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WHEN STIGMATIZATION AND SOCIODEMOGRAPHICS CHALLENGE ARTIFICIAL INTELLIGENCE IMPLEMENTATION

Nurhamidah

Universitas Sebelas Maret, Surakarta, Indonesia

*Corresponding author: nurhamidaht@gmail.com

ABSTRACT

The undeniable enticement of Artificial Intelligence (AI) goes across every aspect of daily basis, and education is no exception. The obstacles remain present due to the sociodemographic factors, and eventually, they touch the preconceived judgments teachers have. This research is aimed at investigating how stigmatization and sociodemographics of students in choosing the best AI for students. This research was conducted using qualitative research, i.e., interviews of twelve teachers who were selected based on the curated criteria and thematic analysis. The findings suggest that teachers stigmatize students according to the sociodemographic factors, consisting of gender, age, ethnicity, proficiency, economic level, previous education, and financial aid. Teachers take their consideration of choosing AI based on the sociodemographic. As a result, it greatly helps students in achieving learning outcomes. The findings agree with the notion that AI implementation should be adjusted to the students' needs, though in this case, it involves stigmatization as an initial step. Therefore, for future researchers, it will be necessary to understand the indication of stigmatization in the implementation of AI, especially in settings that encompass multiple backgrounds.

Keywords: *Artificial Intelligence; stigmatization; sociodemographic; EFL*

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INTRODUCTION

The implementation of AI has garnered attention in language learning. Its use is seen as beneficial to facilitate the instructions and learning outcomes. Several studies have extensively probed from the perspectives of both teachers and students. For instance, Holstein et al. (2018) examined a wearable teacher awareness tool that resulted in rich analytics of ITSs. They found that such analytics helped teachers tailor the range of students' abilities. This underscores that not only does AI improve students' outcomes, but it also greatly helps teachers to make a customized design that specifically addresses student needs. Ma & Chen (2024) discovered that integrating AI successfully decreased students' procrastination and increased their learning performance. In educational settings, AI serves various purposes, such as assessment (Marzuki et al., 2023; Zhou & Hou, 2025), offering feedback

(Rahman, 2024), and administrative tasks (Kim, 2024). With its numerous advantages, AI demonstrates progressive power in the classroom.

In the Indonesian context, the use of AI has been widely integrated into every aspect of education. However, the presence of sociodemographic factors poses challenges that should be addressed. The infrastructure gap generates inaccessibility of facilities, preventing equitable and feasible education. Syarifudin (2023) interrogated the disparities and challenges of AI implementation in Indonesia. He found that the technological imbalance in rural and remote areas would impede the AI potential that should be experienced by every student. Therefore, it is actualized in unfamiliarity with tools.

The discrepancy prevailing eventually creates stigmatization of students according to their sociodemographic characteristics. This highlights the decision that teachers will take once they understand the background of their students. Stigmatization could be provoked by discernible or obscure attributes (Clair, 2018), and whether they are fully aware or not (DeCuir-Gunby & Bindra, 2022; Denessen et al., 2022). The stigma can also be triggered by the multicultural setting of the classroom (Vaccarino, 2009), and socioeconomic and educational diversities (Yuan, 2017). Inevitably, the stigmatization teachers carry should be addressed, especially in the AI-driven classroom that challenges both teachers and students to adjust and make judicious decisions in their own best interest. Therefore, the current study pinpoints how teachers use AI in the classroom based on the sociodemographics and stigma they hold against their students. The aim is to ensure their option will help students achieve learning goals.

Although various studies have been conducted on each aspect of these research variables, as elaborated in the previous segment, none have committed to examining them concurrently. Given the premises of diversity, stigmatization, and the ever-developing AI implementation, such conditions pose lacunas that shall be explored. The current study will attempt to expose how AI implementation in EFL is adjusted to the sociodemographics of students in a university that is, partly or entirely, driven by teachers' stigmas towards their students. The questions that will be addressed are (1) Do teachers carry stigmatization in EFL classrooms based on students' sociodemographic backgrounds? (2) How far does the stigmatization of students' sociodemographics affect teachers' options for AI? (3) How does the AI option based on the stigmatization affect students' learning outcomes?

Based on the novelty of the present study, therefore, it is expected to satisfy the missing link in the implementation of AI, which should regard students' sociodemographic background, although teachers have already established particular stigma towards their students. In this way, despite the various issues the classroom might encounter, the ultimate goal of students' success in learning is still achieved by setting aside the pre-established stigmatization.

