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Exploration of undergraduate students lived experiences of using a chatbot for English language learning

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ABSTRACT

The present study aimed at comprehensively understanding how English language learners benefit from using chatbots. The researchers utilized purposive sampling to undergraduate students who were enrolled in the General English language course during the final semester of 2021 at a public university in Malaysia. With a phenomenological perspective at its core, this study conducted semi-structured interviews with 25 students. The interview data analysis followed Braun and Clarke (2006) thematic analysis approach. The data was analyzed using an inductive approach based on the Interactive, Constructive, Active, and Passive (ICAP) framework categorizing and passive learning modes. Results revealed that three of these- passive, active and constructive modes gave exposure to students about language materials via meaningful activities contributing towards their overall proficiency in the subject matter; while in the interactive mode of learning through chats - responsiveness was an issue. The study recommends that instructors should act as facilitators to help learners by guiding interactions or providing necessary support/scaffolding so that they receive a more productive experience of instruction from chatbots integrated under the ICAP framework. The proposed pedagogical model serves as quintessential counsel for policymakers and educationists who aim to augment language learning results across diverse educational settings.

Contribution/ Originality: The study contributes to the use of chatbot technology in English language learning emphasizing its benefits and limitations in English language learning. The findings underscore the importance of combining chatbot technology with expert guidance from instructors. The proposed teaching model offers valuable insights for educators and policymakers to improve language learning in different educational environments.

1. INTRODUCTION

In recent years, chatbots have been increasingly integrated as instructional tools in teaching and learning repertoire. Chatbots, or conversational agents built to interact with humans using natural language (Shawar & Atwell, 2007) are among the most sophisticated interactive technologies. These Artificial Intelligence (AI) driven

chatbots, enhanced with Natural Language Processing (NLP) capabilities, hold the potential to significantly enrich the learning journey by providing personalized and interactive interactions with learners (Ciechanowski, Przegalinska, Magnuski, & Gloor, 2019). By engaging students in real-time conversations, offering immediate feedback, and adapting responses according to each learner's proficiency level and pace, these chatbots can create a more tailored learning experience. NLP plays a crucial role in enabling chatbots to comprehend and interpret learners' language input, allowing them to address specific language challenges and cater to various learning styles.

By emphasizing the significance of their function as communication partners, language instructors and scholars have promoted chatbots as effective instruments for the acceleration of language learning (Fryer, Coniam, & Carpenter, 2020). The accumulated evidence has shown the strength of integrating chatbots into language learning. For example, to develop conversation practice (Xu, Wang, Collins, Lee, & Warschauer, 2021), vocabulary (Jia, Chen, Ding, & Ruan, 2012) , grammar (Jia & Ruan, 2008), and listening and reading skills (Kim, 2018).

Despite the growing popularity of chatbots as a tool for English language learning, few studies have examined how well these tools perform in real-world classroom situations, an issue flagged by Hwang and Chang (2021). Prior research has mainly followed quantitative methods or short-term projects restricted to only a handful of assignments, a point worth emphasizing given some key limitations of chatbots such as their dependency on artificial intelligence to act as conversational partners can result in errors or steering conversations in unexpected directions, dampening user engagement and lead to frustration, a fact underscored by van Wezel, Croes, and Antheunis (2021). To ensure that the potential of chatbots is harnessed effectively for classroom learning, integrating this technology requires careful and effective planning.

This gap needs to be filled to assist higher education institutions and policymakers in considering the prospective application of AI-based technology (e.g., chatbot). Although studies have focused on using chatbots for English language learning, little is known about students' experiences and how it affects their behaviors. The lack of knowledge on more complex questions of 'how', 'when' and 'when not' to support chatbots in English language learning is the rationale and justification for this phenomenological study on chatbots. The ICAP framework, which stands for "Interactive, Constructive, Active, and Passive" learning, can provide a useful lens through which to examine the potential of chatbots in English language learning. The ICAP hypothesis also predicts that as students become more engaged with the learning materials, from passive to active to constructive to interactive, their learning will increase (Chi & Wylie, 2014).

2. LITERATURE REVIEW

In the field of educational psychology and pedagogy, the Interactive, Constructive, Active, and Passive (ICAP) framework has emerged as a valuable theoretical model for comprehending various learning approaches and their impact on students' academic achievements. The ICAP framework was proposed by Chi (2009) who classified learning behaviors into four distinct modes: Interactive, where students participate in discussions and collaborative activities; Constructive, which involves generating new knowledge through problem-solving and critical thinking; Active, focusing on practical, hands-on activities to apply concepts; and Passive, where students passively receive information through lectures or reading. Over time, educational researchers and practitioners have acknowledged the significance of adapting instructional strategies to align with students' individual learning preferences and cognitive styles. Gaining a nuanced understanding of each learning mode within the ICAP framework can offer valuable insights to educators, aiding them in designing more effective teaching methods and ultimately enhancing student engagement, retention, and overall academic performance. The following section discusses past studies related to ICAP framework and chatbot.

