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PREFACE

Jurnal CULTURE (Culture, Language, and Literature Review) is a journal that contains articles based on research results or equivalent to research results (scientific works) regarding culture, linguistics and literature. Jurnal CULTURE is published twice a year, in May and November.

Jurnal CULTURE can be a learning medium as well as an effort to improve the quality of academics in making their contribution to progress in the fields of linguistics and literature in Indonesia. It is hoped that this journal can fulfill the desires of readers who want to know the latest things from the disciplines of Linguistics and Literature.

The entire editorial board would like to thank all parties who have contributed ideas, thoughts and manuscripts. Hopefully this collaboration can continue well. We really hope for constructive criticism and suggestions for improvements in future publications.

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Ethnomedicine in Ammatoa maternal care: Lexicon, semantic categories, and speech practices

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Abstract

This article maps the maternal–neonatal ethnomedicine of the Ammatoa indigenous community in Kajang, detailing lexicon, semantic categories, and speech practices that scaffold mother–infant care. Based on an inventory of 26 medicinal plants and practice notes, terms are grouped into four clusters: (1) materials/remedies, (2) actions, (3) prayers, and (4) symptoms. Findings show that the local pharmacopeia is tightly coupled with ritual utterances; water 'bound' by prayer soothes the mother, underpins household hygiene, and frames a stepwise pathway from comfort care to referral when danger signs emerge. The coexistence of sanro pammanak (traditional birth attendant) and midwife indicates a practical division of labor, sanro pammanak on ritual/comfort, midwife on clinical actions, while the family, especially the husband, supports logistics and decision-making. Linguistically, the lexicon is transmitted in Konjo interspersed with Indonesian, functioning not only as labels but as a social protocol that orchestrates recovery rhythm and referral compliance. Practical implications include a bilingual glossary and culturally attuned health communication materials for mother–infant care.

***Keywords**: Ammatoa Kajang, Ethnomedicine, Maternal Health, Lexicon, Performative Language*

1. Introduction

Maternal health in indigenous communities is often grounded in a repertoire of ethnomedicine that combines plant-based preparations, household care practices, and ritual speech that both soothes and guides action (Bacciaglia et al., 2023; Busro et al., 2024). In everyday care, language is not merely a conduit for knowledge; it is performative. Prayers, permissions, and prohibitions sequence what is done, mark the point at which home care should cease, and trigger referral to clinical services. By contrast, biomedical services prioritize safety and early detection of danger signs through effective monitoring, early

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warning systems, and regular postnatal check-ups (Putri et al., 2023; Slezak et al., 2022). Gaps commonly arise when these two knowledge regimes do not translate into one another, even though first responses and decisions typically occur at home, in local languages and norms.

Existing scholarship on these issues remains segmented; although linguistic anthropology offers detailed accounts of how people talk, interpret, and negotiate illness, these findings rarely enter the design of health-communication tools, which are still dominated by biomedical and behavioural templates (Mushaandja, 2025). In addition, most anthropolinguistic work, including in Indonesia, has concentrated on describing ritual texts, narrative performance, language ideologies, and identity or power relations in interaction (Fitriani, 2018; Rinaldi et al., 2018), rather than translating those insights into operational models for clinical or community health communication. Ethnobotanical studies tend to catalogue plants and their uses (Afzal et al., 2024; Girmaw et al., 2023; Makombe et al., 2023). Maternal-health studies center on clinical standards, service coverage, and partnerships between health workers and traditional healers (Mogi et al., 2024; Zullo et al., 2023). Few studies integrate all three into an operational model that maps the ethnomedicinal lexicon (materials, actions, implements), explicates the performative functions of speech (prayer, permission, prohibition) that legitimate or withhold actions, and translates these elements into a stepwise decision pathway from household care to clinical referral. This gap contributes to health-communication interventions that lack cultural acceptability or, conversely, to local practices that proceed without explicit safety safeguards.

The Ammatoa indigenous community provides a critical case for addressing this gap. Residing in Tana Toa Village, Kajang Sub-district, Bulukumba, South Sulawesi, the community's social and ecological life is guided by *Pasang ri Kajang*, an oral customary law that governs human–nature harmony through a triadic sanction system, prohibits forest destruction, regulates honey harvesting, and disciplines water use (Ningsih et al., 2021; Nur et al., 2022; Sartika et al., 2024). Even house orientation is ordered to safeguard sacred zones (Sampean & Sjaf, 2021). Cultural identity is enacted through the Konjo language, both a heritage language and the principal medium for healing incantations (*baca-baca*), predominantly Konjo while incorporating Arabic, Bugis, Makassar, and Indonesian elements (Ningsih et al., 2023). Illness is understood along natural, magical, and spiritual lines and is treated with prayer and locally sourced plant remedies. The vitality of Konjo, closely tied to adherence to pasang, supports the everyday continuity of traditional care knowledge (Juhannis et al., 2021; Ningsih, et al., 2021).

This study links the ethnomedicinal lexicon directly to the performative functions of language within a care-seeking decision pathway. Rather than treating the lexicon as a list of labels, it is approached as a social protocol enacted through speech acts and ordered practices. Thus, the study pursues two objectives. First, it inventories and models the semantic categories of the maternal–neonatal ethnomedicinal lexicon. Second, it analyzes speech practices as performative acts that sequence care and establish compliance and referral thresholds. Overall, the study formalizes the linkage among lexicon, speech acts, and decision pathways so that the lexicon functions as an operational social protocol aligned with clinical safety and adaptable for culturally attuned health-communication materials.

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2. Theoretical Framework

2.1 Ethnomedicine and the ecology of care knowledge

Ethnomedicine represents a complex, adaptive system of health knowledge deeply intertwined with ecological contexts and environmental interactions. The evidence from multiple studies reveals that ethnomedical systems are dynamic social-ecological structures that respond to environmental changes (Jan et al., 2023). Researchers have documented how these systems depend on natural environments, with ecological conditions directly influencing medical practices and knowledge transmission (Manzoor et al., 2023; Silalahi et al., 2020).

Ethnomedicine involves the study of cultural conceptions of health and illness, traditional medical practices, and their integration with other systems. It is not static but continuously evolving, incorporating innovations and adapting to challenges like environmental degradation and technological change. Local ecological knowledge plays a crucial role in understanding these resilient healthcare systems, and anthropological research on traditional medicine has documented how indigenous communities sustain health practices through intricate relationships with their natural surroundings, while simultaneously underscoring the need for more interdisciplinary work to clarify its contributions to human health and to the documentation of Indigenous medical knowledge (Afzal et al., 2024; Triratnawati, 2017).

2.2 Ethnolinguistics and cultural semantics

Ethnolinguistics is the study of how language relates to culture and ethnicity, focusing on how abstract concepts such as truth, love, hate, and war are expressed across different cultures and languages (Underhill, 2012). This field explores the intricate relationship between language and cultural identity, examining how language functions as a marker of cultural belonging and how it shapes and is shaped by cultural and ethnic groups (Zhanalina et al., 2024).

Ethnolinguistics and cultural semantics offer an operational path from words to practice by pairing lexical elicitation with cross-translatable paraphrase. In the Natural Semantic Metalanguage (NSM) tradition, analysts model meanings using a small set of semantic primes such as someone, body, feel, do, because, can, and culture-specific, allowing comparison across languages without erasing local distinctions (Goddard, 2008; Wearing, 2009). This fine-grained semantic approach resonates with Indonesian linguistic-ethnographic work on ritual speech and mantras, for example, (Fitriani, 2018) analysis of formulaic expressions in healing practices, which likewise seeks to capture culture-specific meanings while preserving locally salient contrasts. An ethnolinguistic study of healing spells used by *dukun* in Lamongan describes their poetic form, semantic organization, and ritual functions (Yazidiy et al., 2022). Complementing these accounts, an interpretive-phenomenological study of healing mantras in the Ammatoa Kajang community shows how *baca-baca* in Konjo operate simultaneously as traditional therapeutics and as a strategy of Konjo language maintenance: the mantras mix Konjo with Arabic Qur'anic phrases and other regional languages yet retain Konjo as the dominant code, encode a

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tripartite classification of illness into natural, magical, and supernatural causes, and are transmitted orally within *sanro* lineages in ways now threatened by declining intergenerational uptake (Ningsih et al., 2023) Viewing illness as culturally constituted meaning shifts comparison from assumed biomedical equivalence to explanatory models that people use to interpret causes, decide "what to do next," and allocate authority. Classic and continuing work in medical anthropology and cognitive psychology demonstrates that these models vary within cultures and shape compliance, care-seeking, and hand-offs (Kleinman et al., 1978).

Linking semantics to action, pragmatic theory treats prayers, permissions, and prohibitions as performative speech acts whose force depends on recognizable formulas, authorized speakers, settings (felicity conditions), and community uptake. Recent formal accounts model how performatives update social states (not just information), helping explain why water-anchored prayers can license or withhold steps and set stop/go/referral thresholds in maternal care (Krifka, 2024).

2.3 Language performativity

Drawing on speech-act theory (Jr Mahinay Mabaquiao & Mabaquiao, 2018), language performativity denotes the capacity of utterances to *do* things, to enact decisions and reshape social reality, rather than merely describe it (Harman & Zhang, 2015). Performativity provides a foundational framework in linguistic anthropology for showing how language does not just reflect society but helps make it (Henry & Hall, 2025). In care settings, this means speech can authorize, constrain, or advance action.

Performatives operate through three interlocking dimensions: (i) illocutionary force (directives, permissions, prohibitions, declarations), (ii) felicity conditions (an authorized speaker using a recognized formula in the right setting), and (iii) uptake, the audience's recognition that turns words into deeds. Their efficacy is embodied: voice quality, rhythm, touch, gaze, and the handling of objects (water, cloth, tools) index roles and authority, aligning bodies and expectations (Toisuta & Aritonang, 2024). Through repetition and ritualization, formulas acquire deontic weight, becoming social protocols that license or withhold specific remedies, set stop/go thresholds, shift accountability ("we will refer now"), and regulate emotion and pain. Thus, performative speech does not merely symbolize care; it organizes attention, coordinates action, and sequences the pathway from comfort measures to escalation and referral.

Extending this lens, linguistic anthropology shows that ritualized speech does not merely denote states of affairs but indexes roles, rights, and obligations, thereby anchoring social action. Classic work on indexicality demonstrates how formulaic utterances position speakers and addressees within an actionable order (e.g., who may authorize, who must comply). In Indonesia, studies of ritual speech document socially authorized forms that allocate authority and sequence collective action, illustrating how recognized formulas become conditions for efficacy rather than symbolic add-ons (Kasmawati et al., 2025). Taken together, with broader insights on orality and formulaic performance in organizing social life, these threads motivate a performativity-informed approach that treats the ethnomedicinal lexicon as an action-guiding protocol, in which authorized prayers,

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permissions, and prohibitions function as deontic signals for stopping, continuing, or referring within maternal–neonatal care.

3. Research Method

This study employed a qualitative phenomenological design to illuminate the lived meanings of maternal ethnomedicine and speech practices within the Ammatoa Indigenous community, Bulukumba Regency, South Sulawesi, Indonesia. This method is used to describe and interpret lived experience as it is lived, attending to how meaning is constituted through language, embodiment, time, space, and relations (Hultgren, 1990).

Participants were recruited purposively and expanded through snowball sampling. They included *sanro pammanak* (traditional birth attendant), midwife, tribe elders, the head of the village, and mothers (pregnant, labour, and postpartum), as well as husbands or household caregivers (see table 1). Inclusion criteria were residence or regular activity within the customary territory, direct involvement in the practice or transmission of relevant terms, and willingness to provide informed consent.

Table 1. Informant Characteristic

Informant's Characteristics	**Frequency (N)**
Age (Years)	Range 17-70
Job	Traditional midwife = 2
	Midwife = 1
	Tribe elder = 3
	Housewife = 5
	Head of Village = 1
	Farmer = 3
Education	Primary School = 3
	Secondary School = 9
	Diploma = 1
	Bachelor =2
Sex	Female = 8
	Male = 7

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Data were collected through in-depth, semi-structured interviews conducted in Konjo–Indonesian. The interviews elicited (a) local plant names and spelling variants alongside the parts used, (b) modes of preparation and administration (e.g., decoction, poultice, rubbing, ingestion), (c) indicated maternal–neonatal phases (pregnancy, childbirth, postpartum, lactation, infancy), (d) terms for symptoms and bodily sensations, and (e) the vocabulary of oral rules such as prayers, permissions, and prohibitions, that commonly accompany use.

Audio data were transcribed verbatim and organized into lexical entries comprising the lemma in Konjo, any variants, a brief gloss in Indonesian/English, the semantic domain (materials, actions, implements, or symptoms), the phase of use, a concise note on application, and collocations of speech acts (for example, typical prayer formulas or rule expressions). Orthographic variants were standardized through normalization while preserving alternative forms in a dedicated "variant" field.

Analysis proceeded in three stages. First, a thematic–lexical pass extracted terms from transcripts and documents to compile the lexicon. Second, a cultural-semantic grouping organized entries by domain and function, namely prevention, recovery, infant protection; materials versus actions versus implements versus symptoms, and by phase (pregnancy, childbirth, postpartum, lactation, infancy). Third, a qualitative pragmatic–performative analysis linked lexical entries to their accompanying speech acts (prayer, permission, prohibition) to understand the sequencing of care and the articulated thresholds for cessation of home treatment or referral.

Trustworthiness was supported through source triangulation across household actors and Sandro pammanak, an audit trail documenting decisions in orthographic normalization, and clarification of spellings and meanings with key informants. The study adhered to procedures for informed consent and anonymization, and placed explicit limits on the publication of sensitive ritual materials in line with the American Anthropological Association Code of Ethics and the Linguistic Society of America's ethical guidelines. In particular, *baca-baca* formulas are not reproduced in this article; the *sanro pammanak* deliberately did not disclose the full wording, because in their belief, the efficacy of the *baca-baca* depends on it not being shared beyond authorized circles. Out of respect for this restriction, only paraphrased descriptions of function and context are presented here.

4. Findings and Discussions

4.1 Lexicon and cultural-semantic organization

The corpus of interviews and plant-use documentation consolidates into a coherent repertoire of maternal–neonatal care expressed through locally anchored terminology. After normalizing variants, entries were grouped into four cultural–semantic domains and layered with a pragmatic speech-act category that accompanies use. Each item is tagged by phase of application (antenatal, in-labour, postpartum, lactation, newborn) and typical preparation/administration. Meanings are carried by collocations (preparation method, body locus, timing) and by the performative status of utterances that authorize, constrain, or advance care. Recurrent patterns include phase specificity, the coupling of substances

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with non-pharmacological routines, and the presence of stop/go triggers that orient escalation to referral.

Within this organization, the Materials domain comprises topical, oral, and bathing preparations aligned with distinct maternal/neonatal aims; Actions covers non-pharmacological routines that modulate comfort, flow, and recovery; Devices/props index implements that support positioning and handling; and Symptoms/sensations provide cues for continuation, pause, or escalation. The Speech-act layer functions as a procedural scaffold that sequences steps and publicizes accountability across actors. Table 2 summarizes representative entries from each domain and their phase-specific functions.

Table 2. Ethnomedicine lexicon for maternal–neonatal care

Domain	Local Term (Konjo)	Gloss/Use	Phase	Notes
Material	*Lambere susu*	Topical Leaf applied to breasts to promote milk flow	Postpartum (lactation)	Used for 2–3 days as comfortable; discontinued once milk let-down is achieved
Material	*Kahu-kahu borong*	A mucilaginous herbal drink used as a 'birth facilitator.'	Labor	Shaken until slimy, then drunk; given when labour slows or stalls
Material	*Tahasa bassi*	Decoction for uterine cleansing; can also be applied to boils	Post-miscarriage / postpartum	Local topical application for boils; internal use monitored for safety
Material	*Kaca-kaca / Ci'nong*	Herbal preparation for newborn skin care and prenatal cleanliness	Prenatal/newborn	Applied topically, sometimes in combination with other plants
Action	*Back massage*	Massage to stimulate milk let-down	Postpartum	Non-pharmacological comfort care; stopped once milk begins to flow
Action	*Herbal bathing*	Bathing with leaf/bark decoction for	Postpartum	Used to support hygiene and bodily recovery

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		restoration and comfort		
Action	*Pasosorang rub*	Postpartum body rub using leaves (*kulaju , tanging-tanging*, and soursop leaves)	Postpartum	Performed during bathing/body care to promote comfort and circulation
Speech act	*Baca-baca* (prayer)	Water-mediated ritual prayer used to calm and guide care	Labor / postpartum	Administered by drinking or sprinkling; a spoonful is used in specific cases of retained placenta
Device/props	*Holding rope/cloth/pole*	Simple support for sitting/squatting birthing positions	Labour	Used to brace the body; discontinued if fatigue or severe pain escalates
Symptoms /sensation	*Danger signs (heavy bleeding; prolonged/stalled labour; extreme weakness)*	Heavy bleeding, prolonged/stalled labour, or extreme weakness	Labour/Postpartum	Immediate referral trigger; suspend household measures.

Table 2 inventories representative entries in the maternal–neonatal ethnomedicine lexicon and organizes them by domain, materials (plant-based remedies), actions (household procedures), and speech acts (ritual language). Each entry is linked to its primary care aim, the phase of use (pregnancy, labor, postpartum, lactation, newborn), and locally stated notes that function as stop–go rules. Read together, the table shows how remedies and practices are embedded in culturally legible protocols that pace care and guard against overuse.

In the materials domain, *lambere susu* is a topical leaf applied to the breasts to encourage milk let-down in early postpartum; its use is typically limited to "2–3 days as comfortable," which serves as a built-in stop rule once milk flow is established. *Kahu-kahu borong* is a mucilaginous drink prepared for stalled labor; it is shaken until slimy before ingestion and is used alongside prayer, with referral indicated if progress does not resume or danger signs appear. *Tahasa bassi* is a decoction for uterine cleansing after miscarriage or childbirth and may also be applied topically for boils; careful dosing and monitoring provide an interface with clinical safety. *Kaca-kaca/Ci'nong* supports prenatal cleanliness aims and newborn skin care and can be used alone or in combination with other plants, linking hygiene with comfort in the perinatal period.

