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Digital Translanguaging and Cognitive Ease: An Observational Analysis of Postgraduate Students' Engagement with Multimodal AI for Simplified Academic Conceptualization

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Abstract

The emergence of Generative Artificial Intelligence (GenAI) has introduced new linguistic dynamics in higher education, particularly within multilingual academic settings. While highly sophisticated models such as ChatGPT and DeepSeek dominate the discourse on academic AI, postgraduate students are increasingly exhibiting a preference for "plain language" or "layman-term" tools like Doubao and Dola. This study investigates the strategic use of AI translanguaging tools among postgraduate students in Malaysia through a qualitative approach involving naturalistic observation and semi-structured interviews. Grounded in Cognitive Load Theory and the AI-integrated Social Media Adoption (AISMA) Model (Emon, 2026), the research explores how the linguistic register of AI serves as a cognitive scaffold.

Findings reveal that students utilize Doubao and Dola for initial conceptual sense-making to lower their Affective Filter, while reserving ChatGPT and DeepSeek for stylistic polishing and logical validation. Furthermore, the study identifies Platform Embeddedness—specifically within the WeChat/Weixin ecosystem—as a primary driver for tool selection, facilitating "in-situ" translanguaging that reduces platform friction. The results suggest that for postgraduates, the utility of AI is defined not by its formal academic rigor, but by its ability to bridge the gap between everyday linguistic repertoires and specialized scholarly discourse. This paper concludes by proposing a hybrid workflow model that integrates pedagogical translanguaging with AI-assisted research practices.

Keywords*:* Translanguaging, Generative AI (GenAI), Postgraduate Research, Cognitive Load, Platform Embeddedness, Doubao, Dola, Malaysia Higher Education

Introduction

The rapid integration of Generative Artificial Intelligence (GenAI) into higher education has fundamentally altered the landscape of academic research and writing. For postgraduate students, particularly those operating in multilingual contexts such as Malaysia, AI tools are

no longer merely "writing assistants" but have become vital translanguaging spaces. In these spaces, students navigate between their native linguistic repertoires and the rigorous demands of English-medium academic discourse. However, a significant divergence has emerged in how students select these tools. While models like ChatGPT and DeepSeek are often lauded for their high-level academic sophistication, an increasing number of postgraduate students are gravitating toward platforms such as Doubao and Dola.

The primary driver for this preference appears to be the linguistic register of the AI's output. Recent pedagogical frameworks, such as those proposed by Goh and See (2026) and Tang et al. (2026), emphasize the importance of leveraging a student's full linguistic repertoire to break down "monolingual barriers" in high-stakes testing and research. In the digital age, this process is mirrored in how students use AI to "decode" complex theories. Preliminary evidence suggests that students find the "academic prose" of ChatGPT and DeepSeek intellectually intimidating or cognitively taxing. In contrast, the "plain language" or "layman terms" utilized by Doubao and Dola function as a cognitive scaffold, allowing students to grasp difficult concepts in a conversational register before attempting to formalize them in their own writing.

Furthermore, the concept of platform embeddedness plays a crucial role in tool selection. As postgraduate research becomes increasingly mobile and socially connected, the integration of translation and AI features within ubiquitous ecosystems like WeChat/Weixin has lowered the threshold for academic engagement. The ability to "long-press" to translate or use "Translate While Typing" features allows for in-situ translanguaging, where the transition from informal social interaction to formal academic thought is seamless and nearly frictionless.

Despite the growing popularity of these "layman-focused" AI tools, there remains a dearth of qualitative research investigating the specific user experiences of postgraduate students. This study seeks to address this gap by employing a dual-method approach, utilizing direct observation and semi-structured interviews. By examining why students prefer the "plain language" of Doubao and Dola over the "academic rigor" of ChatGPT and DeepSeek, this research aims to redefine our understanding of digital translanguaging and the role of linguistic accessibility in postgraduate success.

The necessity of investigating AI-mediated translanguaging lies in its potential to democratize high-stakes academic research for multilingual postgraduates, who often face a "monolingual tax" when navigating English-medium discourse. By examining the shift toward "plain-language" tools like Doubao and Dola, this study offers critical utility for educators and curriculum designers, providing a blueprint for integrating "layman-focused" AI as a legitimate cognitive scaffold rather than a shortcut. Furthermore, understanding the role of platform embeddedness is vital for educational technology developers to create "frictionless" learning environments that align with students' existing digital habits. Ultimately, this research is significant because it shifts the focus from AI's raw computational power to its functional effectiveness in reducing cognitive load and lowering the affective filter, thereby ensuring that academic success is determined by conceptual mastery rather than linguistic intimidation.

Research Objectives

The study is guided by the following objectives:

1. To observe the functional differences in how postgraduate students utilize "layman" AI tools (Doubao/Dola) versus "academic" AI tools (ChatGPT/DeepSeek).
2. To investigate the role of platform embeddedness in reducing cognitive friction during the research process.
3. To understand student perceptions regarding the effectiveness of plain-language AI as a scaffold for academic writing.

