user navigation through small interface

changes which build upon past research about digital tools for inclusive language education and multicultural social cohesion.

NOVELTY AND RECOMMENDATIONS

The I-METAC interactive infographic platform functions as a multimedia educational tool which teaches basic speech skills in five primary Malaysian languages including Malay and English and Tamil and Arabic and Chinese. The platform delivers an integrated multilingual learning environment through its visual design and interactive elements and audio pronunciation features and reinforcement activities which users have validated as effective.

The Malaysian i-METAC project employs multimedia tools and interactive infographics to boost mental learning and motivation which leads to stronger cultural connections. Users can access the platform through its website or mobile application which shows its adaptability and potential for broad user adoption. The platform promotes language equality and social unity, but requires further navigation system development and testing to fully serve students, teachers, and travelers in the digital age.

This module demonstrates several unique features that distinguish it from existing language learning platforms. To begin with, it holds five languages within a single learning platform, while most language learning applications usually focus on one language only. This multilingual nature increases the versatility of the module and, thus, provides wider access to learners, who have diverse needs.

Secondly, this module really integrates micro-learning with multimodal audio-based infographic learning. Instead of just static vocabulary lists, i-METAC delivers compelling infographic micro-lessons, coupled with native-speaker-like audio and short reinforcement tasks that help learners engage in immediate practice and promote long-term retention.

Thirdly, the module is developed as a lightweight deliverable for cross platform operation. Being developed in Powerpoint and then exported as a .ppsx file means that fonts, layouts, and embedded audio all remain intact across devices. This thereby, minimizes compatibility issues and guarantees a uniform learning experience across operating systems.

The current version showcases a set of novel features but still offers room for enhancement. Firstly, it is recommended that the module bear the status of an actual application. i-METAC is currently for PC only; the .ppsx file format is not supported by mobile devices. Besides heightening accessibility to flexibly accommodate learners, it could also allow for regular updates, increased interactivity, and superior user engagement.

Secondly, it is recommended to supplement the module with social contexts and situational dialogues. For example, conversations could be introduced in common daily situations such as restaurants, airports, or shopping malls. The more realistic the scenarios of learning content are, the more practical the input becomes for the learners. At the same time, it can prepare them for real instances in social interactions.

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