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In the actions domain, a back massage is used postpartum to stimulate milk let-down and is explicitly stopped once milk begins to flow; it is a non-pharmacological comfort measure that avoids indefinite application. Herbal bathing, typically a leaf/bark decoction, is framed as restorative hygiene during postpartum recovery. The pasosorang rub, using *kulaju* (banana leaf), *tanging-tanging*, and soursop leaves, forms part of bathing/body care to promote comfort and circulation.

The speech-act domain captures *baca-baca* (prayer) as a water-mediated performative used to calm the mother and authorize the next step in care. In specific circumstances, a spoonful or a sprinkle is administered for a retained placenta; if bleeding or retention persists, the practice signals escalation and legitimizes clinical referral. Overall, the table demonstrates that remedies, procedures, and prayers are not discrete elements but coordinated components of a social protocol that embeds safety guardrails and culturally acceptable thresholds for stopping, shifting, or escalating care.

The devices/props domain registers simple supports that scaffold preferred birthing positions. A holding rope/cloth/pole assists sitting or squatting and provides bracing during contractions; its use is discontinued when fatigue or severe pain escalates, thereby preventing strain and marking a shift to alternative measures or referral as indicated. Finally, the symptoms/sensations domain aggregates danger signs, such as heavy bleeding, prolonged or stalled labour, or extreme weakness, that operate as immediate referral triggers. These cues suspend household measures and transfer responsibility to clinical providers.

Together, the five domains demonstrate that remedies, procedures, ritual speech, bodily supports, and symptom cues are not discrete elements but coordinated components of an operational social protocol. The protocol embeds safety guardrails (bounded durations, dosing cautions, device discontinuation) and culturally acceptable thresholds for stopping, switching, or escalating care, aligning household practice with clinical pathways.

Data on Table 2 indicates that the maternal–neonatal lexicon functions less as a loose list of remedies than as a phase-structured protocol in which plant-based materials (decoctions, topicals) are routinely paired with household actions (massage, herbal bathing) and ritual speech that authorizes the next step. This pattern accords with comparative evidence on postpartum "confinement" systems across Asia, where recovery is choreographed through dietary, hygienic, and ritual routines with family-mediated oversight and explicit thresholds for resuming ordinary activities (Raven et al., 2007). Likewise, regional ethnobotanical studies document postpartum steam baths and cleansing with herbal decoctions as common repertoires in Mainland and Island Southeast Asia, aligning with our observation that substances and procedures are culturally legible pairs rather than stand-alone acts (de Boer & Lamxay, 2009).

Moreover, the entries embed safety guardrails, bounded durations, dosing cautions, and stop/go, notes that orient escalation to clinical referral when progress stalls or danger signs appear. This logic is consistent with the broader safety literature on herbal use in pregnancy and labour, which recommends caution given variable efficacy signals and documented adverse outcomes, and urges integration with biomedical referral pathways (Ahmed et al., 2018; Girmaw et al., 2023; Muñoz Balbontín et al., 2019). Recent reviews similarly highlight heterogeneous quality in evidence and the need for transparent documentation of

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indications and limits, reinforcing the value of culturally grounded protocols that make decisions on when to stop, switch, or refer (Im et al., 2023a).

4.2 Speech acts as care instruments

Viewed through a performativity lens, *baca-baca* (prayer formulas) are materially bound to water and delivered by drinking or sprinkling. According to the *sanro pammanak* (38 years old), "during labour we give water that has been prayed over, after that, the baby is usually born more easily." In addition, a husband (29 years old) said: "...when my wife is about to give birth, I start preparing and giving her water that has been prayed over to help ease the delivery." In practice, water and *baca-baca* calm the mother, mark the transition to the next step, and provide a contingency protocol, for instance, a spoonful for a retained placenta. The utterance is not merely expressive; it carries illocutionary force that authorizes or withholds action (permission/prohibition/declaration) and sequences care from comfort measures toward escalation when needed.

Beyond comfort and reassurance, these speech acts function as micro-governance within the household. Permissions authorize specific procedures (massage, warming, herbal administration); prohibitions suspend or limit actions judged unsafe; and declarations formally close one phase of home care and open the next, including referral. Informants describe *baca-baca* water as a licensed step in the sequence: a community elder noted that, in specific contingencies, households administer a spoon of *baca-baca* water for a retained placenta; if bleeding or retention persists, this signals escalation and legitimizes referral. Prohibitions also set binding constraints on participation, who may act, where they may stand, and how they may assist. As one traditional birth attendant (40 years old) specifies: **"**..during labour, the traditional birth attendant stays beside the patient and must not stand in front of the vagina; when assisting the delivery, they are not permitted to look at the mother's vagina.**"** Together, these rules pace home management, protect modesty and role boundaries, and delineate clear thresholds for transfer to clinical care.

Here, our findings sit alongside and extend prior work in Indonesia. Studies of healing in Bali show that ritual speech is constitutive of therapeutic action; its force depends on recognized formulas, authorized speakers, and appropriate settings, underscoring that utterances can organize care rather than merely describe it (Negeri et al., 2025). In Ammatoa households, we likewise find water-mediated prayers that license the next step in care and articulate thresholds for escalation; informants explicitly describe a sequence in which "Give the *baca-baca* water first; if it's still severe/difficult, take her to the midwife," indicating a culturally sanctioned bridge from home management to clinical referral. By contrast, ethnobotanical surveys of maternal care in other Indonesian settings (e.g., among the Serawai) primarily catalogue plant remedies and indications (Halhaji & Suryadarma, 2022), with less attention to the performative organization of actions and decisions, highlighting our study's added value in linking lexicon to speech-act governance. Finally, the public-health literature in Indonesia tends to center on clinical standards and formal partnerships between health workers and traditional healers; our results complement this line by detailing how permissions, prohibitions, and declarations within the household pace attempts, set stop–go rules, and legitimate referral when danger signs persist.

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4.3 Sequencing and escalation thresholds.

Care typically begins with comfort-oriented measures in the home, such as a back massage that is discontinued once milk begins to flow, herbal bathing, and a brief passossorang rub, administered in a warm, private setting where mothers commonly adopt sitting or squatting positions and may steady themselves with a simple holding device (rope, cloth sling, or pole). According to a housewife (34 years old), "I had postpartum herbal bathing for perineal healing, one day only". Another postpartum mother (28 years old) noted that "for milk flow, *sanro pammanak* will bathe and briefly massage the back, but stop once milk flows". Within this rhythm, *sanro pammanak* accompany the process in ritual-and-comfort roles: short prayers and succinct permission/prohibition formulas pace what is done next and, equally, signal when an action should cease because it is no longer appropriate. These household sequences reflect a practical division of labor in which *sanro pammanak* regulate space and reassurance, while clinical acts are reserved for midwives once escalation is warranted.

Escalation is triggered by locally recognized danger signs such as heavy bleeding, prolonged or stalled labor, or marked maternal weakness, and by contingencies such as a retained placenta that do not resolve after initial measures. In these contingencies, water bound by *baca-baca* operates as a licensed step ("a spoonful for the placenta"); if bleeding or retention persists, a declarative utterance "closes" home care and legitimizes referral, at which point midwives assume responsibility for clinical procedures and formal reporting. At the same time, the *sanro pammanak* continues to support comfort and communication. As a traditional birth attendant (40 years old) put it, "If it becomes very difficult, we give water '*air baca-baca*' first; if it remains heavy, we take her to the midwife."

These patterned sequences, comfort measures paced by ritual speech with explicit stop/go thresholds and timely referral, converge with wider evidence on Indonesian healing speech and maternal ethnomedicine. Work on ritual language in Bali, for instance, shows that prayer formulas are not merely expressive but also enact authority and organize action (Manoj Jinadasa, 2016; Sumaryana Putra et al., 2025), a performative logic consistent with baca-baca as a licensing device in this study.

Ethnobotanical work on maternal care consistently shows plant-based preparations used alongside routine household procedures and staged decision-making; in our setting, for example, families deploy local herbs as first-line comfort care before referral when symptoms persist. This pattern coexists with women's preference for upright (sitting/squatting) postures in late labour. Current evidence supports this preference: a meta-analysis found that upright, free, semi-recumbent, and lateral positions are the most effective for shortening the second stage of labour, strengthening the case for enabling maternal choice of position. In addition, a recent systematic review reported that upright positions are associated with better perineal outcomes and neonatal well-being (Liu et al., 2025), further reinforcing the local rationale for preserving maternal autonomy over position. Finally, the family's active role, including husbands who prepare prayer water, mirrors broader findings on male support in pregnancy and structured partnerships between traditional attendants and formal services, with cultural-safety approaches emphasizing respectful handover at escalation.

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However, these household remedies are vernacular and non-standardized. Thus, their quantities, concentrations, and preparation conditions can vary across cases. Importantly, several systematic reviews classify a non-trivial share of commonly used herbs in pregnancy as contraindicated or "use with caution", underscoring potential interactions and adverse effects when combined with prescribed medicines (Baier et al., 2022; Im et al., 2023b; Kennedy et al., 2016). In addition, prayed-over water (baca-baca) is not necessarily sterile; broader perinatal infection-control guidance and the water-birth safety literature flag risks of neonatal infection when water handling is suboptimal, which strengthens the case for strict hygiene and clean-water practices around the mother–newborn dyad (Gupta & Froeb, 2020). Prolonged repetition of home measures may also delay timely referral, which runs counter to evidence-based intrapartum care models emphasizing avoidance of unnecessary or harmful practices and prompt escalation when danger signs persist (Oladapo et al., 2018). Accordingly, in this study's model, all home steps are explicitly time-bounded, tied to observable danger signs, and subordinate to midwife-led escalation; this account is descriptive of practice rather than a claim of clinical efficacy.

4.4 Linking lexicon

To foreground how lexicon operates as social protocol, Table 3 maps representative items to care aims, typical speech co-text, and stop/go triggers.

Table 3. Semantic mapping from lexicon to performative functions

Lexicon item	Care aim (semantic)	Typical speech co-text	Stop/Go trigger
Lambere susu (topical)	Lactation support/recovery	Permission formula to begin rubbing; reassurance	STOP when milk flows (let-down achieved)
Kahu-kahu borong (oral, mucilage)	Facilitate progress in stalled labor	Prayer over water; directive to drink	GO TO REFERRAL if no progress/danger signs persist
Baca-baca water (spoonful/sprinkle)	Calm and authorize the next step; retained placenta contingency	Declarative/permission formula by *sanro pammanak*	ESCALATE if bleeding/retention continues
Passossorang rub (postpartum)	Comfort, hygiene, circulation	Domestic rules on timing/space	STOP when soreness is relieved; shift to routine care

Table 3 formalizes how specific items in the ethnomedicinal lexicon are coupled with their intended care aims, the speech co-text that authorizes or withholds action, and locally recognized "stop/go" triggers. Read horizontally, each row shows how a material or practice is embedded in a performative script, prayers, permissions, or declarations, that sequences care and defines when to continue, stop, or escalate.

For lactation and postpartum recovery, lambere susu is applied topically with an explicit permission formula that legitimizes the start of rubbing and reassures the mother. Its built-in stop rule, discontinue when milk let-down is achieved, prevents overserving and signals a shift to routine care. Likewise, the postpartum pasosorang rub targets comfort, hygiene, and circulation. Domestic rules about timing and space govern its use, and the practice is

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stopped once soreness subsides, again marking a transition to ordinary care rather than indefinite treatment.

For labor progression, *kahu-kahu borong* (an oral mucilage) is prepared with a prayer over water, followed by a directive to drink it. Its "go to referral" trigger is activated when progress stalls or danger signs persist, translating local assessment into a clear escalation pathway. *baca-baca* water, which has been administered as a spoonful or a sprinkle, serves to calm and to confer permission for the next step, including a contingency for a retained placenta. If bleeding or retention continues, a declarative speech act signals escalation beyond home management.

Table 3 can be read as a governance script in which remedies are inseparable from the utterances that license, limit, and escalate their use. Husband and wife explicitly describe "one spoonful of *baca-baca* water" for a retained placenta as a contingent step, administered with a prayer and then discontinued or escalated if danger signs persist, "administer prayed-over water first; if the difficulty persists, refer to the midwife," as one informant summarized the stop/go rule that bridges home care to formal services.

This sequencing also structures a pragmatic division of labor: "childbirth is handled 100% by the midwife; sanro pammanak is asked to recite the prayer (*baca-baca*), a formulation that reserves ritual-comfort functions to the traditional birth attendant while transferring clinical accountability to midwives once referral is triggered. The mechanism by which these speech acts work is performative, not merely expressive: formulaic prayers spoken by an authorized person, over a proper medium (water), in the right setting, carry illocutionary force that "does things", granting permission to begin rubbing (*lambere susu*), declaring when to stop (after milk let-down), or authorizing escalation. This aligns with broader Indonesian evidence that ritual speech is a consequential act that organizes and advances healing, rather than a symbolic add-on (Panuntun et al., 2019). Taken together, the Ammatoa data show how materials and practices are embedded in performative protocols that pace interventions, embed safety guardrails (clear "stop" and "refer" thresholds), and maintain cultural legitimacy while enabling timely transfer to biomedical care.

5. Conclusions

This study demonstrates that the Ammatoa maternal ethnomedicine operates as an organized social protocol rather than a mere list of remedies. By inventorying the lexicon and modeling its semantic categories (materials, actions, devices, symptoms), then linking them to performative speech practices (prayer, permission, prohibition), we demonstrate how language sequences care from comfort measures to escalation and referral. Water-anchored prayers (*baca-baca*), domestic rules, and customary sanctions give deontic force to utterances, while the sanro–midwife coexistence translates this force into a workable division of labor. Conceptually, the contribution is a formal linkage of lexicon → semantics → performativity that clarifies decision thresholds and offers a culturally attuned bridge to clinical safety.

To translate these findings into action, we recommend developing a bilingual Konjo–Indonesian glossary with usage notes (phase, preparation, do/don't speech cues) and a concise "Stop–Go–Refer" pathway card for households and Posyandu, aligned with

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recognized danger signs; conducting joint sanro pammanak–midwife role-play sessions that rehearse permission/prohibition lines to standardize hand-offs; instituting a respectful protocol for handling ritual content (paraphrase options, consent procedures, water-hygiene guidance) for community dissemination; and introducing simple household/posyandu logbooks to record steps taken and referral triggers. For further inquiry and refinement, we suggest quantifying lexical consensus via free-listing and pile-sorting (with term–frame analysis or MDS), pursuing pharmacogenetic follow-up on high-use plants (voucher specimens, species identification, indicative safety windows), co-designing and evaluating culturally attuned communication materials (pre/post comprehension and referral uptake), building an audio corpus of non-esoteric prayer formulas (with consent) to support preservation and training, and extending comparative studies across South Sulawesi groups to test the portability and limits of the proposed lexicon–performativity model.

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Tech meets practice: Shadowing with mobile tools to enhance L2 vocabulary mastery

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Abstract

Vocabulary acquisition plays a crucial role in mastering English as a foreign language (EFL), yet numerous learners face challenges in expanding their lexical repertoire and applying it accurately. This research investigates how shadowing techniques delivered through mobile technology can enhance vocabulary mastery among EFL students. Using a mixed-methods design with an experimental framework, the study involved 40 intermediate-level learners from a local English course in Kampung Inggris Pare, selected via purposive sampling. Over the course of four weeks, participants engaged in shadowing activities using mobile applications, including Google Voice Assistant and Duolingo. Data collection combined quantitative measures—pre-test and post-test scores—with qualitative insights drawn from questionnaires and semi-structured interviews. Statistical analysis using a paired-samples t-test produced a t-value of -26.502 (df = 30) and a two-tailed p-value of 0.000, which is well below the 0.05 threshold, confirming a statistically significant improvement in vocabulary performance following the intervention. This suggests that the mobile-assisted shadowing approach effectively supports authentic and meaningful vocabulary learning. Qualitative feedback further indicated that participants benefited from the method's accessibility, adaptability, and opportunities for repeated practice, although some noted challenges related to audio playback speed and inconsistent internet connectivity. Overall, the findings highlight mobile-based shadowing as a promising and innovative strategy for strengthening vocabulary skills among EFL learners.

Keywords: *EFL Learning, Mobile Technology, Shadowing, Technology-Based Learning, Vocabulary*

1. Introduction

In learning English as a foreign language (EFL), mastering vocabulary is essential for enhancing overall language proficiency. A sufficient vocabulary enables learners to comprehend written texts, engage in conversations, speak fluently, and write effectively. According to 2016, vocabulary learning is the primary foundation in second language acquisition (L2) because, without adequate vocabulary understanding, communication skills will be minimal. At the international level, English learning curricula in various countries have emphasized the importance of vocabulary expansion in the learning process. This aligns with the concept of Communicative Language Teaching (CLT), which emphasizes the use of

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language in authentic contexts. Although English has been taught in elementary school in Indonesia, many students struggle to master vocabulary for effective communication, particularly in speaking skills.

However, improving vocabulary in EFL learning is not an easy task. One of the primary challenges is the limited exposure to English in everyday life, particularly for learners residing in non-English-speaking environments. Additionally, traditional methods, such as passively memorizing word lists, are often less effective because learners quickly forget the words learned without a clear context. (Yuliana et al., 2024). Another challenge is the lack of opportunities to practice vocabulary in real-life situations, which means many learners struggle to use words naturally in conversation. Psychological factors such as lack of confidence and anxiety in speaking are also obstacles for many EFL learners. (Afini et al., 2023), This causes them to be reluctant to use new vocabulary in their daily interactions.

In the face of these challenges, mobile technology and shadowing techniques offer innovative solutions to EFL vocabulary learning. Mobile technology enables learners to access various learning resources flexibly, anytime, and anywhere, through apps like Google Voice Assistant, Duolingo, and Youngish. Meanwhile, the shadowing technique, which requires learners to imitate and repeat words or phrases from live audio, effectively aids vocabulary retention and improves speaking fluency. By combining mobile technology and shadowing techniques, vocabulary learning becomes a more interactive experience (Foote & McDonough, 2017, Willyan et al, 2025: Kurniadi, et al, 2025), contextual (Martinsen et al., 2017), and experience-based (Jaya et al., 2023), this approach helps learners grasp, retain, and use new vocabulary more effectively in authentic, everyday communication.

