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Inclusive Communication Model: Phenomenological Workplace Experiences of Deaf Workers in Pontianak

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Abstract: *The findings reveal the emergence of an "Adaptive Total Communication" ecosystem that integrates BISINDO and visual communication cues as the primary communication framework in the workplace. A central finding of this study is the phenomenon of "Inverse Integration," in which hearing workers voluntarily adopt silence-based communication practices and visual interaction norms to align with the communicative culture of deaf workers. Despite these adaptive practices, full workplace inclusion remains constrained by linguistic dissonance, unequal levels of sign language proficiency, and the limited practicality of digital communication tools in high-pressure operational settings. Theoretically, this study extends Co-Cultural Theory by demonstrating that communicative adaptation may shift from marginalized groups toward majority group members within inclusive organizational contexts. Practically, the study proposes a "Community-Based Adaptive System" that prioritizes human-centered infrastructure, including peer mentors, communication facilitators, and low-cost environmental modifications such as visual lighting signals. These findings offer a strategic framework for micro-enterprises to develop autonomous, sustainable, and inclusive work environments without excessive dependence on costly technological interventions.*

INTRODUCTION

Communication in the workplace is a significant issue for deaf individuals and those with hearing impairments worldwide (Deaf or Hard of Hearing – DHoH), affecting their access to jobs, career opportunities, and overall quality of life (Haynes, 2014; Syuib, 2025; Meng et al., 2024). According to the World Health Organization (2024), over 430 million people globally experience hearing impairments, yet only a small fraction of them have access to adequate communication in the workplace. This condition contributes to a significant economic gap and limited career development opportunities, particularly in the formal sector (Kurniawan et al., 2025). Despite

global efforts to create inclusive workplaces through the Convention on the Rights of Persons with Disabilities (CRPD) and international regulations from the International Labour Organization (ILO) to provide appropriate accommodations for individuals with disabilities, including inclusive communication (Eriksen et al., 2021), the implementation of these policies still faces numerous obstacles in many countries, including Indonesia (Syuib, 2025). This phenomenon creates substantial inequalities for deaf workers, especially concerning communication accessibility, which is crucial for supporting their performance and engagement in the workforce.

Research on communication for deaf workers, particularly in the formal sector, has been extensive (Chang & Tucker, 2022). Deaf workers often face challenges when communicating with hearing workers, negatively impacting their engagement and career opportunities (Foster & Macleod, 2003). Although inclusive policies have been implemented, challenges in their execution persist. A study by Wolfgruber (2023), highlights the impact of degrading communication practices, such as humor, which exacerbates the marginalization of deaf workers, reinforces cultural stereotypes, and deepens communication difficulties. Research by Young et al. (2019) emphasizes that the use of sign language interpreters in the workplace leads to deaf workers losing agency and identity, as they depend entirely on interpreters to convey their messages.

However, research specifically focused on the communication of deaf workers in the informal sector, especially in Indonesia, remains scarce. Young et al. (2019) show that while deaf workers in the formal sector face challenges in accessing inclusive communication training, studies related to the informal sector in Indonesia, particularly in Pontianak, are limited. Although international policies encourage inclusive workplaces, Syuib (2025) reveals that the implementation of these policies in Indonesia still faces many challenges, including physical accommodations and social awareness. Badan Pusat Statistik (BPS, Central Statistics Agency) of West Kalimantan Province (2022) reported that there are approximately 383 people with disabilities in Pontianak, with an estimated 5-10% being deaf workers, most of whom work in the informal sector, such as cafes, restaurants, and micro-enterprises.

The specific selection of the informal sector, particularly cafes and restaurants in Pontianak, is driven by several strategic academic justifications. First, while the formal sector is often bound by legal inclusivity mandates and possesses the resources to provide formal accommodations, the informal sector absorbs a larger portion of deaf workers due to lower entry barriers. However, it severely lacks formal human resource protections and accessibility funding. Second, Pontianak serves as a representative microcosm of a growing urban center in a developing nation, where local data indicates a heavy reliance of deaf individuals on informal micro-enterprises despite limited formal accessibility initiatives. Finally, cafes were specifically chosen as the research locus because they embody highly dynamic, noisy, and fast-paced operational environments. The physical demands of service work in cafes render standard digital assistive technologiessuch as handheld speech-to-text applications impractical and cumbersome. Investigating how deaf and hearing workers organically negotiate communication in such high-pressure, resource-constrained settings is crucial for discovering low-tech, practical adaptive strategies that can be generalized to the broader informal economy. Deaf workers often face difficulties in communicating with hearing workers, and although some local initiatives, such as BISINDO training by the community (Ruhama et al., 2024), have been introduced, limited resources and a lack of understanding of BISINDO among workers present significant barriers to inclusive communication (Kurniawan et al., 2025).

The lack of access to technology, such as captioning and real-time transcription applications, further exacerbates the situation, causing deaf workers to rely on ad hoc

communication methods, such as writing or gestures (Kurniawan et al., 2025). In this context, a significant research gap exists in the development of an inclusive communication model to address the challenges faced by deaf workers in the informal sector, particularly in Pontianak. This study aims to fill the literature gap concerning the communication of deaf workers, focusing specifically on the informal sector in Pontianak and developing a communication model that aligns with local challenges.

This research aims to make a theoretical contribution by advancing the development of an inclusive communication model, while also providing practical contributions through policy recommendations that can be implemented in Pontianak's informal sector, particularly in cafes and restaurants. The study will offer solutions that are both accurate and relevant for creating a more inclusive, productive, and equitable workplace for deaf workers, in alignment with the policies outlined in the CRPD and Law No. 8/2016 on Persons with Disabilities. To address this issue, the study posits the following research questions (RQ): (1) in what way communication methods Deaf and hearing workers use in Pontianak; (2) What communication barriers Deaf and hearing workers face in Pontianak; and (3) how the inclusive communication model for Deaf and hearing workers is.

LITERATURE REVIEW

Theoretical Foundations of Communication and Barriers

To ground the analysis of information exchange dynamics within mixed-ability workplace environments, this study initially draws upon the foundational Transmission Model of Communication (Sapienza et al., 2016). This linear framework visualizes communication as a process where a Sender encodes a message, transmits it through a specific Channel, to be decoded by a Receiver. Crucially, this model highlights the inherent presence of 'Noise' any external or internal interference that disrupts the channel and degrades message integrity during transmission.