Literature Review

Translanguaging as a Pedagogical Scaffold

Translanguaging is the process whereby multilingual speakers use their entire linguistic repertoire to make sense of complex information (See et al, 2026). In the Malaysian higher education context, See & Goh (2026) argue that traditional "monolingual barriers" often hinder the performance of students, particularly in high-stakes environments like the MUET examination. They suggest that leveraging a student's full linguistic repertoire—allowing them to move between their native language and English—enhances conceptual clarity. This study extends this framework to the digital realm, exploring how students use AI as a "translanguaging partner" to bridge the gap between their everyday language and the formal academic register required at the postgraduate level (Kawther, 2026).

Cognitive Load Theory and Linguistic Register

A primary reason students prefer "layman-term" AI tools like Doubao over academic models like ChatGPT is the management of cognitive load. According to Sweller's Cognitive Load Theory, working memory has a limited capacity (as cited in Shu, 2025). When students engage with dense, polysyllabic academic prose, they experience "extraneous cognitive load"—mental effort wasted on decoding complex sentence structures rather than understanding the core concept (Putra et al, 2025).

Recent reports on AI in education highlight a "performance paradox": while high-logic models like DeepSeek offer superior structural rigor, their "deep decoding" requirements can lead to cognitive fatigue (Bao, 2025). Conversely, tools that provide "syntactic simplification" act as a direct cognitive scaffold, allowing students to process the "gist" of an idea before moving toward more complex production (Phillips Galloway et al., 2022).

Platform Embeddedness and the "Frictionless" Workflow

The selection of AI tools is not based solely on the quality of the model, but on its accessibility. The concept of Platform Embeddedness refers to how deeply a tool is integrated into a user's existing digital life. Research into AI-integrated social media adoption (AISMA) indicates that platforms like WeChat/Weixin are extensively used for collaborative learning because they reduce "platform friction" (Donahue et al., 2025).

When translation features—such as "Translate While Typing" or "Long-press to Translate"—are built directly into the social interface, they promote **in-situ translanguaging**. This allows students to remain in a "flow state" within their social-academic peer groups. Unlike "destination-based" AI (e.g., ChatGPT), which requires the student to switch apps and change

their psychological state from "social" to "academic," embedded tools like Dola allow for a seamless transition that mirrors the fluid nature of bilingual thought (Tzirides, 2026).

The Functional Differentiation of GenAI Models

Recent comparative evaluations suggest that students do not view GenAI as a monolith. ChatGPT is frequently recognized for its "rhetorical adaptability" and "audience awareness," making it a preferred tool for stylistic polishing (Jeon, 2025; Hajiyeva, 2025; Derakhshan & Wei, 2026). In contrast, DeepSeek is valued for its "grammatical precision" and "logical consistency," serving a more evaluative role. This study builds upon these findings by observing how students strategically allocate different tasks to different models—using "layman" tools for initial comprehension and "academic" tools for final output verification.

Summary of Theoretical Framework

The study utilizes a tripartite framework in this study:

1. **Translanguaging (See & Goh, 2026):** To understand the movement between linguistic repertoires.
2. **Cognitive Load (Feng, 2025):** To explain the preference for plain-language registers.
3. **AISMA Model (**Emon**, 2026):** The **AI-integrated Social Media Adoption (AISMA) Model** explains how the seamless embedding of artificial intelligence within social platforms (like WeChat) reduces user friction and enhances the continuous, informal adoption of these technologies for everyday tasks. This is to analyze the impact of platform integration on tool choice.

Methodology

Research Design

This study employs a qualitative case study design to explore the lived experiences and behavioral patterns of postgraduate students. A qualitative approach was selected to capture the nuanced "why" behind tool selection—specifically the preference for layman-term AI over academic models. The study utilizes triangulation by combining direct observation with semi-structured interviews to ensure data validity.

Participants and Sampling

A **purposive sampling** technique was used to recruit 15 postgraduate students (Master's and PhD levels) from a public university in Malaysia.

- **Inclusion Criteria:** Participants must be currently engaged in thesis writing and regularly use at least two different AI platforms (e.g., one "academic" like ChatGPT/DeepSeek and one "informal" like Dola/Doubao).
- **Demographics:** The sample included both local and international students to capture a diverse range of linguistic repertoires and translanguaging needs.

Data Collection

Data collection was conducted over a six-week period through two primary phases:

Phase 1: Naturalistic Observation

Researchers conducted non-participant observations of students during their independent research blocks.

- **Focus:** Observations targeted "platform switching" behaviors, the length of time spent on "layman" tools versus "academic" tools, and the use of integrated features like WeChat's "long-press" translation.
- **Recording:** Field notes were taken to document the **user interface (UI) interactions** and the specific prompts used to simplify complex academic jargon.

