

English Writing in a Deaf Multilingual Context: Linguistic Patterns and Literacy Implications among Pakistani Undergraduates

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ABSTRACT

English functions as a powerful gatekeeping language in higher education, yet Deaf learners' academic writing remains underexplored within English Language Studies, particularly in multilingual Global South contexts. The present study investigates English writing produced by Deaf undergraduates in Pakistan, where access to sign language remains institutionally limited and English proficiency is central to academic advancement. Drawing on qualitative linguistic analysis of student texts and triangulated interview data from Deaf students, teachers, and sign language interpreters, the study identifies recurrent lexical, orthographical, morphosyntactic, and syntactic patterns in learners' written English. These patterns are interpreted through an integrated framework combining restricted language access, cross-modal bilingualism, and usage-based approaches to grammar. Rather than treating deviations from standard English as errors or deficits, the findings demonstrate that Deaf learners' writing reflects systematic, adaptive patterning shaped by constrained input, interpreter mediation, and multilingual negotiation across sign, spoken, and written languages. The study contributes to English Language Studies by extending multilingualism theory to Deaf academic writing and by foregrounding the role of language accessibility in shaping grammatical development. Pedagogically, the findings support more inclusive English language education through sign-language-aware ESL instruction, enhanced interpreter training, and curriculum reform, thereby contributing to Sustainable Development Goal 4 (Quality Education) and Sustainable Development Goal 10 (Reduced Inequalities) by promoting equitable access to higher education for Deaf learners.

Keywords: Deaf writing; cross-modal multilingualism; Pakistani Sign Language; Quality Education (SDG 4); Reduced Inequalities (SDG 10)

INTRODUCTION

English occupies a central position in higher education worldwide, operating as a language of academic legitimacy, assessment, and upward mobility. In multilingual societies such as Pakistan, English proficiency often determines access to university education and professional opportunities. For Deaf learners, however, engagement with academic English is rarely direct or unmediated. Instead, it unfolds within complex educational ecologies shaped by delayed access to an accessible first language, limited institutional recognition of sign languages, and reliance on interpreters or written materials not designed for Deaf learners. These conditions raise important questions about how Deaf students acquire and use English in academic contexts and how their writing should be understood within English Language Studies (Hall, Hall, Hall et al., 2017; Marschark & Hauser, 2012; Mayberry, 2007; Mayberry & Kluender, 2018; Swanwick, 2016).

Despite extensive research on second language writing and multilingual literacy, Deaf writers remain marginal within mainstream English Language Studies. Where Deaf learners' writing is examined, it is frequently framed through deficit-oriented perspectives that emphasise grammatical error, linguistic insufficiency, or instructional failure. Such approaches obscure the broader linguistic and educational conditions under which Deaf learners develop literacy and overlook the systematic nature of their written production. Research in psycholinguistics and Deaf studies has repeatedly shown that long-term literacy outcomes are closely linked not to hearing status but to the timing, quality, and accessibility of early language exposure (Hall, Hall et al., 2017; Humphries et al., 2012; Lederberg et al., 2013; Mayberry, 2007). These insights challenge simplistic accounts of Deaf writing as deviant and invite more nuanced, theoretically grounded analyses.

Recent work on multilingualism and language ecology further underscores that literacy practices are shaped by socio-political, interactional, and institutional contexts rather than by individual cognitive factors alone (García, 2009; Swanwick, 2017). Deaf educational environments are inherently cross-modal and multilingual (Emmorey, 2002; Kusters et al., 2017; Swanwick, 2017): learners navigate sign language, spoken and written national languages, interpreter-mediated instruction, and English academic texts simultaneously. From this perspective, Deaf learners' English writing is best understood as the outcome of multilingual negotiation across modalities rather than as an imperfect approximation of monolingual norms. However, Deaf writers remain underrepresented in ecological and translanguaging-oriented studies of academic English, particularly in South Asian contexts.

Usage-based theories of grammar provide an additional lens for understanding Deaf learners' written production. These accounts argue that grammatical knowledge emerges from learners' exposure to recurrent patterns in input rather than from abstract rule acquisition (Bybee, 2010; Ellis, 2019; Tomasello, 2003). In educational settings where access to English is mediated through interpreters, memorised texts, or simplified instructional input, certain constructions may become entrenched while others remain unstable. Applying usage-based perspectives to Deaf ESL writing allows researchers to interpret recurring grammatical patterns as structured outcomes of learners' linguistic environments rather than as random or deficient errors.