Within the context of Pontianak's informal cafés, this foundational model is particularly highly relevant for mapping operational breakdowns (as identified in Theme 2 of the findings). The empirical data illustrates how 'noise' is not merely a theoretical concept but a tangible barrier manifesting in two primary forms: physical noise (environmental acoustics, music, and machinery that hinder lipreading and auditory processing) and semantic noise (linguistic dissonance caused by syntactic differences between linear spoken Indonesian and visual-spatial sign structures). This noise frequently results in decoding failures at the receiver end, leading to operational deadlocks.

However, while the Transmission Model effectively identifies where structural friction occurs in the communication chain, contemporary scholarship criticizes it for oversimplifying communication as a static, one-way information transfer and neglecting the complex interplay of power, identity, and mutual negotiation inherent in intercultural interactions (Suryandari et al., 2025). The model explains the failure (the noise), but it cannot adequately explain the adaptive strategies workers use to overcome that failure. Therefore, to analyze how Deaf and hearing workers actively navigate these barriers and co-construct meaning beyond simple transmission, this research necessitates more dynamic and critical frameworks, specifically Co-Cultural Communication Theory (CCT) and the Social Model of Disability.

Co-Cultural Communication Theory (CCT)

The Co-Cultural Communication Theory (CCT) explains how members of nondominant groups navigate dominant systems to negotiate power, sustain cultural identity, and achieve equitable participation (Orbe, 1996). CCT delineates three preferred outcomes (assimilation,

accommodation, separation) that are pursued through nonassertive, assertive, or aggressive approaches, with choices shaped by perceived risk, efficacy, and local power relations (Orbe, 1996; Young et al., 2019). This lens is useful for studies of Deaf communities because interactional practices are identity-relevant and conditioned by organizational norms and access arrangements (Muhyiddin & Widjanarko, 2024). Applied to workplace contexts, CCT explains how inclusive communication between deaf and hearing workers can be facilitated by recognizing and supporting Deaf communicative strategies. Deaf employees may practice assertive accommodation by advocating accessible channels and using BISINDO or captioning, or they may employ nonassertive assimilation by temporarily aligning with hearing norms when necessary (Muhyiddin & Widjanarko, 2024; Young et al., 2019). The theory underscores that inclusion cannot rely on individual effort alone and requires organizational support such as Deaf-awareness training, formal recognition of sign language as a working language, and reliable access to assistive technologies (Núñez-Brugman et al., 2023; Raggett & Barley, 2022). In Indonesia, where BISINDO and visual cues are central to everyday work interaction, CCT helps interpret how deaf workers co-construct communicative space with hearing colleagues and how organizations can rebalance power through inclusive design and policy (Fadlilah et al., 2019).

Social Model of Disability

The Social Model of Disability posits that disability arises primarily from social, environmental, and institutional barriers rather than from individual impairment, shifting analysis from "fixing bodies" to removing barriers and restructuring contexts (Gabel & Peters, 2004). It distinguishes impairment, meaning bodily variation, from disability, meaning restriction produced by society, and it emphasizes rights, participation, and structural change as the levers of inclusion (Oliver, 2013; HUGHES & PATERSON, 1997; Lawson & Beckett, 2021; Zaks, 2024). Within this model, disabling conditions are produced by the design of spaces and systems, the distribution of resources, and the operation of norms and power, so effective intervention targets policy, environment, information, and culture, not only the individual (Freund, 2001; Kapsalis et al., 2024; Lawson & Beckett, 2021; Zaks, 2024). In practice, barriers commonly cluster as physical or environmental barriers, informational or communication barriers, institutional or policy barriers, attitudinal or cultural barriers, technological barriers, and economic or structural barriers (Botelho, 2021; Zaks, 2024). The Social Model, therefore it guides researchers and practitioners to diagnose where systems disable and to design contextual remedies such as universal design, accessible information, anti-discrimination policy, and resource reallocation, so that participation is enabled by default (Hedvall et al., n.d.; Lawson & Beckett, 2021; Zaks, 2024)

Building on this foundation, studies of deaf–hearing interaction show that mediated communication can reduce agency and identity, indicating that exclusion arises from contextual and power dynamics rather than impairment alone (Young et al., 2019). Evidence from workplaces and service settings confirms that inclusion depends on system redesign, training, and access to appropriate tools, consistent with the Social Model's focus on contextual barriers (Dermawi et al., 2018; Wolfgruber et al., 2022). Barriers are linguistic, technological, psychosocial, and organizational. Linguistic barriers emerge when hearing colleagues have limited sign-language competence, which slows exchanges and raises error risk (Fadlilah et al., 2019). Technological barriers appear when captioning or sign-recognition tools work in controlled settings but degrade in real-world conditions (Sujatmiko et al., 2023). Psychosocial barriers involve stigma and the burden of self-advocacy that can lead to fatigue and withdrawal from interaction (Rachdito & Hidayat, 2022), while organizational barriers include non-visual meeting routines, unclear

protocols, and weak accommodation procedures (Wolfgruber et al., 2022). Usability studies emphasize that user-centered design and training are essential to turn tools into effective access rather than mere technology deployment (Dermawi et al., 2018; Fitrasari et al., 2021). Applied to workplaces in Indonesia, the Social Model predicts greater inclusion when interaction conditions are redesigned. In everyday work, BISINDO and visual cues are central, but limited BISINDO proficiency among hearing staff and non-visual protocols sustain barriers (Fadlilah et al., 2019). For deaf workers, reliance on interpreters can reduce voice and agency, highlighting the need to shift from person-focused fixes to contextual reforms that enable direct and equitable communication (Young et al., 2019). Practical implications include recognizing sign language in policy and standard procedures, providing Deaf-awareness training, co-designing visual-first meeting practices, and using context-robust tools tested in real workplace settings (Dermawi et al., 2018; Fitrasari et al., 2021; Sujatmiko et al., 2023; Wolfgruber et al., 2022).