LITERATURE REVIEW

The era of AI has shifted the face of educational approaches, and it has become an indomitable force in classroom settings. It offers new opportunities for

more personalized learning, creating content that involves audio and visual outcomes, and generating code for programming (Ng et al., 2024). In language learning, particular AI operations are expected to support students in pronunciation practice, vocabulary building, grammar correction, and conversational simulations (Guo et al., 2022). Teachers lean in because they are allowed to integrate it as teaching tools that immensely assist their teaching approaches and methods (Du & Gao, 2022; Holstein et al., 2018). It enables the continuous adjustment of learning that is tailored to students' needs (Eager & Brunton, 2023; Ng et al., 2025).

For teachers, the implementation of AI has proven to help them streamline the students' process, prevent over-reliance on AI outputs (Vargas-Murillo et al., 2023), generate worksheets, prompt ideas, organize papers (Karimov et al., 2024), and simplify administrative tasks (Ng et al., 2024), such as assessment and task feedback (Zhou & Hou, 2025). Although AI carries exceptional potential for the more diverse-vulnerable classroom, its personalization features can be matched with students' level (Pane et al., 2017). This stems from different abilities and learning styles that will allow AI to adapt to such intricacy (Gunawardena et al., 2024). Therefore, given the functions it inherits, it can be adapted to students' capabilities to use it.

The issue of AI implementation has been studied extensively by many researchers. For instance, a study interviewed 24 university teachers in China who integrated AI, highlighting that AI is acknowledged as an assistant in assignment distribution and grading, preparation of teaching material, machine translation, guidance on students' practical exercises, and guidance on peer discussion and interaction in the classroom (Zhou & Hou, 2025). More research examines AI in language learning based on teachers' perception (Zainuddin, 2024), function (Xiaofan & Annamalai, 2025), and ethical concerns (Holmes et al., 2022). In Indonesia, this practice has been widely accepted. Its use has been welcomed in schools and universities to aid academic task completion on a regular basis (Syarifudin, 2023). In a survey conducted by Hartanto & Rohmah (2024) involving 1,501 students from 15 to 21 years of age, ranging from high school to university students, they discovered that approximately 86.21% were assisted by AI to complete their homework. Since the study covered 34 provinces across the nation, it can be established as a national delineation.

However, the application is not as simple as it seems; teachers should consider student technology literacy, how well they use it, and how accessible it is, given their demographic background. A demographically challenged student ensues various issues that, perhaps, stem from underinvestment in human capital, such as racial minorities or those coming from low-income families (Gershenson et al., 2015). Furthermore, it is corroborated by Syarifudin (2023) that, as a result of unequal technology facilities and infrastructure provided in various regions of Indonesia, especially in rural and remote areas, students have restricted access that, in fact, restrains investment and skill development.

Sociodemographics in learning are understudied, regardless of their prospects, while others only focus on single or double features, including multicultural (Wulandari, 2024), gender (Copur-Gencturk et al., 2023;

Martina & Afifi, 2024), socio-economic (Azzizah, 2015), gender and socio-economic (Paradewari & Mbato, 1998), and demographic and proficiency (Serquina & Batang, 2018). Teachers have certain expectations of students' achievement, which are brought about in students' belief of their academic futures (Burgess & Greaves, 2013), and this is more prominent among those disadvantaged students with little to no communication with more educated people outside their educational setting (Jussim & Harber, 2005; Lareau, 2011; Lareau & Weininger, 2008). Studies were found related to this issue, such as (Gershenson et al., 2015), who discovered that teachers had lower expectations for students' academic results coming from different racial backgrounds, low-income families, and different sexes than those of the same; therefore, it shaped teachers' expectations of students' reading and mathematics outcomes. Their findings conclude that teachers had a systematic stigma towards students' sociodemographics.

The interlink of how extensively teachers should approach and the diversity of classroom backgrounds eventually leads to stigmatization. It motivates how teachers will use tools and what type to support students' accessibility. Principally, classrooms should be inclusive and safe for students, as it assures all students respect and treat their peers equally and alleviates stereotype-based prejudice by means of teaching approaches (Shafi et al., 2024). Nonetheless, stigma occurs to students who are mostly from low-status or minoritized groups (DeCuir-Gunby & Bindra, 2022). Rosen & Abt-Perkins (2000) define four functions of teachers in the culturally diverse classroom in language classrooms: teachers as cultural mediators, understanding students' sociocultural representation, facilitators of ethnic connection discovery, and developing attitudes and understanding of multicultural, multiracial, and multiethnic classrooms.