Phase 2: Semi-Structured Interviews
Following the observations, individual 45-minute interviews were conducted.
- **Interview Protocol:** Questions focused on the **Perceived Ease of Use (PEU)** of Doubao/Dola, the "intimidation factor" of DeepSeek/ChatGPT, and the role of "platform friction" in their daily workflow.
- **Translanguaging Focus:** Students were encouraged to describe how they "bridge" their thoughts from their native language to English using AI as a mediator.

Data Analysis
The data were analyzed using **Thematic Analysis** following Braun and Clarke's (2006) six-step framework (as cited in Seraj et al., 2026; Alharbi & Alqefari, 2025).
1. **Familiarization:** Transcribing interviews and reviewing field notes.
2. **Initial Coding:** Labeling phrases related to "layman terms," "academic pressure," and "embeddedness."
3. **Generating Themes:** Grouping codes into broader categories such as *Cognitive Scaffolding* and *In-Situ Translanguaging*.
4. **Reviewing Themes:** Ensuring themes accurately represent the observed "hybrid workflow."
5. **Defining Themes:** Naming the specific roles assigned to each AI model.
6. **Reporting:** Integrating findings with the conceptual frameworks of **See & Goh (2026)** and **See et al. (2026)**.

Ethical Considerations
All participants provided informed consent. To maintain confidentiality, pseudonyms were used. Participants were informed that the study focused on their *usage patterns* rather than the *academic content* of their research to reduce social desirability bias (the tendency to claim they only use "sophisticated" tools).

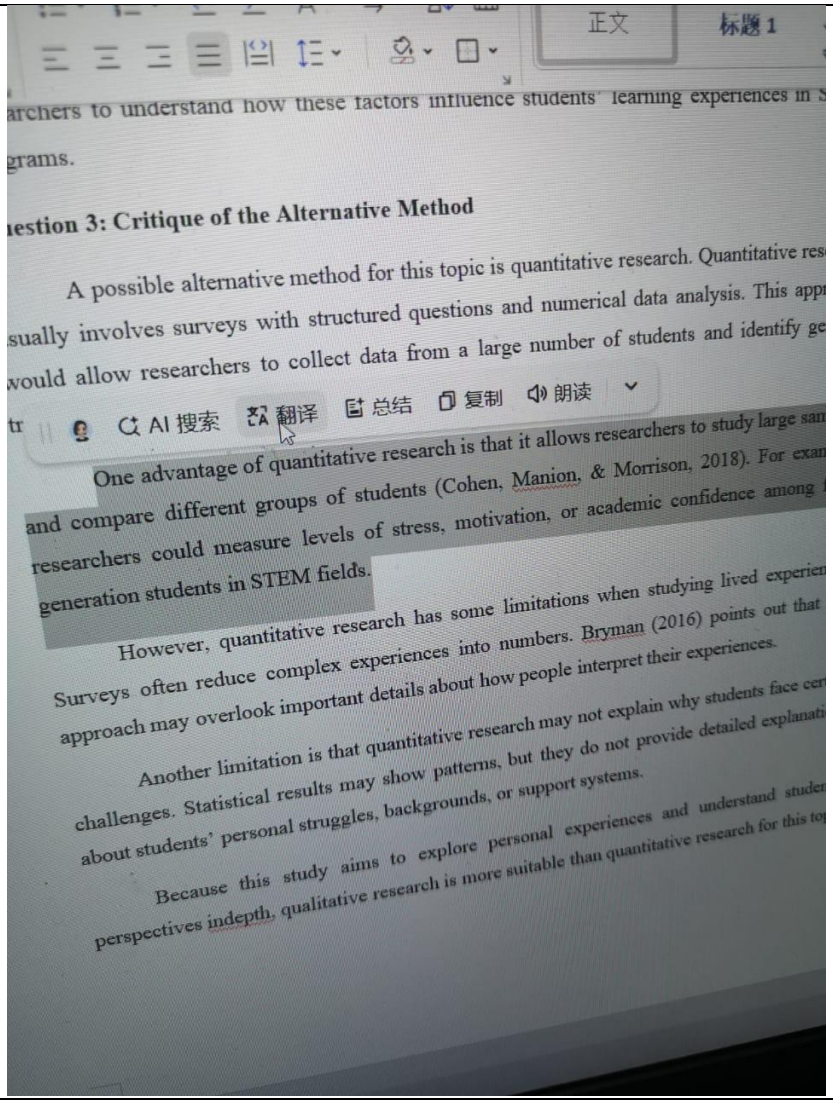
Findings
Observation 1: Register Preference and Conceptual Accessibility
Context: During a 45-minute observational session of three postgraduate students working on literature reviews, a distinct pattern emerged regarding tool selection based on the "lexical density" of the AI's output.