Several studies have demonstrated that shadowing enhances vocabulary mastery and speaking skills in a second language (L2). According to Kadota (2019), shadowing enhances both pronunciation accuracy and vocabulary retention by engaging learners in active listening while simultaneously reproducing the spoken language. Meanwhile, Martinsen et al. (2017) Integrating mobile technology into shadowing-based learning enables learners to practice independently more frequently than with traditional methods. In Indonesia, a study conducted by Nasar et al. (2023) Shows that the use of mobile applications in English learning can increase student motivation and engagement, although there are still technical obstacles, such as limited internet access in some areas (Kessler, 2018; Tondeur, 2018). These studies demonstrate that the combination of shadowing techniques and mobile technology has significant potential to enhance vocabulary mastery in English language learning for EFL learners.

This study investigates the effectiveness of shadowing techniques combined with mobile technology in enhancing vocabulary mastery among EFL learners. In addition, this study also explores students' perception of the learning experience using this method, as well as the challenges faced in its application. By understanding the effectiveness and existing constraints, this research is expected to provide insight for educators and developers of educational technology in designing more effective and inclusive language learning strategies, especially in Indonesia, which still experiences a gap in access to ICT in education. This study shows that mobile-based shadowing techniques significantly increase students' vocabulary mastery. As many as 85% of participants reported improved vocabulary skills after completing the four-week exercise. Additionally, interviews with participants revealed that this method helped them retain vocabulary for more extended periods and increased their confidence in speaking. However, the study also identified several obstacles, including limited internet access and the need for features that allow learners to adjust the audio speed to suit their individual abilities.

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These findings highlight the need to develop more adaptive and inclusive learning technologies that support ICT-based English learning in Indonesia and globally.

2. Theoretical Framework

2. 1. Second Language (L2) Vocabulary Acquisition

Vocabulary acquisition is fundamental to second language (L2) competence and is crucial for developing skills in reading, listening, speaking, and writing (Nation, 2001). Learners often struggle to comprehend and express themselves effectively without adequate vocabulary knowledge. Schmitt (2010) emphasized that vocabulary learning is not merely about memorizing word lists, but also involves contextual usage, pronunciation, collocation, and syntactic knowledge. Moreover, vocabulary knowledge is acquired through both incidental and intentional learning, where practice and repetition play key roles.

2. 2. Shadowing Technique in Language Learning

Shadowing is a technique where learners repeat what they hear almost simultaneously, with minimal delay (Lambert, 1992). Initially developed for interpreting training, shadowing has evolved into a practical language learning strategy that supports listening comprehension, pronunciation, prosody, and vocabulary recall (Hamada, 2016). According to Murphey (2001), shadowing enhances the learner's attention to form and meaning while improving speech fluency. In terms of vocabulary development, shadowing offers exposure to natural input and facilitates deeper mental processing through active engagement (Kadota, 2019).

2. 3. Mobile-Assisted Language Learning (MALL)

Mobile technology has revolutionized language learning by providing adaptable, learner-centered, and contextually immersive environments. Mobile-Assisted Language Learning (MALL) involves leveraging portable devices—such as smartphones and tablets—to facilitate language acquisition anytime and anywhere (Kukulska-Hulme & Shield, 2008). Research by Burston (2015) shows that mobile applications and tools can enhance vocabulary retention, increase learner motivation, and promote learner autonomy. Moreover, mobile platforms enable repeated exposure and practice, which are essential for vocabulary mastery.

2. 4. Integration of Shadowing and Mobile Technology

Integrating shadowing with mobile technology provides learners with greater accessibility and control over their language input. With mobile apps that include native speaker recordings, subtitles, and playback control, learners can engage in repeated shadowing practice—fostering better vocabulary retention and pronunciation. According to Teng (2020), combining shadowing with mobile tools enables learners to optimize their cognitive load and self-regulate their learning pace, resulting in more effective acquisition of L2 vocabulary. Such integration also promotes authentic learning experiences and aligns with the principles of multimodal learning (Stockwell, 2013).

3. Research Method

This study adopts an explanatory mixed-methods design to evaluate the impact of mobile technology–integrated shadowing techniques on EFL learners' vocabulary mastery. The research implemented a pre-test/post-test experimental framework, with participants completing vocabulary assessments both before and after the intervention to measure gains in proficiency. To complement the quantitative findings, qualitative insights were collected

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through interviews and questionnaires, offering a deeper understanding of learners' experiences and their perceptions of the instructional approach.

The population in this study consists of intermediate-level EFL learners enrolled in English courses at the Domestic English Course of Kampung Inggris Pare. The research sample consisted of 31 participants selected using the purposive sampling technique. These samples had an intermediate vocabulary level and were willing to participate in a learning program using mobile technology-based shadowing techniques during the research period.

This research was conducted in multiple phases to assess the effectiveness of mobile technology–supported shadowing techniques in enhancing EFL learners' vocabulary mastery. The first stage is the pre-test, where participants are given an initial vocabulary test to measure their vocabulary mastery before treatment. The test consists of 100 words that must be identified and used in sentences in context. The pre-test results served as baseline data, which were later compared with the post-test outcomes following the implementation of the intervention.

The second stage is the intervention (learning using shadowing and mobile technology), which lasts four weeks. Participants can access audio materials based on mobile applications such as Google Voice Assistant and Duolingo at this stage. They were asked to do shadowing exercises by following and repeating the words or phrases heard in the application. Exercises are carried out independently for 15-20 minutes per day. This stage aims to familiarize participants with correctly pronouncing vocabulary, understanding the context of word use, and improving speaking fluency. Following a four-week intervention, participants completed a post-test as the third phase of the study. This assessment mirrored the pre-test in structure and was designed to measure any shifts in vocabulary proficiency resulting from the use of mobile-based shadowing techniques. The comparison between pre-test and post-test scores was then analyzed to determine the overall effectiveness of the instructional approach.

Quantitative data obtained from the pre-test and post-test were analyzed using a paired-samples t-test to determine whether there was a statistically significant improvement in participants' vocabulary knowledge. In parallel, qualitative data gathered through interviews and questionnaires were examined using thematic analysis to uncover recurring patterns, insights, and overarching themes related to learners' perceptions of mobile-based shadowing in vocabulary acquisition.

As the concluding phase of the study, qualitative input was collected by inviting participants to reflect on their experiences with the mobile-assisted shadowing approach. They shared their views on its perceived benefits, encountered difficulties—such as technical issues or pacing challenges—and its overall effectiveness in supporting vocabulary development. These qualitative findings were systematically coded and interpreted through thematic analysis, providing contextual depth that complements and enriches the statistical results from the pre- and post-tests. Together, this mixed-methods design offers a comprehensive understanding of how mobile technology–integrated shadowing techniques contribute to enhancing vocabulary mastery among EFL learners.

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4. Findings and Discussions

4.1 Learner Vocabulary Improvement

Table 1. Student Pre-test and Post-test Results

No	Pre-Test	Post-test
1	60	82
2	55	85
3	46	88
4	65	90
5	55	85
6	50	86
7	58	89
8	67	88
9	60	92
10	52	90
11	45	89
12	58	90
13	52	86
14	50	89
15	51	86
16	52	89
17	54	93
18	58	95
19	62	87
20	54	80
21	57	88
22	67	89
23	64	90
24	49	92
25	51	96
26	55	94
27	57	93
28	57	90
29	64	89
30	63	93
31	66	91

Table 1 presents the students' performance in vocabulary assessments before and after the intervention. The data reveal a marked improvement in overall scores following the implementation of the vocabulary instruction. The mean pre-test score was 55.2, which rose substantially to 89.5 on the post-test. Every participant demonstrated score gains, with individual improvements ranging from 18 to 45 points—highlighting the positive impact of the instructional approach on vocabulary comprehension. Post-test scores fell within the range of 80 to 96, with the majority exceeding 85, indicating that most learners achieved a high level of vocabulary mastery by the end of the intervention. Collectively, these results suggest that the applied vocabulary learning strategy was highly effective, as reflected in the substantial and consistent gains across all participants.

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Table 2. Paired sample statistics before and after treatment

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before treatment	56.58	31	6.120	1.099
	After treatment	89.16	31	3.560	.639

Table 2 shows a significant improvement in students' vocabulary ability after treatment. The average score of students before treatment was 56.58, indicating that students' initial ability in vocabulary learning was still relatively low. The average score increased significantly to 89.16 after treatment, indicating that the treatment or learning method was effective in improving students' vocabulary skills. The sample size consisted of 31 students, serving as the basis for the average calculation and other statistics. Before the treatment, the standard deviation value of 6.120 showed a considerable variation in the students' initial scores before and after the treatment. The standard deviation decreased to 3.560, which indicates that the students' scores were more centralized or consistent after the treatment. This shows the success of the treatment in equalizing the level of students' vocabulary understanding. The standard error value before treatment was 1.099, indicating that the average estimate of the value before treatment had a relatively high level of accuracy. The standard error value decreased to 0.639 after treatment, indicating an improvement in the accuracy of the average estimate following treatment. The decrease in standard deviation and standard error in post-test scores also indicates that the learning methods increase the average score and make the learning outcomes more even and consistent among students.

Table 3. Relationship Between Pre-test and Post-test Scores

		N	Correlation	Sig.
Pair 1	Before treatment, after treatment	31	.075	.688

Table 3 examines the association between students' pre-test (baseline) and post-test (after treatment) scores in English vocabulary learning. The correlation coefficient of 0.075 indicates a negligible or virtually absent linear relationship between the two sets of scores. This implies that students' initial vocabulary knowledge, as measured by the pre-test, had little to no bearing on their performance after the intervention. The associated p-value of 0.688 (well above the conventional alpha level of 0.05) further confirms that this correlation is not statistically significant. In practical terms, post-test outcomes appear to be driven primarily by the effectiveness of the instructional treatment rather than by learners' starting proficiency levels. The findings suggest that the vocabulary learning method benefited students uniformly, regardless of their initial ability, leading to consistent improvements across the board.

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Table 4. Paired Samples Test Results

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Before treatment - After treatment	-32.581	6.845	1.229	-35.091	-30.070	-26.502	30	.000

Table 4 presents the results of the Paired Samples t-test, which was conducted to compare students' English vocabulary scores before (pre-test) and after (post-test) the intervention. The mean difference between the two assessments was –32.581, confirming that post-test scores were substantially higher than pre-test scores. A standard deviation of 6.845 reflects moderate variability in individual score improvements, yet the overall trend consistently points toward enhanced learning outcomes. The 95% confidence interval for the mean difference ranges from –35.091 to –30.070, indicating a high degree of certainty that the true average improvement lies within this interval. The statistical analysis yielded a t-value of –26.502 with 30 degrees of freedom, and a two-tailed p-value of 0.000, which is far below the conventional significance threshold of 0.05. This confirms that the observed improvement in vocabulary scores is not due to chance but is instead a direct result of the instructional treatment.

4.2 Effectiveness of Shadowing and Mobile Technology

Research examining the effectiveness of integrating shadowing techniques with mobile technology in English language instruction for EFL learners has yielded promising outcomes. Based on pre-test and post-test data collected from 31 participants, approximately 85% demonstrated noticeable improvement in vocabulary mastery following a four-week intervention program. This substantial gain underscores the potential of combining mobile-assisted learning tools with shadowing as an effective strategy to enhance lexical acquisition among EFL students. The shadowing technique, which allows participants to mimic the pronunciation of words or phrases from audio sources, has been shown to help in improving vocabulary retention as well as pronunciation skills. Additionally, mobile technology offers flexibility in learning, allowing participants to practice at their convenience, anytime and anywhere.

The results of interviews with some students showed that some experienced significant improvement, while others with low improvement revealed some interesting findings. Most students believe that the shadowing technique, implemented through the mobile app, helps them memorize vocabulary more quickly and understand its application in a broader context. One participant stated that the recording and repetition features in the mobile app were beneficial in improving their pronunciation and intonation. However, some students find it challenging to keep up with the audio speed in the application, especially for those who are still at the beginner level.

> *"I can learn anytime and anywhere, even when traveling. Apps like Duolingo and Google Voice Assistant help me practice more regularly." (Informant 2)*

As a student, M highlighted the ease of access and flexibility in using mobile technology to support shadowing techniques. With apps like Duolingo and Google Assistant, participants can

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practice anytime, anywhere, without restrictions on time or place. This demonstrates that mobile technology provides a more dynamic learning solution, one that is not limited to traditional classroom settings. In addition, more frequent practice routines, made possible by the app's accessibility, demonstrate that mobile technology can enhance participants' engagement and consistency in vocabulary development.

> *"Compared to memorizing words, the shadowing technique helps me more in remembering and understanding the context of word use." (Informant 4)*

Another comment from B compares the shadowing technique with conventional methods, such as memorizing vocabulary directly. According to him, shadowing is more effective because it allows learners to remember new words and understand the context in which they are used. This shows that the shadowing technique provides a more contextual and meaningful learning experience, where students not only passively memorize words but also apply them in more natural situations. Thus, this approach can help EFL learners enhance their understanding of language structure and improve their memory of new vocabulary.

Further analysis reveals that shadowing and mobile technology enhance vocabulary mastery and foster confidence in speaking English. Participants who were initially reluctant to speak in English felt more comfortable after getting used to imitating audio from the app. This technique provides a more interactive learning experience than conventional methods, such as memorizing word lists or translating text directly. Additionally, mobile technology enables learners to receive immediate feedback on their pronunciation through the speech recognition feature and voice recordings, which they can review at their convenience.

However, some challenges were found in the implementation of this method. Some participants experienced technical issues, including unstable internet connections and limited device availability. Additionally, the audio speed in the app is sometimes too fast for beginners, so they would benefit from a feature that allows them to adjust the speed according to their respective ability levels. Therefore, in applying this technique, more adaptive application support and materials that can be accessed offline are needed to accommodate the needs of all participants.

> *"Sometimes I have trouble understanding words that are too fast. There should be a feature that allows users to slow down the audio speed. (Informant 8)*

E, a student, revealed a challenge in the breakneck audio speed, which hinders comprehension and the ability to imitate pronunciation well. This indicates that shadowing techniques should be tailored to the ability level of each learner, particularly for those who are still at the beginner level. The proposed solution, which includes a feature to slow down the audio speed, suggests that flexibility in speed settings can enhance the effectiveness of this method. If this feature is available, participants can adjust the tempo of the practice to their abilities, making the learning process more optimal and reducing frustration.

> *"My biggest problem was the unstable internet connection, so I had to download the material before studying." (Informant 10)*

MA, a student, faces technical obstacles, such as an unstable internet connection, which hinders smooth access to learning materials via mobile technology. This condition underscores the importance of internet access availability in the success of mobile learning implementation,

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particularly in areas with limited network coverage. Therefore, the solution carried out by participants, namely downloading the material first, reflects the need for offline access features in shadowing-based learning applications. This emphasizes the importance of application developers in providing learning options that work offline, enabling them to reach a broader range of users with varying digital infrastructure conditions.

Overall, this study demonstrates that the shadowing technique, combined with mobile technology, effectively enhances EFL learners' vocabulary mastery. Although there are several obstacles, the benefits obtained are significantly more substantial, particularly in terms of vocabulary retention, pronunciation, and increased confidence in speaking. Therefore, this approach can be an innovative learning strategy for English language teaching, especially for learners who want to improve their language skills independently and flexibly.

4.3 Discussion

The research findings showed a significant improvement in students' vocabulary skills. This improvement is clearly shown by comparing pre-test and post-test scores, with the average score increasing from 60.00 to 77.80. Paired sample tests were conducted to evaluate differences between students' vocabulary scores before and after the intervention. The analysis showed a mean difference of –32.581, confirming that post-intervention scores were substantially higher than those recorded prior to the treatment. Although the standard deviation of 6.845 reflects some variability in individual student performance, the overall trend points toward consistent learning gains. The 95% confidence interval for the mean difference ranged from –35.091 to –30.070, reinforcing the reliability of the observed improvement. Furthermore, the t-test yielded a t-value of –26.502 with 30 degrees of freedom, and a two-tailed p-value of 0.000—well below the conventional alpha level of 0.05—indicating that the improvement was statistically significant. This positive outcome is attributed to the use of the shadowing technique, a method in which learners immediately repeat spoken words or phrases after a native or fluent speaker, thereby reinforcing both vocabulary retention and pronunciation accuracy. Meanwhile, mobile technology, such as audio-based learning apps, allows students to learn independently and flexibly. (Ridayani & Purwanto, 2024), increasing their exposure to the target language (Nasar et al., 2024; Umar et al., 2023).

The implications of this study suggest that utilizing mobile technology as a learning medium can enhance the effectiveness of the shadowing method, particularly in the context of independent learning. Mobile technology provides wider access to learning resources. (Hidayad et al., 2023), allowing students to repeat exercises without relying on an instructor (Irawan et al., 2024). Additionally, this approach supports self-regulated learning, allowing students to adjust their own learning pace. The practical implication for educators is to incorporate technology into learning strategies to enhance students' language skills more effectively.

The interpretation of the results from this study indicates that the shadowing method, supported by mobile technology, is more effective than the conventional method in improving students' vocabulary. With technology, students have easier access to structured listening and speaking exercises. (Budiyanto et al., 2024), increasing their retention and understanding of new vocabulary (Purwanto & Despita, 2022). Additionally, the reduction in standard deviation from the pre-test to the post-test suggests that the applied learning techniques further enhance student learning outcomes. This means that these methods can be widely applied to students of various ability levels.

Compared to previous research, this result aligns with research conducted by Hamada (2018), which states that shadowing techniques improve listening and speaking skills in foreign

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languages. In addition, research by Bonar Siagian and M Bambang Purwanto (2023) Using mobile applications in language learning can increase student motivation and engagement. However, this study makes an additional contribution by showing that the combination of shadowing and mobile technology has a more substantial impact on vocabulary improvement than traditional shadowing methods.

In light of these findings, it is advisable to conduct additional studies exploring the integration of artificial intelligence (AI) within mobile learning platforms to deliver more tailored and individualized vocabulary instruction. Future research could also broaden its participant base and incorporate other influencing factors—such as learners' preferred learning styles and levels of motivation—which may significantly affect the outcomes of vocabulary acquisition through such approaches. This would further support the refinement and advancement of mobile-assisted language learning tools, enabling them better to accommodate dynamic, learner-centered, and adaptive educational strategies.