The subconscious stigma that teachers hold against is a phenomenon that results in discrimination against a specific group of the community in the school, though it does not happen for a reason: the underlying depiction of a certain race, ethnicity, sex, or other socio-economic status that they have heard, seen, read, perceived, or experienced. Teachers' perceptions and beliefs depend on the population and bracketed stereotypes of students (Dewulf et al., 2017). In a study by Hounhanou (2021), she raised the issue among the Hounyos and Woli ethnic groups in the south of Benin. Due to the scarification (body marking) on their chests and faces and the ability to 'see' the future, they used to receive a stigma from their peers and teachers, although now it is not generally marginalized anymore.

Amitai et al. (2020) summarize that there are four reasons behind teachers' stigma towards minorities. *First*, teachers hold a stigma that students of widely diverse backgrounds are difficult to teach and problematic, thus categorizing them into ethnic hierarchies. *Second*, highly heterogeneous classrooms are challenging since they require more workloads and result in different outcomes, with the majority overshadowing the minority ethnic groups. Eventually, it is ingrained in teachers' minds that there is a particular gap between groups. *Third*, interethnic conflict is prevalent. *Lastly*, students' low economic status is perceived as a less teachable factor. In contrast, an extensive study shows that teachers had a perception that underrepresented

minorities would complete their degree due to two reasons: (1) race-based admission and financial aid policies, and (2) minority students performed better academically and had strong motivation (Gershenson et al., 2015). The aforementioned explanations somehow oppose one another; on one side, it answers the stigma that students of minority backgrounds are more challenging than those of the majority or from the same circumstances. On the other hand, due to their disadvantaged situations, they have robust reasons to prove that they can achieve more than what teachers have assumed they cannot.

Indonesia, with its sundry cultures, ethnicities, and economic backgrounds, is an interesting place to examine. A more comprehensive approach to teaching should be considered. It is supported by an excerpt from (OECD/Asian Development Bank, 2015):

> These new socio-economic conditions require new educational approaches. ….. but also the ways in which individuals and communities connect with the wider society becomes increasingly complex.

Based on the extract above, education should particularly establish a sound understanding of how to overcome the formidable context. It allows teachers to create adjustable learning that is befitting students' needs. However, it also carries the obstacles of the convoluted tie-in that should be addressed.

METHOD

Designs and Participants

The present study employed a qualitative descriptive method. A qualitative design was considered appropriate as it enables the exploration of social behaviours and problems in their natural settings while also capturing the representative perspectives of participants (Creswell, 2009; Yin, 2016). This is specifically designated to describe the influence of stigmatization on demographic classrooms and its relationship to the selection of AI in the classroom. The data relied on the primary data of interviews and secondary data sources of relevant literature and documents pertaining to sociodemographics, stigmatization, and AI usage in the classroom. The data were collected through in-depth interviews with a semi-structured open-ended question format. The questions were condensed from previous relevant studies that correlate with, Gershenson et al. (2015), Syarifudin (2023), and Karimov et al. (2024). Subsequently, the results were categorized using a thematic-based framework, codes, and key themes that had been determined based on the topic of the research. Thematic analysis was chosen as it investigates sociodemographic factors and connects the dots with the stigmatization, the use of particular AI in the classroom, which eventually affects student outcomes. In the end, the findings were validated using data triangulation. This is essential to ensure the appropriateness and the trustworthiness of the analyzed data and the original data.

Participants were selected purposively using these criteria: teaching English at the university level for no less than two years, using AI in the classroom, and having taught in classrooms with a wide sociodemographic

background. Based on these, 12 (twelve) teachers were selected, coming from three different islands: Sumatra, Java, and Kalimantan. Participants remained anonymous, and their consents were obtained before the interviews were conducted. For decoding purposes, participants were labeled as T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, and T12.

