

Japanese Repertoire of Indonesian Workers in Japan: Register Variation and Code-Switching in Workplace Interactions

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Abstract

This study investigated the linguistic repertoire, register variation, work and social communication practices, and code-switching of Indonesian migrant workers in Japan using a convergent mixed-methods design. Questionnaire data from 108 workers were analyzed using partial least squares structural equation modeling (PLS-SEM), complemented by video-recorded workplace interactions and semi-structured interviews that provided qualitative insights into situated language use. The qualitative findings revealed Japanese–Indonesian mixing, first-language influence on Japanese intonation, incomplete Japanese structures, and adjustments in vocabulary, sentence structure, intonation, politeness, and *keigo* in response to workplace hierarchy, interlocutors, and levels of formality. Quantitatively, Language Repertoire was associated with Register Variation ($\beta = 0.586, p < .001$). Register Variation was associated with Work and Social Communication Practices ($\beta = 0.458, p < .001$) and Code Switching ($\beta = 0.577, p < .001$), while Work and Social Communication Practices was associated with Code Switching ($\beta = 0.209, p = .029$). The direct associations of Language Repertoire with Code Switching ($p = .359$) and Work and Social Communication Practices ($p = .754$) were not statistically significant. Taken together, the quantitative and qualitative findings suggest that register-sensitive language use is closely tied to workplace communication and code-switching, whereas access to multilingual resources alone does not appear to translate directly into these practices. These patterns should nevertheless be interpreted cautiously, as inadequate convergent validity for several constructs and insufficient discriminant validity between Language Repertoire and Register Variation limit the strength of the structural evidence and preclude causal or mediational interpretations.

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Introduction

Japan's demographic transformation and persistent labor shortages have increased the country's reliance on foreign workers, particularly in sectors such as manufacturing, construction, elderly care, agriculture, hospitality, and other labor-intensive industries. As Japan's population continues to age and decline, international migration has increasingly become an important mechanism for maintaining labor-market stability and national productivity (Go et al., 2021; Reiher, 2025). This development has been reinforced by immigration reforms, including the introduction of the Specified Skilled Worker (SSW) scheme in 2019, which expanded employment opportunities for foreign workers with skills required in industries experiencing labor shortages. However, the growing presence of migrant workers has also generated challenges related to social integration, intercultural adaptation, and Japanese-language competence (Tian, 2019). These conditions make language an

important component of migrant workers' ability to participate effectively in Japanese professional environments.

For Indonesian migrant workers, workplace communication involves more than acquiring Japanese grammatical competence. They operate within multilingual and multicultural environments in which Japanese, Indonesian, and other linguistic resources may coexist. Their communicative practices therefore require continuous adjustment to interlocutors, professional roles, workplace hierarchies, and interactional situations. A multilingual repertoire is not merely a collection of languages possessed by an individual; rather, it develops through social interaction, mobility, cultural contact, and accumulated life experiences (Kaiser, 2022; Villabona & Cenoz, 2022). Migration can consequently reshape linguistic repertoires as speakers maintain elements of their language of origin while simultaneously acquiring and adapting to the linguistic conventions of the receiving society. At the group level, such repertoires may also evolve as migrants integrate into new social environments and negotiate their membership within different communities (Benor, 2010).

This process is particularly significant in Japanese workplaces because communication is closely associated with social relationships, hierarchy, formality, and situational expectations. Indonesian workers may shift between formal Japanese forms, including *keigo* and *teineigo*, and more casual expressions according to their relationship with interlocutors and the communicative context. Such register variation demonstrates that linguistic choices are shaped by situational characteristics and social functions rather than by grammatical considerations alone (Goulart, 2022). Differences in professional position, familiarity, communicative purpose, and interactional setting can influence vocabulary, sentence structure, intonation, and politeness strategies (Szmrecsanyi & Engel, 2023). Spoken register variation therefore provides an important perspective for examining how speakers adapt their linguistic behavior while negotiating identity, power, and solidarity in professional interactions (Degaetano-Ortlieb et al., 2021; Masullo et al., 2025).

Alongside register variation, *code-switching* constitutes another important communicative resource in multilingual workplaces. Rather than necessarily indicating linguistic deficiency, switching between languages can function as a strategic means of facilitating communication, negotiating meaning, and responding to particular social circumstances (Ahmad & Barner-Rasmussen, 2019; Chung, 2006; Martínez, 2022). Code-switching may occur through extrasentential or tag switching, intersentential switching, or intrasentential switching (Rahayu et al., 2024). These different forms demonstrate how multilingual speakers mobilize their linguistic resources within and across utterances. Previous studies further suggest that code-switching can support meaning clarification and reflect speakers' linguistic flexibility and social awareness (Gross et al., 2022; Hofweber et al., 2023). In migrant workplaces, such practices may therefore perform functions extending beyond the transmission of information, including the expression of emotion, construction of interpersonal relationships, maintenance of solidarity, and negotiation of social identity.

Existing scholarship has provided important insights into multilingualism, linguistic repertoires, register variation, code-switching, and migrant communication. Studies of multilingualism have emphasized the interaction between linguistic resources, cognitive processes, and social experience (Sharwood Smith, 2021; Villabona & Cenoz, 2022; Yuan & Yang, 2023), while research on linguistic repertoires has demonstrated their dynamic relationship with migration, identity, and social integration (Benor, 2010; Kaiser, 2022; Issa et al., 2025). Research on register has similarly shown how linguistic forms vary according to communicative situations and social

relationships (Goulart, 2022; Degaetano-Ortlieb et al., 2021; Masullo et al., 2025), whereas studies of code-switching have examined its structural forms and communicative functions in multilingual settings (Gross et al., 2022; Hofweber et al., 2023; Rahayu et al., 2024). Research on migration in Japan has meanwhile concentrated on demographic change, immigration policy, labor shortages, migrant integration, and Japanese-language education (Go et al., 2021; Reiher, 2025; Tian, 2019).

More specifically, workplace-oriented studies demonstrate that migrant communication in Japan is shaped by linguistic expectations, professional norms, hierarchy, and cultural adaptation. Morita (2021), for example, examined Japanese co-workers' attitudes toward migrant workers' Japanese-language proficiency in blue-collar workplaces and found expectations that Japanese should predominate as the workplace language, together with a tendency to underestimate migrant workers' proficiency. Morita (2022) subsequently situated such linguistic expectations within broader Japanese workplace norms and the relationships between Japanese and foreign employees. These studies clarify the sociocultural conditions surrounding migrant language use, but their primary concern is workplace attitudes and norms rather than the structural relationship among workers' multilingual resources, context-sensitive register selection, and code-switching.