Inclusive Communication

Inclusive communication refers to the intentional design of interactions, information, and environments so that all participants can access, understand, and contribute on equal terms across modalities such as sign language, text, speech, and visual cues (Wolfgruber et al., 2022; Young et al., 2019). Rather than relying on individual workaround, inclusion is treated as an organizational property that aligns policy, skills, and technology to reduce structural barriers in everyday exchanges (Stinson et al., 2022). Studies link inclusive communication to stronger collaboration, clearer role performance, and higher perceptions of fairness because formalized communicative routines reduce marginalizing practices and repair cycles in interaction (Wolfgruber et al., 2022). Research on interpreted settings cautions that mediation can unintentionally diminish the agency and identity of deaf interlocutors, which underscores the need for systems that support direct and equitable participation whenever feasible (Young et al., 2019).

Building on this conceptual foundation, inclusive communication can be operationalized through interrelated strategies that align language policy, technology, and workplace practice (Duncan et al., 2023; Hedvall et al., n.d.; Mitchell et al., 2025). Recognition of sign language as a working mode anchors equal participation and reduces dependency on ad hoc solutions, while basic sign-language training for hearing staff normalizes multimodality (De Meulder et al., 2019; Lai et al., 2025; Lawson & Beckett, 2021). User-centered and context-robust technologies such as captioning, automatic speech recognition (ASR), and sign-recognition should be designed for real-world conditions rather than laboratory benchmarks (Gould & Clark-Howard, 2025; Sujatmiko et al., 2023). Capacity building through Deaf-awareness and managerial training enables supervisors and peers to enact visual-first norms, appropriate pacing, and clear turn-taking (Hulme et al., 2024; Young et al., 2019). Participatory co-design with end users ensures usability and adoption, turning accessibility tools into genuine inclusion (Dermawi et al., 2018). Empirical work shows a persistent gap between controlled test accuracy and real-world reliability, making low-tech options such as communication boards, written notes, and visual aids essential for continuity (Dermawi et al., 2018). Inclusive communication succeeds when organizations align policy, routines, and tools by formalizing visual-first meetings, ensuring access to captions or interpreters, and maintaining user-tested technologies. This alignment results in better collaboration and reduced communication barriers (Stinson et al., 2022; Young et al., 2019).

Communication for Deaf and Hearing Workers

Globally, communication practices among Deaf and Hard of Hearing (DHoH) workers share common features but differ in regulatory enforcement and technological accessibility (Boutros & Fakih, 2023). In developed countries such as the United States and the United Kingdom, workplace communication for Deaf employees is strongly supported by legal frameworks (Karger & Rose, 2010). The Americans with Disabilities Act (ADA) Title I mandates employers to provide reasonable accommodations such as sign language interpreters, real-time captioning (CART), and assistive listening devices to ensure equal communication access (Adams, 2025). In practice, Deaf workers across countries use multimodal communication strategies, combining direct sign language (e.g., ASL, BSL), facial expressions, and gestures with written or digital tools such as email, instant messaging, and transcription apps (Young et al., 2019). Technological innovations such as Video Relay Services (VRS) and Video Remote Interpreting (VRI) enable real-time sign language interpretation for remote and hybrid workplaces, although service quality and interpreter workload remain challenges (Hulme et al., 2024). Studies also highlight the benefits of CART captioning systems, which improve comprehension and engagement during meetings, particularly when interpreters are unavailable (Hayden, 2023). In addition to technological aids, inclusive workplace design plays a crucial role. The Deaf Space concept, developed at Gallaudet University, emphasizes open sightlines, adequate lighting, and visual cues to enhance visibility and group interaction (Weiler et al., 2025). Training programs for hearing coworkers in basic sign language and Deaf culture further reduce communication barriers and foster teamwork (Granberg & Gustafsson, 2021). Overall, international research consistently demonstrates that successful communication for Deaf workers requires a multimodal, culturally aware, and technology-supported approach that integrates environmental design, legal compliance, and interpersonal inclusion (Gehret et al., 2023).

Communication between Deaf and hearing workers in Indonesia is shaped by linguistic diversity, cultural norms, and technological adaptation. BISINDO (Bahasa Isyarat Indonesia) serves as the primary medium for daily interaction, complemented by facial expressions, gestures, and body movements that convey nuance and context (Gehret et al., 2023). Limited BISINDO proficiency among hearing colleagues remains a major barrier, often forcing Deaf workers to simplify signs or combine them with gestures and writing, which reduces participation equality (De Meulder et al., 2019). Basic BISINDO training significantly improves mutual understanding (Dermawi et al., 2018), yet many workplaces still rely on interpreters who, while ensuring accuracy, can diminish Deaf workers' agency through mediated exchanges (Young et al., 2019). In informal settings such as cafés or micro-enterprises, communication relies on written and digital tools such as chat applications, handwritten notes, and smartphone-based communication boards to coordinate tasks (Bintoro et al., 2023). Technologies such as speech-to-text applications and machine-learning-based sign recognition using CNN, LSTM, and YOLO frameworks improve accessibility, although accuracy challenges remain (Mangan, 2024). Drawing from Co-Cultural Communication Theory, Deaf workers employ strategies such as assertive accommodation or nonassertive assimilation to navigate interactions, asserting cultural identity and agency within mixed environments (Sheridan et al., 2010; Swanwick, 2018). Strengthening inclusive communication therefore requires both technological solutions, including affordable captioning and sign-recognition tools, and social measures, such as BISINDO training and Deaf-awareness programs, to foster equitable participation across Indonesia's workplaces (De Meulder et al., 2019).

From the perspective of Co-Cultural Communication Theory, communication barriers emerge when dominant workplace norms fail to recognize or accommodate co-cultural strategies

used by deaf employees (Iturriaga, 2025). These barriers are multidimensional, such as linguistic, technological, psychosocial, and organizational (Iturriaga, 2025). Linguistically, limited BISINDO proficiency among hearing colleagues causes frequent misunderstandings and slower interactions (Bintoro et al., 2023). Technologically, although deep-learning–based sign recognition systems such as CNN, LSTM, and YOLO achieve 78–99% accuracy in laboratory settings, their real-world use remains constrained by environmental factors like lighting and background (Tan et al., 2024). Psychosocial barriers include the self-advocacy burden and stigma that lead deaf workers to expend extra effort explaining their needs, often resulting in fatigue or social withdrawal (Iturriaga, 2025). Organizationally, unsupportive cultures and inaccessible communication channels amplify exclusion, whereas peer and supervisor support reduce barriers and reinforce inclusivity (Svinndal et al., 2020).