5. Conclusions

This study demonstrates that integrating shadowing techniques with mobile technology significantly enhances students' vocabulary acquisition. The average score rose notably from 60.00 on the pre-test to 77.80 on the post-test, reflecting a meaningful improvement in both understanding and command of vocabulary. A Paired Sample T-Test yielded a p-value of 0.000, confirming that this improvement is statistically significant. Shadowing helps learners develop greater fluency and precision in using new words. At the same time, mobile technology provides the convenience of anytime, anywhere access to learning resources, enabling repeated practice and thus speeding up vocabulary retention. A key contribution of this research is the successful fusion of shadowing and mobile-assisted tools, offering a valuable model for technology-enhanced language instruction. These findings support the broader notion that digital tools can substantially enhance the effectiveness of language learning strategies, particularly in vocabulary development. The results can be used for the design of technology-integrated curricula in educational settings and serve as a basis for future research on innovative approaches within mobile assisted language learning (MALL). In addition, the study highlights the benefits of promoting self-regulated learning, empowering students to take a more active and independent role in the development of their language. Despite these promising results, the study has limitations. First, the number of samples used is still relatively small, so the results of this study cannot be generally broad. Second, the study focuses solely on improving vocabulary without considering other factors, such as learning motivation, language anxiety levels, and students' learning styles, which may also affect learning effectiveness. Third, this study was conducted over a relatively short period of time, so it is not possible to measure the long term effects of using this method on the retention of students' vocabulary. Therefore, follow-up research with a larger sample size and a wider range of variables is highly recommended to obtain more comprehensive results.

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Semiotic analysis of Kemaliq phenomena as an effort to maintain culture and language in Ganti village community

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Abstract

This article examines the phenomenon of Kemaliq as a medium for maintaining language and culture. By using a semiotic approach to analyze each meaning of the symbols contained in the rituals and activities carried out at Kemaliq. This research uses qualitative methods in data collection and analysis. The data collection techniques used observation, interview, and documentation. The results of this study indicate that Kemaliq is the language and culture of the Sasak community. First, Kemaliq can be used for various cultural activities, such as Nede, the ritual for asking for rain during the rice planting season. The local community will bring Dulang during the ritual. The Dulang serves as an iconic sign, representing gratitude and communal unity. In addition, Kemaliq can be used as a medium of education for the community regarding Kemaliq's history, and also as a place to learn Sasak literature. For example, at Kemaliq, there is a reading of Sasak literature that uses the Sasak Halus language, also called Linggih Kerame. The Linggih Kerame language is very rarely used in daily communication and is only used in certain activities, and is only understood by a small part of the community. With these activities, they can facilitate people who want to learn the Sasak Halus language, ensuring that traditional languages are not lost or forgotten amid language development in the modern era. This study demonstrates that the interaction of iconic codes within Kemaliq strengthens intergenerational cultural continuity and reinforces the collective identity of the Sasak community. In addition, the efforts made by the people of Ganti village to maintain the existence of their culture include forming an organization engaged in the preservation of the Sasak language and culture called Lawas Ganti.

Keywords: *Culture, Language, Preservation, Semiotics, Symbol*

1. Introduction

In the landscape of modernity, rapidly changing times. Globalization accelerates cultural exchange and influences lifestyles worldwide. Local communities face increasing pressure to preserve their cultural and linguistic identities. While global trends shape consumer behavior, communication styles, and value systems, many indigenous traditions remain essential markers of identity and belonging. One of them is in the Ganti village, where the phenomenon of Kemaliq has emerged as a milestone in the cultural resilience of linguistic funds.

Kemaliq is a cultural ritual carried out by the people of Ganti village, East Praya, Central Lombok regency, as an effort to maintain their culture and language. Usually, people of Ganti

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village visit Kemaliq on certain months and days. Kemaliq is not only a spiritual activity but also a sign to contain cultural symbols that are passed down across generations. Culture for the people of Ganti village is a tradition left by their ancestors, which they continue to maintain. Kemaliq is the name of a place where ceremonies are held. There are several activities that residents of Ganti village usually do when visiting Kemaliq, such as Nede. There is a ceremony to ask for rain when the rice planting season comes.

Cultural beliefs that. Culture is an embodiment of who we are as individuals and groups, including our customs, behaviors, and self-expression (Cohen & Leung, 2009). The community makes many efforts to preserve the language and culture of their respective regions, such as through the Bau Nyale festival, traditional musical instruments, Sasak weddings, the making of Sasak men, and cattle races, which are still being performed by the Sasak society.

In the current era of widespread digitalization, maintaining cultural and linguistic diversity is increasingly challenging, especially as new cultural phenomena such as Western culture, Pop culture, Korean culture, and other cultures increasingly influence the mindset, lifestyle, and habits of the wider community (Carlisle & Hanlon, 2009). Many customs have begun to be abandoned, language has developed significantly, and we can see that many communication patterns between older and younger generations are very different. Therefore, in the midst of this phenomenon, the purpose of this research is to find out how language and culture are preserved in this era and the efforts of the Sasak community in maintaining their language and culture.

The world is a complex place where the quality of language, both verbal and non-verbal, can be created by individuals and then spread by a wider group. The process of forming concepts and assumptions between the personal and the general will rely on semiotics, because it uses external signs to focus together. These signs can be in the form of sounds, objects, environmental zones, architectural structures, monuments, emojis, pictures, and so forth (Lavrenova & Lavrenova, 2019). The historical explanation of these items is crucial because it sheds light on the values, ownership, inclusion, and literacy of people within this particular language community (Yao & Gruba, 2022).

Among the many efforts made by the Sasak community to preserve their culture and language in each region, one local cultural practice continues to be carried out by the people of Lombok, specifically in Ganti village, to preserve their language and culture. They continue to pass on the local culture to their children and family so that it continues to advance and maintain its existence. This local culture is very different from the culture in other areas, which uses traditional music, song, or even traditional dress.

In this case, research on Kemaliq is required because it provides deep insight into the challenges faced in maintaining culture and into how signs and symbols in local culture can be used as tools to sustain cultural and linguistic identity. As we know, language is a communication tool used to share information with other people. Linguistics and culture cannot be separated because language is part of culture. Through a semiotic approach, this research aims to explore the meaning of the Kemaliq phenomenon as an effort to maintain culture and language in the Ganti Village community. This study focuses on the cultural aspect of Kemaliq and how the symbol of Kemaliq can be used as a medium to maintain the existence of the Sasak language and culture. Therefore, the objective of this research is to find out how symbolic practices within Kemaliq ritual contribute to the preservation os Sasak culture and linguistic identity in Ganti village.

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2. Theoretical Framework

2.1 Language and Semiotics

Language is a communication tool that is used to convey information, opinions, or to interact with other people. Language plays a vital role in human life. When language is used in life as a means of communication, it becomes integrated with culture. Language and culture cannot be separated, because language is a product of culture. When people interact with other groups of people, the language they speak will reflect the culture of each group. In this context, language and culture are described as power and pride (Kramsch, 2014). Language is a crucial aspect of culture and semiotics. Through semiotics, it can be used to analyze the linguistic practices of a community. Semiotics is the process of everything functioning as a sign that can be interpreted through communication. Semiotics is the study of signs and symbols in human interaction; these signs include activities, behavior, or processes that can produce meaning (L. Radford, 2000). Anything that gives meaning to the interpreter is a call sign. Human communication involves all human senses (Romero & Dryzek, 2021).

Events, structures found in things, habits, all of these can be called signs. The basic idea of semiotics is message and code. The way that messages and codes are conveyed to others is through codes. Encoding is the activity of turning communication into messages, while decoding is the process of reading messages conveyed through codes or signs (Dimbleby & Burton, 2020). Semiotic studies how messages are used to influence people's behavior. Semiotics is part of the study of communication, namely how a person interprets meaning and symbols in communication, whether it is through analogy, symbolism, or other expressions (Vera & Simon, 1993). The study of semiotics not only discusses the meaning contained in an aspect of language, but it also has a deeper focus related to understanding language and certain aspects that have certain foods and symbols in depth. From this, it can be understood that language correlates with semiotics because, with semiotics, we know that language has a comprehensive scope, namely, humans not only use language as a medium of communication verbally but non-verbally as well, and we can interact with other people through symbols, codes, or even through certain expressions.

2.2 Semiotic and Cultural Preservation

Semiotics is the study of signs and symbols, which are crucial in maintaining cultural traditions. Language is a system in which all the elements fit together, and the value of any one element depends on the simultaneous coexistence of all the others. Semiotics is a study of signs, which take the shape of objects or symbols that we employ in interpersonal interactions (Senkāne & Laganovska, 2023). As a result, communication semiotics is an analytical approach used to understand the sign in the process of interaction. Language is a sign system for expressing ideas, which can be compared to written records, ceremonial symbols, manners, etc. (G. P. Radford & Radford, 2005). So, it can be seen that language is created from how a person thinks about certain concepts, then signs emerge, and then form a language system that the wider community can understand. Semiotics refers to the formal philosophy of signs, which encompasses language and sign systems in communication and was first used by American pragmatic philosopher Charles Sanders Pierce at the end of the 19th century (Marotta et al., 2017). He states that the basic human sign system is language itself. Signs and symbols are necessary for human existence.

Cultural preservation refers to the protection and maintenance of cultural heritage, which includes sites, buildings, traditions, languages, and other elements that represent significant places or events in the flow of human experience (Lenzerini, 2011). This process involves the preservation of cultural artifacts, traditions, languages, and practices that are considered valuable. Culture preservation is a contentious term with different views regarding its moral

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implications. Some emphasize the case for the inherent worth of culture preservation, underlining how crucial it is to maintain cultural variety and uniqueness. Many kinds of strategies can be used to preserve culture, including digitalization and documentation of cultural assets through technology, community engagement, celebrating traditional practices, conserving cultural landscapes, promoting education and awareness, and more. In general, cultural preservation plays a crucial role in shaping our sense of identity. Culture maintenance is not only a choice but an obligation, as our cultural heritage serves as a testament to our identity, history, and values (Davidaviciute, 2022). It connects us to our roots and provides a foundation for future innovations.

2.3 Semiotic and Community Identity

Semiotics can be the study of communities, which are increasingly important in shaping and expressing community identity (Thorne, 2009). It often relies on shared interests, values, and practices, and it can provide a sense of belonging and solidarity that is crucial for the construction of identity. Semiotics has an essential role in shaping and preserving identity in society, where language and symbols are used as a medium to protect culture. The use of semiotic analysis can help to reinforce a sense of community identity. By analyzing the symbol and sign systems used in society, members can gain a deeper understanding of their cultural heritage and the significance of their traditions. This can help to increase a sense of pride in the community and encourage the preservation of cultural practices (Reershemius, 2020).

To know the culture of a certain community, we can see it by using semiotic analysis, for example, such as the Chinese language tradition. With a semiotic approach, we will know their culture both through the clothes that they wear, in the form of buildings, and even the way they package the food and the things that Chinese people sell. Tea packaging is a physical example that tells the public that the design is not only tied to the product but also reflects Chinese culture (Li, 2015). Semiotic analysis will provide an understanding of the visual packaging by understanding the signs, the use of Chinese characters, and the color and shape of the packaging used in the product. From this case, we can see that the efforts made by the Chinese people in preserving their culture are as simple as the packaging of a drink that they sell to the public. In this way, the essence of what they do is not only selling food or drinks but also preserving and promoting their culture to the world. Therefore, in this case, semiotics is able to analyze how traditional symbols can reflect the meaning of a culture (Hu et al., 2019).

3. Research Method

3.1 Data Analysis Procedure

To preserve culture and language, this study used a semiotic analysis to comprehend the kemaliq phenomenon. Furthermore, semiotic analysis provides insight into the connection between meanings and signals. Due to their ability to link particular texts to the messaging system in which they function, signals and relations are both crucial ideas in semiotic analysis (Nessa, 1996). For instance, material culture refers to the objects and things that, whether viewed in person or through mass-mediated texts like advertisements, commercials, images, and movies, act as significant indicators that transmit profound meanings and information. This makes it possible to comprehend how various components interact with social and cultural knowledge to create meanings through the use of semiotic analysis.

Adapting qualitative research, this qualitative process includes important efforts such as asking questions and collecting specific data from participants. However, in this research, the researcher used a qualitative approach because the researcher felt this procedure was more suitable for in this analysis. Qualitative research is a process of collecting data in a study that requires a researcher to explain or provide specific experimental statements. In conducting

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research, qualitative methods are used to obtain data. There are several ways to get the data, such as through interviews, observations, and documentation. The final report of the qualitative method has a flexible structure. Data or information obtained from the field is taken for meaning, and the research concept is then presented descriptively without using numbers because qualitative research looks more at the processes of activities that occur in the field.

Table 1. Sign, Cultural Object, Meaning, and Semiotic Interpretation

Sign	Cultural Object	Meaning	Semiotic Interpretation
Iconic Sign	*Dulang* (traditional food tray brought during ritual)	Symbolize gratitude for harvest and communal unity	*Dulang* is a physical form filled with food such as rice, grilled chicken, and other foods. *Dulang* visually represents togetherness because the food will be eaten together at *Kemaliq* after the ritual.
Indexical Sign	Ritual processing (circling *Kemaliq* nine times)	Indicates references for ancestral practices	The physical movement points to the community's connection to ancestors. It is evidence of past beliefs still shaping current practice.
Symbolic Sign	*Linggih Kerame* (*Sasak Halus* language)	Represents social hierarchy and cultural	The language functions as a purely conventional symbol. Its meaning is culturally agreed upon, and it reinforces community identity.

The location of this survey is at Ganti village, East Praya district. The participants in this survey are Ganti village people who carry out the Kemaliq tradition, members of Lawas Ganti, and community figures who know the history of Kemaliq as sources to be interviewed. Data collection techniques in this study were interviews, observation, and documentation, including photos and videos on YouTube related to Kemaliq. The researcher conducted interviews and collected the data. It focuses on how Kemaliq plays a role as a medium in maintaining culture and language in this era. The second approach is using documentation, materials obtained in the form of photos and videos through the research. The main tools of this research are the researchers themselves, and various activities support the research. Analysis of data used in the undertaking stages of analysis: data collection, data reduction, data display, and conclusion.

4. Findings and Discussions

4.1 Kemaliq Phenomena

Kemaliq is a historical site that has its own meaning for the people of Ganti village. Kemaliq is a place to conduct religious activities. Besides that, Kemaliq is also used as a place to perform various cultural activities. Kemaliq itself comes from the word maliq, which means sacred; therefore, by the people of Ganti village, Kemaliq is used as a sacred place or a sanctified place. The beginning of these Kemaliq phenomena was influenced by the spread of Islam in 1717 by

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Raden Surya Diningrat on the island of Lombok. At that time, the Lombok area was known for its Metu Telu Islamic society and its strong community customs that any customs or cultures could not control. This characteristic made the Islamic scholars interested in spreading Islam in Lombok, including the king of Sunan Gunung Jati, Raden Surya Didingrat, who was very impressed and interested in coming to the island of Lombok to spread Islam to the people.

In one of the areas in Ganti village, Raden Surya Diningrat makes 'Petilasan' or a stopover in one of the places in Ganti village. According to the community of Ganti village, it is said that Raden Surya Diningrat suddenly disappeared from his stopover without leaving a trace. So, the local community at that time made a simple building made of bamboo and gave it a roof of weeds as a symbol that once stopped a cleric from spreading Islam. The symbol by the people of Ganti village is known as the Kemaliq Embung Puntiq and is now considered a place to perform various ritual and cultural activities. This Cultural Ceremony is a cultural customary activity that has been hereditary for hundreds of years. This ritual is a ceremony of ancestral relics that, according to local community beliefs, should not be abandoned and should remain routinely performed. Cultural Rituals are performed with several purposes in accordance with their beliefs, such as intermediaries to beg God to descend enough rain to meet the needs of agriculture, begging to obtain an adequate harvest, begging for health and prosperity, and begging to be spared from all distress and disaster.

Kemaliq operates as a layer of the semiotic environment where different types of signs work together. Iconic signs of the Dulang are an image of gratitude and communal unity. Besides that, the ritual procession indicates reverence to ancestors and the Linggih Kerame language as a code of social hierarchy. The interaction of these signs is crucial since it can foster a sense of identity and belonging among the Ganti village community, relay cultural knowledge across generations, and maintain a connection to the past (Effendi & Wahidy, 2024). In Kemaliq, these codes interaction ensures the local value and continues the transmission of originality across generations.

4.2 Challenges to Culture Maintenance

The flow of globalization is one of the biggest challenges in sustaining culture, especially the massive exchange of information and communication that accelerates the interaction between one culture and another culture. Although adopting new cultural aspects can provide new insights for society (Yalcinkaya, 2008), we cannot deny that new cultural influences exist. Foreign culture can also have negative impacts on local culture itself; moreover, the affected are young people, who will tend to follow that popular culture and shift their interest from their own culture, as a result, they begin to ignore or abandon the culture they originally had. In addition, modernization and social change also influence the shift in local culture. Social interactions between people are diminishing, especially in urban life, where individualistic tendencies often obscure close social and community ties (Triandis, 1989). Local culture grows and develops in interconnected communities, but the loss of traditional social interaction and shifting values makes local culture vulnerable to interest and attention. Moreover, a changing and growing mindset, especially among young people, often thinks that local culture is old-fashioned, not in accordance with their trends, because they are influenced by new cultures, so they abandon it. Similar challenges of cultural and linguistic preservation occur in other ethnic communities in Indonesia. A comparative analysis of the Khek and Tiochiu dialects shows how geographical boundaries shape distinctive lexical choices and strengthen communal identity among Chinese communities in West Kalimantan (Riska et al., 2025). This case illustrates that maintaining language variation is an integral part of protecting cultural identity in a multicultural society.