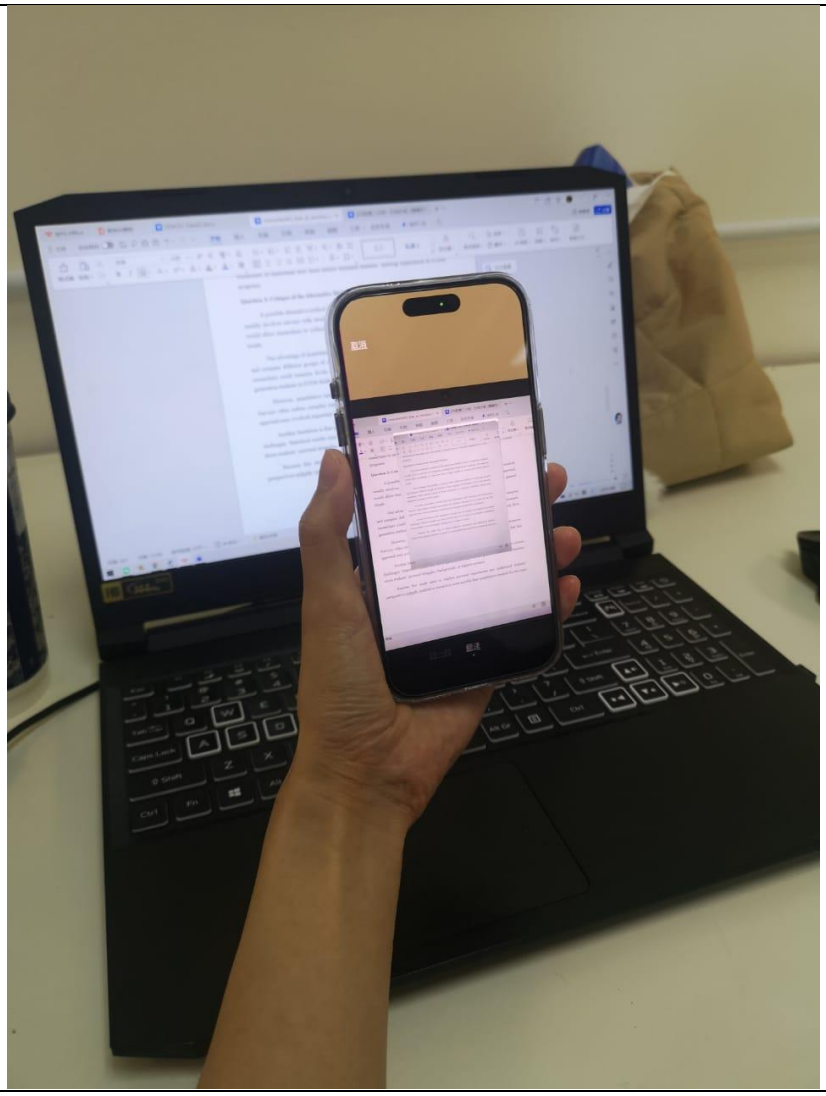
Key Findings
- **The "Intimidation Factor" of Formal AI:** When using ChatGPT or DeepSeek, students frequently requested the AI to "simplify" or "explain like I'm five." One student noted that the academic tone of these models felt like "reading another textbook," which increased cognitive fatigue rather than relieving it.