Inclusive Workplace

Creating an inclusive workplace is not only a matter of ethics or compliance but also a key factor for improving organizational performance, employee satisfaction, and innovation (Chaudhry et al., 2021; Coll & Mignonac, 2023). In management practice, inclusion means ensuring that every employee, regardless of background, ability, or identity, feels respected, involved, and able to contribute meaningfully to organizational goals (Bhatti et al., 2022; Chaudhry et al., 2021). According to Bhatti (2022), inclusion functions as an integrated management system that connects organizational culture, leadership, and social responsibility. The inclusive workplace model encourages leaders to move beyond diversity numbers toward practical inclusion by establishing fair policies, ensuring accessibility, and promoting equal participation across all organizational levels (Chaudhry et al., 2021). In daily management, inclusion operates through the dual needs of belongingness and uniqueness (Lawson & Beckett, 2021). Inclusive leaders recognize individual differences while creating a sense of belonging among team members (Hedvall et al., n.d.). For managers, this means building systems where employees are comfortable expressing ideas and identities without fear of exclusion (Šubic & Ferri, 2023). Inclusive leadership behaviors such as active listening, transparent communication, and equitable decision-making foster trust and transform diversity into collaboration and performance (Šubic & Ferri, 2023). Recent studies have shown that inclusive climates enhance communication and engagement across diverse teams, leading to higher productivity, lower turnover, and improved well-being (Agyeiwaah et al., 2024). Similarly, openness and trust, as key features of inclusive culture, serve as mediators between inclusion and organizational outcomes (Saladin & Hansmann, 2008).

For managers, inclusion should not be viewed as a single HR program but as an organizational climate supported by consistent leadership behavior, ethical governance, and transparent communication (Bernards et al., 2025). Developing an inclusive culture requires alignment between organizational values, policies, and daily practices (Jiang, 2024). Leaders play a central role by embedding inclusion into company vision statements, evaluation systems, and leadership development programs to make inclusion genuine rather than symbolic (Verheijen-Tiemstra et al., 2025). Inclusive workplaces also reduce absenteeism, strengthen employee identification with the organization, and improve retention and performance (Jack et al., 2025). From a managerial perspective, the practical application of inclusion involves four essential actions. Leadership commitment refers to leaders modeling inclusive behavior and allocating resources for inclusive initiatives (Yuan et al., 2025). Inclusive HR systems ensure that recruitment, training, and evaluation processes minimize bias and guarantee equitable access (Yuan et al., 2025). Open communication involves encouraging feedback mechanisms and creating

psychologically safe spaces for diverse voices (McCausland, 2023). Continuous learning emphasizes regular workshops, coaching, and diversity dialogues to sustain empathy and awareness within teams. In summary, inclusive workplaces are cultivated through consistent leadership practices that integrate fairness, communication, and employee engagement. A truly inclusive organization is achieved not through a single policy but through a culture where every employee feels empowered to contribute to collective success (Jack et al., 2025).

Communication of Deaf Workers (Condition in Pontianak, Pre-Survey Data)

Based on a pre-survey conducted at a café in Pontianak employing both deaf and hearing workers, communication between them primarily relies on body language and chat applications as supporting tools (Prasurvey, 2025). This finding aligns with recent studies showing that deaf workers in Pontianak generally use multimodal communication strategies that combine non-verbal cues, gestures, and digital communication technologies to overcome linguistic and environmental barriers (Enri et al., 2023; Fadlilah et al., 2019; Muhyiddin & Widjanarko, 2024). The use of these methods reflects the adaptive ability of deaf workers to maintain effective interaction in informal work settings, even though hearing colleagues still have limited proficiency in Indonesian Sign Language (BISINDO). Moreover, digital chat platforms such as WhatsApp or internal messaging applications serve as vital bridges that enable clear two-way exchanges in daily operations (Joan et al., 2023; Sujatmiko et al., 2023). These findings indicate that inclusive communication practices in Pontianak cafés have developed organically through technological and behavioral adaptation, although formal BISINDO training remains very limited (Umarella et al., 2022).

Conceptual Framework

This study adopts a phenomenological approach to explore the communication experiences of deaf workers in Pontianak, specifically focusing on the communication methods they use in the workplace, the barriers they face, and the inclusive communication models. The aim of this approach is to understand the meaning and experiences encountered by deaf workers in interacting with their hearing workers within their work environments. The study will investigate three main variables: communication methods of deaf workers, communication barriers, and inclusive communication models. Communication methods include the use of BISINDO and other non-verbal communication techniques, while communication barriers encompass linguistic challenges, technological obstacles, and social factors such as stereotypes and a lack of understanding. The inclusive communication model refers to the integration of BISINDO, assistive technologies, and adaptive strategies that facilitate two-way communication between deaf workers and their hearing workers. Through the phenomenological approach, this research focuses on how deaf workers in Pontianak perceive and interpret their communication experiences, as well as how these barriers impact their performance in the workplace.