Against this backdrop, the present study examines English writing produced by Deaf undergraduates enrolled in an English-medium university program in Pakistan. In Pakistan, English serves not only as the principal language of higher education but also as a key resource for academic success, professional mobility, and participation in national and international knowledge communities. For Deaf students, however, access to English is often mediated through educational systems where Pakistani Sign Language has limited institutional recognition and bilingual language support remains underdeveloped. Consequently, developing academic English literacy represents both an educational necessity and a significant linguistic challenge. By integrating insights from Deaf studies, usage-based linguistics, and cross-modal bilingualism, the study seeks to document recurrent linguistic patterns in Deaf students' writing and to relate these patterns to the educational ecologies in which they emerge. In doing so, the study positions Deaf learners as legitimate multilingual subjects whose writing practices illuminate how grammar and literacy develop under conditions of restricted language access.

The study addresses the following research questions:

1. What recurrent linguistic patterns characterise the English writing of Deaf undergraduate ESL learners in Pakistan across orthography, lexis, morphosyntax, and syntax?
2. What institutional and linguistic-ecological factors contribute to these patterns, and how do Deaf learners, teachers, and interpreters interpret their causes?
3. What pedagogical implications do these findings hold for English language teaching and Deaf education in multilingual university contexts?

LITERATURE REVIEW

Deaf students' English academic writing has often been examined through a deficit lens that foregrounds surface-level "errors" (e.g., agreement, tense marking, articles) without adequately theorising the linguistic conditions under which Deaf learners access input and develop literacy. A growing interdisciplinary consensus challenges this framing by showing that many outcomes attributed to "deafness" are better explained by the timing, continuity, and accessibility of early language exposure, and by the educational ecologies through which literacy is later mediated. The Language Deprivation Hypothesis and related work argue that delayed access to a fully accessible natural language can produce persistent vulnerabilities in morphosyntax, narrative organisation, and academic writing—even when learners are cognitively typical and academically motivated (Hall, Hall et al., 2017; Henner & Robinson, 2021; Humphries et al., 2012; Mayberry, 2007; Mayberry & Kluender, 2018). In this view, writing patterns should be interpreted as structured developmental consequences of constrained linguistic input rather than as random "mistakes" or limited effort.

Within Deaf literacy research, recurring challenges reported across contexts include tense/aspect instability, reduced functional morphology (articles, copula, auxiliary verbs), pronoun reference problems, and non-canonical clause packaging. Importantly, these patterns are not uniform across Deaf populations; they vary with early sign-language access, quality of schooling, and the nature of bilingual experience (e.g., sign–print bilingualism). Studies that centre on language access demonstrate that Deaf learners with early, rich sign input typically show stronger literacy trajectories than peers whose early years included limited or inconsistent access to an accessible language (Davidson et al., 2014; Hall, Hall et al., 2017; Mayberry, 2007). This reframes university-level ESL writing not as a simple L2-learning problem but as an outcome of long-term ecological conditions. These conditions are amplified in settings where sign languages are marginalised institutionally and where academic gatekeeping relies heavily on English.

A second strand of scholarship positions Deaf learners not as exceptions to multilingualism, but as multilingual subjects whose repertoires develop across modalities. Work on translanguaging and multilingual language ecologies argues that literacy is not a neutral cognitive skill; rather, it is shaped by sociopolitical histories, institutional ideologies, and interactional routines that regulate which linguistic resources are silenced, valued, or taught (Blommaert, 2010; García, 2009; García & Wei, 2018; Hornberger, 2002). In Deaf education settings, these ecologies are inherently multimodal: meaning-making may involve fingerspelling, mouthing, gesture, signs, written language, and locally available spoken-language scaffolding. Deaf learners, therefore, often develop written English through mediated pathways—such as interpreter-filtered classroom talk, Urdu-based metalinguistic explanation, memorised model

paragraphs, and examination-driven literacy practices—rather than through sustained exposure to English discourse communities and feedback cycles typical for hearing students (Kusters et al., 2017; Marschark et al., 2014; Swanwick, 2016). In multilingual higher education, similar ecological constraints have been documented to shape learners' willingness and capacity to "perform" in academic English, highlighting how environment and institutional supports influence language outcomes beyond individual competence.