2.1. ICAP Framework

The ICAP framework, based on four behavioral engagements: interactive, constructive, active, and passive, is related to "active learning" modes based on the learners' actions and is frequently regarded as a conceptual framework for cognitive engagement with a behavioral dimension (Chi & Wylie, 2014). While learners are engaged in certain activities, it is pertinent for educators to notice these four engagement forms. Actions involving obtaining information, such as reading a text or attending to instructions, would be passive engagement. While learning, active engagement entails physical manipulations of ideas and knowledge information: for example, underlining important information. Learners will produce an output beyond the ideas and knowledge included in the course materials during the constructive mode. Writing notes in one's own words or summarizing a text are examples of constructive modes. The constructive mode includes "elaborating, comparing and contrasting, generalizing, reflecting on, and explaining how something works" (Chi & Wylie, 2014). When students interact, there is an interactive engagement and there has to be significant turn-taking from both partners.

The ICAP model is a suitable framework for examining detailed active learning approaches because of the observable nature of the learners' activities at each level (Oleson & Hora, 2014). Thus, it would be worthwhile to investigate how chatbots engage students in the four different modes during English language learning activities. Based on the ICAP framework, we aimed to identify relevant indicators for each mode.

2.2. Review of Related Research on ICAP

The ICAP framework has been gaining interest from various disciplines. This is due to the need to give learners the proper opportunities to engage in a successful learning process. Students must engage in cognitive processes that are relevant to learning. A number of studies have documented the positive learning outcomes when the ICAP framework was used during teaching and learning activities. For example, Henderson (2019) used peer interaction to encourage discussion in research based on practices in Science Technology, Engineering and Mathematics STEM education. The study employed the ICAP framework to differentiate the various cognitive engagements. The study (found that students who were exposed to the ICAP framework performed better than students who did not have the exposure to the ICAP framework.

Morris and Chi (2020) examined the effectiveness of professional development in getting two middle school science instructors to ask more questions guided by the ICAP framework. The study reported that before and after the professional development (PD), the teacher's questioning approach had increased, and learners were asked to draw a conclusion about the information (Morris & Chi, 2020). Wekerle, Daumiller, and Kollar (2022) employed ICAP to examine students' involvement when technology tools were used during teaching and learning activities. The findings demonstrated that when technology tools were employed in the classroom, learners felt more positive and were involved in passive and active activities.

Further, Conley et al. (2022) conducted a study to accurately set a baseline for Facebook usage and explored Facebook's potential for education from a biometric perspective. Learners' behaviors were coded based on the ICAP engagement model to achieve this baseline. The findings suggest that Facebook is not the best medium for learning because greater cognitive demands on Facebook cause more dissatisfaction than passively absorbing personally relevant non-instructional content.

Recently, Sánchez, Lesmes, Azpeleta, and Gal (2022) investigated the workstation learning activities (WSLA) session, which included a series of activities and a conventional lecture. The information gathered from semi-structured interviews with students was classified using the ICAP framework. The study revealed that students valued the chance the WSLA offered for group discussion and concept clarification. Additionally, students valued and greatly benefited from input from instructors and peers, which assisted them in developing new knowledge.

2.3. Chatbot Learning

An increasing number of researchers and practitioners have recognized that chatbots can be pedagogically exploited to facilitate language learning. Studies have captured students' experiences, views, limitations and challenges of integrating chatbots into the learning process. Yin and Satar (2020) found that students with low levels of English language competence benefited the most from the use of chatbots, whereas those with higher levels of proficiency expressed unhappiness with chatbots. A systematic review by Huang, Hew, and Fryer (2022) examined the use of chatbots in language learning. The findings unearthed a number of technological as well as pedagogical affordances of chatbots. The advantages of technology were discussed in relation to interlocutors, simulations, transmission, helplines, and recommendations. Additionally, they appear to promote social presence through effective, open, and coherent communication. The challenges reported by this study were related to technological frustrations, restrictions, the novelty effect and cognitive load. Kim, Ryoo, Lee, and Lee (2022) created Ellie, a chatbot based on theories of second language acquisition. It has three chat modes: General Talk, Skill Chat and Task Chat. The General Chat mode is designed to have brief conversations with Ellie about personal matters. In Task Chat mode, learners can carry out a number of L2 problems to achieve learning objectives. Skill chat is focused on Practice with forms-focused language. The study concluded that Ellie is significant for the development of future L2 chatbots and shows a lot of promise as a language learning partner for L2 learners.