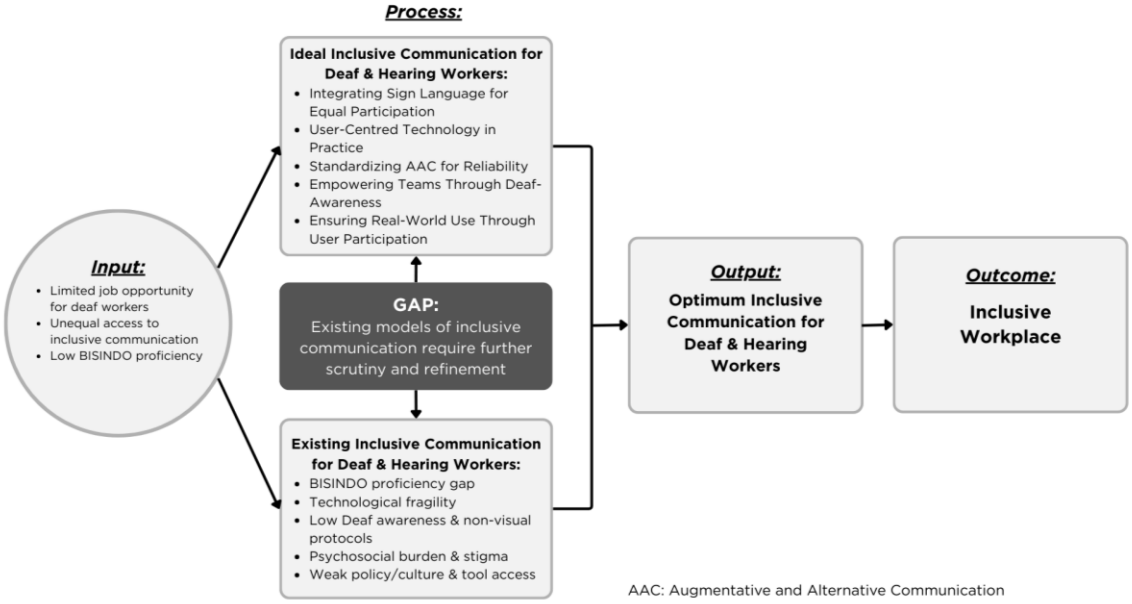

Figure 1. Conceptual Framework

METHOD

This study employs a qualitative approach underpinned by a phenomenological design (Smith et al., 2009; Creswell, 2014). The research aims to deeply explore the lived communication experiences of deaf workers in the informal sector in Pontianak, specifically focusing on the communication methods utilized, the barriers encountered, and the emerging inclusive communication models. A phenomenological approach was selected for its capacity to provide profound insights into the subjects' lived existence, allowing for an understanding of communication practices directly from their unique perspectives, particularly regarding their interactions with hearing colleagues (Fadlilah et al., 2019; Joan et al., 2023).

Participants were selected using a purposive sampling technique to recruit individuals best suited to provide detailed insights into the research phenomenon. The sample specifically targeted deaf workers currently employed in the informal sector in Pontianak and their hearing colleagues, ensuring that all participants possessed direct experience relevant to the study's objectives. To ensure the richness of data and enhance the validity of findings through triangulation, data were collected using multiple methods across different sources (Fitrasari et al., 2021; Young et al., 2019). The primary data collection involved distinct approaches tailored to the participants' communication preferences. Deaf workers responded to open-ended questions via Google Forms, a method chosen to allow them to express themselves according to their communication abilities and provide sufficient time to formulate detailed answers without pressure (Fadlilah et al., 2019; Joan et al., 2023). Conversely, hearing workers participated in face-to-face in-depth interviews to obtain direct accounts of their experiences interacting with deaf workers (Dermawi et al., 2018; Haq et al., 2018). Furthermore, non-participant workplace observations were conducted to witness real-time interactions in the natural work setting, supplemented by verification of relevant digital documentation from the workplace's social media.

The qualitative data gathered from interviews, Google Form responses, field observations, and digital documentation were analyzed using thematic analysis. This process adhered to the six-phase framework established by Braun and Clarke (2006) to identify, analyze, and report patterns

(themes) within the dataset. The first phase, familiarisation, involved the researchers immersing themselves in the data by repeatedly reading transcripts and reviewing notes to generate initial ideas. The second phase, coding, entailed generating succinct labels for important features of the data relevant to the research questions across the entire dataset. In the third phase, theme development, these codes were collated into potential themes, grouping related data regarding methods, barriers, and strategies. The fourth phase, theme review, involved checking the candidate themes against the coded extracts and the entire dataset to ensure they accurately reflected the participants' experiences. The fifth phase, defining themes, involved refining the specifics of each theme and generating clear definitions and names. Finally, the sixth phase, reporting, involved selecting vivid extract examples to produce the final analysis presented in this study. To ensure the trustworthiness and credibility of the qualitative findings, this study employed member checking. Preliminary findings and interpretations were briefly discussed with key participants to confirm that the researcher accurately captured their lived experiences. Furthermore, given that the raw data consisted of written Indonesian responses from the deaf workers (via Google Forms) and spoken Indonesian transcripts from the hearing workers, the translation processes were conducted meticulously. Quotes were translated into English idiomatically rather than literally to preserve the participants' original meaning-making, contextual nuances, and emotional undertones without losing the essence of their statements.

RESULT AND DISCUSSION

The analysis identified three interrelated themes that explain how inclusive communication is enacted in the informal sector of Pontianak. Theme 1 describes the pragmatic as Total Communication ecosystem used to navigate daily tasks. Theme 2 details the multi-dimensional barriers, specifically linguistic dissonance and social exclusion, that persist despite inclusive policies. Theme 3 presents the "Community-Based Adaptive System," a model that prioritizes human mediation and environmental visual cues over digital technology.

Tabel 1. The Participants Profile of the Research

Code	Role	Hearing Status	Degree of Deafness	Gender	Age	Communication Method	Length of Work Exp.
D1	Kitchen	Deaf	Moderate	Female	25	BISINDO, Gestures	1-2 Years
D2	Barista	Deaf	Profound	Female	25	BISINDO, Writing, Gestures	< 1 Year
D3	Barista	Deaf	Profound	Female	30	BISINDO, Writing	1-2 Years
D4	Barista	Deaf	Moderate	Male	20	BISINDO, KOMTAL	< 1 Year
D5	Barista	Deaf	Severe	Female	26	KOMTAL, Writing Apps	< 1 Year
D6	Barista	Deaf	Profound	Male	23	BISINDO, Gestures, Typing	1-2 Years

H1	Owner	Hearing	-	Male	50+	Verbal, Basic Sign, Gestures	> 10 Years
H2	Mentor	Hearing	-	Male	30+	Verbal, Gestures, Mediator	~9 Years
H3	Kitchen	Hearing	-	Female	35	Verbal, Gestures, "Completely Silent"	< 1 Year
H4	Cashier	Hearing	-	Male	25	Typing, Abjad Jari	< 1 Year
H5	Barista	Hearing	-	Female	20	Verbal, Gestures	1 Year
H6	Barista	Hearing	-	Female	21	Verbal, Gestures	1-2 Years

Note: KOMTAL (Komunikasi Total / Total Communication): A communication approach that combines various methods including sign language, speech (oral), lip-reading, gestures, and writing to maximize understanding. Age not specific mention.

The table illustrates the demographic profile and key characteristics of the 12 participants involved in this study. The participants are categorized into two distinct groups based on their hearing status: Deaf workers, coded as D1 to D6, and Hearing coworkers or employers, coded as H1 to H6. The data presents a comprehensive overview of their roles (ranging from Barista, Kitchen staff, to Owner), gender, age, and length of work experience. Furthermore, it details the specific degree of deafness for the deaf participants (Moderate, Severe, to Profound) and the primary communication methods utilized by each individual, such as BISINDO, gestures, writing, and verbal communication.