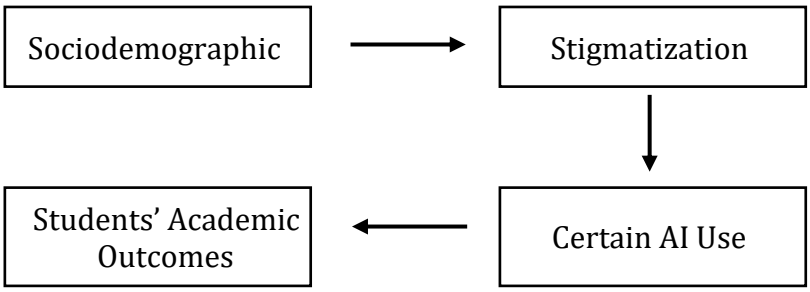

Figure 1. Key Themes of Findings

Interview

The interviews were recorded through two different means, offline and online, using Zoom. Interviews were conducted in English to avoid any mistranslation. Of the 12 interviewees, one participant requested to be questioned using Indonesian due to the inconvenience. Therefore, the transcription was completely translated. Before proceeding, the researcher would ask participants for their consent to record and briefly explain the purpose of the interview. Following that, interviewees would answer a series of prepared questions and, occasionally, be asked to elaborate more with follow-up questions. Then, the recordings were written out and decoded. Before the results were forwarded to interviewees for them to check the validity of the content, all excerpts were restructured according to the acceptable format of sentences by omitting fillers and unnecessary pauses during recording. The collected data were then examined using thematic techniques: analysis based on themes and meanings of the research. Subsequently, the data reading was carried out to saturate the findings systematically according to the aspects being studied. The interviews took 20-30 minutes, depending on how participants perceived the phenomenon.

FINDINGS AND DISCUSSIONS

The identified findings were categorized based on the predefined key themes. Interviewees conveyed various implications of AI utilization in their classrooms based on the demographics of students. However, the discrepancy in stigmatization suggests that some teachers held stigmatizing views. Below is the analysis based on the thematic map and research questions.

Between Sociodemographic and Stigmatization

The sociodemographic characteristics were unanimously displayed in all classrooms taught by the interviewees. It was found that most of the students came from different ethnicities, ages, genders, economic levels, scholarship

and non-scholarship recipients, proficiency levels, and previous educational backgrounds.

Regarding the ethnic background, T3 shared that

> …the students come from different ethnicities and backgrounds, and they come from different parts of Indonesia.

T10 added about the age that

> The age range is from the 20s to maybe the 50s when I teach postgraduate students.

T5's classroom diversity based on gender is stated as

> I teach a lot of students from different backgrounds. It's not only gender itself, but sometimes it's also their economic background and the educational background itself.

In terms of economic background, T1 stated that

> I teach those coming from different social statuses, be it from a family-owned business or a really good business. And then previously, I also taught students from different ethnicities.

The dispersion of various backgrounds in the classroom was observed as an inherent part of the multicultural settings. In Indonesia, the preferred target universities are mostly located on Java Island, hence luring students across the nation. Such a phenomenon opens the challenges of teaching with a wide range of demographics. This may serve as a great advantage or, on the other hand, perhaps ensue future problems. As simply explained by Yuan (2017), within the student populace, the language and cultural diversities have augmented the demographic variety, and it concomitantly contests educators to create effective instruction that is viable for all.

In the face of global diversity, the multicultural influence can be leveraged into a prowess that can be maximized. The goal is to foster nationalism in tandem with welcoming cultural diversity in order to adapt to the changes of globalization and the economic advancement (Maulidiah et al., 2023). Moreover, the ultimate goal of culturally inclusive education is to supply the necessary provision for students coming from all backgrounds with improved learning outcomes, disregarding their ethnicities, social class, religious beliefs, or giftedness (Latypova et al., 2021).

Equally, Gershenson et al. (2015) also emphasize that one of the factors that can be observed among underserved students is financial aid. It reflects their motivations and hard work to perceive challenges. Scholarship beneficiaries ought to be considered as part of the demography, as it entails the ability to reduce socioeconomic inequities and improve perpetuity during the student academic period (Naim, 2025). This underscores that teachers would be able to partake in an equitable and duly accepted approach for both scholarship beneficiaries and non-beneficiaries. This is proven by T4, quoting

> I can see at the beginning of the class those who are serious and those who look serious because they (scholarship recipients) are more aware in the classroom. The attitude is different.

The diversity in the present study suggests matching findings to the previous research, albeit with emerging novel findings; students' previous educational backgrounds and English proficiency were deemed a distinction

of segmentation. Teachers perceived students' past education as the partition that differentiates between classes or students from one another, as supported by the T5's excerpts:

> … some of my students are mostly from *pesantren*, like Islamic education schools, and also from public schools, like senior high school.

