THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN ENGLISH LANGUAGE TEACHING: RELATIONSHIP BETWEEN KNOWLEDGE, ATTITUDE, AND PRACTICES AMONG FILIPINO ENGLISH AS SECOND LANGUAGE TEACHERS

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ASIA e UNIVERSITY
2025

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A Thesis Submitted to Asia e University in
Fulfilment of the Requirements for the
Degree of Doctor of Philosophy

March 2025

ABSTRACT

This study examines the integration, potential, and implications of ChatGPT, an artificial intelligence, AI-powered chatbot, in the education field, with a particular focus on language instruction among Filipino English language teachers. As a groundbreaking example of generative AI, ChatGPT has sparked several controversies, particularly within academic communities where it is increasingly being utilized. This paper examines how ChatGPT could serve as a valuable tool for enhancing engagement and optimizing learning outcomes in educational settings, and for this study, in language instruction among Filipino English language teachers. A pilot test was conducted with 50 English language teachers to validate the investigation's instrument, ensuring their suitability for the main study. The main study involved 181 public school teachers from Zamboanga City, located in southern Philippines. The 181 respondents are drawn from a target population of 340 tenured secondary public school English language teachers. The validation and pilot testing process not only reinforced the instrument's suitability but also provided a solid foundation for its application in the main study. The investigation addresses seven research questions, which includes three descriptive queries and four inferential questions accompanied by corresponding hypotheses. A descriptive-quantitative-correlational research design is used, and the investigation employs a 39-item questionnaire to gather data. The findings reveal that many teachers possess a moderate level of familiarity with ChatGPT's basic functions; their attitudes toward the tool are largely positive. Usage patterns, however, varied significantly among respondents. Gender differences in knowledge, attitudes, and usage are found to be minimal. Notably, a moderate, statistically significant relationship was found between teachers' knowledge of ChatGPT and their level of usage. Finally, the investigation discusses the implications of these findings and offers recommendations for integrating ChatGPT within the educational environment.

Keywords: ChatGPT, artificial intelligence, English language teaching

This is to certify that this thesis conforms to acceptable standards of scholarly presentation and is fully adequate, in quality and scope, for the fulfilment of the requirements for the degree of Doctor of Philosophy.

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DECLARATION

I hereby declare that the thesis submitted in fulfilment of the PhD degree is my own work and that all contributions from any other persons or sources are properly and duly cited. I further declare that the material has not been submitted either in whole or in part, for a degree at this or any other university. In making this declaration, I understand and acknowledge any breaches in this declaration constitute academic misconduct, which may result in my expulsion from the programme and/or exclusion from the award of the degree.

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ACKNOWLEDGEMENTS

I would also like to extend my sincere gratitude to Dr. Milabel Enriquez Ho, past president, and Dr. Carla Altea Ochotorena, the current president of the Western Mindanao State University.

My heartfelt thanks to everyone! And above all, *muchísimas gracias* to the omnipotent brilliance that reigns over everything!

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LIST OF ABBREVIATIONS

A	Agree
AI	Artificial Intelligence
AIEd	Artificial Intelligence in Education
AIGC	AI-Generated Content
ATT	Attitudes Toward Using
AU	Actual System Use
BI	Behavioral Intention to Use
BMAT	Cambridge BioMedical Admission Test
CAF	Complexity, Accuracy, and Fluency
CG	Control Group
ChatGPT	Chat Generative Pre-trained Transformer
CVI	Content Validity Index
CVR	Content Validity Ratio
D	Disagree
DL	Deep Learning
EFL	English as a Foreign Language
EG	Experimental Group
EPPI	Evidence for Policy and Practice Information
ESL	English as a Second Language
ESPRIT	École Supérieure Privée D'ingénierie et de Technologie
GAI	Generative Artificial Intelligence
GPT	Generative Pre-trained Transformer
GPTZ	Generative Pre-trained Transformer Zero
HEIs	Higher Education Institutions

ICT	Information and Communications Technology
IDnK	I do not know
IMSAT	Italian Medical School Admission Test
IS	Impact Score
KAP	Knowledge, Attitudes, and Practices
KNN	K-Nearest Neighbors
LMS	Learning Management Systems
M	Mean
NB	Naive Bayes
NLP	Natural Language Processing
PEOU	Perceived Ease of Use
PLS	Partial List Squares
PLS-SEM	Partial Least Squares Structural Equation Modeling
PRC	Precision-Recall Curve
PRISMA	Preferred Reporting Items for Systematic Reviews
PU	Perceived Usefulness
RAC	Reticular Analysis of Coincidences
RAG	Retrieval-augmented Generation
RF	Random Forest
SA	Strongly Agree
SAT	Scholastic Assessment Test
SD	Strongly Disagree
SDGs	Sustainable Development Goals
SEM	Structural Equation Modeling
SPSS	Statistical Package for the Social Sciences