Theme 1: Communication Methods Used by Deaf and Hearing Workers in Pontianak

The findings reveal that communication in inclusive cafés does not rely on a single, standardized language. Instead, workers navigate a fluid continuum identified as "Adaptive Total Communication." While Deaf workers prefer BISINDO (Indonesian Sign Language), the operational reality necessitates a hybrid approach due to the limited fluency of hearing colleagues. Hearing workers often adopt a strategy identified as "Full Silence," where they suppress verbal speech entirely to force themselves to think and act visually. This involves exaggerated pantomime and physical enactment to bridge vocabulary gaps during high-pressure service hours.

Participant H6: *"Full Silence: I turn off my voice and only move my hands and lips. [Once], I clenched my fists... it was interpreted as a code for 'Fighting'... We laughed. I actually meant: 'Make the foam expand!'*

Participant H4: *"It is hard to memorize the movements [of formal sign language]... so I use chat."*

Contrary to the assumption that digital technology is the primary enabler, the data shows an Operational Rejection of speech-to-text applications during active shifts. Both Deaf and hearing workers found handheld devices cumbersome when carrying trays or cooking, preferring manual gestures and physical touch (shoulder tapping).

Tabel 2. Field Evidence on Communication Methods

Participant Group	Observed Method	Operational Reality	Perceived Effectiveness
Deaf Workers	BISINDO & Written Text	Preferred for social interaction but often simplified to basic keywords for hearing staff.	High for identity; Medium for operations due to hearing staff's limited fluency.
Hearing Workers	Full Silence & Pantomime	Turning off voice to rely on aggressive mimicking and pointing during rush hours.	High. Regarded as the "Emergency Language" when formal signs fail.
Joint Interaction	Adaptive "Pidgin"	A mix of standard signs, home signs, and gestures unique to the workplace.	High. Ensures speed over linguistic accuracy.

Similarly, participant H6 and H4 highlighted moments when they abandoned verbal speech entirely during rush hours to force a visual connection with their Deaf peers. Crucially, these aggressive non-verbal cues such as clenching fists to signal more foam were not interpreted as mocking, but as a necessary Visual-Corporeal adaptation to ensure operational speed. Such adaptive strategies confirm that inclusion in Pontianak is grounded in pragmatic Translanguaging rather than rigid adherence to formal language policies. De Meulder et al. (2019) argue that in mixed-ability workplaces, interlocutors utilize their entire semiotic repertoire combining formal signs and home gestures to construct meaning. In the context of this café, this workplace pidgin allows hearing workers to bridge the proficiency gap, validating Young et al.'s (2019) observation that direct, unmediated interaction fosters greater agency for Deaf workers than relying solely on interpreters.

Theme 2: Communication Barriers Faced by Deaf and Hearing Workers in Pontianak

Despite an inclusive organizational culture, significant barriers persist. The analysis highlights that barriers are not merely functional but deeply rooted in linguistic structures and social dynamics.

Linguistic Barrier: The Syntax Gap

A profound barrier is the incompatibility between the linear *Subject-Predicate-Object* (SPOK) structure of Standard Indonesian used by hearing workers and the *Topic-Comment* structure inherent in Deaf communication. This causes breakdowns in written communication often the backup plan as hearing workers struggle to decode the inverted logic of Deaf messages.

> Participant H1: *"Sometimes their texts are back-and-forth/inverted. That is a characteristic of Deaf friends... For example, they write 'market go' [instead of 'go to market']."*
> Participant D4: *"Their sentence structure [Stand:ard Indonesian/SPOK] is confusing for me."*

Social Barrier: The "Statue Effect"

The study identified a phenomenon termed the Statue Effect (*Efek Patung*). While Deaf workers are integrated into labor, they often experience micro-exclusion during casual social interactions. When hearing workers engage in auditory bonding (laughing, whispering), Deaf workers report feeling socially sidelined or treated like inanimate objects.

Participant D5: *"Neglect: They are busy chatting among themselves, and I am silenced [like a statue]."* Participant D3: *"During lunch, hearing friends sit in a circle and laugh... But when asked, my friend just answers briefly... 'Ah, it's nothing, not important."*

Technological Barrier: Environmental Incompatibility

Contrary to the "techno-optimism" often found in policy, the study revealed that digital tools act as barriers in high-paced physical environments. The requirement to hold a phone for transcription apps conflicts with the manual nature of service work (carrying trays, cleaning), creating a physical hindrance rather than a bridge.

Participant D2: *"Comfort: It's a hassle to hold the HP constantly when hands are working carrying goods."* Participant D4: *"The situation was very noisy... I couldn't read his lips [and the app failed]."*

Tabel 3. Dimensions of Communication Barriers

Barrier Type	Evidence	Impact on Inclusion
Linguistic	Syntactic clash (Standard Indonesian vs. Deaf Syntax).	Written instructions via WhatsApp are often misunderstood or require "decoding," slowing down operations.
Social	"Statue Effect" during breaks.	Creates emotional isolation despite physical integration; reinforces a "service-only" inclusion model.
Technological	Incompatibility with physical labor.	Speech-to-text apps are rejected because they require hands-free use, which is impossible in a busy café environment.

Similarly, the rejection of assistive technology (apps) highlights a critical disconnect between policy assumptions and operational reality. While management often assumes digital tools facilitate inclusion, workers, participants D2 and H3 described them as cumbersome and ineffective in noisy environments. Crucially, this barrier is not due to a lack of digital literacy, but Environmental Incompatibility. This finding challenges the concept of Techno-Ableism the belief that technology can fix disability without changing the environment (Shew, 2020). In Pontianak's informal sector, Low-Tech solutions like pointing or tapping proved more High-Access than smartphones, confirming Botelho's (2021), assertion that without context-aware design, technology can create "virtual barriers" rather than opportunities.

Theme 3: The Inclusive Communication Model for Deaf and Hearing Workers

The inclusive communication model that emerged is not a rigid, policy-driven structure but a flexible Community-Based Adaptive System. This model prioritizes human infrastructure over software and environmental pragmatism over high-tech solutions. The Human Bridge Infrastructure is the most effective inclusion strategy observed relies on Mentors (senior hearing staff) who act as real-time interpreters and cultural bridges. Instead of relying on apps, workers call upon these mediators to resolve complex communication deadlocks.