Despite many insightful studies demonstrating what makes chatbots successful or not, when used as language learning tools, depends upon how students use chatbots from an ICAP perspective. This has major consequences because it points out two key points: firstly, chatbots are clearly growing recognition among professionals and researchers alike that using these bots could really benefit pedagogy in language education (Taimalu & Luik, 2019). Secondly, people making decisions about adding chatbots to educational technology face significant challenges beyond mere software implementation (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012). This underscores the importance of further research into how chatbots can enhance students' higher learning experiences. To sum up, the reviewed studies demonstrated how the ICAP framework is applied in discussions on Facebook, WSLA, professional development, and technology instructions. The findings are also encouraging and show positive learning outcomes. To the researchers' knowledge, the ICAP framework has not been used to investigate the use of chatbots in English language learning. Without a thorough analysis of students' experiences, needs, and perceptions, it is impossible to implement effective pedagogical practices. Instead, the researchers believe that an in-depth investigation of chatbots will unearth fresh perspectives or that new solutions are possible from the integration of chatbots and the ICAP framework. According to Vogel, Wecker, Kollar, and Fischer (2017) studies within the ICAP framework have only looked at the relationships between various learning activities and students' acquisition of domain-specific knowledge but have not yet ventured into 21st-century learning skills.

The research questions for this study are:

1 How do chatbots enhance your English language learning?

2 What are the students' positive and negative experiences during the use of chatbots for English language learning?

3. METHODOLOGY

3.1 Research Design

The selection of a qualitative approach to address issues was linked to the students' use of chatbots for English language learning and was a prerequisite of the exploratory nature of the phenomenological research design. A phenomenology study develops a more comprehensive knowledge of the phenomena being investigated and attempts to identify and describe the patterns of lived experience (Giorgi, 1985). The meaning of technological experiences, for example, would neatly fit into the field of phenomenological inquiry (Cilesiz, 2011). Additionally, phenomenology is the study of the lifeworld, which is described as "what we know best, what is constantly taken for

granted in all of human life, always acquainted to us in its typology through experience (Husserl (1970). Le (1999) describes research as a journey, wherein the true essence and significance of the study can only be grasped upon its completion. During this journey, there are no guarantees that it will unfold exactly as initially planned. Only upon concluding the research does the researcher fully comprehend the entire process. As a result of this perspective, the study yielded extra findings that emerged as supplementary outcomes alongside the primary research questions.

3.2 Participants

A sample size of 25 students was identified through purposive sampling, which is a most suitable method to gather rich information from participants, as suggested by Patton (2002). All participants were studying the General English language course of the final semester of 2021 in a Malaysian public university. The course focused on the development of the student's language skills (listening, speaking, reading, and writing) and improving their grammar and vocabulary. Participants were willing to share their experiences related to the study's objective and making it easily accessible to the author. Participants were briefed on the nature of the study and assured confidentiality and anonymity. An e-mail was sent to all the undergraduate students who were enrolled for the English II course (English proficiency). Interviews were conducted until the data saturation was reached (Howitt, 2010). To safeguard their privacy and impartiality, pseudonyms were assigned to every student. The pseudonyms were labelled as PCB1, PCB2, PCB3 and so on.

3.3. Research Procedure

The instructors briefed the participants on the study's purpose and introduced several chatbots related to English language learning. The instructor further demonstrated a few examples (*Duolingo*, *Mondly*, and *Andy*) for students to better understand chatbot use in English language learning. Participants were given the flexibility to choose any chatbots available for English language learning to guide and assist them in completing their assignments and assessments in speaking, listening, reading, and writing skills. They were also advised to watch YouTube videos related to chatbots. For three months, they used chatbots that were integrated into web pages and mobile applications. After completing their tasks, they were instructed to write their reflections and screenshots of their evidence of using chatbots.

3.4. Data Collection

The interview questions were constructed to understand students' experiences using chatbots for English language learning. The interview questions were generated from existing studies and literature reviews. The interview questions were validated by two experts in the fields of multimedia and education. The interview questions were tested on two non-participants to make sure they were understandable. Interviews used the lengthy interview technique guided by "an informal, interactive procedure and using open-ended remarks and questions" (Moustakas, 1994).

Table 1. Interview questions and the purpose of each question.

Question number	Interview questions	Purpose
1	How do chatbots enhance your English language learning? Elaborate with examples	This question is to identify the details of how chatbots enhance their English language learning in aspects related to listening, speaking, reading, writing and vocabulary
2	Were you able to experience a meaningful lesson with chatbots? How and elaborate with examples	The question is to probe deeper into students' use of chatbots in English language learning
3	What are the students' positive and negative experiences during the use of chatbots for English language learning	The question was helpful to identify the students' positive as well as negative experiences during the use of chatbots.