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Even with these challenges, preserving culture is a common task because culture is the identity of a society. Therefore, it is necessary to have awareness related to the essence or importance of preserving culture, especially realizing that culture is a heritage that must be preserved. Many things can be done to maintain culture both individually and in groups, such as by utilizing technology to promote and disseminate information related to cultural practices, stories, uniqueness, and knowledge about existing local cultures. By spreading it widely, it can increase understanding and appreciation of local culture amid the influence of today's global culture. One of the efforts made by the community to overcome these issues is by continuing the traditions inherited from their ancestors. Besides being used as a place to perform religious rituals, Kemaliq is also routinely used as a place to conduct events related to the preservation of customs and culture. Researchers found that there is still a sense of awareness in the community to continue preserving their culture. One of the community's efforts is to form a group to continue to preserve Kemaliq. They formed an institution called 'Lawas Ganti' to manage or maintain the customs and culture, so that every place in the Ganti village has its own customary institution.

The Kemaliq culture site itself is managed, maintained, and financed by the Ganti village government through the customary institution of Lawas Ganti. Every year, at certain moments, the institution holds important events in Kemaliq, such as the reading of the sasak lontar; the reading of the stories of past kings, the history of sasak Lombok, and discussions that use the language of Sasak Halus, also known as the 'Linggih Kerame' language. Including the preparation of traditional agendas such as Peresean and others are all done in Kemaliq. These events were conducted as an effort to revitalize the Sasak culture with the reinforcement of the Sasak culture to the community to keep developing and not be undermined by the development of the time. The efforts made by the people of Ganti village are certainly their support and efforts in maintaining the existence of their customs and culture so that the subtleties of the Sasak language are preserved, developed, and still used. The Kemaliq Embung Puntiq site, as a cultural heritage, is not only used as a place for cultural rituals but also as a place to preserve customs and culture in the Ganti village area, including how the community continues to preserve its customs, not fading due to the flow of modernization, and so that they become a modern society but still have customs civilized. That is the role of Kemaliq as a cultural heritage to maintain customs and culture.

4.3 Roles of *Kemaliq* as a Symbol in Preserving Language and Culture

4.3.1 Place for Conducting Traditional and Cultural Ceremony

Figure 1. *Kemaliq* Building

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Kemaliq is an ancestral tradition passed down from generation to generation by the ancestors. In the past, Kemaliq was only a small house made of bamboo, but now, because of the changing times, the building is maintained and changed to brick, but the roof is still continuing until now using thatch. Kemaliq is routinely visited by the indigenous people of Ganti village every year, especially in certain months and days, specifically in the seventh month of the Sasak calendar. Usually, the community will come in droves on the seventh month, the seventh date, then the seventeenth, and the twenty-seventh of the month. There are several characteristics that will be brought by the community when visiting Kemaliq, including preparing Sasak tribal food, such as bringing traditional foods that are placed on a holder called Dulang.

Figure 2. *Dulang Photo by Yuli Astuti*

The contents of the Dulang are rice, side dishes, roasted chicken, fruits, and others. There are several sources that say that bringing food symbolizes the gratitude of the Ganti village community for the harvest obtained during the harvest season. The arrival of the indigenous people of the Sasak tribe certainly did not come by individual but in groups led by the leaders of each customary law area in Ganti village, called 'mangku'. The leaders from each region will wear traditional Sasak tribal clothes and use a traditional Lombok headband. They lead the ceremony, accompanied by prayers delivered in the Kemaliq using local language that has its own characteristics, such as containing ancient 'Sasak Halus' language, well-known Kawi language, or called Linggih Kerame language. Local language like this has undergone many changes because it is influenced by the times; therefore, only a few people still understand or communicate with the language. Therefore, the existence of cultural practices like this will greatly help the community to remember and maintain their Sasak language.

There are several rituals performed in the Kemaliq, such as pilgrimage, Nede ritual, which is a prayer asking for rain before rice planting is carried out, Paosan, and circumcision. Before starting the ritual, the equipment will be prepared in such a way. Before entering the Kemaliq area, ritual participants must surround the Kemaliq nine times; after that, they can enter and do the rituals inside the Kemaliq in turn. After completing a series of rituals, they can eat the food brought together; they will share the food brought to the people beside them. By doing this, it is believed to strengthen the bond of brotherhood and foster a sense of familiarity when enjoying the food they brought, as well as a sign of their gratitude to God for what he has given.

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The community performs rituals at Kemaliq because there is a history from their previous ancestors who adhered to the Islamic belief of 'Metu Telu', because before the 18th century, most of the people at that time embraced the belief of Metu Telu, which is like believing in mystical things and so on. Even though the community no longer believes in Metu Telu, these rituals are still carried out by the community and even passed on to the next generation as a symbol of the culture of the village community of Ganti. Culture is the identity of a society; when the culture is lost or forgotten, part of the self-identity of the community will also be lost; consequently, it is important to maintain it. The essence of this Kemaliq is that it has become a cultural ritual ingrained in every indigenous person of Ganti village. Hundreds of years ago, the ancestors did the same thing, which was then continued by the young generation who belong to the indigenous people of Ganti village. Although not all people utilize the Kemaliq cultural site as a place for cultural rituals, only around 45% of the 6,000 residents of Ganti village do the ritual.

4.3.2 Media Education for Culture and Linguistics

Kemaliq tradition has an important role in maintaining language and culture, especially as a place for discussions related to the preservation of Sasak customs and culture, and also as a place for learning the subtle Sasak language and Sasak literature. Kemaliq can be used as an educational medium, namely a place to teach the Sasak language and literature. Usually, when the ritual is held, they will use the traditional language, the Linggih Kerame language, which is rarely used by the community in daily communication, and even only a few people still understand the language. Therefore, the use of traditional language here occupies an important position in the preservation of the language itself. This activity will help in preserving the Linggih Kerame language, especially for young people, so that they do not forget their local language. In addition, as a place to learn Sasak literature, the reading of Sasak lontar is usually carried out in Kemaliq, it is like reading Sasak historical stories of ancient kings and others. Uniquely, the Sasak Lontar is written using the Sasak script, and only certain people can read it. From these activities, the people of Ganti village, especially young people, can learn how to read and write Sasak literature so that it can enrich their understanding of the Sasak language.

In addition, Kemaliq can also be a medium for educating people and the young generation about the history of Kemaliq; it can be used to educate individuals about history and background, including important events that shape the culture. Suppose that by telling the background of the phenomenon of Kemaliq, it can support a deep understanding of Kemaliq culture itself and also ensure that the knowledge does not disappear over time. In this way, Kemaliq is not just a symbol, but a practical tool in educating and strengthening understanding and appreciation of language and culture. Language preservation contributes to cultural preservation because language is an important component of cultural identity. When a language is preserved, it helps maintain the cultural identity of a community. However, in preserving culture, language has an important role as the main tool to communicate the meaning, values, traditions, and norms of a culture, so that it is easy to understand. Language is a symbol of identity that helps spread about culture.

Language acts as a symbol and identity of a group; without language, these symbols cannot be understood. Therefore, language is a unique way to understand and read every implied meaning that exists. In this sense, language is an important tool in the protection of culture and heritage. Language plays an important role in maintaining cultural identity as it is the main means of expressing culture. Through language, individuals can learn about many things, be it related to cultural values and social norms that exist in society. Therefore, language as a group identity must be passed down from generation to generation in order to help maintain and preserve culture, such as by using the original language, which will reflect the unique views

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and philosophies of a particular culture. Moreover, language, being a symbol of group identity, fosters a sense of belonging and unity among members of a cultural group. When individuals speak the same language, they will have a common bond, with this language being a marker or a differentiator between them and other cultural groups. Therefore, language is key in preserving cultural diversity.

5. Conclusions and Suggestions

5.1 Conclusions

This research has discussed *Kemaliq* as a medium to preserve language and culture through semiotic analysis. The researcher found that there are several challenges faced in maintaining local language and culture, but the phenomenon of *Kemaliq* can be a means to maintain their identity through cultural activities that are routinely carried out by the community. Based on the analysis that has been done, the researcher can conclude that:

There are several challenges faced by the community in maintaining language and culture, namely the current digital era, which is increasingly developing and makes it easier for people to find out information more quickly, including information related to other people's cultures, so that these cultures often influence them and tend to leave their own culture. In addition, modernization is also a challenge in itself, namely the mindset of increasingly advanced people, so that they think that their culture and language are no longer relevant to the times. But in the midst of the challenges faced, the people of Ganti Village strive to continue to maintain the language and culture that is the identity of their group by holding discussions and activities aimed at preserving language and culture. In addition, they formed a group engaged in cultural defense, which preserves and protects cultural sites in the Ganti village area.

Utilizing existing cultural heritage as a place to carry out cultural activities, for example, *Kemaliq*. Kemaliq serves as a living semiotic system linking ritual, space, and language preservation, and it demonstrates how cultural symbols become mechanisms of intergenerational language transmission. The people of Ganti village use this cultural site as a tool to maintain language and culture. They will carry out various cultural activities there, which are traditions inherited from their ancestors. Every year, they will routinely visit *Kemaliq* to perform certain rituals. In addition, *Kemaliq* can also be a means of education for the community, namely related to history and also education related to Sasak literature, namely the preservation of the Linggih Kerame language. This can facilitate people who want to learn the subtle Sasak language or want to deepen their knowledge related to Sasak literature. Activities like this can help the people of Ganti village to continue to maintain their cultural identity. But in this case, it is also necessary to realize from all levels of society and also individuals that maintaining language and culture is important to do because without cooperation, this goal cannot be achieved.

5.2 Suggestions

For the next research, the researcher hopes to be able to examine the *Kemaliq* phenomenon in depth, namely, examining not only from the cultural aspect but also from the religious aspect. Researchers hope that in the future, many researchers will conduct research related to how the local customs and culture of the local community can be a tool to maintain the traditional language and culture of the Sasak community. Not only can it utilize existing cultural sites and traditions as a tool for profit and material gain, but it can also create its own prosperity and pride for the community because it has a wealth of extraordinary cultural uniqueness that is different from other cultures. Future research should foreground their potential to generate cultural pride, community resilience, and sustainable heritage preservation.

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To deepen theoretical insight, future research could integrate semiotic analysis with ethnographic approaches, allowing scholars to observe how meanings are embodied in everyday aspects. Additionally, combining semiotics with discourse analysis would help uncover how ritual speech and oral narrative encode authority, hierarchy, and collective memory. Such interdisciplinary approaches would provide a richer dynamic understanding of how symbols operate as living cultural elements within the Sasak community.

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Formative use of Wordwall in supporting vocabulary and reading comprehension achievement among elementary students

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Abstract

This study examines the formative use of Wordwall as a gamified digital learning tool to enhance vocabulary mastery and reading comprehension among elementary EFL learners at MIN 1 Ogan Ilir. Despite the increasing integration of digital platforms in early language education, research on how gamified tools function as formative assessment mechanisms remains limited, particularly in Indonesian primary school contexts. Employing a qualitative, library-based research design, this study synthesizes empirical findings from recent peer-reviewed publications to analyze Wordwall's pedagogical affordances, challenges, and learning outcomes. The review reveals that Wordwall supports vocabulary acquisition through interactive tasks that promote repetition, contextualization, and immediate corrective feedback. In reading comprehension, features such as Group Sort, Matching Pairs, and Quiz facilitate learners' ability to identify main ideas, sequence events, and make inferences. Gamification elements; including leaderboards, timers, and reward systems, further increase learners' engagement and intrinsic motivation, contributing to a more active and student-centered learning environment. However, the findings also highlight practical challenges such as unequal device access, unstable connectivity, and limited teacher digital literacy, which require adaptive instructional strategies for equitable implementation. Overall, this study underscores the value of integrating gamified formative tools like Wordwall to strengthen young learners' vocabulary and reading skills. It recommends that schools provide stronger technological support and professional development to maximize the educational impact of digital formative assessment in primary EFL classrooms.

Keywords: *Digital Gamification; Elementary EFL Learners; Formative Assessment; Reading Comprehension; Vocabulary Mastery; Wordwall*

1. Introduction

As classrooms increasingly integrate mobile devices, learning platforms, and interactive multimedia, younger learners are exposed to new forms of instructional delivery that differ significantly from traditional paper-based practices. Among the variety of digital tools available, gamified learning platforms such as Wordwall have gained substantial attention for their accessibility, interactivity, and suitability for young learners. For elementary students who often require engaging, multisensory, and highly scaffolded learning experiences, gamified digital tools offer meaningful opportunities to strengthen vocabulary mastery and reading comprehension, two foundational components of early literacy development. In Indonesia, the

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demand for digital learning innovation has grown rapidly, particularly since the COVID-19 pandemic accelerated the use of online and blended learning modalities. Even in the post-pandemic era, many schools continue incorporating digital platforms to complement face-to-face instruction. However, the integration of digital tools in primary EFL classrooms remains uneven due to infrastructural constraints, teachers' varying levels of digital competence, and limited awareness of how digital platforms can support formative assessment practices. This challenge aligns with recent TEFL scholarship emphasizing the importance of integrating digital literacy into language learning materials and teaching practices (Kurniadi et al., 2025). These challenges highlight the importance of understanding the pedagogical value of tools such as Wordwall, particularly in resource-constrained schools like MIN 1 Ogan Ilir, where teachers must balance curriculum demands with technological limitations.

. Wordwall, with its versatile features such as "Matching Pairs" and "Group Sort," offers an innovative way to implement formative assessments that are both engaging and adaptive to young learners' needs (Bahtiar & Wahyuni, 2022). These templates make assessment fun and encourage active participation, helping students internalize vocabulary and improve reading comprehension through meaningful interaction. There has been a growing emphasis on digital literacy and student engagement in education in recent years. Using gamified learning tools like Wordwall aligns well with these educational priorities by promoting motivation, enhancing collaboration, and supporting differentiated learning (Putri & Fauzi, 2023). Moreover, interactive platforms enable teachers to collect real-time data on student performance, facilitating timely intervention and tailored instruction that addresses individual learning gaps (Black & Wiliam, 2018).

Despite its promising advantages, implementing digital formative assessment tools such as Wordwall still faces challenges in some elementary schools, including limited access to devices and internet connectivity (Nurhayati et al., 2022). These obstacles necessitate thoughtful integration strategies to maximize the tool's effectiveness and ensure equitable student learning opportunities. Given these considerations, examining how Wordwall can be strategically utilized to enhance formative assessment practices that support vocabulary acquisition and reading comprehension at MIN 1 Ogan Ilir is crucial. This study explores the pedagogical benefits, practical challenges, and overall effectiveness of Wordwall in fostering English language skills among elementary students. The research seeks to contribute valuable insights for educators and policymakers striving to improve language learning outcomes through digital innovation by investigating these aspects. This study contributes to the growing body of research on digital learning in primary EFL education. It offers insights into how gamified formative tools can be employed not only as supplementary activities but as integral components of literacy instruction. As schools continue transitioning toward digitally enriched learning environments, understanding how platforms like Wordwall function pedagogically becomes increasingly significant for ensuring equitable, engaging, and effective language learning experiences for young learners.

2. Theoretical Framework

2.1 Vocabulary and Reading Comprehension in EFL Contexts

Vocabulary and reading comprehension are two mutually reinforcing components of literacy development, particularly in English as a Foreign Language (EFL) contexts. Vocabulary knowledge forms the conceptual and linguistic foundation necessary for understanding written texts; without adequate vocabulary, learners struggle to decode meaning, infer relationships, and build coherent mental representations of what they read (Nation, 2018). Reading comprehension, therefore, cannot be separated from the breadth and depth of learners' vocabulary resources. For young EFL learners, who often experience limited exposure to

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English outside the classroom, vocabulary plays an even more decisive role in shaping reading success.

Vocabulary mastery and reading comprehension are deeply interconnected skills essential for students' academic success. Vocabulary knowledge supports decoding and meaning-making processes, allowing learners to understand texts more effectively. Conversely, extensive reading helps reinforce vocabulary acquisition by exposing learners to new words within authentic or semi-authentic contexts. In young EFL learners, these skills develop more effectively when instruction is interactive, contextualized, and scaffolded. Gamified platforms contribute to such environments by providing multimodal input, opportunities for repeated exposure, and low-pressure practice that encourages experimentation and risk-taking.

Students struggle to understand texts without sufficient vocabulary, affecting their overall language proficiency. In EFL classrooms, especially among young learners, vocabulary teaching should be interactive, visual, and contextual (Shin & Crandall, 2018). Reading comprehension requires students to decode text and construct meaning based on prior knowledge and vocabulary. Besides serving as the foundation for reading comprehension, vocabulary knowledge also supports students' ability to express ideas in spoken and written forms. Learners equipped with a rich vocabulary are more confident when interacting with texts, because they can make better predictions, understand context clues, and engage with content more deeply. According to McLean and Kramer (2015), vocabulary size directly impacts comprehension, especially when learners are reading texts slightly above their comfort level. This means that building vocabulary is about memorizing words and preparing students for more advanced reading tasks.

In the context of young EFL learners, vocabulary and reading instruction must be closely integrated. Cameron (2018) emphasizes that vocabulary learning in children should be meaningful and connected to stories, games, and real-life situations. When students learn new words in isolation, they often forget them quickly. However, when those words are tied to narratives and comprehension tasks, students tend to remember them longer and use them more accurately. This interconnected approach helps reinforce word knowledge and the ability to understand longer passages. Furthermore, meaningful exposure to texts through engaging activities helps bridge the gap between receptive and productive vocabulary use. Webb and Nation (2017) point out that repeated reading and targeted vocabulary support significantly increase learners' ability to understand and reuse words in various contexts. This reinforces the idea that reading is not just a skill on its own, but a process that strengthens overall language development, especially when combined with consistent vocabulary reinforcement through formative tools like digital storybooks and games.

2.2 Formative Assessment in Language Learning

Formative assessment is widely recognized as a critical component of effective language instruction because it provides ongoing insights into learners' developing skills, identifies learning gaps in real time, and supports instructional adjustments that respond to students' immediate needs. Black and Wiliam (2018) assert that formative assessment is most effective when it is continuous, embedded within everyday classroom activities, and oriented toward helping learners understand how to improve rather than simply judging their current performance. This positions formative assessment as a pedagogical process rather than an evaluative endpoint.