Research on migrant workers in Japan further demonstrates that linguistic adaptation is inseparable from professional and cultural expectations. Lan (2018), in a study of migrant nurses and care workers, shows how professionalism in Japanese care settings is associated with knowledge of Japanese culture and how migrant workers negotiate cultural difference in everyday care work. The study is particularly relevant because Indonesian and other Southeast Asian workers entering Japanese care settings receive intensive preparation involving Japanese-language skills and cultural etiquette (Lan, 2018). Nevertheless, this line of research primarily addresses migrant adaptation, professionalization, and cultural negotiation rather than examining how particular multilingual resources are selected and reorganized during workplace interaction.

A related body of research highlights the sociopragmatic importance of *keigo* in Japanese professional communication. Fukushima (2007) demonstrates that Japanese business communication requires learners to use *keigo* and other register-sensitive linguistic resources in socioculturally appropriate ways, particularly in realistic professional situations. Importantly, *keigo* is associated not merely with grammatical form but with social status and situational appropriateness, making its use an important indicator of speakers' sensitivity to professional relationships. Tokuma (2020) likewise shows that learners' engagement with *keigo* involves interpersonal awareness, communicative experience, and individual choices concerning how they wish to position and express themselves through Japanese.

This issue is especially relevant to Indonesians experiencing Japanese workplaces. Fauzah et al. (2025), examining Indonesian internship students in Japan, found that *keigo* acquisition involves both linguistic and cultural competence and that motivation to acquire it is connected to professional purposes and the maintenance of social relationships. Their findings further indicate that authentic workplace interaction exerts a stronger influence on *keigo* development than classroom learning alone (Fauzah et al., 2025). They also emphasize that *keigo* represents Japanese values concerning social hierarchy, respect, and politeness and therefore contributes to professional adaptation in internship settings (Fauzah et al., 2025). However, these studies concentrate primarily on the acquisition, learning, or sociopragmatic use of *keigo* rather than locating register selection within the workers' broader multilingual repertoire and examining its relationship with code-switching.

International research on multilingual workplaces provides another important point of comparison. Lønsmann (2017) demonstrates that multilingual workplaces are sites in which linguistic norms and language choices are continuously negotiated through workplace socialization. Rather than treating language choice as an individual linguistic matter, this perspective connects it with organizational norms, workplace culture, and power. Nevertheless, Lønsmann (2017) notes that sociolinguistic studies of multilingual workplaces have often concentrated on how organizational contexts affect language choice and language policy, leaving other dimensions of the relationship between linguistic practices and organizational culture less fully developed.

Taken together, previous research has established that migrant workplace communication is sensitive to organizational norms and language expectations (Morita, 2021, 2022), professional and cultural adaptation (Lan, 2018), the sociopragmatic use of *keigo* (Fukushima, 2007; Tokuma, 2020; Fauzah et al., 2025), and the negotiation of language choice in multilingual workplaces (Lønsmann, 2017). What remains less understood is not whether these factors matter individually, but how distinct dimensions of multilingual workplace communication are related within the same empirical framework. In particular, previous studies have not established whether workers' available linguistic resources are associated with context-sensitive register variation, whether register variation is associated with their work and social communication practices and code-switching, and whether linguistic repertoire retains direct associations with these communicative practices when register variation is considered simultaneously. Examining these relationships adds a theoretical contribution beyond combining previously studied variables: it distinguishes linguistic resources (Language Repertoire), sociopragmatic adjustment (Register Variation), enacted workplace language use (Work and Social Communication Practices), and multilingual alternation (Code Switching) as analytically separate constructs and evaluates the theoretically specified associations among them. This distinction provides a more differentiated account of multilingual workplace communication while avoiding the assumption that access to multiple linguistic resources necessarily corresponds to particular communicative practices.

Accordingly, the present study conceptualizes Language Repertoire, Register Variation, and Code Switching as analytically distinct but functionally connected constructs rather than interchangeable manifestations of multilingual practice. Language Repertoire refers to the set of linguistic resources available to workers through their accumulated experience with Japanese, Indonesian, regional languages, and other linguistic resources. Register Variation represents the contextual selection and adjustment of those resources according to interlocutor, hierarchy, formality, workplace role, and communicative purpose. Code Switching, in turn, represents one possible multilingual realization of such contextual adaptation, whereby speakers shift between Japanese and Indonesian to negotiate meaning, accommodate interlocutors, manage interpersonal relations, or respond to communicative demands. This distinction is consistent with the operationalization used in the study, in which repertoire concerns mobilizable linguistic resources, whereas register concerns adjustments according to formality, interlocutor, workplace role, and social relationship.

The proposed sequence does not assume that possessing a broader linguistic repertoire automatically results in code-switching. Rather, it specifies theoretically motivated associations among distinct dimensions of multilingual workplace communication. Language Repertoire represents the linguistic resources available to workers, whereas Register Variation represents

context-sensitive adjustments in vocabulary, sentence structure, intonation, formality, and politeness according to interlocutor, workplace hierarchy, professional role, and communicative situation. Work and Social Communication Practices is conceptualized as a distinct latent construct representing workers' reported language use and communicative participation in professional and workplace-related social interactions, including communication with superiors and peers, professional reporting, clarification, solidarity, routine workplace interaction, and safety-related communication. Code Switching, in turn, represents the alternation or mixing of Japanese and Indonesian, and where relevant other linguistic resources, in multilingual interaction. This distinction is consistent with the operationalization of the constructs in the study.

The directional specification of the structural model reflects this theoretical ordering without implying temporal precedence or causality. Register Variation is positioned in relation to Work and Social Communication Practices because context-sensitive linguistic adjustment is theoretically associated with how workers use language across professional and workplace-related social situations. Work and Social Communication Practices is, in turn, positioned in relation to Code Switching because workplace participation provides communicative situations in which language alternation may occur for clarification, accommodation, solidarity, or other interactional purposes. The model also retains direct paths from Language Repertoire to Work and Social Communication Practices and Code Switching, as well as from Register Variation to Code Switching, to examine whether these constructs are statistically associated beyond the proposed sequential relationships. These paths are therefore interpreted as structural associations among concurrently measured constructs rather than as evidence of causal, temporal, or mediating effects.