The interview for each participant was 30- 40 minutes and was audio recorded and transcribed verbatim. The interview focused more on participants' experiences with the phenomenon of using chatbots for English language learning than on the ICAP framework. The purpose was to give the learners a voice and highlight certain perspectives and values. Table 1 illustrates the interview questions. Follow-up questions were also asked from each participant based on their responses to delve deeper into their experience.

3.5 Data Analysis

The primary analytical method employed was the deductive method, guided by the ICAP framework, mainly in the passive, active, constructive, and interactive, modes. The analysis considered opening with inductive themes, although it began with a theoretical theme. According to Braun and Clarke (2006) inductive analysis is also a type of thematic analysis. The themes not determined before the investigation but identified as pertinent throughout the analysis are known as inductive themes. Therefore, the results and discussion from this research included relevant verbatim, inductive and deductive subthemes.

The following four steps of Braun and Clarke (2006) thematic analysis guided the interview data analysis.

- Step 1: Becoming acquainted with the data. Line by line, a research assistant, reviewed and reread the transcripts.
- Step 2. Creating initial codes. The assistant coded transcripts to indicate important content and annotated them.
- Step 3. Identifying themes. All annotated transcripts were thoroughly examined by a different research assistant, who also looked for any discrepancies in interpretation. The authors resolved any discrepancies in interpretation. Finally, they examined the codes to produce preliminary themes.
- Step 4. Reviewing themes. The team combined certain current themes and broke down some themes into subthemes. The team iterated on this approach until the thematic map met their expectations.

3.6. Trustworthiness of the Data

Two coders were trained to code, analyze and classify the data based on Braun and Clarke's thematic analysis (Braun and Clarke (2006). The two coders also debated the appropriate method for interpreting the data to improve consistency and interpret the responses similarly. By selecting 20% of the coded activities at random, a coding scheme was created. There were 300 total codes, and 60 of them were chosen at random to be checked for consistency and quality. For interactive (.78), constructive (.90), active (.88), and passive (.80) events, reliability coefficients were determined, suggesting sufficient dependability (Landis & Koch, 1977).

4. FINDINGS

With the methodology employed in this qualitative study, the findings of in-depth interviews in this article provided a comprehensive evaluation of the student's experience with chatbots and ICAP. To make the interpretation and analysis easier to understand, the researchers separated the reporting of deductive and inductive themes. The interview data from the participants were presented as how it was transcribed and no changes were made to grammar and sentence structures.

4.1. Passive Mode

The themes categorized as passive were those that resulted in no expectation for the students to verbalize their answers. The most common type of ideas that were coded as passive was the information provided by the chatbots in acquiring English language skills. For example, *"I often used the application named 'Andy' to learn the English language"* (PCB13). PCB5 stated, "*I have seen some good and new words too. The application helps me to master the language through grammar rules and exercises and new words with the meaning given.*" For example, "*Duolingo has pictures*

like cartoon characters that are interesting and easy for us to understand. It is very fun to watch videos and learn (PCB1) and *"Mondly chatbots have colorful graphics like the landscape from the candy Crush game. Such feature seems to motivate learners"*(PCB23) and PCB 25 opined that motivation is highly required if one ever wants to master learning a language. According to PCB23:

> "*I use Memrise, a British language platform that uses spaced repetition of flashcards to increase the rate of learning. It has video features of different levels with native speakers as the speakers stress clear pronunciation. As a result, I paid more attention to the listening exercises to boost my confidence in speaking. The flashcard game is good at getting me to memorize new words as well.*

PCB14 mentions that the chatbot *"offers a detailed explanation for several grammatical rules. When you choose a topic, the bot will provide a short instruction, while you can still ask for further details if you like."* He further adds, *"it allows me to repeat individual lessons or entire units of study as much as I needed".*

Similarly, PCB12 explained that:

> *I improved my grammar and writing skills. Chatbots provide text for us to listen to what they are saying. The narrators of the faster version will speak in a fast version which sometimes I cannot understand what they are saying. I will use the slower audio version to listen carefully. I am really happy using these apps because you can listen and observe the text many times to improve my listening, speaking, reading and writing.*

PCB3 elaborated that *"the more I read the more I get better at my reading. Whenever I read more texts and replies from chatbots, I feel like I'm reading faster with no mistakes. This has improved my reading skill.* In conclusion, the participants demonstrated chatbot's ability to present ideas and information via audio, videos, pictures and images to engage learners in English language learning.

4.2. Active Mode

The data was coded as the participants were able to recall information from previous materials. In other words, participants were recalling ideas or knowledge that had been acquired previously. In this sense, participants said that:

> *Chatbots can improve our listening skills. Some chatbots allow us to record speech and compare it with the bot's recorded speech. Rather, we usually have to wait for our turn to speak and be corrected. We also have limited chances to practice talking one to one with lecturers and get feedback on our pronunciation of grammar* (PCB20).