- **Preference for "Conversational Scaffolding":** Students turned to **Doubao/Dola** when they encountered a new, complex theory. The observation showed that these tools

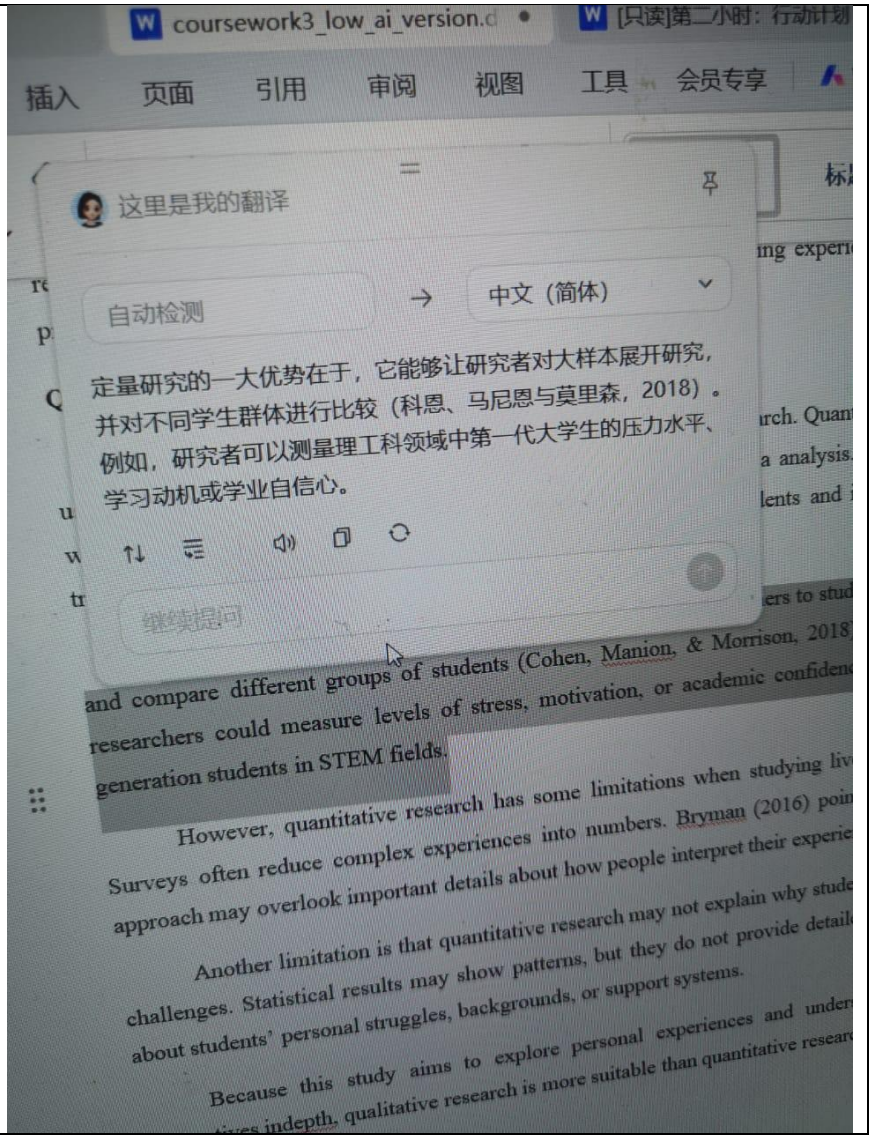
utilized high-frequency vocabulary and shorter sentence structures. This "layman" output acted as a **conceptual bridge**, allowing students to grasp the core logic of a theory before attempting to engage with the formal academic literature.