Further, T6 asserted that

> It probably depends on their background, their previous school, or their interest in learning English.

Besides public school, Indonesia adheres to a religious-based education system. One of which is an Islamic boarding school, henceforth referred to as *pesantren*. The education system has been in place for a long time and has been implemented at various levels, from elementary to secondary. The curriculum is akin to the public ones; however, its integration is closely related to Islamic values. The learning of English is no exception, yet the challenges persist. There were some prominent difficulties encountered by *pesantren*'s students; among others are limited exposure outside the school and curriculum constraints (Sofyan et al., 2023). This results in the ability polarity of those coming from public school and *pesantren*. Their research further discovered that the lack of resources exacerbated students' ability in English. Eventually, once they are admitted to university, where every student experiences equal treatment, they will find themselves in adversity.

T1 affirmed the population tally based on the proficiency levels as stated below:

> …the proficient student and the non-proficient student, we have to differentiate between them.

T8 supported that

> I can map the proficiency levels of several majors.

Another feature that is interconnected to a distinction of student demography is proficiency level. As the classes were introduced, teachers were assigned to different levels of English fluency, thus prompting a different approach. This may originate from the disparities in education between the western and eastern parts of Indonesia that may occur due to the contrasting school materials (Azzizah, 2015). The availability of adequate English affects not only their proficiency level but also their ability to share their ideas.

T4 clarified that

> But their background, their origins, influence their confidence in expressing their ideas in the classroom, even to speak up… But those who are not confident, like those coming from the village, from the local regions in Indonesia, are afraid of asking and not really curious to know more about the topic.

Students' confidence can be affected by their origin and triggered by the striking infrastructure supports in their previous education. The limited prior knowledge restricts them from engaging in an environment where everybody else has received different facilities previously. This is corroborated by Syarifudin (2023) that infrastructure has become a notable

gap in making education equitable in Indonesia, especially for those in rural and underserved areas. Accordingly, culturally responsive pedagogy involves skills to implement strategies that revamp academic attainment, personal growth, and behavior management and, concurrently, amalgamate culturally responsive policies and practices (Leung & Hue, 2020). Therefore, teachers ought to focus on pursuing multicultural insights, abilities, beliefs, persuasion, and boosterism (Jones et al., 2013) to allow students to improve in the new setting.

In conjunction with stigmatization, all those mentioned above have become peculiar influences within teachers' selves. Their anticipation systematically regards that students' demographics are, partly or completely, associated with students' ability (Gershenson et al., 2015). Educators would carry their stigma towards what they initially perceive about students' sociodemographic characteristics to their abilities.

T1 revealed that

> …we have expectations and also prejudices… But some coming from other places, we call area *tertinggal* (remote area), are not accustomed to certain things.

T3, T10, and T5, respectively, further reckoned in terms of educational background, ethnicity, and economic level, respectively

> I found that it's true there's a different quality of education between the education in Java Island compared to other islands.

> When they come from the lower level of the economy, I don't think they have the same facilities as the other half of the people.

> I know they come from *pesantren*. Also, maybe their knowledge is something general, for example, a simple topic like music, such as K-pop, or whatever it is. Maybe they don't know anything more than that.

Teachers disclosed their stigmas on certain features, such as different ethnicities, educational qualities, and economic levels. It is established on the ground that not every student obtains adequate experience and facility in their previous education, thus eliciting segmentation of perception towards students' ability in the classroom. This is in line with previous studies that teachers hold certain prejudices towards students according to their ethnic issue (Amitai et al., 2020; Ansari & Siddiqui, 2021; Hounhanou, 2021) and affluence (Doyle et al., 2024).

In the current study, the possession of stigma stemmed from several causes. *First*, educators' teaching experiences allow them to segment particular criteria for different abilities in the following involvements. Most of the participants have been teaching for more than two years, implying that they have extensive exposure to a variety of students, be it their proficiency, past education, or other demographic elements. Moreover, their stigma prophecies towards the demographic, in some cases, were fulfilled. This enables them to forecast what kind of setting they will encounter. *Second*, the narratives of the older generations or colleagues are passed down to teachers, which can be directly recounted or displayed to them. It was clarified that

their stigma was initially affected by the stories, though in the mid-process, they persisted despite the telltale signs.

T7 admitted that

> I think it's from our society, from the older society. They say that the education outside Java Island is not that good, right? So, it's like common knowledge.