It is also interesting to observe that *"there is a menu that will teach us to write in English easily." It will teach us step by step from the initial stage to the final stage."* (PCB6). Also, *"it can detect words we type according to the usage of the sentence." Thus, we can identify errors and correct the use of sentences or grammar" (PCB*18). PCB7 realized that *Memrise* and *Duolingo* both help to spell correctly and to pronounce certain words. PCB15 found independence in learning English and detailed that:

> *I like to use chatbots because I have to speak correctly, if I mispronounce words in English, chatbots will not understand me. So, I have to pronounce it correctly. Indirectly, it improves my pronunciation, and I will be more confident to communicate with people in English* (PCB15).

PCB15 concluded that *"if a learner puts more effort using this tool, he/she will improve their English level and be more confident to speak."* This is because learners can clarify ideas and information and understand the English language skills much better. In other words, the active phase stands out by assisting students in retaining ideas and information effectively. This allows students to integrate knowledge and achieve effective language learning. PCB3 explained, "*It also provides a real-world practice in English subject. As for me, the application structures allow me to progress at my own pace."*

During the active phase, it is impossible to talk about language skill development and practice in isolation without also considering students' motivation, confidence, and attitudes toward learning English. The participants elucidate that English language learning via chatbots increases their confidence level is because they able to:

a) practice without feeling embarrassed through training alone and can be used anywhere (PCB10).

b) identify faults and help to fix them. The chatbots can be used 24 hours (PCB1).

c) able to look at the content daily, and this is helpful in improving my speaking, listening, reading, and writing skills in English (PCB2).

d) talking to chatbots, feel less shy and confident with English pronunciation (PCB7).

The following excerpt highlights the valuable learning experience with chatbots: *In the past, I was not brave to speak to people. I was scared people would laugh when I make mistakes. I didn't have time to take English class until my friends suggested Duolingo and Andy (PCB3*). PCB12 also expresses that "*technology will never sleep or feel tired like a human so that anywhere anytime if there are any questions, they can be answered."*

In summary, by providing opportunities for students to interact with the chatbot's content, it was concluded that materials and activities provide a student-centered learning approach and manipulation of information for effective learning. Such a positive learning environment provides a better understanding of content and more effective retention of new ideas and information related to English language learning.

4.3. Constructive Mode

Constructive learning means that learners come up with ideas beyond what is provided in the learning materials. The participants reported making conscious efforts to learn new words and vocabulary. Participants were determined to accomplish their own learning goals with their self-chosen activities. For example, PCB5 said:

> *To understand I immediately browse the Internet to know the meaning of those words which are new to me. Now I can apply those words whenever I am speaking to someone. With the use of new vocabulary, my speech is spontaneous and flawless* (PCB5).

Chatbots also help with *the "quick translation of certain bombastic and sophisticated sentences* (PCB1)." Similarly, PCB18 stated that *"It saves my time, and I can search easily to use English words to complete my assignments."* There is a personal commitment to understand what one is learning. The knowledge gained at this phase can be applied in a different context and generate new understanding. For example, PCB17 said *"I hesitate to make conversation with foreigners because I am afraid that someone will imitate my accent. However, when I start practicing my conversation with chatbots, I learned unfamiliar words that can be used during a conversation with others"* PCB14 clarifies constructive learning takes place *"when one tries to use most accurate language to make the bots understand what we want and that is how one's writing skill improved."* PCB25 opined that "*chatbots do not let students get bored. Textbook learning makes the overall experience dull and monotonous.*"

Another example of a constructive phase is demonstrated by PCB20:

> *Duolingo offers gamified learning method which only needs to spend about 20 minutes per day or less depending on the daily goals. Seven new words can be discovered daily, and awards are given when I can complete the daily.*

Participants reported that chatbots offered detailed explanations for several grammatical rules. For example,

When you choose a topic, this chatbot will provide short instructions, while you can still ask for further if you like. Andy will then test what you have learned for each lesson. If you are wrong about something, this bot will then tell you where you made a mistake. Along with the correct answer and its explanation. When you have a chatting lesson, Andy will also correct your mistakes (PCB13).

PCB13 concluded that "*It is very fun compared to traditional dictionaries. Chatbots are available around the clock. No need to bring the dictionary all the time. Especially, when we travel, a chatbot can be used anywhere and everywhere."*

4.4. Interactive Mode

According to Chi (2009) the interactive phase occurs when two criteria are met: a) interactions between learners to be constructive to develop new ideas, and b) all learners to contribute to the discussion. Based on Chi's

definition, this study's interaction phase was limited. However, participants believed that chatbots could not assist the learners in a way that a teacher would during traditional classroom teaching.