To address this gap, the present study examines the Japanese-language repertoire of Indonesian migrant workers through an integrated mixed-method analysis of register variation, workplace communication practices, and Japanese–Indonesian code-switching. Its theoretical contribution lies not merely in combining these constructs, but in examining whether register variation is associated with both workers' available linguistic resources and their situated communicative practices within the same empirical model. Qualitative evidence from workplace interactions and interviews is used to contextualize these associations in relation to hierarchy, formality, interlocutor relationships, politeness, professional identity, and solidarity, while the quantitative model evaluates the theoretically specified structural relationships.

Accordingly, this study aims to (1) characterize the linguistic repertoire, register variation, workplace communication practices, and Japanese–Indonesian code-switching of Indonesian migrant workers in Japan; (2) examine the structural relationships among Language Repertoire, Register Variation, Work and Social Communication Practices, and Code Switching; and (3) explain, through workplace interaction and interview data, how these relationships are shaped by hierarchy, formality, interlocutor relationships, communicative purposes, and sociopragmatic adaptation. Based on the conceptual model, the study tests the following hypotheses: H1: Language Repertoire positively predicts Register Variation; H2: Register Variation positively predicts Work and Social Communication Practices; H3: Register Variation positively predicts Code Switching; H4: Work and Social Communication Practices positively predict Code Switching; H5: Language Repertoire positively predicts Code Switching; and H6: Language Repertoire positively predicts Work and Social Communication Practices. The model further examines demographic characteristics as control variables rather than as manifestations of a linguistic construct.

Method

This study employed a convergent mixed-methods design to investigate the linguistic repertoire, register variation, work and social communication practices, and code-switching of Indonesian migrant workers in Japan. The quantitative and qualitative strands addressed the same phenomenon from complementary perspectives. The quantitative strand examined the structural relationships among Language Repertoire (RB), Register Variation (REG), Work and Social Communication Practices (PK), and Code Switching (CS), whereas the qualitative strand examined how these linguistic practices occurred and were understood in situated workplace communication through video-recorded interactions and semi-structured interviews.

The two strands were initially analyzed separately and subsequently integrated during interpretation. Questionnaire data were used to identify statistical associations among the constructs, while workplace recordings and interview data provided contextual evidence for interpreting the quantitative patterns. The integration considered convergence, complementarity, divergence, and the absence of relevant qualitative confirmation. Both statistically significant and nonsignificant relationships were retained to provide a balanced interpretation of the structural model.

The study involved Indonesian migrant workers living and working in Japan. Participants were recruited using snowball sampling, whereby initial participants referred other Indonesian workers who met the eligibility criteria. Eligible participants were Indonesian citizens of working age, were employed in Japan during the data-collection period, used Japanese and/or Indonesian in workplace or work-related social communication, and voluntarily agreed to participate. Snowball sampling facilitated access to geographically dispersed migrant-worker networks that were not readily accessible through a formal sampling frame.

The quantitative strand involved 108 respondents, comprising 89 men and 19 women. Their Japanese-language proficiency varied across JLPT levels: N1 ($n = 3$), N2 ($n = 12$), N3 ($n = 27$), N4 ($n = 52$), and N5 ($n = 14$). Thus, most participants were concentrated at the N3–N5 levels, with N4 constituting the largest group.

Geographically, the respondents worked in various regions of Japan, including Tokyo, Chiba, Saitama, Ibaraki, Kanagawa, Shizuoka, Gifu, Mie, Gunma, Tochigi, Osaka, Hiroshima, Okayama, Yamaguchi, Shiga, Fukuoka, Kagawa, Tokushima, Okinawa, and several other locations. Accordingly, the study was not restricted to a single company, organization, workplace, or prefecture, but encompassed Indonesian migrant workers employed in diverse workplace settings across Japan.

Participants also represented a range of occupational sectors, including manufacturing and production operations, food processing, construction, agriculture, hospitality and restaurants, elderly care (*kaigo*), automotive services, transportation, interpreting, and *kumiai* staff. Construction-related occupations included *tobi* (scaffolding work), plastering, and welding. Several respondents worked or participated in internship programs in the construction sector, particularly *tobi*, across Chiba, Ibaraki, Tokyo, and Saitama.

Because recruitment relied on social referrals, participants recruited through the same networks may have shared similar occupational, linguistic, or migration experiences. The resulting sample may therefore contain network clustering and should not be regarded as statistically representative of the entire population of Indonesian migrant workers in Japan. This limitation is also acknowledged in the reported participant characteristics.

Sample adequacy was assessed through an *a priori* power analysis using G*Power 3.1. The calculation employed the *linear multiple regression: fixed model, R² deviation from zero* procedure as an approximation for the most demanding endogenous construct in the original structural model. The calculation was based on a maximum of three predictors directed at PK—RB, REG, and the aggregate demographic term included in the original model—together with a conventional medium effect size ($f^2 = 0.15$), $\alpha = .05$, and statistical power of .80. Under these assumptions, the minimum required sample was 77 participants. The achieved sample of 108 respondents therefore exceeded this minimum requirement. The aggregate demographic term was included in the original sample-size calculation because it formed one of the three predictors of PK; however, it was not subsequently interpreted as a unitary latent construct because its constituent background characteristics were heterogeneous. Sample adequacy was therefore established through the *a priori* power analysis rather than the PLS-SEM 10-times rule.

Three complementary sources of data were used: an online questionnaire, video-recorded workplace interactions, and semi-structured interviews. The questionnaire generated quantitative data concerning the four principal constructs, whereas workplace recordings and interviews provided qualitative evidence of situated multilingual communication.

The questionnaire was administered online through Google Forms and contained 25 measurement items representing four constructs: Language Repertoire (RB), with eight items; Register Variation (REG), with six items; Code Switching (CS), with five items; and Work and Social Communication Practices (PK), with six items. The items were developed with reference to the theoretical frameworks underlying multilingual repertoire, register variation, code-switching, and workplace communication and were contextualized to the linguistic experiences of Indonesian migrant workers in Japan.