T8 further elaborated that

> I mean, the stigma that they have, the senior lecturers are influencing me to treat my students.

The findings support the notion that stigma is conceptualized through a discredited attribute, discernible or obscure, categorizing and excluding individuals, aimed at devaluation. Teachers affirmed that they had stigmas towards certain groups of students, which was supported by the thought of their surroundings, in this case, the public and academic communities. This was passed down, though later changed, and modified the way they perceive their students. As the concept put forward by Clair (2018), there are psychological and sociological approaches that are incorporated into four categories, and the phenomenon in this study is closely connected to the meso-level of social psychology and cultural sociology based on context, i.e., individual perceptions and attitudes, as well as interpersonal relationships. Consequently, this action may result in inequalities in the learning process among students.

Between Sociodemographic Stigmatization and AI Option

Following the difference of stigma based on student demographic background, it personalizes how teachers choose the supporting instruments. The use of AI in the instructional process was diversified, but it was not heavily relied on. In this research, it was found that most of the teachers utilized ChatGPT, Gemini, Meta, DeepSeek, QuillBot, Grammarly, Midjourney, Gamma, Quizizz, Wordwall, and Kahoot for material preparation and gamification purposes. Based on reasons for what kind of AI tools facilitate teachers, some proposed that it was intentionally picked according to the familiarity of students with AI, as stated by T1

> *I actually chose certain AIs based on familiarity… Those who can use them will create a good result, but those who just have them without knowing how to use them will create a poor result.*

This is also agreed by T10 that

> *I think it's more of a familiarity with the AI. ChatGPT is the first AI everybody knows, and then they are familiar with that, so they use that kind of AI.*

Besides, teachers also select proper AI according to students' English mastery level. T3 maintained that

> It's just what materials I should look for and then also adjust them with the proficiency level of students.

Furthermore, age and educational background are also accounted for, and T7 supported her decision.

> Yeah, sometimes the older generation, like Gen X, is not familiar with Quizzes, especially if they are not from an educational background. So, I need to give clearer instructions for them.

T8 also added that

> So I think I would like to use the AI when I teach the students coming from middle to high economic classes, as their proficiency levels are good.

In regard as to why teachers use certain AI, it was admitted by the teacher that, besides student familiarity with the application, they should initially be accustomed to the interface to make sure they would be helpful during the activity, as T9 suggested:

> I guess I feel the most comfortable creating games in the form of a quiz-based AI for several reasons. But what I like most about this application (Quizzes) is that there will be charts where I can see the students' positions in terms of their excellence in answering the question.

T11 asserted that

> I used Midjourney AI to generate images. I'm a type of visual person, I like something eccentric, aesthetic in terms of visuals, so I try to use Midjourney to be used in teaching to fill the aesthetic indicator for my teaching.

Additionally, given the situation where students were coming from different demographics and technology literacies, teachers deemed the simplicity of the AI platform essential to ensure every student would be able to utilize it with no struggle.

> ChatGPT is simpler, but it's more complete in facilities. (T10)

The views of teachers towards AI are modified, among other things, by technological accessibility, professional development opportunities, pedagogical beliefs, and, most importantly, the equivalence between AI integration and learning objectives (Moorhouse & Kohnke, 2024; Yan et al., 2024). Teachers would opt for the supporting instruments that greatly facilitate the instructional process. Based on the findings, teachers adjusted the type of AI based on stigmatized demographic compounds, such as familiarity with AI, proficiency level of students, age, and economic class. The selection of AI comes conjointly with its features, analyzing students' learning style and gaps, which later provide personalized instruction for effective treatment (Jaboob et al., 2025) and familiarity (Delello et al., 2025). Thus, a stigmatizing background, although viewed as negative behavior, can have beneficial impacts for teachers.

Moreover, teachers also showed their consideration when administering activities in the classroom based on the cultural background of the students. This is shown by the following excerpt from T5.

> When I need to explain something that is related to their culture, for example, their ethnicity. I just try to make it into simple sentences or maybe a polite way to just avoid and prevent any misunderstanding.

Teachers' attempts to prevent any interethnic conflict are envisaged through different instructions that are closely intertwined with students' cultures. It is worth noting that Indonesians, as part of the archipelagic and ethnically diversified nation, often experience cultural differences that might

evoke future issues; hence, creating a desirable approach is encouraged in such a setting. As García-Martínez et al. (2023) assert, AI is aimed at facilitating the learning process in order to improve students' learning outcomes.