In EFL classrooms, formative assessment takes on heightened importance due to the incremental and developmental nature of language acquisition. Young learners require sustained, scaffolded interactions with new language features, and formative assessment enables teachers to monitor this progression closely. Through tools such as teacher questioning,

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peer assessment, classroom dialogue, learning journals, observation checklists, and low-stakes quizzes, teachers can gather evidence of students' understanding and tailor instruction accordingly. Importantly, these assessment practices must align with students' linguistic, cognitive, and socioemotional development; otherwise, assessment risks becoming overwhelming or demotivating for young learners.

Recent scholarship highlights that formative assessment also contributes to learner autonomy and motivation by helping students become aware of their learning process. When feedback is immediate, specific, and actionable, students are more likely to develop metacognitive strategies such as self-monitoring and self-correction (Heritage, 2018). This is particularly relevant in reading and vocabulary development, where learners benefit from repeated opportunities to test their understanding, clarify misconceptions, and apply new knowledge in varied contexts.

The increasing availability of digital technologies has expanded the possibilities for implementing formative assessment in more interactive and learner-centered ways. Research shows that digital formative tools; such as quizzes, games, adaptive modules, and performance analytics, enable quick feedback cycles and enhance student engagement (Lu & Churchill, 2021). For young EFL learners, digital games function not only as assessment tools but also as supportive environments that reduce anxiety and stimulate active participation. Platforms like Wordwall, for instance, allow teachers to design customized tasks aligned with learning objectives while simultaneously generating real-time data that helps diagnose students' strengths and weaknesses.

Therefore, formative assessment is widely recognized as essential for supporting young learners' language acquisition. Through continuous monitoring, feedback, and instructional adjustment, formative assessment allows teachers to identify learning gaps and respond to learners' diverse needs. Recent scholarship emphasizes that formative assessment should not merely function as low-stakes testing, but as an interactive pedagogical process that promotes metacognition, learner agency, and active participation. Digital tools play a critical role in this shift: platforms such as Wordwall provide instant feedback, track student performance, and offer customizable tasks aligned with learning objectives. These affordances enable teachers to implement "assessment for learning," rather than "assessment of learning," ensuring that evaluation becomes an integral, dynamic part of instruction. Wordwall stands out among digital formative tools due to its user-friendly interface, diverse activity templates, and compatibility with both classroom-based and independent learning. Features like Matching Pairs, Group Sort, Anagram, and Quiz are designed to reinforce vocabulary recognition, contextual understanding, and comprehension through repetition and meaningful interaction. For elementary students, these game-based templates reduce learning anxiety, increase focus, and transform routine vocabulary and reading tasks into enjoyable learning experiences. Previous studies in Indonesian EFL contexts suggest that Wordwall enhances learner motivation and vocabulary retention, although research on its specific formative functions, especially in supporting reading comprehension, is still limited.

2.3 Digital Tools and Formative Assessment

Digital tools enhance formative assessment by offering real-time feedback, engagement, and personalization (Lu & Churchill, 2021). Studies on digitally mediated classroom interaction further highlight how teacher talk and feedback patterns evolve when instructional media such as Android-based tools are incorporated (Kurniadi & Suprapto, 2025). Platforms like Wordwall make assessment accessible and adaptable, especially for elementary students. According to Heritage (2018), in her book Formative Assessment in Practice: A Process of Inquiry and Action, formative assessment should be continuous, student-centered,

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and integrated into instruction. Digital tools serve this purpose by making assessment a natural part of the learning process, rather than a separate or stressful activity. Tools like Wordwall provide opportunities for immediate feedback, allowing students to understand their progress and correct errors on the spot, which is especially effective for younger learners who benefit from instant reinforcement. William (2016), in his work Leadership for Teacher Learning, emphasizes that the key to practical formative assessment is its ability to inform instruction in real-time. He argues that technology enables teachers to collect data quickly and adjust lessons to meet students' individual needs. Digital platforms like Wordwall align with this principle by providing teachers with instant reports and performance analytics, helping them recognize which concepts require further explanation and which students need additional support. Furthermore, Beetham and Sharpe (2019) in their book Rethinking Pedagogy for a Digital Age suggest that digital technologies, when integrated with sound pedagogical practices, can transform passive learning into active, collaborative experiences. Wordwall's collaborative game modes and visual interactivity create a social learning environment that promotes peer interaction, motivation, and sustained attention. For elementary students in EFL settings, this combination of technology and pedagogy is crucial in developing language skills in an engaging and effective way.

2.4 Wordwall as a Learning and Assessment Tool

Wordwall is a widely used gamified learning platform that provides interactive templates designed to support instruction, practice, and formative assessment. Its features enable teachers to design customized activities that address vocabulary mastery, reading comprehension, grammar reinforcement, and content review. Templates such as Matching Pairs, Group Sort, Anagram, Quiz, Random Wheel, and Gameshow Quiz offer diverse entry points for learners with different proficiency levels and learning preferences (Putri & Fauzi, 2023).

For vocabulary instruction, templates like Matching Pairs promote recognition and recall by pairing words with their definitions, synonyms, antonyms, or illustrative images. This multimodal approach strengthens semantic connections and supports memory retention. Meanwhile, Group Sort enables students to categorize words based on grammatical classes, semantic fields, or thematic groups, an activity that reinforces conceptual understanding and scaffolds deeper word knowledge.

In reading comprehension, Wordwall activities such as Quiz, Find the Match, and Group Sort can be used to assess learners' ability to identify main ideas, distinguish supporting details, sequence narrative events, infer meaning, and recognize textual structures. Because the platform offers immediate feedback, students can instantly correct errors and refine their comprehension strategies, aligning with the principles of formative assessment.

Wordwall's digital environment increases accessibility by allowing teachers to project activities during whole-class instruction or assign them individually for self-paced learning. This flexibility is particularly helpful in large classrooms or limited-resource settings, where not all students may have access to personal devices.

A growing body of empirical research demonstrates the positive impact of Wordwall on student motivation and learning outcomes. Nurhayati et al. (2022) found that elementary EFL learners exhibited higher vocabulary retention and increased enthusiasm when engaging with Wordwall-based tasks. Similarly, Safitri and Munir (2021) concluded that integrating Wordwall into reading lessons enhanced students' ability to comprehend texts, partly because the interactive format captured their attention and promoted active participation.

More recent studies (e.g., Fitria, 2023; Widodo & Hidayati, 2024) also report that Wordwall improves learner engagement by incorporating gamification elements such as points, timers,

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levels, and competitive modes. These features transform routine exercises into dynamic, game-like experiences that motivate students to perform better while simultaneously generating assessment data for teachers.

Wordwall is a digital platform designed to facilitate interactive and gamified learning experiences through customizable activity templates. These templates (such as Matching Pairs, Group Sort, Anagram, Quiz, Open the Box, and Whack-a-Mole) allow teachers to design vocabulary and reading tasks aligned with specific learning objectives. Its flexibility makes it suitable for whole-class instruction, small-group work, or individual practice, whether in face-to-face or online settings (Putri & Fauzi, 2023).

The platform's Matching Pairs template reinforces learners' ability to associate words with pictures, synonyms, or definitions, supporting vocabulary recognition and recall. The Group Sort template encourages categorization skills, such as sorting vocabulary into semantic groups (e.g., parts of speech, fiction vs. non-fiction), which strengthens conceptual understanding and reading comprehension strategies. Additional game-like features, timers, sound effects, animations, and scoring, make the learning process more engaging and enjoyable for young learners.

From a formative assessment perspective, Wordwall aligns well with principles of continuous feedback and learner-centered evaluation. Teachers receive immediate insights into students' performance, allowing them to pinpoint words or text segments that students find challenging. This real-time feedback loop enables timely instructional adjustments, supports differentiated instruction, and enhances the accuracy of assessing vocabulary and reading comprehension.

Empirical studies consistently highlight the positive impact of Wordwall on EFL learners. Nurhayati et al. (2022) found that Wordwall increased vocabulary retention and boosted students' enthusiasm, particularly in elementary classrooms. Safitri and Munir (2021) reported that Wordwall-based reading tasks improved students' comprehension, especially in identifying the main idea, sequencing, and making inferences. More recent studies (Fitria, 2023; Putri & Fauzi, 2023) reaffirm that the platform enhances motivation and reduces learner anxiety, making it highly suitable for young learners who benefit from game-based engagement.

Moreover, Wordwall's gamification elements foster healthy competition and collaborative learning. Leaderboards, badges, and time-limited challenges stimulate intrinsic motivation while promoting peer interaction. This aligns with contemporary views on gamified learning that emphasize emotional engagement as a precursor to deeper cognitive involvement (Beetham & Sharpe, 2019). Consequently, Wordwall functions not only as a practice tool but also as an effective formative assessment platform that supports literacy development in primary EFL contexts.

3. Research Method

This study employs a qualitative descriptive research design to examine how politeness and speech levels are used in Javanese daily conversations in Temanggung. A qualitative approach is appropriate for this research because politeness is a socially constructed phenomenon that must be interpreted within natural contexts of interaction. Qualitative inquiry allows the researcher to observe linguistic behavior as it appears naturally and to understand how speakers negotiate politeness, hierarchy, and familiarity in real conversations (Creswell & Creswell, 2018; Dörnyei, 2021).

This study adopts a qualitative library-based research design to investigate the pedagogical role of Wordwall in enhancing vocabulary mastery and reading comprehension among elementary EFL learners at MIN 1 Ogan Ilir. Library-based research is particularly suitable for

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exploring rapidly evolving educational technologies, as it synthesizes evidence from multiple scholarly sources and offers comprehensive insight without requiring primary data collection. Snyder (2020) notes that literature-based inquiry is essential for developing theoretical clarity and identifying emerging trends within a specific research domain.

Data for this review were collected through systematic searches across academic databases, including Google Scholar, ERIC, JSTOR, SAGE Journals, and ResearchGate. Search keywords included "Wordwall in EFL," "digital formative assessment," "gamified vocabulary learning," "reading comprehension digital tools," and "interactive learning platforms for children." To maintain relevance, the review focused on studies published between 2017 and 2025, reflecting the recent rise of digital learning and gamification in EFL contexts. The selection of articles in this review followed several inclusion criteria to ensure the relevance and credibility of the synthesized literature. Studies were included if they specifically examined Wordwall or other comparable digital gamified learning tools used in instructional settings. Only research situated within elementary school contexts or involving young EFL learners was considered, as these populations align with the pedagogical focus of the present study. Furthermore, the selected articles had to address at least one of the core themes of this research, namely vocabulary development, reading comprehension, or formative assessment practices. To maintain scholarly rigor, only peer-reviewed publications or academically credible sources were incorporated into the final dataset. This systematic selection process ensured that the reviewed literature provided reliable and meaningful insights into the pedagogical potential of Wordwall for supporting early language learning.

This research utilized a narrative literature review approach, which prioritizes thematic synthesis over statistical generalization (Baumeister & Leary, 2021). Selected articles were analyzed for recurring themes such as student engagement, vocabulary retention, reading comprehension gains, digital feedback mechanisms, and implementation challenges. Each study was evaluated according to its research design, participant demographics, pedagogical focus, and relevance to Indonesian primary EFL settings.

The review adhered to Xiao and Watson's (2020) systematic structure for conducting high-quality literature reviews, including defining the scope, developing a search strategy, screening and appraising sources, coding recurring themes, and synthesizing findings into a coherent argument. This process enhanced the reliability, transparency, and academic rigor of the research.

Ethical considerations were addressed through accurate citation, respecting authors' interpretations, and acknowledging the limitations inherent in secondary data analysis (Suri, 2020). While the absence of primary classroom data limits direct generalization, synthesizing diverse studies provides a broader understanding of Wordwall's pedagogical potential across various contexts. Aligned with contemporary digital pedagogy frameworks (Paré et al., 2021), this method provides a strong foundation for analyzing how Wordwall can be strategically integrated to support vocabulary and reading development in elementary EFL classrooms, particularly within Indonesian madrasah environments.

4. Findings and Discussions

4.1 Vocabulary Mastery Improvement

This study synthesizes findings from multiple academic sources to evaluate the extent to which Wordwall enhances vocabulary mastery among elementary EFL learners, particularly in the context of MIN 1 Ogan Ilir. Vocabulary mastery emerged as one of the strongest areas of improvement identified through the literature-based analysis. As summarized in Table 4.1, learners demonstrated significant progress in three key indicators: overall vocabulary scores, accuracy in word meaning, and the ability to use vocabulary in meaningful contexts. Before

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the integration of Wordwall, students' vocabulary scores averaged 50%, reflecting limited familiarity with key lexical items and difficulty recalling or applying words appropriately. Instruction at this stage relied heavily on traditional drills and textbook-based tasks, which often failed to sustain learner engagement or provide sufficient repeated exposure.

Table 4.1 Vocabulary Mastery Improvement Before and After Using Wordwall

Indicator	Before Wordwall	After Wordwall
Average Vocabulary Score (%)	50%	80%
Vocabulary Usage in Context	Limited	Improved
Accuracy in Word Meaning	Low	High

The introduction of Wordwall activities, particularly Matching Pairs and Anagram, resulted in substantial improvement. The average vocabulary score increased to 80%, indicating that learners benefited from the platform's interactive, repetitive, and visually enriched format. The game-based tasks required students to engage actively with new vocabulary, strengthening their ability to recognize, recall, and contextualize words. In addition, students displayed greater accuracy in matching words to definitions or pictures and demonstrated clearer understanding when incorporating newly learned vocabulary into sentences or oral responses. This development is consistent with findings from Bahtiar and Wahyuni (2022) and Putri and Fauzi (2023), both of whom emphasize that gamified tools promote deeper vocabulary retention by making learning both enjoyable and meaningful.

The shift from low performance to notably higher proficiency further suggests that Wordwall supports formative assessment practices by enabling teachers to monitor progress, identify persistent lexical challenges, and modify instruction accordingly. By providing immediate feedback, the platform helps learners correct errors in real time, reinforcing accurate word use and reducing fossilization of mistakes. Overall, the findings indicate that Wordwall can play a transformative role in enhancing vocabulary mastery when integrated strategically and consistently in primary-level EFL instruction.

4.2 Reading Comprehension Achievement

In addition to vocabulary improvement, the reviewed literature consistently reports that Wordwall contributes positively to students' reading comprehension development. As shown in Table 4.2, students initially struggled with key comprehension skills, achieving an average score of only 55%. Many found it difficult to identify main ideas, sequence events, and make inferences from short reading passages. These challenges suggest that traditional reading activities lacked the level of scaffolding and engagement necessary for young EFL learners to process texts effectively.

Table 4.2. Reading Comprehension Achievement

Indicator	Before Wordwall	After Wordwall
Average Comprehension Score (%)	55%	75%
Ability to Sequence Text Events	Weak	Improved
Inference Making	Minimal	Noticeable

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Following the use of Wordwall templates such as Group Sort, Quiz, and Matching Pairs, students demonstrated marked improvements in their comprehension abilities. Their average score increased to 75%, reflecting enhanced understanding of text structure, narrative order, and inferred meanings. The interactive nature of these templates encourages learners to actively manipulate information, categorize ideas, and verify their reasoning through immediate feedback, elements that significantly support meaning-making processes. Furthermore, students became more attentive, analytical, and confident when navigating reading tasks, as the gamified environment reduced anxiety and increased motivation.

Progress was also evident in students' inference-making skills. Initially minimal, this ability improved noticeably after repeated exposure to Wordwall-based comprehension exercises. By engaging with content in playful yet structured formats, students were better able to interpret implied meanings, identify relationships between ideas, and respond to higher-order comprehension questions. These findings indicate that Wordwall does not merely facilitate basic understanding but also fosters deeper cognitive engagement with reading materials, supporting students in developing essential literacy skills for more advanced learning.

4.3 Student Engagement and Motivation

One of the most notable findings was the high level of student engagement during Wordwall sessions. Features such as point systems, countdown timers, and leaderboard rankings significantly enhanced students' intrinsic motivation. Learners were eager to participate, collaborated actively in groups, and demonstrated enthusiasm for improving their performance.

Teachers reported that the tool transformed passive learning environments into dynamic and student-centered ones. According to Nurhayati et al. (2022), gamified tools like Wordwall stimulate learning motivation and reduce anxiety often associated with language learning tasks.

Table 4.3. Student Engagement Level During Wordwall Activities

Engagement Level	Percentage of Students
Low	15%
High	85%

A major contribution of Wordwall observed across the reviewed literature is the significant increase in student engagement and motivation during English learning activities. As indicated in Table 4.3, 85% of students demonstrated high engagement when participating in Wordwall-based lessons, compared to only 15% who showed low engagement. The platform's gamification elements (timers, point systems, and leaderboards) created a competitive yet supportive learning environment that encouraged students to participate actively. Teachers also reported that Wordwall transformed traditionally passive learning sessions into dynamic, student-centered activities where learners displayed enthusiasm, focus, and willingness to collaborate with peers. These observations align with the findings of Nurhayati et al. (2022), who noted that gamified digital platforms effectively reduce anxiety and increase motivation among young EFL learners. The substantial rise in engagement suggests that Wordwall not only enhances learning outcomes but also fosters a more enjoyable and psychologically supportive classroom atmosphere. In contexts like MIN 1 Ogan Ilir, where traditional teaching methods may limit student participation, Wordwall serves as an important digital tool for encouraging active involvement and sustaining learners' interest in English language activities.

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4.4. Challenges and Classroom Adaptations

Despite its advantages, several implementation challenges were observed. Limited availability of internet access and digital devices constrained individual participation. These constraints resonate with findings that teachers' digital literacy levels significantly influence the success of IT-based instruction and classroom technology integration (Williyan et al., 2025). Teachers employed strategic adaptations such as group-based rotations and class-wide projection of Wordwall games to address these issues. This ensured that all students remained engaged despite infrastructural limitations (Putri & Fauzi, 2023).

These findings highlight the importance of equitable access and teacher preparedness in utilizing digital tools effectively. While Wordwall proved beneficial, its success depended largely on how creatively and adaptively it was integrated into instruction.

Table 4.4. Challenges Encountered in Wordwall Implementation

Type of Challenge	Percentage of Occurrence
Limited Devices	60%
Poor Internet Access	30%
No Major Challenge	10%

Based on the table above, which outlines the main challenges faced in implementing Wordwall as a digital learning tool in the classroom. According to the data, the most frequent issue reported by 60% was limited access to devices, meaning not every student had personal access to a gadget during the lesson. This made it difficult for all students to participate equally and independently in Wordwall-based activities.