All items were measured using a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Language Repertoire represented the linguistic resources available to and mobilized by workers. Register Variation referred to adjustments in vocabulary, sentence structure, intonation, formality, and politeness according to interlocutor, communicative situation, and workplace hierarchy. Work and Social Communication Practices represented language use in professional and workplace-related social interactions, whereas Code Switching referred to the alternation or mixing of Japanese and Indonesian and, where relevant, other linguistic resources. These conceptual distinctions are consistent with the operationalization of the constructs in the study.

Representative RB items concerned the use of different linguistic resources in everyday interactions in Japan. REG items addressed, among other aspects, adjustments in Japanese politeness according to the status or hierarchical position of the interlocutor. CS items included the use of code-switching for meaning clarification, whereas PK items addressed adjustment of language when communicating professionally with superiors or coworkers.

Participant background characteristics included region, gender, JLPT level, number of languages used, length of employment, occupation, and visa-related information. Because these characteristics represent heterogeneous attributes rather than interchangeable manifestations of a common latent construct, they were not conceptually treated as reflective indicators of a single demographic construct.

The qualitative corpus consisted of naturally occurring workplace interactions and semi-structured interview narratives. Video recordings captured multilingual workplace communication, including Japanese–Indonesian mixing, Japanese lexical items embedded in structures influenced by Indonesian, first-language influence on Japanese pronunciation and intonation, incomplete Japanese syntactic structures, and register adjustment.

The semi-structured interview protocol consisted of 10 questions concerning participants' linguistic repertoires, register variation, *keigo*, formal and informal Japanese, language adjustment, workplace hierarchy, and code-switching. Supporting workplace communication and Japanese-language training materials were consulted where relevant to contextualize the interactional evidence.

Naturally occurring workplace interactions were video-recorded and subsequently transcribed for linguistic analysis. Attention was directed to language choice, mixed-language expressions, register shifts, *keigo*, intonation, incomplete syntactic structures, and code-switching. Interpretation also considered speaker relationships, workplace hierarchy, formality, and communicative purpose. Semi-structured interviews complemented the interactional data by allowing participants to explain why they selected particular linguistic forms and how they adjusted their language when communicating with Japanese superiors, colleagues, and fellow Indonesian workers.

Questionnaire data from the 108 respondents were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The analysis proceeded in two stages: evaluation of the measurement model followed by evaluation of the structural model.

The reflective measurement model was evaluated using outer loadings, Cronbach's alpha, rho_A, composite reliability, average variance extracted (AVE), and discriminant validity. Outer loadings were examined to assess indicator reliability. Cronbach's alpha, rho_A, and composite reliability were used to assess internal consistency, while AVE was used to evaluate convergent validity. Discriminant validity was examined using the Fornell–Larcker criterion. The measurement model was evaluated before interpretation of the structural model.

The structural model was evaluated using coefficients of determination (R^2), standardized path coefficients (β), t statistics, and p values. Bootstrapping was used to assess the statistical significance of the structural relationships at $\alpha = .05$. Six theoretically specified relationships were examined: $RB \rightarrow REG$, $REG \rightarrow PK$, $REG \rightarrow CS$, $PK \rightarrow CS$, $RB \rightarrow CS$, and $RB \rightarrow PK$. Demographic characteristics were additionally examined as controls in relation to PK.

Discriminant validity was likewise considered in interpreting the model. The Fornell–Larcker assessment indicated overlap between RB and REG because the square root of the AVE for RB (0.540) was lower than the RB–REG correlation (0.586). Consequently, relationships involving RB, particularly $RB \rightarrow REG$, were interpreted cautiously rather than as confirmatory evidence of empirically well-separated constructs.

The structural model was evaluated using coefficients of determination (R^2), standardized path coefficients (β), t statistics, and p values. Bootstrapping was used to assess the statistical significance of the structural relationships at $\alpha = .05$. Six theoretically specified relationships were examined: $RB \rightarrow REG$, $REG \rightarrow PK$, $REG \rightarrow CS$, $PK \rightarrow CS$, $RB \rightarrow CS$, and $RB \rightarrow PK$. An aggregate path from demographic characteristics to PK was also included in the original model. However, because gender, region, occupation, visa status, JLPT level, number of languages used, and length of employment

represent heterogeneous background characteristics rather than indicators of a single latent construct, this aggregate path was retained only for transparency and was not substantively interpreted.

The model did not test formal statistical mediation. Therefore, the sequence in which RB was associated with REG and REG was subsequently associated with PK and CS was interpreted as a pattern of structural associations among concurrently measured constructs rather than as evidence of temporal, causal, or mediating effects. This interpretation is consistent with the structural specification of the study.

The estimated model explained 34.3% of the variance in REG ($R^2 = 0.343$), 54.1% of the variance in PK ($R^2 = 0.541$), and 44.0% of the variance in CS ($R^2 = 0.440$). These values were used to describe the explanatory performance of the structural model while remaining subject to the measurement limitations identified for RB, REG, and PK.

The video recordings and interview data were analyzed through transcription, coding, categorization, and contextual interpretation. Coding combined theoretically informed categories corresponding to the four quantitative constructs with patterns emerging from the qualitative corpus.

The Language Repertoire category included Japanese–Indonesian and other multilingual expressions, Japanese lexical resources, influence from Indonesian or Javanese, prosodic transfer, and incomplete Japanese syntactic structures. Register Variation included *keigo*, formal and informal Japanese, and adjustments in lexical choice, sentence structure, intonation, and language use according to workplace hierarchy. Work and Social Communication Practices included communication with superiors and peers, professional reporting, clarification, solidarity, routine workplace exposure, and safety-related communication. Code Switching included the languages involved, interlocutors, communicative situations, lexical limitations, clarification, and pragmatic functions of switching.

Relevant segments were interpreted within their immediate workplace contexts by considering speaker relationships, hierarchy, formality, communicative purpose, and social circumstances. The analysis examined how workers mobilized linguistic resources to express politeness, negotiate meaning, maintain solidarity, accommodate Japanese professional norms, and sustain communication when linguistic difficulties occurred. Cases that did not conform to dominant patterns were retained to reduce overgeneralization and refine interpretation. Credibility was supported through data-source triangulation by comparing questionnaire findings with observed workplace practices and participants' interview accounts.

Integration was conducted during interpretation by matching the structural relationships with relevant evidence from workplace recordings and interviews. For RB → REG, evidence concerning multilingual resources was compared with reported and observed adjustments in vocabulary, sentence structure, intonation, formality, and *keigo*. For REG → PK and REG → CS, the analysis examined whether sensitivity to workplace hierarchy and communicative situation corresponded with professional communication practices and Japanese–Indonesian switching. For PK → CS, qualitative evidence concerning interlocutors, clarification, accommodation, and workplace interaction was used to contextualize the quantitative relationship.