Participant H2: *"If it's urgent... I call the Sign Language Interpreter (JBI). If they don't understand, I speak to the JBI, and the JBI speaks to them."* Participant D6: *"Third Party Assistance: I call another friend who understands my signs to be an interpreter."*

Environmental vs. Digital Technology

The model redefines "technology" in this context. Rather than digital transcription apps (which fail in noise), the workplace utilizes Environmental Technology such as light notifications and picture-based menus to ensure accessibility without disrupting workflow.

Participant D5: *"Technology that MUST exist... Light Notifications: Lights that blink for calls."* Observation Note: *"The cafe utilizes 'Picture Menus' and ensures bright lighting to facilitate lipreading... proving that low-tech adaptations are more sustainable."*

Tabel 4. Components of the Inclusive Communication Model

Model Component	Implementation Strategy	Outcome
Human Infrastructure	**Mentorship (Brokering):** Senior hearing staff designated as cultural bridges.	Reduces the psychosocial burden of self-advocacy for Deaf workers; resolves misunderstandings immediately.
Visual-Corporeal Ecosystem	**Full Silence Protocol:** Hearing staff suppress voice to prioritize visual/tactile cues.	Validates "Deaf Space" norms; ensures equity by forcing the dominant group to adapt to the non-dominant mode.
Contextual Technology	**Environmental Design:** Use of light signals and static visual aids (photos) instead of apps.	High reliability in noisy, fast-paced environments where digital tools fail.

These findings align with broader scholarship on the limitations of technology in inclusion. While Botelho (2021) warns that digital tools can create virtual barriers, this study demonstrates that a Human Infrastructure (Mentors) provides a more effective bridge in high-context environments. Similarly, the reliance on active mediation validates Young et al. (2019) argument that communication support must empower rather than diminish the agency of Deaf workers. Yet, as Wolfgruber et al. (2022) caution, inclusion is not merely about presence but is constituted in interaction. Complementing this, the Full Silence protocol extends Orbe's (1996). Co-Cultural Theory by illustrating 'Inverse Integration' where the dominant group adopts the minority's norms. However, this model is effective only because it relies on somatic adaptation rather than rigid policy alone. As emphasised by Bernards et al. (2025) regarding inclusive leadership, this 'Community-Based Adaptive System' moves beyond symbolic compliance to pragmatic, visual-corporeal equity enacted in daily work.

DISCUSSION

The primary objective of this study was to elucidate the lived communication dynamics between Deaf and hearing workers in Pontianak's informal sector, with particular attention to how inclusive interaction is negotiated in resource-constrained environments. The findings extend the Social Model of Disability and Co-Cultural Theory by demonstrating that inclusivity is not merely a product of policy compliance or technological adoption, but an organic, somatically negotiated process driven by human infrastructure.

Reconceptualizing Co-Cultural Adaptation through Inverse Integration

Co-Cultural Communication Theory (CCT) traditionally posits that non-dominant groups (e.g., Deaf individuals) bear the primary burden of navigating dominant structures through assimilation or accommodation strategies (Orbe, 1996; Young et al., 2019). Much of the existing literature implicitly assumes that for inclusion to occur, the marginalized must adapt to the majority's norms. The present findings partially support this assumption, insofar as Deaf workers actively employ assertive strategies to advocate for their communicative needs.

However, the findings also challenge the unidirectional nature of this adaptation. This study reveals a phenomenon of Inverse Integration, where the dominant hearing group voluntarily suppresses their native modality (speech) to adopt the "Full Silence" norms of the non-dominant Deaf group. Rather than the Deaf worker struggling to lipread amidst noise, the hearing worker engages in assertive accommodation by shifting to a visual-corporeal mode. This paradox suggests that in high-contact informal teams, power dynamics are more fluid than CCT suggests. Inclusion here is achieved not by forcing the Deaf worker into the hearing world, but by the hearing workforce momentarily entering the Deaf Space, thereby shifting the labor of adaptation from the marginalized to the majority to ensure operational equity.

Environmental Incompatibility and the Rational Adoption of Low Tech Strategies

Contemporary discourse on workplace accessibility often reflects a strong techno-optimism, framing digital tools such as speech-to-text applications as the primary enablers of inclusion. Recent studies, such as those by Hayden (2023) and Mangan (2024), frequently highlight the efficacy of captioning and AI-based sign recognition in bridging communication gaps. However, this study provides empirical counter-evidence to the universal applicability of such high-tech interventions in informal sectors.

The findings demonstrate a distinct Operational Rejection of digital tools, challenging the assumption that a lack of technology adoption equates to a lack of digital literacy. This rejection occurred due to Environmental Incompatibility; specifically, the requirement to hold a smartphone rendered these tools functional barriers during high-intensity physical labor like carrying trays or cooking. Conversely, low-tech solutions such as light signals and tactile cues offered "high-access" reliability that digital tools failed to provide.

Therefore, the workers' reversion to manual strategies functioned less as a regression to primitive methods and more as a rational application of the Social Model of Disability. This finding validates Shew's (2020) critique of Techno-Ableism and Botelho's (2021) warning regarding virtual barriers, confirming that true inclusion requires fixing the rigid physical environment rather than attempting to "fix" the person with incompatible devices.

The Role of Mediated Agency in Supporting Communicative Autonomy

Existing literature on mediated communication, particularly the work of Young et al. (2019), warns that reliance on interpreters or intermediaries can diminish the agency and identity of Deaf workers. The prevalent argument is that third-party involvement creates distance, reducing the Deaf worker to a passive recipient of information and eroding their professional identity. While this study respects that critical concern, the findings from Pontianak offer a nuanced counter-narrative regarding the role of informal mediators.

The Human Bridge Infrastructure, manifest through senior hearing Mentors, operated fundamentally differently from the formal interpreters criticized in previous studies. Instead of enforcing strict language policies that might stifle expression, these Mentors acted as safety nets

that encouraged risk-taking. This support structure facilitated a Workplace Pidgin a mix of BISINDO, home signs, and gestures allowing Deaf workers to bypass rigid linguistic norms. In this sense, human infrastructure operated less as a barrier to direct participation and more as a scaffolding for communicative autonomy.