StDev.	Standard Deviation
STEM	Science, Technology, Engineering, and Mathematics
TAM	Technology Acceptance Model
TAME-ChatGPT	Technology Acceptance Model Edited to Assess ChatGPT Adoption
TRA	Theory of Reasoned Action
UAE	United Arab Emirates
UTAUT	Unified Theory of Acceptance and Use of Technology
UTAUT2	Unified Theory of Acceptance and Use of Technology 2

CHAPTER 1

INTRODUCTION

1.0   Background of the Investigation

Technological advancements and innovations have profoundly reshaped the teaching and learning landscape, fostering diverse strategies that extend education beyond traditional classroom settings (Savellon et al., 2024). This shift aligns with the broader move toward a technology-driven, personalized approach to education (Almogren et al., 2024).

The swift progress of technology has led to the integration of ChatGPT, an artificial intelligence (AI)-powered chatbot, in various fields, including education (Limna et al., 2023). AI-based tools such as ChatGPT and GPT-4 have revolutionized tertiary education, introducing new dynamics in how education is delivered and experienced (von Garrel & Mayer, 2023). These tools have brought significant innovation to both pedagogical and administrative practices, marking a ground-breaking shift in the education field.

Niloy et al. (2024) observe that the increasing use of ChatGPT and other AI chatbots has sparked considerable debate within the scientific community, particularly regarding their impact on integrity in scholarship. While concerns about potential misuse, such as intellectual theft and diminished critical thinking persist, generative AI tools are simultaneously reshaping traditional educational paradigms. As Tayan et al. (2024) highlight, these tools enable personalized and adaptive learning experiences, enhance student engagement, and streamline various educational processes. This dual perspective highlights the ground-breaking role of AI in modern education, where it not only redefines how knowledge is delivered and managed but also prompts critical discussions on maintaining ethical standards and promoting responsible use.

In the last year, ChatGPT has attracted widespread recognition for its ability to offer detailed responses and accurate answers to user prompts, cementing its role as a leading tool in various sectors (Zarifhonarvar, 2024). Its integration into education has fueled extensive discourse, highlighting both unprecedented opportunities and significant challenges. As one of the primary fields profoundly affected by this technology, education has become a focal point for examining the potential and implications of generative AI, representing a crucial milestone in its adoption (Tayan et al., 2024; Yusuf et al., 2024). The generative AI tool ChatGPT astonished the world with its advanced capability to perform remarkably complex tasks, further solidifying its role as a ground-breaking technology (Baidoo-Anu & Ansah, 2023).

ChatGPT, a conversational AI chatbot developed by OpenAI, exemplifies the organization's commitment to creating artificial intelligence in a secure and responsible manner (Dempere et al., 2023). As a robust linguistic model, ChatGPT has garnered significant attention due to its advanced capabilities and intelligence (Haleem et al., 2022; Lai et al., 2023; Lo et al., 2024; Mijwil et al., 2023). Positioned at the forefront of the generative artificial intelligence technology (AIGC) wave, it drives innovation across various fields and applications. Its versatility spans fields such as education, creative writing, business, and healthcare, highlighting its potential to revolutionize traditional processes and offer novel solutions (Lian et al., 2024).

ChatGPT's value in academic environments has become increasingly recognized, with studies underscoring its effectiveness and flexibility across various educational tasks. In recent years, researchers have highlighted how ChatGPT supports a broad spectrum of academic activities, such as generating ideas, refining writing, facilitating complex problem-solving, and offering interactive learning experiences that adapt to student needs (Farhi et al., 2023; Haleem et al., 2022).

Within the Philippines, the effects of ChatGPT have been especially significant. Educational institutions and educators at various levels have adopted ChatGPT as a versatile application, finding it useful for tasks ranging from enhancing learners' comprehension in subjects like English and Science to assisting teachers with lesson planning and assessment design (Robledo et al., 2023). This adaptation reflects a larger trend within the Philippine educational landscape, where there is a willingness to adopt digital tools to improve learning efficiency and quality.

This growing appreciation for ChatGPT is part of a more extensive, global shift toward Artificial Intelligence incorporation in education. Globally, the development of educational applications powered by Artificial Intelligence is swiftly advancing, as both technology providers and educators seek innovative ways to enrich the learning experience. Research indicates that AI tools are being employed to tailor learning experiences and streamline routine administrative tasks, and enable adaptive testing and feedback systems, making educational processes more tailored and effective (Acosta-Enriquez et al., 2024).