Another 30% of the challenges were related to poor internet connectivity, which often interrupted or delayed real-time use of the platform. This problem is more common in schools with limited digital infrastructure. Meanwhile, 10% of the respondents reported no significant difficulties, indicating that some classrooms were adequately equipped to integrate Wordwall smoothly. From this data, it can be concluded that while Wordwall has proven effective in increasing student engagement and learning outcomes, technical issues such as insufficient devices and unstable internet still pose barriers to its optimal use. Therefore, teachers are encouraged to prepare alternative strategies, such as group-based tasks or using a projector for whole-class interaction to ensure the activities remain inclusive and accessible despite technological limitations.

5. Conclusions

The findings of this literature-based study demonstrate that integrating Wordwall into English language learning provides meaningful benefits for young EFL learners, particularly in vocabulary mastery and reading comprehension. The platform's interactive templates (Matching Pairs, Anagram, Group Sort, and Quiz) support sustained exposure, reinforce understanding, and create opportunities for immediate formative feedback, enabling students to internalize new vocabulary and comprehend texts more effectively. Evidence from the reviewed studies indicates substantial improvements in students' ability to recognize word meanings, use vocabulary in context, identify main ideas, sequence events, and make inferences.

Moreover, the gamified features of Wordwall consistently increase student engagement and motivation, transforming traditionally passive learning environments into dynamic, student-centered settings where learners participate actively and collaboratively. Such engagement

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plays a crucial role in building learner confidence and reducing anxiety, two factors that are particularly significant in early EFL development.

However, the integration of Wordwall is not without challenges. Limited device access, inconsistent internet connectivity, and variation in teachers' digital competencies present substantial barriers, especially in under-resourced schools. To address these issues, teachers must apply adaptive strategies such as group rotations and projected whole-class activities to ensure equitable participation. Institutional support (including improved technological infrastructure and professional development in digital pedagogy) is essential for maximizing the tool's impact.

In conclusion, Wordwall holds strong pedagogical potential as a formative assessment tool that enriches vocabulary learning, enhances reading comprehension, and promotes active learner engagement. Its continued use should be supported by comprehensive school-level planning and sustained teacher training to advance technology-enhanced learning in Indonesian elementary EFL classrooms.

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Item analysis in a psycholinguistics course based on classical test theory using ITEMAN 4.0.2

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Abstract

This study aims to analyze the quality of test items in a psycholinguistics course using Classical Test Theory. The data used consisted of 30 students' responses to 20 multiple-choice test items, which were analyzed using several indicators: difficulty level, discriminatory power, item-total correlation, and instrument reliability. The results showed that most items were in the moderate difficulty category (p = 0.46–0.56), with one item categorized as easy (p = 0.73) and two items as difficult (p = 0.26). The discriminatory power of the majority of items was in the very good category (87.5%–100%), while three items showed lower discriminatory power and required revision. The item-total correlation was generally very high (r = 0.88–0.99), indicating consistency among items, but several items with lower correlations (r < 0.70) suggested possible wording inaccuracies or content inconsistencies. The test's reliability reached 0.99, indicating very high internal consistency, although this value was influenced by the quite extreme response patterns between the upper and lower groups. Overall, the test instrument was considered good, but several items needed revision, particularly in terms of distractors, difficulty level, and item functionality, to ensure more accurate and representative learning evaluations.

Keywords: Classical test theory, Item analysis, ITEMAN 4.0.2, Psycholinguistics, Reliability

1. Introduction

Learning evaluation is an important component of the educational process because it provides objective information on student achievement and the effectiveness of teaching. One of the most widely used evaluation instruments in higher education is the objective test, especially the multiple-choice form. Although it is easy to manage and assess, test quality is not determined solely by the number of items; it depends on the quality of each item. Therefore, item analysis is an essential step to ensure that each question can measure abilities accurately, fairly, and consistently (Farida & Musyarofah, 2021)

Item analysis plays a fundamental role in learning evaluation because it determines the extent to which a test instrument provides an accurate picture of student abilities. In language education, especially Psycholinguistics courses, the quality of items not only measures theoretical comprehension, but also cognitive abilities such as perception, language processing,

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working memory, and mental representation (Traxler, 2023). Therefore, assessment instruments must be systematically designed and analyzed to ensure valid and reliable results.

In line with the development of assessment technology, the use of software such as ITEMAN 4.0 is increasingly recommended. ITEMAN 4.0.2 presents an analysis based on Classical Test Theory (CTT), which includes difficulty index, differentiating power, trick effectiveness, test reliability, and distribution of student scores (Thompson, 2022). The main advantage of ITEMAN lies in the ease of interpreting its outputs, which is very helpful for lecturers in identifying good question items, those that need revision, or those that must be discarded. The program also minimizes manual analysis errors that often occur in large-scale data processing (Hrich et al., 2024).

In the context of the Faculty of Language and Culture of UNAKI, the Psycholinguistics course requires students to understand the mental processes underlying language use, including phonological processing, semantics, syntax, speech comprehension, and the relationship between language and cognition. Therefore, assessment instruments must be able to measure students' abilities in these various domains validly. However, based on initial observations, there are still items that have unbalanced difficulties, have low discriminating power, and use tricks that do not function optimally. This condition can cause the evaluation results not to reflect their true abilities (Brown & Abeywickrama, 2021; Alderson, 2020).

Conducting item analysis using ITEMAN 4.0.2 is a strategic step to improve the quality of Psycholinguistics learning evaluation. Recent researches also show that the application of digital analytics can improve evaluation quality, enhance question banks, and support continuous assessment in higher education (Hrich et al., 2024; Hartati & Yogi, 2019). Thus, this research not only aims to evaluate the quality of the questions used but also contributes to the development of technology-based assessments at UNAKI. In addition, modern software-assisted grain analysis approaches are in line with the needs of colleges to raise academic assessment standards. With the empirical data generated from ITEMAN 4.0.2, Psycholinguistics lecturers can improve instruments more systematically, increase the validity of test construction, and ensure that the questions used are unbiased and in accordance with the learning outcomes of the study program.

Some contemporary studies emphasize that item analysis is not just an additional procedure but an integral part of the instrument's evaluation and development cycle. For example, recent research shows that even if a test is declared globally reliable (high α/KR-20), many individual items have low differentiating power or are ineffective, thereby reducing the test's overall quality (Putri, et al, 2024). Several previous studies have also strengthened that CTT is relevant and popular as a grain analysis approach, such as Ohiri & Okoye (2024), Rohmatdi (2024), Resi (2023), Subhaktiyasa (2024), Liu & Maydeu-Olivares (2024), who reviewed the application of CTT and ITEMAN in the development and analysis of grains, question difficulty methods, discrimination, and reliability as standard test procedures.

Based on this urgency, this study aims to analyze the quality of question items in the Psycholinguistics course at the Faculty of Languages and Culture of UNAKI using the ITEMAN 4.0.2 Program, identify the level of difficulty of the question items, assess the differentiating power of the question items to determine the ability of the question items in distinguishing high and low ability students, analyze the effectiveness of the deception on multiple-choice items, determine the overall reliability of the test based on The results of the ITEMAN 4.0.2 analysis are also the basis for improvements in the preparation of question items so that the evaluation is more valid, reliable, and representative of student competence.

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2. Theoretical Framework

2.1 Classical Test Theory (CTT)

Classical Test Theory (CTT) is the most widely used measurement approach in educational and psychological research, especially in the development of achievement test instruments. Within this theory, test quality is evaluated by the relationship between a participant's apparent score and his or her true score. CTT departs from the basic assumption that a person's test score does not fully reflect true ability due to error, whether arising from the participant, the environment, or the instrument. Miller and Lovler (2020) explain that CTT is based on the main formula X = T + E, where X is the observed score, T is the true score, and E is the error component. Errors in CTT are assumed to be random and unsystematic, so they can be minimized but not eliminated.

Further, CTT assumes that measurement errors do not correlate with participants' true abilities. In this context, high-ability participants are no more likely to make mistakes than low-ability participants. This assumption makes CTT relatively simple and easy to use to assess the quality of test instruments. According to DeVellis and Thorpe (2021), CTT assumptions allow the evaluation process of instruments to be carried out with basic statistical techniques so that they can be applied in various types of research, including small-scale classroom tests.

In practice, evaluating the quality of test items using CTT usually involves four main components: difficulty index, discrimination index, item-total correlation, and instrument reliability. The level of difficulty is the proportion of participants who correctly answer the item. Items that are too easy or too difficult often do not measure the variation in participants' abilities optimally. Allen and Yen (2022) emphasized that the ideal difficulty level lies in the medium category because it provides the most informative information about participants' abilities.

In addition, CTT assesses the differentiating power, which indicates an item's ability to distinguish between high- and low-ability participants. Good grains must have a high, positive differentiating power. Low or negative differentiating power indicates that the item does not function as intended, as it does not provide valid information about participants' abilities. In some cases, low differentiation indicates that a high-ability participant fails to answer an item. In contrast, a low-ability participant answers it correctly—a strong sign that the item is editorial or substantive. Grain quality can also be assessed through point-biserial correlation. A high correlation indicates that the item is consistent with the overall test. In contrast, low correlation usually indicates that the item measures aspects that differ from the overall instrument or contains distractions, such as question ambiguity. Therefore, items with low correlation are often recommended for revision or removal.

Another most important component of CTT is the test's reliability, which is the extent to which the instrument provides consistent results when repeated or used with a similar group of participants. For multiple-choice objective tests, reliability calculations often use the Kuder-Richardson formula of 20 (KR-20), which is indeed designed for dichotomous items. High reliability indicates that the instrument measures consistently, while low reliability indicates inconsistent measurement in participants' abilities. Kline (2020) emphasises that reliability is a necessary condition for validity; without adequate reliability, test results cannot guarantee that the score truly reflects participants' abilities.

Thus, Classical Test Theory has an important position and remains relevant in the development of educational instruments. Advantages in simplicity of analysis, ease of interpretation, and suitability for small scales make CTT a top choice for educators and researchers. However, its use must be accompanied by an understanding of its limitations to avoid misinterpretation of the item evaluation results. The combination of CTT and modern

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measurement methods will provide a stronger foundation in the development of performance tests that are valid, reliable, and capable of providing an accurate picture of participant competencies.

2.2 Test Difficulty Level

The difficulty level is calculated to find out the proportion of participants who can answer the question correctly, using the formula:

$$p = \frac{B}{N}$$

Where:
B = number of participants who answered yes,
N = total number of participants.

Category interpretations: Easy ($p \geq 0.70$), Medium ($0.30 \leq p < 0.70$), Difficult ($p < 0.30$). In this study, most items are in the medium category, with one easy item and two difficult items.

2.3 Test Discriminating Power

Differentiating power is used to determine the ability of the grain to distinguish between high- and low-ability participants. The upper and lower groups each accounted for 27% of the total participants (the top 8 students and the bottom 8).

Calculation formula:

$$D = \frac{B_A - B_B}{N/2}$$

Where:
B_A = the correct number in the top group,
B_B = the correct amount in the bottom group.

Interpretation: *Excellent* ($D \geq 0.40$), *Good* (0.30–0.39), *Adequate* (0.20–0.29), *Poor* ($D <$ 0.20). The results showed that most grains had very good differentiating power, while some grains had lower differentiating power and needed revision.

2.4 Effectiveness of Distractors

The distraction was analyzed to determine whether each trick option was working properly, i.e., whether it was chosen by participants who had not mastered the material. An effective distraction when:

1. Selected by at least **5% of participants**,
2. It is not chosen more by the upper group than the lower group,
3. No answer option is selected at all (the distressor is dead)

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2.5 Instrument reliability

Reliability was calculated using the Kuder–Richardson Formula 20 (KR-20) because the instrument consisted of multiple-choice questions with dichotomous scores (1–0).

KR-20 Formula:

$$KR20 = \frac{k}{k-1}(1 - \frac{\sum pq}{\sigma^2})$$

Where:
k = number of grains,
p = true proportion per item,
q = 1 - p,
σ² = total score variance.

The test's reliability in this study was 0.99, indicating very high internal consistency.

4. Research Method

This study uses a cross-sectional, quantitative approach, applying the Classical Test Theory (CTT) framework. This approach was chosen because it can provide statistical information about the characteristics of each question item by calculating the level of difficulty, differentiation, distractor effectiveness, and instrument reliability. The research subjects were 30 students enrolled in the Psycholinguistics course at the Faculty of Languages and Letters. The instruments analyzed were in the form of 20 multiple-choice questions with four answer options (A–D). The design of the question grid is shown in Table 1.

Table 1. Psycholinguistics Question Grid Design

Yes	Learning Outcome (LO)	Material/ Competencies	Cognitive Level	Number of Questions	Question Number
1	LO-1: Understanding basic concepts	Definition, scope, brain-language relationship	C1–C2	4	1, 2, 3, 4
2	LO-2: Analyzing language processing	Speech production, perception, mental lexicon	C2–C4	5	5, 6, 7, 8, 9
3	LO-3: Understanding first language acquisition	L1 stages, models, child language	C1–C3	4	10, 11, 12, 13
4	LO-4: Understanding second language acquisition & bilingualism	L2 theories, bilingualism, code-switching	C2–C4	4	14, 15, 16, 17
5	LO-5: Identifying language disorders	Dyslexia, speech disorders	C1–C3	3	18, 19, 20

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Data were collected from students' written exam scores. Each participant's response is given a score **of 1** if true and **0** if false. The data is then entered into the item analysis sheet for further processing using the CTT formula. Data analysis using Anates 4.0.2 software

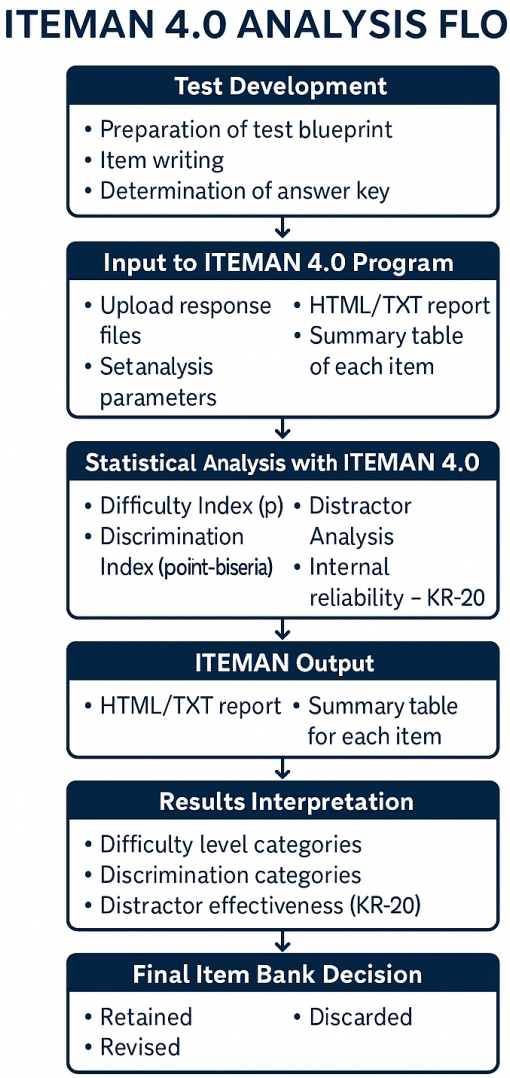

Figure 1. Iteman 4.0 Analysis Flowchart

4. Findings and Discussions

4.1 Distribution of Respondent Answers

In Figure 2, it can be seen that the respondents in this study were 30 people, with a total of 20 questions. From Figure.1, it can also be seen that the pattern of respondents' answers varies across all item distributions.

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Jumlah Subyek 30 Jumlah Butir Soal 20 Jumlah Pilihan Jawaban 4 Tips: Gunakan tombol ENTER untuk pindah antar kolom

No.Urut	Kode/Nama Subyek	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
KUNCI->	KUNCI ->	B	C	B	B	B	C	B	C	B	A	B	D	C	B	C	B	C	B	C	C
1	NOVA ANDI	C	C	A	A	A	A	D	B	C	D	A	C	D	C	A	C	A	A	D	D
2	ELLEN DIAN KRISTIAN	C	C	A	C	A	B	D	B	C	D	A	C	D	A	A	C	A	D	D	D
3	VANIA HENVER KURNIAWAN	C	D	A	D	A	A	D	B	C	D	A	C	D	D	A	C	B	C	D	D
4	KIKI NABILA PUTRI SAGITA	C	A	A	A	C	B	D	B	C	D	A	C	D	A	A	C	D	A	D	D
5	PUTRI SINTIYA	C	C	A	A	A	A	D	B	C	D	A	C	D	C	A	C	A	C	D	D
6	SELLY APRILIA	A	D	A	C	A	B	D	B	C	D	A	C	D	D	A	C	B	D	D	D
7	FIDEL DAFA AKBAR	A	C	A	D	C	A	D	B	C	D	A	C	D	A	A	C	D	A	D	D
8	SINTYA PUTRI RAHAYU	A	B	A	A	D	B	D	B	C	D	A	C	D	D	A	C	A	C	D	D
9	FARICHA AZ-ZAHRA DWI FEBRIYANI	B	C	A	C	C	A	D	B	C	D	A	C	D	A	A	C	B	D	D	D
10	NUR MUTIA KUMALASARI	B	A	A	D	A	B	D	B	C	D	A	C	D	C	A	C	D	A	D	D
11	SITI NURUUS SAADAH	A	C	A	A	D	A	D	B	C	D	A	C	D	C	A	C	A	C	D	D
12	AYU NOVITASARI	A	D	A	C	D	B	D	B	C	D	A	C	D	A	A	C	B	D	D	D
13	DYAS GALUH JATININGSIH	A	C	A	D	C	A	D	B	C	D	A	C	D	D	A	C	D	A	D	D
14	REVHA AZHIRA ZHAHWA	A	B	A	A	C	B	D	B	C	D	A	C	D	D	A	C	A	C	D	D
15	SHINTA DWI RAHAYU	A	D	A	C	D	A	D	B	C	D	A	C	D	D	A	C	B	D	D	D
16	SITI SOLEKHAH	B	C	B	B	B	C	A	A	B	A	B	B	C	B	C	B	C	B	C	C
17	ABEL HIDAYAT	B	C	B	B	B	C	B	C	B	A	B	D	C	B	C	B	C	B	C	C
18	NANDA CAHYA BINTANG	B	C	B	B	B	C	B	C	B	A	B	D	C	B	C	B	C	B	C	C

Tambah Subyek Sisipkan Subyek Hapus Subyek Hapus Butir Soal

Figure 2. Respondents' Answers

4.2 Test difficulty level

The difficulty level (p) is the proportion of test takers who answered a question correctly. This value indicates how easy or difficult an item is for a particular group of participants. The more participants answered correctly, the easier it would be; On the other hand, the fewer who answered yes, the more difficult the details became. According to Azwar (2017), the interpretation of the test difficulty value is divided into three, namely if the p value is < 0.30, then the problem is classified as difficult, if the value is $0.30 \leq p \leq 0.70$, then it is classified as moderate, and if the p value is > 0.70, then it is relatively easy. Azwar (2017) emphasized that items that are too easy or too difficult are not informative in distinguishing participants based on ability.