- **Speed of Comprehension:** On average, students spent less time re-reading prompts in Doubao compared to ChatGPT. The "plain language" provided by Doubao allowed for immediate "Gist Processing," whereas the academic prose of DeepSeek required "Deep Decoding," which students found secondary to their immediate goal of basic comprehension.

Table 1
Observation of use 1

Students highlighted the text they want to learn.	

They use their smartphone to capture the text they want to learn.	

The texts are translated into target language Chinese, to ease their learning.	

Observation 1 revealed a strategic preference for linguistic simplicity. Participants consistently favored Doubao and Dola for initial 'sense-making' tasks. The data suggests that the plain-language register of these tools lowers the 'Affective Filter,' providing a more navigable entry point into complex academic topics compared to the dense, polysyllabic outputs characteristic of ChatGPT and DeepSeek.

Observation 2: Functional Differentiation in High-Stakes Translanguaging

Context: During the drafting phase of an academic essay, observations were made on how students transitioned from their "layman" understanding (gained via Doubao/Dola) to formal academic output using ChatGPT and DeepSeek.

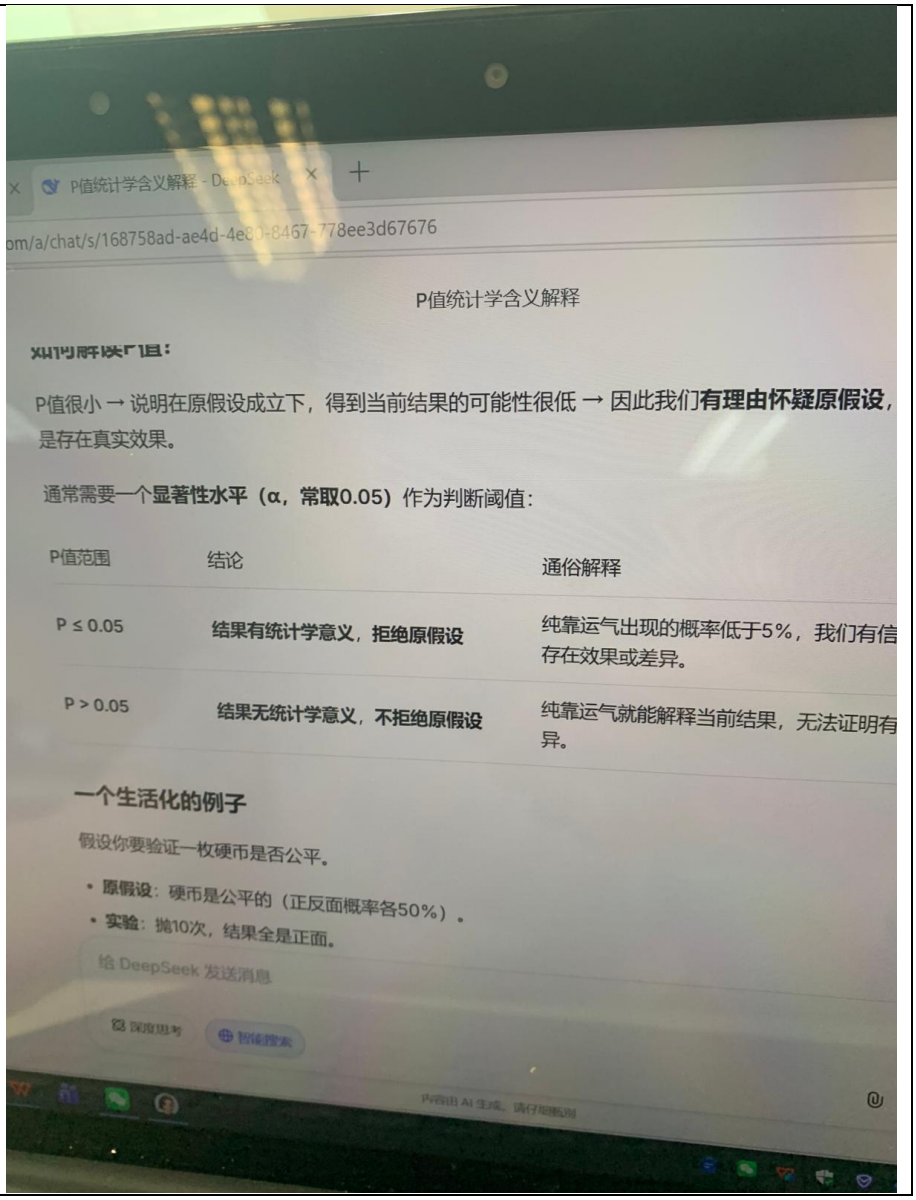
Key Findings

- **ChatGPT for "Rhetorical Fluidity":** Students predominantly used ChatGPT to "smooth out" their translations. Observation showed that students would input a rough paragraph (often a mix of their native language and basic English) and ask ChatGPT to "make it sound more natural" or "improve the flow." ChatGPT was observed to be the "stylistic bridge," moving the student's ideas into a readable, professional-but-accessible academic tone.

- **DeepSeek for "Structural Rigor" and "Precision":** In contrast, when students were dealing with technical data, citations, or logical proofs, they switched to DeepSeek (particularly the "DeepThink" or R1 reasoning modes). Students reported that DeepSeek felt more "strict" and "logical." Observation revealed that while ChatGPT was used for *writing*, DeepSeek was used for *checking*—specifically for verifying if their technical arguments held up under academic standards.
- **The "Double-Translation" Workflow:** A recurring pattern was observed:

1. **Input (L1/Layman):** Student types a concept in simple terms into Doubao.
2. **Synthesis:** Student understands the concept.
3. **Refinement (ChatGPT):** Student asks ChatGPT to draft the paragraph in formal English.
4. **Verification (DeepSeek):** Student asks DeepSeek to check the logical consistency of that paragraph against a specific research paper or theory.