By having a trusted mediator available to resolve complex deadlocks, Deaf workers felt empowered to experiment with direct communication. However, this autonomy is not absolute; the persistence of the "Statue Effect" during casual social interactions indicates that while functional inclusion is achieved, social belonging remains a contested terrain that requires cultural negotiation beyond what operational support alone can provide.

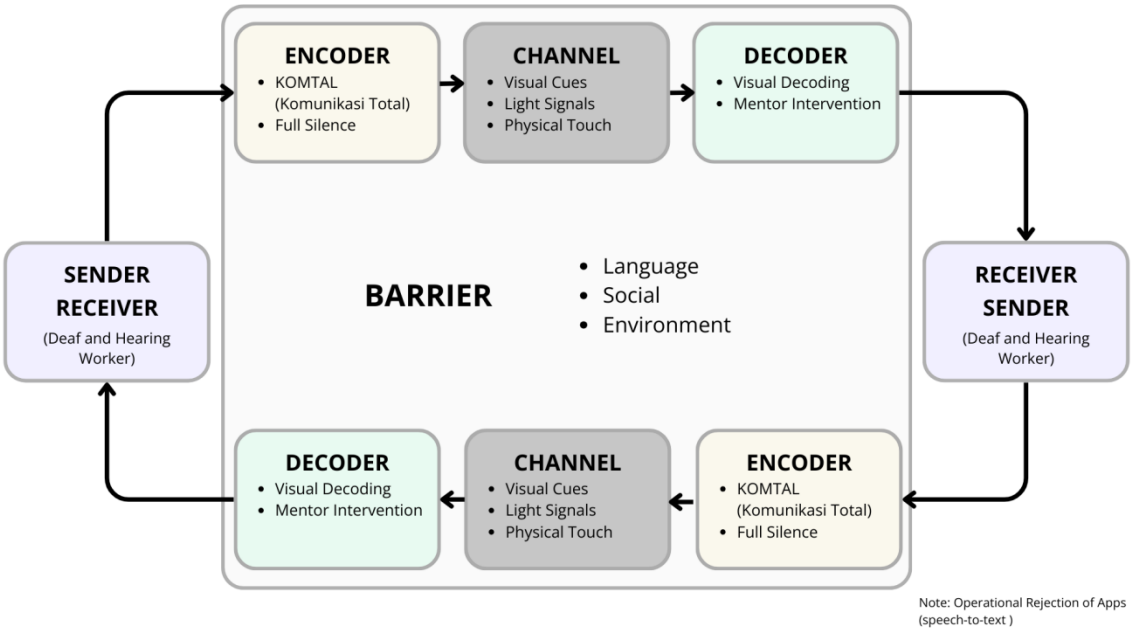

Figure 2. Inclusive Communication Model for Deaf and Hearing Workers

This figure illustrates the Inclusive Communication Model, which is conceptualized as a Community-Based Adaptive System. Unlike formal corporate models that rely on rigid top-down policies, this framework argues that inclusivity in the informal sector is an organic, dynamic process driven by family-like cultural bonds rather than strict technological compliance. The model operates through three interconnected dimensions that challenge standard theoretical assumptions.

First, at the meso-level, the Human Bridge Infrastructure acts as the critical operational safety net. Our findings challenge the prevailing techno-solutionism by demonstrating that digital tools often fail in high-intensity, noisy environments. Instead, the model reveals that Mentors senior hearing staff acting as cultural brokers are indispensable. They do not merely translate language, they clarify visual context and resolve communication deadlocks that apps cannot handle, proving that human intermediation remains superior to digital intervention in establishing semantic understanding.

Second, at the micro-level of interaction, the Visual Ecosystem reveals a phenomenon of Inverse Integration. Contradicting traditional Co-Cultural Theory where minority groups bear the burden of assimilation, this model highlights that the dominant hearing group engages in 'assertive accommodation. Through the Full Silence protocol, hearing workers voluntarily suppress verbal

speech to adopt the somatic and visual norms of their Deaf colleagues. This shift actively dismantles the hierarchy of ability, creating an equitable space where Deaf workers can maintain agency without being forced into an auditory framework.

Third, regarding structural support, the component of Environmental Technology redefines accessibility. The study identified an Operational Rejection of high-tech speech-to-text applications due to their incompatibility with physical labour. Therefore, the model prioritises Low-Tech contextual solutions such as light signalling and pictorial menus over digital dependency. This confirms that in the informal sector, accessibility is most sustainable when it is embedded in the physical environment rather than attached to a device. In conclusion, this model advances existing research by demonstrating that workplace inclusivity is not simply a function of policy or advanced technology, but of alignment across levels. It requires the synchronization of human infrastructure (mentorship), somatic adaptation (visual culture), and environmental pragmatism to create a truly adaptive system.

CONCLUSION

Based on the phenomenological analysis of communication experiences at Cafe in Pontianak, this study concludes that inclusive communication in the informal sector is not defined by strict adherence to formal language policies or high-tech interventions. Instead, it operates as a Community-Based Adaptive System driven by human mediation and pragmatic visual strategies. The specific conclusions for each research question are as follows. First, Communication Methods (RQ1) Workplace communication is defined by Adaptive Total Communication, a pragmatic hybrid approach that integrates formal BISINDO with exaggerated pantomime (Full Silence mode) and tactile cues. Writing is used only as a secondary repair mechanism, as operational speed prioritizes visual-corporeal strategies over strict linguistic accuracy.

Second, communication Barriers (RQ2) Barriers are primarily linguistic and psycho-social rather than functional. The syntactic clash between Deaf sign structure and standard Indonesian causes misunderstandings in written text, while micro-exclusion during casual banter leads to Deaf workers feeling socially isolated (the Statue Effect), despite being physically integrated.

Third, Inclusive Communication Model (RQ3) The inclusive model is a Community-Based Adaptive System that relies on human infrastructure (Hearing Mentors acting as bridges) and environmental design (visual menus, lighting) rather than digital technology. Success is driven by a corporate culture of Assertive Accommodation, where hearing staff actively adapt their behavior to enter the Deaf visual world.

ETHICAL APPROVAL

This research was conducted under the ethical supervision of Tanjungpura University, Indonesia, which granted official approval (Research Ethics No. 9586/UN22.2/KM.01/2025). Additionally, all participants provided their informed consent before any data collection began.

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