Nonsignificant relationships, particularly RB → PK and RB → CS, were also retained in the integration. This enabled the analysis to examine why possession of multiple linguistic resources did

not necessarily correspond directly with workplace communication practices or code-switching. The integrated findings were classified as convergent, complementary, divergent, or not qualitatively confirmed. Importantly, qualitative convergence was used to contextualize the quantitative findings rather than to compensate for deficiencies in measurement validity.

Participant confidentiality and privacy were maintained throughout data collection, analysis, and reporting. Personal names, employers, precise workplace locations, and other identifying information were omitted or replaced with participant codes in transcripts and reported extracts. Participation in the questionnaire, interviews, and workplace recordings was voluntary, and consent was obtained before the data were used for research. Access to the research data was restricted to the research team.

Result and Discussion

Result

The findings were obtained from questionnaires completed by 108 Indonesian migrant workers, video-recorded workplace interactions, and semi-structured interviews. The quantitative analysis examined the relationships among Language Repertoire (RB), Register Variation (REG), Work and Social Communication Practices (PK), and Code Switching (CS). The qualitative analysis documented how multilingual resources, register choices, and code-switching occurred in workplace communication. In accordance with the convergent mixed-methods design, the two strands were first analyzed separately and subsequently compared.

Participant Characteristics

The quantitative sample comprised 89 men and 19 women. Japanese proficiency was distributed across JLPT N1 ($n = 3$), N2 ($n = 12$), N3 ($n = 27$), N4 ($n = 52$), and N5 ($n = 14$). Thus, most participants were concentrated at N3–N5, with N4 representing the largest group. This distribution indicates substantial variation in Japanese proficiency within the sample. Because participants were recruited through snowball sampling, the sample represents the participating migrant-worker networks and is not statistically representative of all Indonesian migrant workers in Japan.

Measurement Model

The measurement model was evaluated before the structural relationships were interpreted. Outer loadings ranged from 0.652 to 0.793 for CS, 0.528 to 0.734 for REG, 0.498 to 0.732 for PK, and 0.327 to 0.720 for RB. The results therefore indicated that several RB, REG, and PK indicators had weak relationships with their assigned constructs.

Table 1. Construct reliability and convergent validity

Construct	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Code Switching (CS)	0.793	0.797	0.859	0.550
Work and Social Communication Practices (PK)	0.710	0.719	0.805	0.410
Register Variation (REG)	0.744	0.753	0.824	0.441
Language Repertoire (RB)	0.659	0.671	0.758	0.292

CS met the conventional AVE criterion of 0.50 and showed adequate internal consistency. PK and REG had composite reliability values above 0.70, but their AVE values of 0.410 and 0.441 did not meet the conventional criterion. RB showed the weakest measurement properties: its lowest loading

was 0.327, Cronbach's α was 0.659, composite reliability was 0.758, and AVE was 0.292. Composite reliability alone therefore did not establish adequate convergent validity for RB, REG, or PK.

The Fornell–Larcker assessment also indicated insufficient discriminant validity. Although the square root of AVE for CS (0.741) exceeded its correlations with the other constructs, the square root of AVE for RB (0.540) was lower than the RB–REG correlation (0.586). The available results also indicated overlap between PK and REG. Accordingly, RB and REG were not empirically distinguishable under the reported criterion. Because this problem directly concerns the central RB $\rightarrow$ REG path, coefficients involving RB were treated as exploratory rather than substantively established. The model requires respecification and reassessment—potentially by examining weak indicators and the dimensional or formative status of RB—before confirmatory conclusions are drawn.

HTMT, indicator and inner-model VIF, effect sizes (f^2), predictive relevance (Q^2 or PLSpredict), and bootstrapped confidence intervals were not available in the supplied model output. Consequently, no claims based on those diagnostics are made here. They must be calculated and reported before the final manuscript is submitted.

Structural Model

The model accounted for 34.3% of the variance in REG ($R^2 = 0.343$), 54.1% of the variance in PK ($R^2 = 0.541$), and 44.0% of the variance in CS ($R^2 = 0.440$). These values describe the explanatory performance of the estimated model but do not resolve the measurement limitations identified for RB, REG, and PK.

Table 2. Structural relationships and hypothesis decisions

Hypothesis/path	β	t	p	Statistical decision	Interpretive status
RB $\rightarrow$ REG	0.586	8.097	<0.001	Supported statistically	Exploratory because RB lacks convergent validity and RB–REG lacks discriminant validity
REG $\rightarrow$ PK	0.458	4.172	<0.001	Supported statistically	Interpret cautiously because AVE is below 0.50 for both constructs
REG $\rightarrow$ CS	0.577	4.086	<0.001	Supported statistically	Interpret cautiously because REG has inadequate AVE
PK $\rightarrow$ CS	0.209	2.183	0.029	Supported statistically	Interpret cautiously because PK has inadequate AVE
RB $\rightarrow$ CS	0.132	0.917	0.359	Not supported	Exploratory because RB is inadequately measured
RB $\rightarrow$ PK	0.038	0.313	0.754	Not supported	Exploratory because RB and PK have inadequate AVE
Demographics $\rightarrow$ PK	0.202	1.564	0.118	Not significant	Not interpreted as a unitary construct

Four of the six theoretically specified paths were statistically significant: RB $\rightarrow$ REG, REG $\rightarrow$ PK, REG $\rightarrow$ CS, and PK $\rightarrow$ CS, whereas the direct associations of RB with CS and PK were not statistically significant. These coefficients are interpreted as structural associations among concurrently measured constructs rather than as evidence of causal, temporal, or mediating relationships, consistent with the theoretical specification of the model. The aggregate demographic path to PK was also not statistically significant ($\beta = .202$, $t = 1.564$, $p = .118$). However, this coefficient

is reported only for transparency. Gender, region, occupation, visa status, JLPT level, number of languages used, and length of employment represent heterogeneous background characteristics rather than manifestations of a single latent construct; therefore, the aggregate demographic path is not substantively interpreted.