Such advancements signal a ground-breaking era for education, where AI applications like ChatGPT are not only supporting traditional teaching methods but are also reshaping them to become more inclusive and adaptive to diverse educational requirements. As these AI tools continue to evolve, their role in academic settings is expected to deepen, providing educators and learners with resources that promote creativity, engagement, and a more interactive approach to education. ChatGPT's potential as a revolutionary tool for language instruction is gaining recognition (Al-Khresheh, 2024). Among its capabilities are mimicking anthropomorphic conversations, offering instant language feedback and adapting to learners with different skill levels (Baskara, 2023). Furthermore, ChatGPT shows great potential for

automating the assessment of language precision, a process that conebtionally relies on human evaluators (Mizumoto, 2024). This technological advancement could transform language learning by enhancing the efficiency and consistency of assessments. In fact, second language (L2) teachers have been found to describe ChatGPT as a tool and a collaborator, suggesting educators' positive perceptions and appreciation of the latest technology (Xu & Tan, 2024).

Despite its promise as a valuable educational tool, ChatGPT has encountered considerable criticism from the academic community. Many educators and scholars are apprehensive about its potential to undermine core aspects of writing pedagogy and compromise integrity in scholarship (Thorp, 2023). A significant concern lies in the ease with which learners could misuse ChatGPT for generating content, bypassing the process of critical thinking and authentic writing. Critics argue that reliance on such tools may lead learners to skip essential stages of learnintatistig, such as brainstorming, drafting, and revising—skills that are foundational to academic growth.

In light of these concerns, some universities have chosen to restrict or outright ban application of ChatGPT and similar Artificial Intelligence tools in educational environment. For instance, several institutions have issued temporary prohibitions on AI-assisted tools, both as a precaution and as a measure to evaluate their implications within educational frameworks (Barrot, 2023). Notably, school systems in the United States, particularly in major cities like New York and Los Angeles, excluded ChatGPT within academic networks. The primary motivation behind these bans is to prevent potential misuse of the technology for dishonest practices, as there is widespread apprehension that learners could exploit it for tasks that should reflect their independent understanding and effort (Essel et al., 2024).

These restrictive actions illustrate the conflicting perspectives surrounding ChatGPT's role in academia. While the tool's advocates accentuate its utility for enhancing learning and providing support, a growing number of educators are voicing worries regarding ethical coonsequences and the possible weakening of academic values. The debate centers on issues of academic dishonesty, with educators fearing that easy access to AI-generated responses could foster a culture of shortcut-seeking. Moreover, some are concerned that excessive dependence on ChatGPT might result to diminished critical thinking skills and a reduced capacity for in-depth engagement with content, as learners might grow accustomed to AI-generated response rather than developing their own. Given the dichotomy between the potential benefits and drawbacks ChatGPT provides , it is essential and critical to investigate language educators'' knowledge, attitudes, and practices to integrate this technology into their pedagogical practices. Essel et al. (2024) noted that educators' lack of knowledge could impede the effective incorporation of ChatGPT in teaching.

Considering ChatGPT's promise in language instruction, it is essential to appraise teachers' understanding of this emerging technology, particularly because it has both perceived advantages and disadvantages. Additionally, teachers' attitudes toward ChatGPT are significant, as these attitudes could act as either enabling or disabling factors in its adoption in language learning and teaching (Alieto, 2018). Furthermore, the practices used by educators to use the ChatGPT remain an area requiring further exploration (Ma & Huo, 2023). Understanding these dimensions could aid in formulating strategies to capitalize on the advantages of the ChatGPT while addressing its challenges in educational settings.

Extensive scholarly work has examined ChatGPT's applications in various educational contexts, revealing both its potential and the complexities involved in

integrating it into learning environments. Al-Khresheh (2024), for instance, investigated English language educators' perceptions, shedding light on the pedagogical benefits and challenges ChatGPT brings to English Language Teaching (ELT). His research highlighted the tool's capacity to foster digital innovation while also acknowledging the obstacles educators face, such as concerns about dependency on Artificial Intelligence and the risk of improper use. Meanwhile, Ma and Huo (2023) explored the factors influencing ChatGPT's acceptance, focusing on teachers and learners, which provided insights into the general openness toward AI in education. Barrot (2023) examined specific advantages and difficulties that ChatGPT presents within the framework of second language (L2) writing, discussing how it could support learners in improving writing fluency and precision, albeit with concerns about originality and authenticity.

Almulla (2024) took a closer look at university learners, analyzing the factors that drive the implementation of ChatGPT and its impact on learning satisfaction. This study offered valuable insights into student motivations and satisfaction levels when using AI tools, which could be essential in shaping technology integration strategies. Despite these significant contributions, a significant gap in understanding the perspectives of teachers specifically their knowledge, attitudes, and practices (KAP) pertaining to the use of ChatGPT in language education. This knowledge appears critical for developing relevant policies, particularly in the Philippines, where many educational institutions have yet to establish explicit guidelines for Artificial Intelligence use in the classroom.