Cross-modal bilingualism research further explains why Deaf ESL writing frequently exhibits systematic patterns that resemble reduced clause architectures (Davidson et al., 2014; Emmorey, 2002; Goldin-Meadow & Brentari, 2017). When functional morphology is inconsistently modelled or is absent in the primary route through which instruction is received, learners may stabilise constructions that omit determiners, copula, auxiliary verbs, or overt subjects—especially in contexts where classroom interpretation prioritises propositional meaning over formal grammatical relations. Such outcomes align with a broader multilingualism literature that treats "non-standard" forms as patterned products of contact, constrained input, and communicative adaptation rather than as evidence of disorder. This ecological stance is also compatible with ongoing interest in how multilingual practices operate in real-world Southeast Asian and Global South settings, including the role of code-switching and resource-mixing in meaning-making.

A third theoretical lens comes from usage-based linguistics, which predicts that grammar emerges from learners' experience with constructions—specifically their frequency, distribution, salience, and contextual diversity in the input (Bybee, 2010; Ellis, 2019; Tomasello, 2003). Usage-based models are particularly relevant when educational input is simplified, uneven, or fragmented because these conditions determine which constructions become entrenched over time. If learners repeatedly encounter lexical bundles, classroom imperatives, or simplified interpreter renderings, they may reproduce stable but reduced constructions that remain communicatively effective while diverging from Standard English norms. From this perspective, the question is not "Why do Deaf learners write incorrectly?" but rather "What linguistic constructions are consistently available within learners' mediated input, and what writing practices does the educational ecology reinforce?"

Evidence from diverse educational contexts supports this interpretation. Studies from the United States have shown that Deaf students frequently exhibit persistent difficulties with functional morphology, complex syntax, and discourse cohesion, yet these patterns are strongly associated with differences in language access and educational experiences rather than hearing status alone (Mayer & Wells, 1996; Paul et al., 2013). Similar findings have been reported in the United Kingdom, where bilingual approaches incorporating sign language have been associated with stronger literacy development than speech-only educational models (Swanwick & Marschark, 2010). Research from Sweden and Israel likewise demonstrates that early proficiency in a natural sign language predicts higher levels of reading comprehension and written language achievement, suggesting that accessible first-language development provides a foundation for successful literacy acquisition (Hermans et al., 2010; Niederberger, 2008). Comparable evidence from Hong Kong further illustrates that Deaf learners' written English reflects systematic multilingual negotiation across sign language, spoken language, and print rather than random grammatical deficiencies (Tang et al., 2014).

Taken together, these international findings reinforce an ecological and usage-based understanding of Deaf writing. Rather than representing deficient English, recurrent linguistic patterns emerge as adaptive responses to the quantity, quality, and accessibility of linguistic input available throughout learners' educational trajectories. They also demonstrate that literacy outcomes are shaped not only by individual linguistic competence but by broader institutional conditions, including early language access, bilingual educational opportunities, interpreter quality, and sustained exposure to meaningful written discourse. This perspective provides the theoretical foundation for interpreting the writing of Pakistani Deaf undergraduates as patterned multilingual literacy practices situated within a distinctive educational ecology rather than as isolated grammatical errors.

Pakistan's language-in-education context intensifies the stakes of English literacy (as a gatekeeping language for assessment and mobility) while offering limited structural support for sign-language access and interpreter linguistic training in higher education. As a result, Deaf learners' academic English is likely to reflect not only cross-linguistic influence from Urdu but also the filtering effects of interpreted instruction and memorisation-oriented literacy histories. Addressing this complexity requires an integrated account that connects (i) micro-level linguistic patterning in student texts, (ii) the institutional pathways through which English is encountered, including curriculum, teachers, interpreters, and feedback, and (iii) the theoretical implications for multilingualism and literacy when linguistic resources are distributed across modalities and mediated forms of input.

Grounded in these three complementary lenses—language access/deprivation, cross-modal multilingual ecologies, and usage-based construction learning—this study adopts a mixed analytic design that treats Deaf students' English texts as systematic linguistic data and triangulates them with stakeholder accounts of the instructional ecology.