Among the six theoretically specified relationships, the RB → REG path showed the largest standardized coefficient ($\beta = .586, p < .001$). This pattern is consistent with the theoretical ordering proposed in the Introduction, in which Language Repertoire represents workers' available linguistic resources and Register Variation represents the context-sensitive selection and adjustment of those resources. However, the coefficient should not be interpreted as confirmatory evidence that a broader repertoire produces greater register variation. RB showed inadequate convergent validity, and the Fornell–Larcker assessment indicated insufficient empirical separation between RB and REG. The observed coefficient may therefore partly reflect conceptual or measurement overlap between the two constructs. Accordingly, the RB → REG relationship is treated as exploratory.

Qualitative Findings

The workplace recordings showed that participants combined resources from Japanese, Indonesian, and, in some instances, English or Javanese. Expressions such as *watashi kinchou*, *aru sensei kotobo*, “I know what *sachou* means, *tariru* is what it is,” “but you answer what is *shimasen*, *shimasen*,” and “*watashi desuga*, happy what is it?” combined lexical resources from more than one language. The recordings also contained incomplete Japanese syntactic structures and Japanese speech influenced by Indonesian or Javanese prosodic patterns.

Interview accounts indicated that participants adjusted vocabulary, sentence structure, intonation, and politeness according to interlocutor and workplace hierarchy. *Keigo* and other formal forms were associated with communication involving superiors and formal activities such as reporting, whereas informal forms were more common among peers. Participants also reported that informal forms were sometimes selected because they were easier to produce, including in contexts where formal Japanese was expected. These mismatches occasionally created difficulty or misunderstanding.

Code-switching varied according to interlocutor, linguistic resources, and communicative situation. Japanese was more prominent in interactions with Japanese colleagues, whereas interaction among Indonesian workers allowed more movement between Japanese and Indonesian. Switching was reported or observed during lexical difficulty, clarification, accommodation, and interpersonal interaction. The data do not establish that a higher frequency of code-switching represents greater communicative effectiveness. Depending on the context, switching could indicate strategic competence, a proficiency gap, accommodation to an interlocutor, solidarity, or conformity to workplace norms.

Interview participants further reported that routine workplace exposure supported vocabulary development and familiarity with more complex Japanese forms. At the same time, communication involving safety instructions was challenging because critical information was delivered in Japanese. These accounts indicate that workplace interaction simultaneously provided opportunities for linguistic adaptation and generated communicative demands.

Integration of Quantitative and Qualitative Findings

The quantitative and qualitative strands were integrated by comparing the six theoretically specified structural relationships with relevant evidence from the workplace recordings and semi-structured

interviews. The integration focused on convergence, complementarity, and divergence between the two strands while maintaining their distinct evidentiary roles. Qualitative evidence was used to contextualize the statistical associations rather than to validate the quantitative measurement model or compensate for its limitations. This approach is consistent with the convergent mixed-methods design, in which the two strands were analyzed separately before being brought together during interpretation.

The structural model accounted for 34.3% of the variance in REG ($R^2 = .343$), 54.1% of the variance in PK ($R^2 = .541$), and 44.0% of the variance in CS ($R^2 = .440$). These values describe the explanatory performance of the estimated model but do not resolve the measurement limitations identified for RB, REG, and PK. Accordingly, the integrated interpretation emphasizes patterns of association rather than causal, temporal, or mediating relationships.

Table 3. Joint display of structural and qualitative findings

Quantitative relationship	Statistical result	Video/interview evidence	Integrated inference
RB → REG	Statistically significant; RB has inadequate convergent validity and RB-REG has insufficient discriminant validity	Workers mobilized Japanese, Indonesian, English, and Javanese resources and adjusted linguistic forms according to hierarchy, interlocutor, and formality	Complementarity: qualitative evidence illustrates how multilingual resources and register adjustments occurred in situated interaction, but it does not validate the quantitative path or resolve the empirical overlap between RB and REG
REG → PK	Statistically significant; REG and PK have AVE < .50	Participants adjusted vocabulary, sentence structure, intonation, politeness, and keigo in professional reporting and interactions with superiors and coworkers	Convergence: both strands indicate the contextual relevance of register-sensitive language use to workplace communication, although the quantitative association remains subject to measurement limitations
REG → CS	Statistically significant; REG has AVE < .50	Language switching varied according to interlocutor, hierarchy, formality, lexical difficulty, and communicative need	Convergence: both strands indicate an association between context-sensitive language adjustment and switching practices, without establishing a causal or mediating relationship
PK → CS	Statistically significant; PK has AVE < .50	Switching occurred during clarification, accommodation, peer interaction, routine workplace communication, and other interactional situations	Complementarity: qualitative evidence contextualizes the statistical association by identifying several communicative situations and possible functions in which switching occurred
RB → CS	Not statistically significant; RB is	Multilingual resources were observed in workplace interaction, but switching varied	Convergence: the two strands do not indicate a simple direct

	inadequately measured	according to interlocutor, communicative situation, and linguistic need	correspondence between possessing multiple linguistic resources and engaging in code-switching
RB → PK	Not statistically significant; RB and PK have inadequate convergent validity	Access to multilingual resources did not consistently correspond to contextually appropriate formal workplace communication	Convergence: repertoire alone did not show a direct association with workplace communication practices in the quantitative model, while qualitative evidence indicates that contextual adjustment also shaped situated language use

Additional model term. The aggregate demographic path to PK was not statistically significant ($\beta = .202$, $t = 1.564$, $p = .118$). Because gender, region, occupation, visa status, JLPT level, number of languages used, and length of employment represent heterogeneous background characteristics and were not modeled separately, this coefficient was retained only for transparency and was excluded from substantive mixed-methods integration. The nonsignificant aggregate coefficient should therefore not be interpreted as evidence that the individual demographic characteristics were unrelated to workplace communication practices. This treatment is consistent with the structural-model results, which explicitly refrain from interpreting the demographic variables as a unitary construct.

Generally, the integration indicates that the clearest convergence between the two strands concerns the contextual relevance of register-sensitive language use and the absence of a simple direct correspondence between possessing multilingual resources and using those resources in particular workplace communication practices. Register adjustment was evident in participants' choices of vocabulary, sentence structure, intonation, politeness, and *keigo*, while code-switching varied according to interlocutor, hierarchy, formality, clarification needs, and other communicative circumstances. These qualitative patterns contextualize the statistically significant associations involving REG and PK without establishing that register variation mediates the relationship between linguistic repertoire and communicative behavior. The nonsignificant direct paths from RB to PK and CS further indicate that the proposed relationships cannot be reduced to the availability of multilingual resources alone. Nevertheless, the integrated findings remain provisional because qualitative convergence cannot compensate for inadequate convergent validity in RB, REG, and PK or insufficient discriminant validity between RB and REG.