In a study conducted by Rachmawati et al. (2025), it is noted that the use of AI in the classroom should regard several factors, comprising the use of the mother tongue language and students' English ability. Further, they discovered that teachers' approach repertoire is also influenced by age, as their findings showed that older students displayed less satisfaction. This advocates that teachers carry miscellaneous concepts to implement AI based on students' inherent characteristics. As a consequence, they are expected to give clearer instructions and better learning experiences. As quoted by T5 and T7, the initial stigma is practical for delivering preferable directions. This is in line with study by Pokrivcakova (2019), concluding that the application of AI is predisposed by, but not limited to, teachers' attitudes, beliefs, and preferences. Moreover, there is a sense of urgency to call for teachers' complete perception, as it supplies valuable approaches to be implemented.

Nevertheless, the inherent perception of AI can lead to perpetual stigmatization in educational content as it presents ethical considerations, including maintaining academic integrity (Ng et al., 2025), over-reliance (Zainuddin, 2024; Zhou & Hou, 2025), and biases (Akgun & Greenhow, 2022). Additionally, this study discovered that students from far, isolated areas of Java Island were deemed unable to follow the AI trend, as they were labeled under-resourced and inexperienced. This is approved by T12, stating that

> I thought that students from outside the Java islands were not as clever as those from the Java islands.

T10 also maintained that

> I think most of them are not exposed to information and facilities. The students from eastern Indonesia mostly live in remote areas. It's very difficult to get internet access, and then also the gadgets that they need to explore the world, the information, the education, and also the knowledge.

The prevailing gap in infrastructure in Indonesia remains relevant; it has been inflicting the educational system, regardless of technological advancement. In this case, students coming from the eastern part of the nation are stigmatized as having poor access to the internet and facilities that are being used in the current classroom. Consequently, they are reluctant to use a certain type to avoid unfamiliarity with the instruction, thus obstructing the learning process. Syarifudin (2023) highlighted several challenges in the implementation of AI in Indonesia, such as technological infrastructure gaps and a lack of educational resources. It is also understood that the reliance on AI should be judged based on the educational equity and implementation bias, particularly for students in underserved communities, which is pivotal (Delello et al., 2025). As the common understanding disperses, teachers have preconceived judgments that AI tools will not be successful if students never have previous access to them. This is corroborated by Suharyat (2023) that one of the considerations of AI implementation is based on the digital divide—those who have and do not have access to technology.

Between AI Option and Students' Outcomes

Upon completing the interview, it was found that the use of AI in the classroom was both successful and futile. This indicates the polarity of such a tool in the classroom, as a supporting instrument and a disruption. Alternating certain AI in the classroom based on the sociodemographics of students was found to be successful by some of the teachers. T9 stated that

> *But then, they could answer it quite well based on what I discussed with them using this AI. So, I guess it was quite successful.*

T2 and T11, in order, also explained that

> Yeah. I think when I teach using AI, the students will understand more about the subject. And it will achieve the goal.

> Different students have different goals in the class. But the teaching and learning process goal is the same for them. AI is very helpful and beneficial for them.

The data obtained from teachers regarding their student learning outcomes are consistent with their acknowledgment. T7 revealed that the lowest score in the IELTS class, where she taught reading, was initially 4.0 and the highest was 6.5 out of a maximum score of 9.0, and the last progress showed a noticeable increase, with the lowest being 5.0 and the highest being 8.0. The demographic of students she taught comprised those coming from the eastern part of Indonesia and those who were underserved and economically disadvantaged. This serves as the base for the teacher to specifically address the student background, and eventually it succeeded.

Teachers' AI option established upon their stigmatization is reflected in the learning results of students. The employment of AI is tailored to the students' background, which is also connected with their ability or proficiency. As a consequence, it will attract students to the concerned materials and engage them in the learning activities. Ng et al. (2025) assert that the use of AI, such as ChatGPT, would grow positive emotions, excitement among students, and satisfaction in learning. By involving AI in the process, teachers can build up engagement, learning effort, habit, and task completion, hence improving students' material comprehension and self-perception.

Teachers are also able to discuss without having to fully rely on AI results, creating a limitation between AI as a tool and disruption. It is essential to take into account the roles of AI, one of which is an intelligent learning tool or partner (Hwang, 2003). This confines the extent to which it is used to assist the learning instruction. As Xiaofan & Annamalai (2025) proposed, there must be set boundaries advised by teachers to ensure that AI does not disrupt teaching methods. For that reason, teachers can carefully personalize AI according to the students' needs.