Participants felt that chatbots failed to develop new ideas because *"chatbots don't have emotions, which means they cannot interact with students*" (PCB 5). PCB 19 said, *"I don't think chatbots can understand the human context. It is one of the significant limitations of chatbots."* Furthermore, they *"may not be able to solve complex queries."* (PCB2) and *"have difficulties in managing the non-linear conversation."* For instance, *"it has a problem in managing the non-linear conversation."* For instance, *"when we are conversing in the usual topic and suddenly, we would like to explore more and go beyond the limitations, these chatbots will be facing some irregularities and therefore cannot give the exact information we needed."* (PCB6).

This is a cognitive and purposive learning barrier that limits students to deeper learning and higher-order thinking skills. More examples that illustrate chatbot limitations are illustrated below.

> *Chatbots have very limited memory. Whenever we want to recall any specific topics or conversations in the future, we have to start all over again from the basics since these chatbots don't have the capabilities of managing or storing large data we put into them* (PCB19).
>
> *Chatbots do not save the memory of the previous question. Yes, the game's score is saved, but it does contribute when the user intends to do any revision. It creates a sense of frustration for the users when every time they have to type out or say the same questions. The user tend to lose interest in learning the language* (PCB22).

Hence, it can be understood that a chatbot cannot hold the position of an expert or an instructor to provide all the information or constructive interactions for meaningful learning. Students narrated practical insights. PCB18 suggested that lecturers should *"monitor students' performance and help to speed up their learning process"*. PCB5 felt that chatbots should be *"used for simple and direct questions. If they need help with complex questions without any choice, they must seek their lecturers' help and discussion.*

Similarly, another participant stressed the importance of instructor while using chatbots:

> *Lecturers can use the chatbots interactively. For example, lecturers could spend around 30 minutes letting students use chatbots to answer questions and practice vocabulary and pronunciation. After that, lecturers can evaluate each student on how they are doing and explain further students' doubts and misinterpretations. Discussions with instructors will solve many doubts* (PC17).

4.5. Inductive Themes

After presenting the findings from the deductive themes, this section provides the information derived inductively. The themes were related to assessment. The participants frequently mentioned the use of chatbots for assessment. PCB3 believed that "*Lecture should be using this tool for administering tests in class and at home"* another participant indicated that *"chatbots support assessment and will contribute to learners' overall understanding"* (PCB11). PCB17 statement reflects the reason why chatbots can be used for assessment:

> *I think lecturers can promote or encourage more students to use chatbots such as Duolingo etc. They could use it as a tool for administering tests or quizzes. It is a different way that can be used to enhance the learning experience rather than boring class lecturers and hopefully increases the students' language level. Nowadays, there are a lot of technologies. None has been implemented in universities to teach the language. There is a lot of potential in these technologies, and hopefully, they can bring better usage for English language learning.*

There is a lot of planning to do before chatbots can be integrated into English language learning. PCB16 explained:

> *Lecturers can ask students to do the assessment on chatbots and produce screenshots as evidence. Certain chatbots allow the lecturer to create their students' accounts and marks and send them directly to the lecturer's account. These chatbots will be a great addition to fun and new-age learning. They can keep the human-like interaction alive even when they are doing remote learning.*

PCB17 suggested that:

> *Educators should encourage more students to use chatbots such as Duolingo etc. They could use it as a tool for administering tests or quizzes. It is a novel approach that can be used to supplement boring classroom lectures and improve students' language skills.*

PCB17 appeared to have similar views as PCB20 - mentioned that Duolingo can be used for assessment. PCB20 explained further:

> *Lectures can suggest that the students participate in the assessment from Duolingo or Andy English to improve their skills in speaking and listening to English. After taking the assessment, students can print it out from the applications and submit it to the lecturer.*