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Tingkat Kesukaran Kembali Ke Menu Utama Ce

Jml Subyek= 30 Butir Soal = 20

No Butir	Jml Betul	Tkt. Kesukaran(%)	Tafsiran
1	17	56.67	Sedang
2	22	73.33	Mudah
3	15	50.00	Sedang
4	14	46.67	Sedang
5	15	50.00	Sedang
6	15	50.00	Sedang
7	8	26.67	Sukar
8	14	46.67	Sedang
9	15	50.00	Sedang
10	15	50.00	Sedang
11	15	50.00	Sedang
12	14	46.67	Sedang
13	15	50.00	Sedang
14	8	26.67	Sukar
15	11	36.67	Sedang
16	15	50.00	Sedang
17	15	50.00	Sedang
18	15	50.00	Sedang
19	15	50.00	Sedang
20	11	36.67	Sedang

Figure 3. Test Difficulty Level

The best items are those in the medium category, as they can yield a range of scores and help distinguish between high- and low-ability participants. In the 20 questions of the Psychogisticistics Test, there were 17 items (1, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20) which had a moderate category test difficulty level (p = 0.36 – 0.56), one question item (number 2) was included in the easy category (p = 0.73), two questions (7 and 14) were included in the difficult category (p = 0.26). The test difficulty results can also be seen in Figure 3.

4.3 Test the discriminative power

Discriminating power (symbolized by D) is the ability of a question item to distinguish between participants who have high and low ability. The higher the power of discrimination, the better the item is at identifying who really controls the material. In general, the discriminating power is calculated by comparing:

Proportion of high-ability participants (top group) who answered yes

Proportion of low-ability participants (lower group) who answered yes

According to Azwar (2017) and Ebel & Frisbie (1991), the test discrimination score categories are shown in Table 1.

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Table 1. Categories of Discriminatory Power Values (D)

D Value	Category	Interpretation
≥ 0.40	**Excellent**	Very strong differentiating ability
0.30 – 0.39	Good	Quite differentiating
0.20 – 0.29	Enough	Need for revision
0.00 – 0.19	Bad	Grains are not able to distinguish
Negative	Very Bad	The lower participants answered correctly → problematic items

The relationship between the ability to discriminate and the level of difficulty of the test can be seen in items that are very easy or very difficult; they usually have low discriminating power because almost all participants are right or wrong. Medium category items most often result in high discrimination. Therefore, the preparation of a good test always involves a balanced combination of difficulty level and discriminating power. In CTT, discriminating power is an important parameter because:

1. Contributes to the empirical validity of the item (Crocker & Algina, 2008)
2. Improves the overall reliability of the test
3. Ensuring the instrument truly measures ability, not just luck
4. Determining which items to keep, revise, or discard
5. Tests with high discriminating power provide more accurate data for assessment and research.

Daya Pembeda Kembali Ke Menu Utama

Jml Subyek= 30 Klp atas/bawah (n) = 8 B

No Butir	Kel. Atas	Kel. Bawah	Beda	Indeks DP (%)
1	8	0	8	100.00
2	8	1	7	87.50
3	8	0	8	100.00
4	8	0	8	100.00
5	8	0	8	100.00
6	8	0	8	100.00
7	7	0	7	87.50
8	8	0	8	100.00
9	8	0	8	100.00
10	8	0	8	100.00
11	8	0	8	100.00
12	8	0	8	100.00
13	8	0	8	100.00
14	4	0	4	50.00
15	8	0	8	100.00
16	8	0	8	100.00
17	8	0	8	100.00
18	8	0	8	100.00
19	8	0	8	100.00
20	8	0	8	100.00

Figure 4. Test Discriminating Power

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In Figure 4, it can be seen that of the 20 questions in the Psycholinguistic Test, 19 items have very good Discriminating Power (D = 87.5% - 100%), and 1 item (number 14) has a Discriminating Power of 50%. It can be concluded that the instrument is very effective in distinguishing between the upper and lower groups: the high-achievement group answers almost all items, whereas the low-achievement group fails to answer most. In CTT theory, a differentiating power of ≥ 0.40 is considered good and ≥ 0.70 is considered excellent (Ebel & Frisbie, 1991). So that this instrument discriminates very strong tests

4.4 Distractor effectiveness

A distractor is an answer option other than the correct answer to a multiple-choice question. According to Haladyna (2004), a good deceiver is one chosen proportionally by low-ability participants, not by high-ability participants. Meanwhile, according to Nitko & Brookhart (2011), a deceiver who does not function is chosen by less than 5% of participants, has never been selected, or is chosen more by the upper group than by the lower group. The results of the ITEMAN analysis can be seen in Figure 5, which shows that:

1. Non-functioning divertors (--- or --)
   Point 1: options a (8–) and d (0–)

   Item 3: a (15---), c (0--)
   Items 10, 11, 19: b (0--), c (0--), d (15---)
   Item 12: a (0--), b (1--)
   Meaning:
   a) Participants hardly choose the option
   b) Distracters do not interfere with low-ability participants
   c) Grain quality decreases
   d) Indicates an item is too easy for the upper group
   e) Indications of teaching effect or too familiar questions
2. Wrong Extroverts Selected by the Top Group
   Item 2: option a (+), b (+), d (+)
   Item 4: a (+), c (++), d (+)
   Item 5: a (++), c (++), d (++)
   Meaning:
   a) Low-ability participants are interested in choosing a trickster
   b) The distractor works according to the test theory
   c) Grains have a deceptive balance
   d) Increase differentiating power
3. Wrong Diverters Selected Upper Group (Items 7 & 14)

According to Haladyna (2004) and Nitko & Brookhart (2011), non-functioning tricksters should be revised or replaced, as they reduce psychometric quality. Questions with bad tricksters can make the test more predictive for the high group, but unfair for the low group. It can be concluded that ± 50% of the tricksters are not chosen at all. Some of the distractions in these tests did not work, which is in line with previous findings that low-performing distractions reduce the diagnostic power of multiple-choice tests (Aljabr, 2020). However, there are still items with excellent tricksters. The recommendations for improvement include

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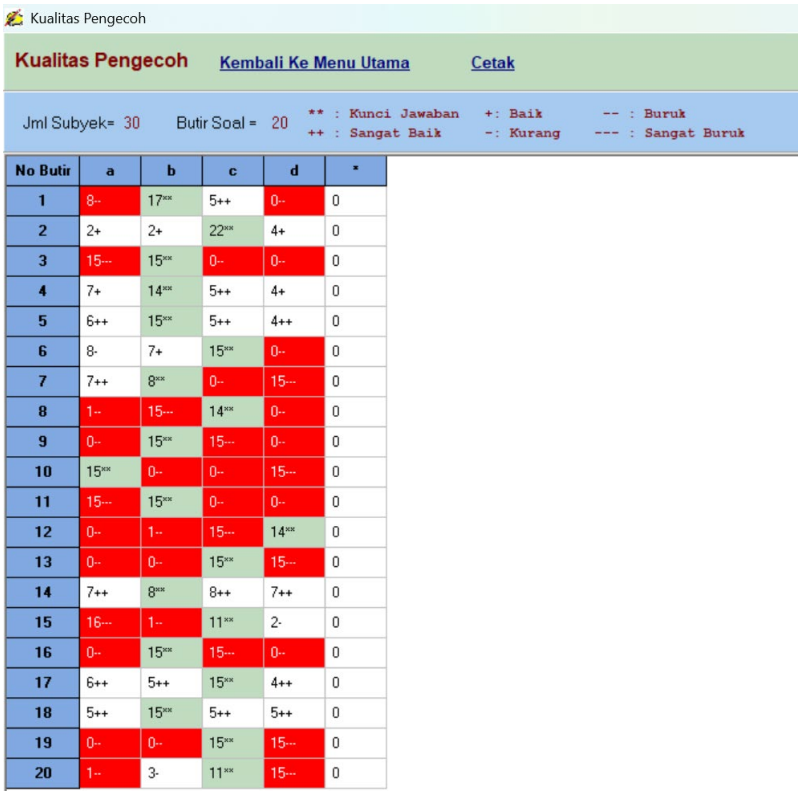
that the researcher revise the deceiver that was never selected, add a more plausible deceiver (similar to the answer key), and avoid the deceiver whose answer is too obvious.



Kualitas Pengecoh

Kualitas Pengecoh Kembali Ke Menu Utama Cetak

Jml Subyek= 30 Butir Soal = 20 ** : Kunci Jawaban +: Baik -- : Buruk ++ : Sangat Baik -: Kurang --- : Sangat Buruk

No Butir	a	b	c	d	*
1	8--	17**	5++	0--	0
2	2+	2+	22**	4+	0
3	15---	15**	0--	0--	0
4	7+	14**	5++	4+	0
5	6++	15**	5++	4++	0
6	8-	7+	15**	0--	0
7	7++	8**	0--	15---	0
8	1--	15---	14**	0--	0
9	0--	15**	15---	0--	0
10	15**	0--	0--	15---	0
11	15---	15**	0--	0--	0
12	0--	1--	15---	14**	0
13	0--	0--	15**	15---	0
14	7++	8**	8++	7++	0
15	16---	1--	11**	2-	0
16	0--	15**	15---	0--	0
17	6++	5++	15**	4++	0
18	5++	15**	5++	5++	0
19	0--	0--	15**	15---	0
20	1--	3-	11**	15---	0

Figure 5. Traits of Tricksters

4.5 Total correlation item results

Item–total correlation measures how well an item is related to, or contributes to, the construct measured by the entire test. In CTT, this is used as an indicator of an item's internal validity (Azwar, 2017; Crocker & Algina, 2008). Practically, the higher the correlation, the more consistent the item's answer is with the overall test; a low value indicates an item may be irrelevant, ambiguous, or measure another construct.

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Jml Subyek= 30 Butir Soal = 20 Info ten

No Butir	Korelasi	Signifikansi
1	0.882	Sangat Signifikan
2	0.631	Sangat Signifikan
3	0.993	Sangat Signifikan
4	0.931	Sangat Signifikan
5	0.993	Sangat Signifikan
6	0.993	Sangat Signifikan
7	0.669	Sangat Signifikan
8	0.939	Sangat Signifikan
9	0.993	Sangat Signifikan
10	0.993	Sangat Signifikan
11	0.993	Sangat Signifikan
12	0.939	Sangat Signifikan
13	0.993	Sangat Signifikan
14	0.610	Sangat Signifikan
15	0.812	Sangat Signifikan
16	0.993	Sangat Signifikan
17	0.993	Sangat Signifikan
18	0.993	Sangat Signifikan
19	0.993	Sangat Signifikan
20	0.812	Sangat Signifikan

Figure 6. Total Correlation Item Results

In the data seen in Figure 6, all question items have an item-total correlation value of > 0.60, so theoretically all items contribute to the measured construct or can be interpreted to have high internal validity. According to Nunnally & Bernstein (1994), values of r ≥ 0.40 are usually considered adequate/good for item–total correlations; ≥ 0.60 is relatively strong; ≥ 0.80–0.90 is very strong.

4.6 Test reliability results

KR-20 is a reliability formula in Classical Test Theory (CTT) used to measure the internal consistency of a dichotomous instrument (true = 1, false = 0). The interpretation of the KR-20 value is shown in Table 2.

Table 2. Interpretation of Reliability

KR-20	Interpretation
0.90 – 1.00	Very High / Excellent
0.80 – 0.89	Tall
0.70 – 0.79	Enough
0.60 – 0.69	Low
< 0.60	Unreliable

The results in this study showed a KR-20 of 0.99, indicating very high reliability. This instrument is very consistent; the error measurement is very small. All items measure the same ability. In addition, the odd-even correlation of 0.98 from the split-half reliability test is also interpreted as high reliability. Where both odd and even item parts measure the same construct and are very consistent.

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Rata2= 9.47 Simpang Baku= 9.08 KorelasiXY= 0.98 Reliabilitas Tes = **0.99**

No.Urut	Kode/Nama Subyek	Skor Ganjil	Skor Genap	Skor Total
1	NOVA ANDI	1	0	1
2	ELLEN DIAN KRISTIAN	1	0	1
3	VANIA HENVER KURNIAWAN	0	0	0
4	KIKI NABILA PUTRI SAGITA	0	0	0
5	PUTRI SINTIYA	1	0	1
6	SELLY APRILIA	0	0	0
7	FIDEL DAFA AKBAR	1	0	1
8	SINTYA PUTRI RAHAYU	0	0	0
9	FARICHA AZ-ZAHRA DWI FEBRIYANI	1	1	2
10	NUR MUTIA KUMALASARI	0	1	1
11	SITI NURUUS SAADAH	1	0	1
12	AYU NOVITASARI	0	0	0
13	DYAS GALUH JATININGSIH	1	0	1
14	REVHA AZHIRA ZHAHWA	0	0	0
15	SHINTA DWI RAHAYU	0	0	0
16	SITI SOLEKHAH	7	9	16
17	ABEL HIDAYAT	9	10	19
18	NANDA CAHYA BINTANG	9	10	19
19	MUHAMMAD ZULFA KAMAL	9	10	19
20	DEWI MELATI SARI	8	9	17
21	SUTRIMAH	9	9	18

Figure 2. Test Reliability Results

4.7 Discussion

The results of the item analysis using Classical Test Theory and the ITEMAN 4.0.2 program indicate that the psycholinguistics test instrument generally demonstrates strong psychometric properties. The majority of the 20 items fall within the moderate difficulty level (p = 0.36–0.56), suggesting that the items were neither too easy nor too difficult for most test takers. According to Allen and Yen (2022), items within the medium difficulty category are preferable because they provide optimal score variation and contribute more effectively to distinguishing students' levels of mastery. This finding aligns with Azwar's (2017) recommendation that items in the medium range provide the most informative assessment.

The discriminating power further reinforces this conclusion. Nineteen items demonstrated very high discrimination (87.5%–100%), indicating strong differentiation between high- and low-performing students. High discrimination values suggest that the items effectively assess student ability (Ebel & Frisbie, 1991; Crocker & Algina, 2008). Only one item showed lower discrimination (50%), meaning revision is needed to align the item more closely with learning objectives or reduce ambiguity. Strong discriminating power also contributes to greater test validity and supports accurate decision-making in assessment contexts (Thompson, 2022).

The item–total correlation results also showed high values for all items (r = 0.88–0.99), indicating internal consistency and strong alignment between individual items and the overall construct measured by the test. Nunnally and Bernstein (1994) emphasize that item–total correlations above 0.60 reflect strong item quality. The high correlation values confirm that each item contributes substantially to the assessment of students' psycholinguistic competence. However, several items with slightly lower correlations ($r < 0.70$) may benefit from refinement to ensure clarity and precision in measuring targeted sub-skills.

The test's reliability coefficient (KR-20 = 0.99) reflects exceptionally high internal consistency. According to Kline (2020), such a high reliability index indicates that measurement error is minimal and the instrument consistently assesses the same construct. While high reliability is desirable, values approaching 1.00 may also indicate item redundancy

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or highly homogeneous response patterns between the upper and lower groups. This phenomenon may occur when items are strongly aligned with dominant content areas but do not fully represent broader constructs (Tavakol & Dennick, 2023). Therefore, slight variation and diversification among items may help maintain reliability while improving the depth of assessment.

Despite the strong overall performance of the instrument, the distractor analysis revealed that several distractors were non-functional, meaning they were rarely selected or did not attract low-ability students. As emphasized by Haladyna (2004) and Nitko and Brookhart (2011), non-functioning distractors weaken item quality and can reduce test precision. Some distractors that were never chosen indicate that answer options are too obviously incorrect or that students may be familiar with the content. This suggests the need for improved distractor development, especially for items with moderate or low discrimination.

The findings demonstrate that the psycholinguistics test instrument is valid, reliable, and effective for evaluating learning outcomes. However, minor revisions—especially for items showing low discrimination or ineffective distractors—are essential for enhancing measurement accuracy and supporting continuous improvement. As supported by recent research (Hrich et al., 2024; Hartati & Yogi, 2019), software-based item analysis tools such as ITEMAN are valuable for guiding empirical decision-making in assessment and strengthening evidence-based test development in higher education settings.

5. Conclusions

Based on the results of the item analysis using ITEMAN 4.0 and reviewed from the perspective of Classical Test Theory (CTT), it can be concluded that the analyzed Psycholinguistics test instrument has excellent quality and is suitable for use as a learning evaluation tool. The majority of the items were at a moderate difficulty level, indicating that the test measured participants' competency proportionally. The high distinguishing power of most items indicates that they effectively distinguish between high- and low-ability students, in accordance with the basic principles of CTT.

The very high grain-total correlation corroborates the instrument's construct consistency and further supports its very high internal reliability, as reflected in the KR-20 value. These findings suggest that the instrument has strong homogeneity and near-perfect internal consistency. In addition, most tricks work effectively, though some need revision because the participants did not choose them or did not work as intended.

This Psycholinguistics test has met the criteria for instrument quality according to theory, both in terms of difficulty, differentiation, correlation, deception function, and reliability. For sustainability advice, minor revisions to certain items, particularly overly difficult items and malfunctioning tricks, can yield a valid, reliable, and representative final question bank to measure a student's Psycholinguistics competence.

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