METHODOLOGY

This study adopts a qualitative-dominant design integrating fine-grained linguistic text analysis, descriptive frequency analysis, and interview-based thematic inquiry. The design is grounded in an ecological view of language development, recognising Deaf ESL writing as an emergent outcome of constrained and mediated input rather than as an isolated learner trait. Methodological triangulation was employed to strengthen analytical validity by combining (i) a dataset of student writing, (ii) systematic coding of linguistic features, and (iii) stakeholder interviews with Deaf students, sign-language interpreters, and university language instructors.

The study was conducted at a private English-medium university in Lahore, Pakistan, where Deaf students were enrolled in undergraduate programmes that require English for coursework, assessment, and academic progression. Instruction in language courses is delivered primarily in spoken English, with sign-language interpreters mediating classroom interaction. Pakistani Sign Language (PSL) is not formally institutionalised within the curriculum, and interpreter training in English linguistics remains considerably limited. These conditions constitute a linguistically constrained learning ecology.

Participants comprised three groups:

1. Deaf undergraduate students (n = 22), aged 18–22, enrolled in their first year of university studies. All participants identified as Deaf and reported PSL or Urdu-influenced signing as their primary means of communication. As these 22 students constituted the entire population of Deaf undergraduates enrolled in the selected cohort at the time of data collection, all of them were recruited for the study.
2. University English language instructors (n = 5) teaching mixed or inclusive ESL classes.
3. Sign-language interpreters (n = 2) assigned to support Deaf students in English-medium classrooms.

Purposive sampling was employed to ensure that participants had direct experience with Deaf ESL instruction at the tertiary level. Pseudonyms were used throughout to protect participant anonymity. Prior to data collection, informed consent was obtained from all participants, including the 22 Deaf students, sign-language interpreters, and language instructors. The consent process for Deaf participants was facilitated through sign-language interpretation to ensure accessibility. Formal ethical approval was also obtained from the Research Ethics Review Committee of the participating university.

DATA SOURCES

Two primary data sources were collected:

- a) a dataset of student writing: A dataset of short academic narrative essays written by Deaf undergraduates was compiled. Students were asked to write on the topic “*My First Day at the University*”, a prompt selected to elicit naturalistic academic writing while minimising genre unfamiliarity. All writing was produced under classroom conditions without external assistance.
- b) Semi-Structured Interviews: Semi-structured interviews were conducted with Deaf students, instructors, and interpreters. Interview questions focused on:
 - Language backgrounds and educational histories
 - Classroom communication practices
 - Interpreter mediation and instructional challenges
 - Perceived causes of writing difficulties
 - Suggested pedagogical remedies

Interviews were conducted using spoken language with interpretation where necessary, and responses were later transcribed for analysis.

ETHICAL CONSIDERATIONS AND CONSENT

This study involved low-risk educational research focusing on writing samples and interview data. Informed consent was obtained from all participants prior to data collection. Consent procedures were designed to be accessible to Deaf participants:

- Consent information was explained using sign-language mediation
- Participants provided informed consent voluntarily
- Consent confirmation videos were recorded for Deaf participants to ensure clarity and accessibility

Participants were informed of the study's aims, procedures, confidentiality measures, and their right to withdraw at any stage without consequence. All identifying information was removed during transcription and analysis.

DATA ANALYSIS PROCEDURES

Student texts were analysed using a systematic coding framework (Saldaña, 2021) for linguistic analysis developed through iterative reading and informed by prior Deaf literacy and usage-based research. Linguistic features were coded into four main domains:

1. Orthographical patterns
2. Lexical divergence
3. Morphosyntactic deviations
4. Syntactic configurations

Coding followed a three-stage process:

- Open coding to identify recurring surface patterns
- Axial coding to group features into categories
- Thematic clustering to map categories onto broader linguistic themes

Although the analysis was qualitative, frequency counts were generated to support distributional claims.

Selected excerpts were further annotated using tree-based representations to visualise clause structure, omission patterns, and constructional alignment. Tree-based representations were employed to illustrate reduced clause architectures and functional morphology omission, supporting theoretical claims about constrained input and constructional entrenchment.