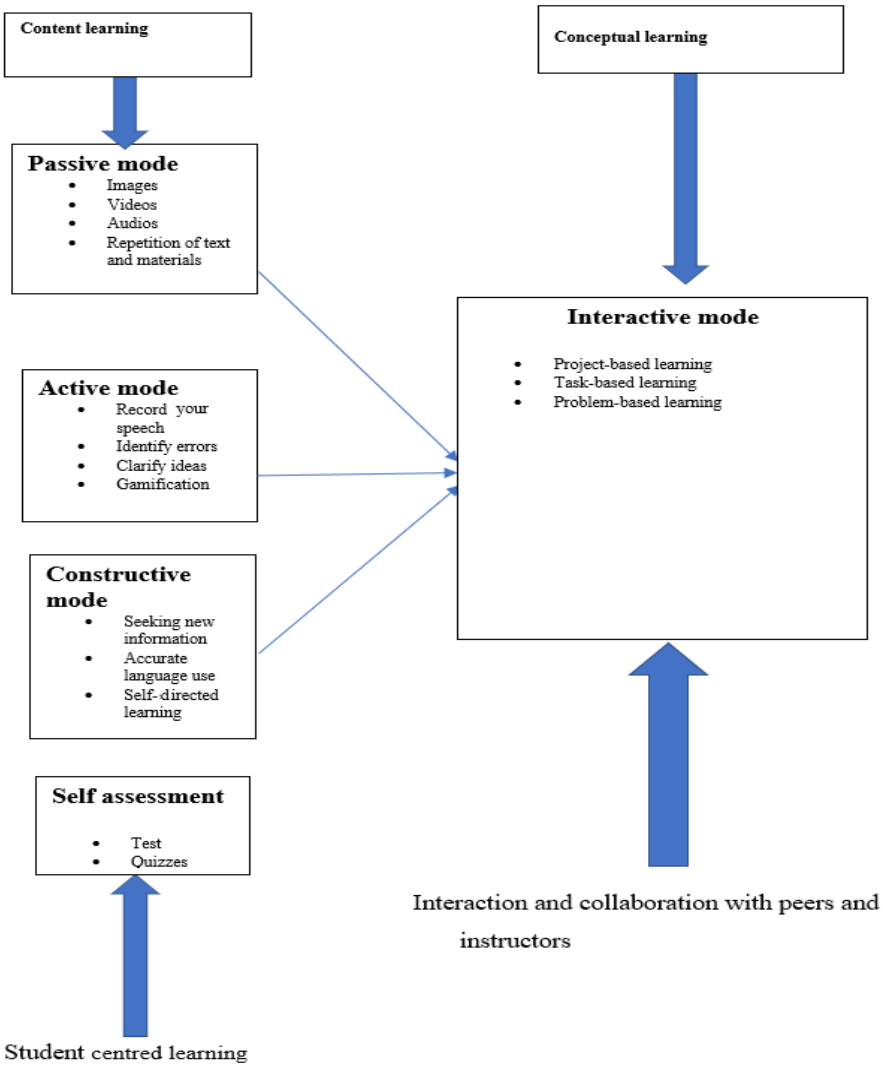

Figure 1. Pedagogical considerations in using chatbots in English language learning.

Based on the findings from the current study, the researchers were able to derive a model (Figure 1) that is an amalgamation of pedagogical practices that would guide instructors in using chatbots in English language learning. Assessment should be integrated as content learning. Once participants completed their learning in passive, active, and constructive modes, they should be assessed before moving to conceptual learning.

5. DISCUSSION

By employing qualitative data, the researchers confirmed that chatbot English language learning could be framed within only three modes: passive, active, and constructive modes of the ICAP model. These modes enhance

students' English language learning, particularly listening, speaking, reading, writing and vocabulary skills. In terms of the passive mode, the participants demonstrated the dynamic capabilities of chatbots in enhancing English language skills via the use of audio, videos, and repetitions of information for better understanding. Participants were able to continue their learning pace without much stress and constraints. This is observed in Lalwani, Bhalotia, Pal, Bisen, and Rathod (2018) statement that chatbots improve learning effectiveness by expanding practice opportunities. Students have immediate access to the learning materials. Participants claimed that chatbots assisted them in going over the skills and subjects several times to become more familiar with the idea and knowledge that needed to be acquired. They also claimed that chatbots assisted in correcting any incorrect information during this practice. Such passive yet effective learning activities encouraged and motivated participants to enhance their English language learning. Participants generally acknowledged the value of fun, thus adopting a utilitarian perspective of chatbots in English language instruction. Students demonstrated interest due to rich content delivery and smooth knowledge sharing in passive mode. The passive mode showed learners' capacity to regulate their learning.

During the active mode, chatbots were used to enhance their learning behaviors based on activities that allowed them to work independently and develop learner autonomy. There was manipulation of content interactions with materials, and learners reported positive experiences that helped them better understand English language skills. The findings is consistent with Chang, Hwang, and Gau (2022) and Sandu and Gide (2019) who opined that chatbots provide timely knowledge to students to overcome challenges that they develop during the learning process.. The findings suggest that chatbots gave students the opportunity to practice and communicate in their target language successfully (Timpe-Laughlin, Sydorenko, & Daurio, 2022; Xu et al., 2021). Instant satisfaction is the idea here, and those exposed to high-speed equipment and digital natives appreciate such an experience (Teo, 2019).