Discussion

The present study examined how linguistic repertoire (RB), register variation (REG), workplace and social communication practices (PK), and code-switching (CS) are related among Indonesian migrant workers in Japanese workplaces. The findings reveal that multilingual resources alone do not translate automatically into particular forms of workplace communication. Although RB was statistically associated with REG, its direct relationships with PK and CS were not significant. By contrast, REG was associated with both workplace communication practices and code-switching, while PK was also associated with CS. Qualitative evidence further showed that participants adjusted vocabulary, sentence structure, intonation, politeness levels, honorific forms, and language choice according to interlocutor, organizational hierarchy, communicative purpose, and degree of formality.

Thus, the findings suggest that communicative effectiveness in multilingual workplaces is more closely related to the context-sensitive deployment of linguistic resources than to the mere size or diversity of an individual's repertoire. Nevertheless, this interpretation must remain provisional because RB, REG, and PK showed measurement limitations and RB and REG were insufficiently differentiated empirically. Moreover, no indirect-effect analysis was conducted; consequently, REG should not be described as a mediator between repertoire and communicative behavior.

This contextual interpretation is strongly aligned with contemporary sociolinguistic research conceptualizing multilingual workplace communication as situated, interactional, and socially organized. Canagarajah (2020) argues that transnational workplaces cannot be understood through bounded language systems alone because communicative practices are shaped by interactional frames, task structures, mobility, and multimodal resources. Similarly, Gonçalves (2020) demonstrated in multilingual blue-collar workplaces that workplace language policy and everyday practice interact with organizational hierarchy and workforce management, whereas Hovens (2020, 2021) showed that multilingual workers negotiate meaning through combinations of linguistic, material, technological, and contextual resources. Together, these studies support the present distinction between possessing linguistic resources and mobilizing them appropriately within a particular interactional situation.

The qualitative evidence concerning hierarchy, politeness, and situational adaptation is particularly important in the Japanese workplace context. Hashimoto (2022) argues that the growing employment of Southeast Asian workers in Japan has created a close relationship among Japanese-language competence, mobility, and employability while exposing limitations in institutional responsibility for workers' language development. Kusunoki and Hashimoto (2022) further demonstrate that Japan's increasing foreign-resident population has generated demand for communicative accommodation, including *Easy Japanese*, rather than expecting foreign residents alone to carry the full burden of adaptation. More recently, Xie and Peltokorpi (2025), drawing on interviews with 168 skilled migrants in Japan-based multinational corporations, found that culturally embedded linguistic competencies—including honorific expressions, indirectness, and empathic expressions—affected how migrant professionals were socially and professionally evaluated. This finding closely reinforces the present qualitative observation that workplace competence involves not simply grammatical Japanese but sociopragmatic awareness of hierarchy, formality, and interpersonal positioning.

These findings also extend the existing studies retained in the manuscript. Morita (2021, 2022) emphasizes that migrant workers' language practices in Japan are conditioned by institutional expectations and professional norms, while Fukushima (2007), Tokuma (2020), and Fauzah et al. (2025) highlight the sociopragmatic complexity of *keigo* and hierarchy-sensitive interaction. The present study adds a quantitative–qualitative relational framework to this literature by simultaneously considering repertoire, register adjustment, workplace communication, and code-switching rather than examining them separately. Particularly relevant is Peltokorpi and Zhang's (2022) study of expatriates in China and Japan, which demonstrates that host-country language identification is intertwined with workplace manifestations of cultural belonging and professional participation. Accordingly, language competence in the workplace is better conceptualized as situated sociolinguistic competence than as decontextualized proficiency alone.

The relationship between REG and CS is likewise compatible with recent multilingualism research. Prin (2021) found among bilingual restaurant workers that code choice was shaped by interactional sequence and role relationships rather than being random. Lovrits (2022) similarly showed that multilingualism in professional settings cannot be reduced to individual language competence because workers continually negotiate the social meaning of their multilingual resources. Shen et al. (2023) demonstrated that attitudes toward hybrid language in multinational workplaces vary according to multilingual environments and social networks and have consequences for workplace relationships. The present findings consequently support the interpretation of CS as an interactional resource whose occurrence depends on interlocutor, hierarchy, communicative need, lexical accessibility, and organizational norms.

However, the results also support the manuscript's caution against treating code-switching automatically as either communicative sophistication or linguistic deficiency. Psycholinguistic research demonstrates that language switching can impose additional processing demands depending on proficiency, switching habits, task conditions, and contextual expectations. Smith et al. (2020) reported measurable language-production and stress implications of forced language switching in real-world contexts, while Seitz and Smith (2022) conceptualized forced workplace switching as cognitively demanding labor that may affect performance, stress, and self-regulation. Han et al. (2022) likewise showed that habitual code-switching patterns are related to bilingual cognitive-control processes. These studies substantiate the argument that the meaning of CS cannot be inferred from frequency alone: the same switch may represent strategic accommodation, clarification, lexical compensation, social alignment, or a response to processing difficulty.

A related point concerns workplace performance. Presbitero (2020) found that foreign-language competence was associated with task performance partly through language anxiety in global virtual teams, demonstrating that language use intersects with psychological and organizational conditions. Cheng et al. (2021) likewise identified linguistic knowledge, topical knowledge, personal attributes, and communication strategies as interconnected sources of workplace communication difficulty among immigrants. Fellows et al. (2023), examining migrant construction workers, found that bilingual workers often act as informal linguistic bridges and mobilize multilingual and multimodal resources to support workplace coordination. These findings parallel the present observations concerning clarification, multilingual repair, technical vocabulary, and safety-related communication. They also reinforce the need to examine whether switches actually achieve interactional goals rather than treating switching itself as an outcome of successful communication.