The need to explore Filipino English language teachers' KAP toward ChatGPT is paramount, as it is an emerging technology poised to impact language instruction profoundly. To date, no studies have thoroughly investigated these aspects among in-

service teachers, though Robledo et al. (2023) made strides in this direction by creating an instrument to measure knowledge and attitudes toward ChatGPT. However, Robledo's research was limited to preservice teachers. This limitation is crucial because in-service teachers face more immediate and practical decisions regarding ChatGPT adoption. Unlike preservice teachers, in-service educators are at the forefront of making choices that directly affect classroom dynamics, student engagement, and learning outcomes. Thus, understanding their perspectives on ChatGPT is vital, as they are more likely to either embrace or challenge its integration into everyday teaching practices.

Given the scarcity of research in this area, especially among active English language teachers, there is a compelling need for further studies. Investigations into in-service teachers' knowledge, attitudes, and practices regarding ChatGPT will offer a clearer grasp on the manner this technology could be efficiently used in language instruction. Such research could lay the groundwork for informed policy-making, helping institutions create supportive environments that balance technological innovation with pedagogical integrity

1.1   Statement of the Problem

The current empirical study aims to address the notable disparity in research regarding Filipino English language teachers' knowledge of, attitudes toward, and practices pertaining to the utilization of ChatGPTs (generative pretrained transformers) in language teaching. While there is a increasing engagement in the capability of Artificial Intelligence technologies like ChatGPT in education, particularly in the Philippines, there is a notable insufficiency of studies focused on Filipino English language instructors with respect to their knowledge, attitudes, and practices regarding

this emerging technology, especially among in-service teachers who are currently underrepresented by research in this area. Furthermore, the absence of policy on the use of ChatGPT in academic environments within the Philippines highlights the necessity for this investigation. This study could contribute to shaping policies to be developed regarding the utilization of ChatGPT and other Artificial Intelligence systems in language instruction. By exploring these elements, this study aims to provide insights that enhance language teaching approaches and improve English language learning in the Philippines.

1.2 Research Objectives

The main objective of this study was to evaluate Filipino English language teachers' knowledge of, attitudes toward, and practices connected to the use of ChatGPT in English language instruction and to explore possible differences on the basis of gender. The detailed objectives of the present research investigation are given as follows:

i. To identify the Filipino English language teachers' level of knowledge about ChatGPT in language instruction.

ii. To examine the Filipino English language teachers' attitudes toward the utilization of ChatGPT in language teaching.

iii. To appraise the extent to which respondents used ChatGPT in language instruction.

iv. To compare the level of knowledge about ChatGPT in language instruction among male and female participants.

v. To compare attitudes toward the application of ChatGPT in language teaching between male and female respondents.

vi. To compare the extent of ChatGPT usage in language instruction between male and female respondents.

vii.   To explore the relationships among respondents' level of knowledge about, attitudes toward, and extent of practices with respect to the application of ChatGPT in language instruction.

1.3   Research Questions

This cross-sectional investigation among Filipino English language teachers aimed to identify whether a significant relationship exists among the respondents' knowledge, attitudes, and practices related to the use of ChatGPT in language teaching. Specifically, this study sought to address the following research questions:

1. What is the respondents' level of knowledge about ChatGPT in language instruction?

2. What is the respondents' attitude toward the use of ChatGPT in language instruction?

3. What is the extent to which respondents practice using ChatGPT in language instruction?

4. Do male respondents differ significantly in their level of knowledge about ChatGPT in language instruction compared with their female counterparts?

5. Do male respondents differ significantly in their attitudes toward the use of ChatGPT in language instruction compared with their female counterparts?

6. Do male respondents differ significantly in the extent to which they practice using ChatGPT in language instruction compared with their female counterparts?

7. Is there a significant relationship among the respondents' level of knowledge about, attitude toward, and extent of practices in the use of ChatGPT in language instruction?

1.4   Research Hypotheses

The present study is framed by seven research inquiries, comprising three descriptive queries that do not require hypotheses and four inferential questions accompanied by hypotheses. The hypotheses are as follows:

1. Compared with their female counterparts, the male respondents did not significantly differ in their level of knowledge about ChatGPT in language instruction.

2. Compared with their female counterparts, the male respondents did not significantly differ in their attitudes toward the use of ChatGPT in language instruction.

3. Compared with their female counterparts, the male respondents did not significantly differ in the extent to which they practiced using ChatGPT in language instruction.

4. There is no significant relationship between respondents' knowledge, attitudes, and usage of ChatGPT in English language instruction.

1.5   Operational Definitions

To establish a common understanding, the investigation operationally defines key terms. The operational definitions provided are essential for ensuring that the terms utilized within the investigation are clearly understood and applied consistently throughout the research process. By providing a shared frame of reference for both the researchers and the readers, these definitions serve to enhance the overall clarity of the investigation.

English language teachers (ELTs) are English language educators who were selected for inclusion in the investigation. These individuals were drawn from a single