In the constructive mode, students discovered new information and acknowledged that information and knowledge acquired can be applied in different contexts. In other words, student-centered learning is taking place, as evident in the verbatim. More importantly, accidental, and purposeful learning strategies are evident in learners' lived experiences. Based on their experience and the opportunities offered by chatbots, learners frequently alternate between these two opportunities. Incidental learning is a byproduct of other activities. For example, participants reported that they must speak accurately with well-constructed sentence structure in English when interacting with a chatbot. This indirectly enhanced their speaking skills.

At the same time, participants in the passive, active and constructive modes demonstrated that chatbot language learning is closely linked with motivation and confidence. According to Nguyen, Sidorova, and Torres (2022) when users believe that they have control over the system (i.e. chatbot) and complete the task given, they gain more confidence in their ability to do it effectively. Students in this study were confident in acquiring English language skills which are in line with the self-efficacy theory proposed by Bandura (1969) who pointed out that self-efficacy has been defined as individuals' belief in their skills and plan to carry out activities to achieve certain aims on their own. This is the most important factor in determining whether and how much effort learners will put into a certain endeavor (Power, Lynch, & McGarr, 2020). Previous studies have also indicated that chatbots reduce learners' anxiety and engage them in language learning (Freiermuth & Huang, 2012; Hill, Ford, & Farreras, 2015). Basically, at the passive, active and constructive modes, surface-level learning is taking place, where the focus is on understanding the information given. Although students were satisfied and able to acquire certain skills in the passive, active, and constructive modes, most of them expressed dissatisfaction with the interactive mode. Students highlighted that interactive mod was visibly ignored since it also did not help teachers to actively involve in teaching activities nor guided them to reach learning objectives. The role of teacher interaction is identified as an important factor in chatbot language learning. This specifies that chatbots could have facilitated students' in-depth thinking, expanding their learning scope. This is because chatbots lacked the "ability to process meaning (natural

language understanding) (Bibauw, François, & Desmet, 2019). Gupta and Chen (2022) revealed that students demand chatbots that are "more intelligent in the understanding dialogue flows and learning each student over time." Chatbots may be helpful in giving students quick feedback, allowing them to learn the material through many modalities, such as audio and visual, and providing a safe area for them to learn without feeling criticized. While delivering course content and engaging students in lower-order thinking can be scaled effectively, moving students to higher-order thinking with constructive interactions seems challenging with chatbots. This suggests that interacting with humans and having real-world dialogues are essential to language acquisition. Learners are reluctant to use chatbots since they still perceive chatbots as robots and prefer to interact with human beings (Araujo, 2018; Go & Sundar, 2019). Additionally, chatbots were unable to comprehend complex statements (Kim, Cha, & Kim, 2021). According to students, the limited functionality of chatbots is a major issue. As a result, without urgent assistance from educators, students are unable to construct meaning in language acquisition by adopting agency in their learning, starting and maintaining meaningful multimodal dialogues, and creating concepts (Hartnett, 2016). Therefore, one of the possible solutions to overcome the challenges at the interactive phase is for educators to be actively involved in the teaching activities, guiding them to reach learning objectives. The chatbots learn and guide them during the passive, active, and constructive modes. The authors believe students prefer a blended learning mode. By discussing with peers and instructors, participants can better grasp and clarify unclear ideas and information that required elaboration and exemplification. According to the constructivist viewpoint, involving students in an interactive learning environment is critical to support knowledge acquisition (Lim & Habig, 2020). Educators who intend to integrate chatbots into language learning should design their lesson plans to provide them with plenty of opportunities to be stimulated by human-human interactions (Fryer, Ainley, Thompson, Gibson, & Sherlock, 2017). Jensen, Kummer, and Godoy (2015) emphasized two types of learning content and conceptual understanding. Therefore, it was wise to consider passive, active and constructive modes to acquire content learning. Once this phase was completed, the interactive mode should consider integrating activities related to higher-order thinking skills in modes like project-based learning, task-based learning, and problem-based learning. Such learning allows students to use higher-order thinking abilities, including analyzing, creating, and evaluating (Anderson & Krathwohl, 2001). Such an approach meets the need for 21st-century lecturing abilities that emphasize collaboration, interaction, creativity, and critical thinking and a change in teaching approaches.

6. CONCLUSION

The study found that passive, active, and constructive learning modes are beneficial for language exposure and knowledge construction, contributing to overall proficiency. However, interactive learning through chats had issues with responsiveness and lacked personalized feedback, hindering language skill practice and critical thinking. Instructors can help by guiding interactions and providing support, improving the experience with chatbots under the ICAP Framework. To address these challenges, future research should involve larger sample sizes and multiple research methods. Furthermore, to validate the suggested pedagogical framework's effectiveness, future studies should explore its usefulness in various settings and contexts. This will enable the framework to be revised and improved based on the unique requirements of different contexts.

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