Table 2
Observation of use 2

Use of deepseek for explanation	

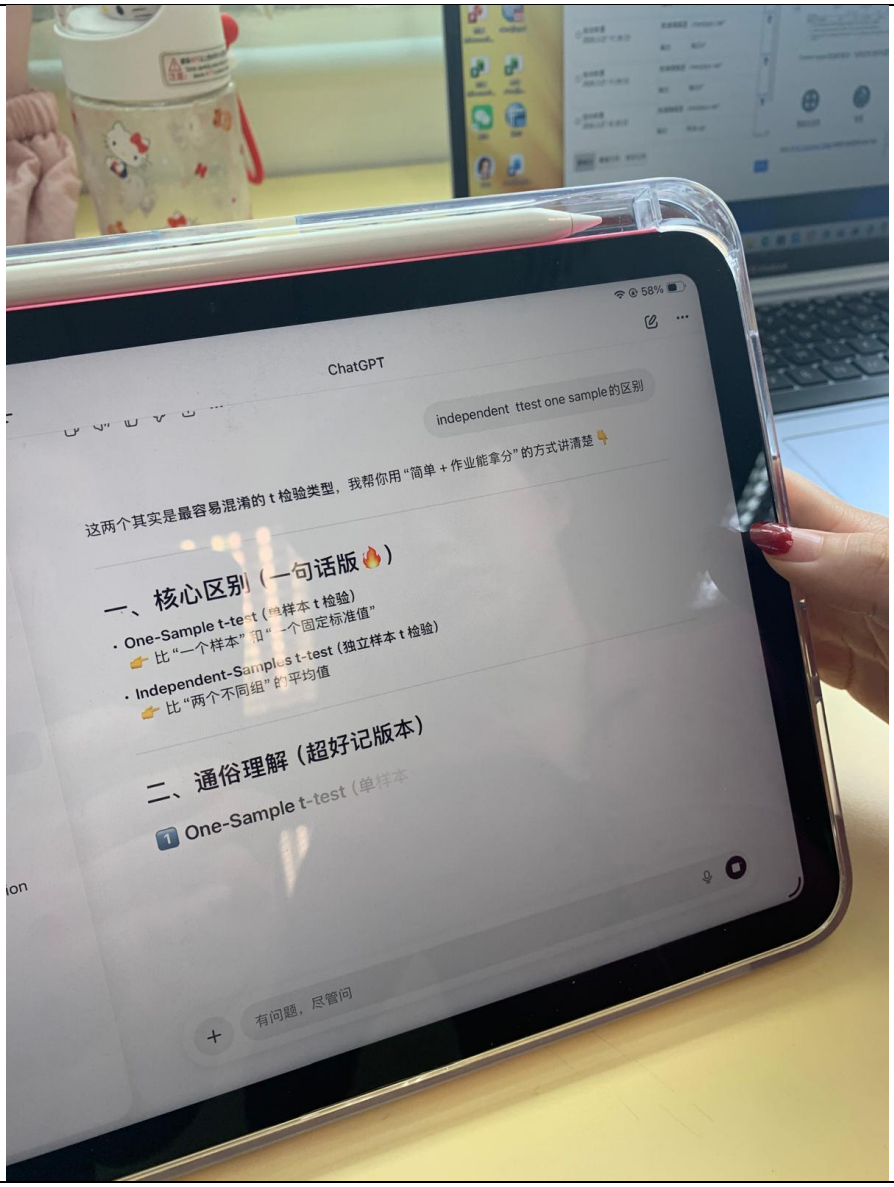
Use of chatgpt for explanation	

Table 3
Comparison Table: Translanguaging Roles

Feature	**ChatGPT**	**DeepSeek**
Primary Use	Narrative flow & stylistic polishing.	Logical checking & technical precision.
Tone Perception	"Professional yet helpful peer."	"Strict, structural examiner."
Translanguaging Strength	High cultural nuance; natural sounding.	High grammatical accuracy; rigid adherence to logic.

Feature	ChatGPT	DeepSeek
Student Sentiment	"It helps me sound like an expert."	"It helps me make sure I'm not wrong."

Observation 2 highlighted a sophisticated 'multi-modal' workflow. While participants expressed a preference for the layman terms of Doubao for initial comprehension, they engaged in strategic 'Register Shifting' when using ChatGPT and DeepSeek. ChatGPT functioned as a tool for 'Aesthetic Translanguaging' (focusing on flow and readability), whereas DeepSeek was utilized for 'Analytical Translanguaging' (ensuring structural and logical integrity). This suggests that postgraduate students view AI not as a monolithic resource, but as a specialized toolkit where different models fulfill specific stages of the academic writing cycle.

Observation 3: In-Situ Translanguaging and the Erosion of Platform Friction
Context: This observation focused on the "environmental" aspect of AI use. Researchers monitored how postgraduate students handled academic queries that arrived via social messaging (WeChat/Weixin) versus formal research environments.

Key Findings
- **The "One-Tap" Efficiency:** Students showed a marked preference for tools that required the fewest "clicks" to achieve comprehension. When a peer shared a complex research link or a screenshot of a theoretical framework via WeChat, students utilized the **built-in "Long-Press to Translate"** or **"Translate in Mini Programs"** features. This allowed them to stay within the "social flow" of their cohort without the cognitive cost of switching apps to a more "academic" AI like DeepSeek.
- **Dola and the "Conversational AI Interface":** Because Dola operates within the WeChat interface, students treated it as a "smart contact." Observation showed that students would forward difficult snippets of text directly to the Dola chat. The AI's response—delivered in the same chat bubbles used for daily social interaction—further reinforced the preference for "layman" language. The interface itself (a chat bubble) subconsciously signaled to the student that the information should be "conversational" and "accessible" rather than "academic."
- **The "Moments" as Informal Learning:** Students were observed using the "Translate Moments" feature to follow international academic influencers or seniors. This represents a form of **incidental translanguaging**, where academic concepts are absorbed in a social context. The ability to "Translate While Typing" allowed international postgraduates to engage in real-time academic debates with peers in their non-native language, using the AI to bridge the gap between their "inner layman thoughts" and "outer professional communication."