Register variation should similarly be conceptualized as systematic rather than incidental. Li et al. (2023), analyzing register across 60 languages, showed that register differentiation is a robust cross-linguistic phenomenon closely associated with communicative situation. Angouri and Humonen (2023) further demonstrated how workplace language practices reproduce professional roles, membership, inclusion, and exclusion through interaction and space. These findings provide a useful interpretive foundation for the observed REG relationships: participants' shifts in vocabulary, politeness, intonation, sentence form, and honorific use may represent adaptation to recurring configurations of interlocutor, setting, hierarchy, and task. This interpretation is compatible with existing register studies cited in the manuscript (Degaetano-Ortlieb et al., 2021; Goulart, 2022;

Szmrecsanyi & Engel, 2023), while extending them into the specific sociolinguistic ecology of Indonesian migrants in Japan.

Evidence involving Indonesian speakers provides additional contextual support. Wahidati and Djafri (2021) found that Indonesian Japanese-speaking professionals working in Japanese companies encounter communication problems that cannot be explained solely by grammatical knowledge, including difficulties associated with workplace context and business interaction. Athallah and Dharma (2024) likewise identified communication strategies as an important component of Indonesian migrant workers' adaptation to culture shock in Japan. More recent studies involving Indonesian workers and trainees have similarly highlighted difficulty with formal workplace Japanese, industry-specific vocabulary, cultural norms, and *keigo*. For example, Widiанти et al. (2025) documented the communication experiences of Indonesian employees in Japanese companies, while Rahayu et al. (2025) identified *keigo* as an important issue in migrant communication and social adaptation. These findings are consistent with the present evidence that linguistic resources must be accompanied by sociopragmatic and situational competence.

Most notably, Nurjaleka (2026) found that Indonesian Japanese-language learners participating in internships in Japan developed intercultural learning through everyday workplace immersion, emphasizing the role of actual interactions, social expectations, and cultural standards in situated language use. This provides recent international-journal evidence for the manuscript's argument that workplace socialization and duration of employment may progressively shape register competence beyond what is captured by general proficiency levels.

Theoretically, the results reinforce a sociolinguistic conception of repertoire as available communicative resources while suggesting that register-sensitive selection constitutes a distinct analytical layer concerned with when, with whom, and under what organizational conditions those resources are deployed. However, the weak convergent validity of RB, REG, and PK and the empirical overlap between RB and REG indicate that this distinction has not yet been measured adequately; the theoretical model should therefore be refined before stronger structural claims are made. Pedagogically, the findings suggest that Japanese-language preparation for Indonesian migrant workers should extend beyond grammar and general vocabulary toward workplace-specific terminology, *keigo*, hierarchy-sensitive interaction, register shifting, clarification strategies, safety communication, and simulations of communication with supervisors, colleagues, clients, and customers. Training should evaluate whether workers can select appropriate language under contextual pressure rather than merely reproduce formal expressions. At the organizational and policy levels, responsibility for communication should not rest solely on migrant workers. Employers, sending organizations, and Japanese institutions could complement language preparation with clear-language practices, multilingual safety resources, workplace mentoring, communication accommodation, and continuing language support. The growing literature on migrant employment in Japan similarly indicates that language, culture, and employability are institutionally interconnected rather than purely individual responsibilities (Hashimoto, 2022; Xie & Peltokorpi, 2025).

The principal contribution of this study lies in bringing linguistic repertoire, register variation, workplace communication practices, and code-switching into a single mixed empirical framework among Indonesian migrant workers in Japan. Previous work has frequently addressed multilingual repertoire, workplace adaptation, *keigo*, or code-switching separately; the present analysis

demonstrates that their relationships are not reducible to a simple “more languages = better communication” assumption. Instead, the strongest substantive pattern concerns context-sensitive language adjustment: workers' available linguistic resources acquire workplace relevance through situational choices involving hierarchy, formality, interlocutor, and communicative function. The integration of structural associations with interviews and workplace observations further allows the quantitative findings to be interpreted against actual communicative practices. Nevertheless, the novelty should be framed as exploratory evidence for the contextual organization of multilingual workplace communication, not confirmation of a mediation model or causal mechanism.

Several limitations substantially qualify these conclusions. First, RB showed weak convergent validity, REG and PK also failed to achieve satisfactory AVE, and Fornell–Larcker evidence indicated inadequate separation between RB and REG; consequently, the relatively strong RB–REG relationship may partly reflect indicator overlap rather than two clearly distinct latent constructs. Teks yang ditempel (1) Second, all structural variables were measured concurrently and no indirect effects were estimated, precluding mediation or causal interpretations. Third, proficiency ranged substantially across JLPT levels, but group-specific coefficients were unavailable; therefore, proficiency may confound patterns involving REG and CS. Fourth, participants worked across heterogeneous sectors—including manufacturing, construction, care, agriculture, and hospitality—with substantially different interactional and safety demands. Teks yang ditempel (1) Future research should therefore redevelop the RB and REG measures, test alternative reflective, formative, or multidimensional specifications, report HTMT confidence intervals and collinearity diagnostics, and establish discriminant validity before testing indirect pathways. Multigroup or multilevel studies should examine JLPT level, industry sector, visa status, and length of employment separately. Longitudinal workplace ethnography and interactional recordings would be particularly valuable for determining how register competence emerges through socialization and whether specific code-switches improve comprehension, coordination, safety, or task performance. Experimental evaluation of workplace Japanese training could then test whether register- and hierarchy-sensitive instruction yields stronger communicative outcomes than grammar- and vocabulary-centered preparation alone.

Conclusion

This study shows that the workplace communication of Indonesian migrant workers in Japan involves the situated use of multilingual repertoires, register variation, and Japanese–Indonesian code-switching. The qualitative evidence indicates that workers adjusted vocabulary, sentence structure, intonation, politeness, and *keigo* according to workplace hierarchy, interlocutors, formality, and communicative purpose. Code-switching served multiple context-dependent functions, including clarification, accommodation, and solidarity, but could also reflect lexical limitations or differences in Japanese proficiency. The quantitative findings identified associations among register variation, workplace communication practices, and code-switching; however, they do not establish causal or mediating relationships. The study's quantitative contribution is limited by inadequate convergent validity for Language Repertoire, Register Variation, and Work and Social Communication Practices, as well as insufficient discriminant validity between Language Repertoire and Register Variation. The structural relationships should therefore be regarded as provisional until the constructs are respecified and reassessed. Nevertheless, the qualitative findings suggest potentially valuable directions for Japanese-language curriculum development, including workplace

register, *keigo*, hierarchy-sensitive interaction, clarification strategies, and safety-related communication. The effectiveness of these curriculum components should be evaluated in future intervention studies across proficiency levels and employment sectors.

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