Conversely, some teachers argued that AI does not fully help their students' results. T12 argued that only some of her students succeeded when using AI.

> Maybe not for all students, but for some students. So, I suggest they check—always check everything using many AIs.

T1 and T3 agreed by adding that

If they already assume that this will be helpful, I think it will help. But if they don't think so, then it will not be beneficial for them.

Some students can pass the test, but some don't.

This is supported by the results of students' TOEFL learning, as submitted by T12 as a reading teacher. The students' scores showed a declining trend despite the effort to use AI in the classroom. The students' first test showed a range of 32-47 out of a maximum score of 67, while the final test decreased to between 24 and 38. This underscores that, albeit the use of AI to support the activity, learning attainments are highly dependent on the students' ability to manage themselves. As suggested by Rahman (2024), one of the risks of AI use in the classroom is students' incapacity to limit their overdependence, thus obstructing their progress. Therefore, AI does not solely function as the main facility to teach students and be used by students, but rather as a supporting aid to the existing materials.

AI serves as the facilitator and teaching instrument; in return, it is expected to improve students' achievement. However, when it is not optimally used and fails to meet students' needs, it will not yield great impacts. The optimization in the classroom should regard the dynamics between three important components equally: teachers, students, and AI technology. Thus and so, the teacher would be able to create adaptive learning platforms that offer limitless opportunities to both teachers and students (Xiaofan & Annamalai, 2025). As implied by Zainuddin (2024), AI is instructed to be the best option for supplementary, not as a replacement tool. Otherwise, either teachers or students who are highly dependent on AI will end up in a detrimental state; once they are detached from the AI, the results will be jarringly deficient. This is proven by the following extract from T6.

> When I teach in class, they sometimes use AI not as an aid, but as a substitute for their efforts. It makes them lazy instead of helping them become smarter and understand the material better. When asked to write with their phones and collected, it's very different. So it's very clear that the first assignment used AI, but the second didn't.

Students' overdependency on AI eventually affects their results and their ability to display critical thinking. The introduction of AI to help them in completing tasks should be followed by ethics and boundaries, allowing them to optimize it yet not over-exploit it and neglect their own abilities. Walter (2024) opined that although the use of AI is encouraged in institutions, its progression should be followed by students' awareness and critical views; therefore, they are not becoming vulnerable to their own decision-making. This matter has been observed by several studies, including Vieriu & Petrea (2025), who suggested that AI poses risks of over-reliance, diminished critical thinking, and academic fraud. This calls for regulations, which cover the proper implementation of integrating a balanced AI-teacher environment. Moreover, in their systematic review study, Zhai et al. (2024) concluded that the integration of AI in the educational setting is a double-edged sword: improving students' mastery and diminishing creativity and ethical views towards AI.

In conclusion, implementing AI brings various advantages to the students' learning outcomes and creativity in the classroom. It offers to create an exciting environment and to be learning partners that can help students achieve their goals. Nevertheless, its presence also carries challenges that should be addressed by teachers to avoid over-reliance, which eventually affects students' thinking ability and creativity

CONCLUSIONS

The students' background compositions bring about stigmatization on the teachers' end. This is prompted by students' sociodemographic factors, including age, gender, ethnicity, economic level, language proficiency, financial aid, and previous education. Teachers found that students' diverse backgrounds modify how they administer the learning process. In this study, the effect is later transferred to the selection of AI that will be utilized by students. Teachers opt for instruments that can be personalized based on students' needs, moreover, for those underserved. To support an inclusive educational setting, teachers regard students' sociodemographics that they initially stigmatize as fully or partly fulfilled in choosing the best AI that will help the learning outcomes. Eventually, the carefully selected AI can attract students' attention and help them achieve the desired results. It should also be considered that the results of AI implementation entail polarity of ramification. Hence, teachers as facilitators and institutions should address the limitations of AI use that uphold ethical values for the future.

This research was conducted with a limited demographic background and only focused on the public university on Java Island. It is suggested for future research to carry out more collaborative methods, i.e., universities outside Java Island and teachers' and students' more diverse demographics, in order to yield a wider perspective of the AI option based on sociodemographics, especially in culturally rich countries, such as Indonesia.

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