Table 4
Observation of use 3

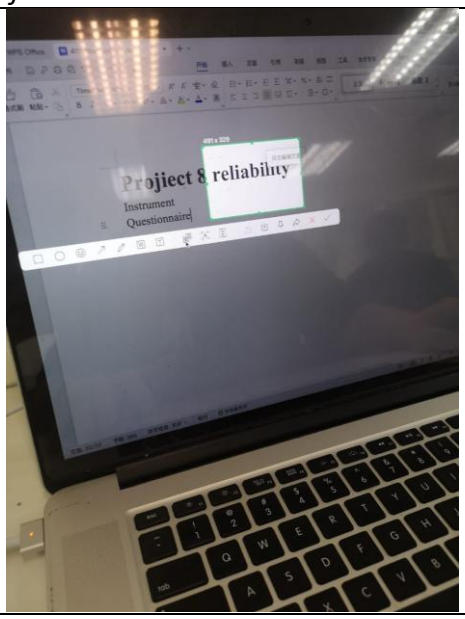
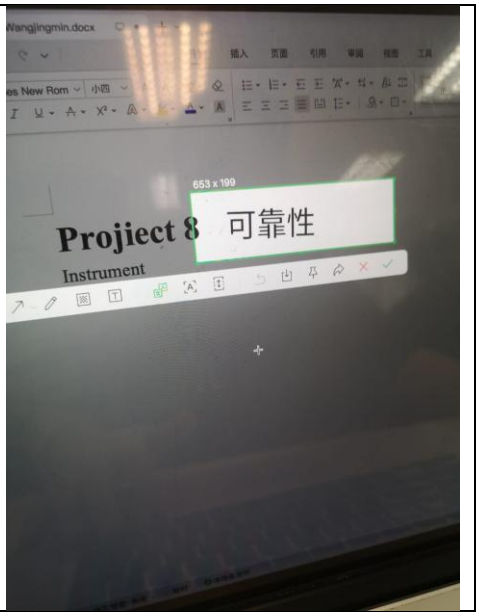
Checking the meaning of an unfamiliar academic term, e.g. reliability.		

Table 5
Comparison of Workflow Friction

Feature	**WeChat/Dola/Doubao**	**ChatGPT / DeepSeek**
Accessibility	Integrated (In-situ)	External (Destination)
User Effort	"Long-press" / "One-tap"	Copy, Switch App, Paste, Prompt
Psychological State	Relaxed / Social	Formal / Task-oriented
Language Register	Plain / Conversational	Complex / Scholarly

Observation 3 identified 'Platform Embeddedness' as a primary driver of tool selection. The utilization of Weixin's built-in features (e.g., Translate While Typing and Mini Program Translation) suggests that postgraduate students prioritize the reduction of 'Platform Friction.' By utilizing Dola within the WeChat ecosystem, students merge their social and academic identities. This 'In-Situ Translanguaging' promotes a continuous, low-anxiety learning environment where the transition from layman comprehension to social academic exchange is seamless, contrasting with the high-friction, 'siloed' experience of using standalone models like ChatGPT or DeepSeek.

Discussion: The Tension between Accessibility and Authority

The findings from these observations suggest a significant shift in the technological mediation of postgraduate research. While the academic community often views "AI" as a singular category, students perceive a clear hierarchy based on functional utility and linguistic register.

The Preference for "Plain Language" as a Cognitive Strategy

The preference for Dola and Doubao over ChatGPT and DeepSeek is not merely a sign of linguistic avoidance; it is a sophisticated cognitive load management strategy. Postgraduates are often overwhelmed by "threshold concepts"—ideas that are difficult to grasp but essential for progress. By utilizing "layman-term" AI, students are effectively performing functional translanguaging (Waluyo & Rouaghe, 2025). They use simple, accessible language as a "scaffolding" to build a foundation before attempting to scale the "academic walls" of more formal models.

The Impact of Platform Embeddedness

Observation 3 highlights that **convenience often trumps capability**. The integration of translation tools within the **WeChat/Weixin** ecosystem (e.g., *Translate While Typing*) creates an "In-Situ" learning environment. When the barrier to entry is as low as a "long-press," students are more likely to engage with complex material frequently. In contrast, the "destination-based" nature of ChatGPT and DeepSeek creates **platform friction**, causing students to save those tools only for high-stakes tasks like final drafting (Yanzhou, 2025).

The "Hybrid Workflow" Model

Contrary to the idea that one AI will "win," students are developing a **hybrid workflow (**Wang & Hao, 2025**)**. Three phases have been observed:

1) **Comprehension Phase:** Low-friction, layman-focused tools (Dola/Doubao).
2) **Refinement Phase:** Stylistic, high-output models (ChatGPT).
3) **Validation Phase:** High-logic, structural models (DeepSeek).

Conclusion: Toward a New Digital Literacy

This study demonstrates that for postgraduate students, the "best" AI tool is not necessarily the most "academic" one, but the one that most effectively lowers the Affective Filter.

Three Key Takeaways have been observed. They are:

1) **Plain Language is a Bridge:** The "layman terms" provided by tools like Doubao are not a replacement for academic rigor but a necessary precursor to it.
2) **Context is King:** The success of Dola/WeChat translation features suggests that **embedded AI**—tools that live where the student already works and socializes—will have a more significant impact on daily academic life than standalone platforms (QI & LI, 2025).
3) **Pedagogical Implications:** Educators should recognize that students are using a suite of tools to "translate" their way into the academic community. Instead of discouraging "simple" AI, we should teach students how to transition effectively from **layman comprehension** to **academic production (**Yu & Jiang, 2025**)**.

Ultimately, the choice to use "easier" language tools is a pragmatic response to the density of postgraduate study. By using Dola and Doubao for "sense-making" and DeepSeek or ChatGPT for "polishing," students are navigating a complex linguistic landscape with remarkable agility, proving that translanguaging is no longer just a human skill, but a collaborative human-AI process.

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