Interview transcripts were analysed using thematic analysis following Braun and Clarke's (2006) six-phase framework, with coding procedures informed by Saldaña's (2021) qualitative coding strategies (Braun & Clarke, 2006; Guest et al., 2014; Saldaña, 2021). Coding reliability was enhanced through:

- Iterative category refinement
- Cross-checking codes against textual evidence
- Aligning emergent themes with linguistic findings

Themes were organised into causal factors (e.g., teacher training, interpreter mediation, prior schooling) and pedagogical remedies, enabling explicit triangulation between textual patterns and stakeholder perspectives.

Analytical rigour was strengthened through the following procedures (Creswell & Plano Clark, 2018; Denzin, 2012):

- Data triangulation across texts and interviews
- Transparent coding procedures
- Rich exemplification using authentic excerpts
- Theoretical alignment between research questions, analysis, and interpretation

Rather than claiming generalisability, the study prioritises analytic transferability, offering a detailed account of Deaf ESL writing within a specific multilingual ecology that may inform comparable contexts.

RESULTS AND ANALYSIS

The analysis identified 170 linguistic tokens across the dataset of English writing produced by Deaf undergraduate students. Following systematic coding, the identified features were classified into four linguistic domains: orthographical patterns, lexical divergence, morphosyntactic deviations, and syntactic configurations. Table 1 presents the frequency and percentage distribution of these patterns.

TABLE 1. Distribution of Linguistic Patterns in Deaf Undergraduate Writing (n = 170)

Linguistic Domain	Frequency	Percentage (%)
Orthographical patterns	24	14.1
Lexical divergence	24	14.1
Morphosyntactic deviations	56	32.9
Syntactic configurations	66	38.8
Total	170	100

As shown in Table 1, the identified linguistic patterns were unevenly distributed across the four domains. Orthographical patterns and lexical divergence each accounted for 24 occurrences (14.1%), whereas morphosyntactic deviations accounted for 56 occurrences (32.9%). Syntactic configurations constituted the largest category, with 66 occurrences (38.8%). Taken together, morphosyntactic and syntactic patterns represented 71.7% of all identified tokens. The distribution therefore indicates that variability was concentrated primarily at the levels of grammatical morphology and clause organisation, while orthographical and lexical patterns occurred less frequently. The following qualitative analysis examines how these four categories were realised in the students' written English.

LINGUISTIC PATTERNS IN DEAF UNDERGRADUATE WRITING

ORTHOGRAPHIC PATTERNS

Orthographic patterns accounted for 24 occurrences (14.1%), jointly representing the least frequent category with lexical divergence. The recurrent features primarily involved punctuation, capitalisation, and spelling conventions. Although these forms diverged from conventional written English, they generally did not prevent the intended meaning from being recovered.

One recurring feature was inconsistent punctuation, as illustrated in the following example:

My ... teaching. I like Book grammar learning.

The punctuation marks do not correspond consistently to meaningful sentence or clause boundaries. The full stop and comma interrupt the sequence rather than organise it into clearly demarcated units. Nevertheless, the lexical content provides sufficient semantic information for the general meaning to remain accessible.

A similar pattern was evident in the isolated production *learning*, where two consecutive full stops reflect non-conventional sentence-final punctuation. In other instances, punctuation was omitted where a clause boundary would conventionally be marked, as in:

After completed classwork I feel hungry.

Here, the absence of punctuation reduces the visual segmentation of the sentence, although the temporal relationship between the two parts of the utterance remains identifiable.

Capitalisation was similarly inconsistent. Sentence-initial words, proper nouns, and common nouns were at times capitalised interchangeably, as illustrated by the capitalisation of *Book* in the first example. Overall, orthographical variability was therefore characterised primarily by inconsistent application of written conventions rather than by patterns that substantially disrupted the semantic content of the students' writing.

LEXICAL PATTERNS

Lexical divergence also accounted for 24 occurrences (14.1%). Three recurrent features were identified within this category: imprecise lexical selection, non-conventional word formation, and lexical repetition. Despite divergence from conventional English usage, these lexical forms frequently retained sufficient semantic transparency for their intended meanings to be inferred from context.

One example of lexical approximation was *I like sport outside*. The construction appears to convey a meaning comparable to *I like outdoor sports*. In this instance, the learner combines familiar lexical items, *sport* and *outside*, to express a concept conventionally lexicalised in English as *outdoor sports*. The construction thus retains the core semantic content despite non-target lexical selection and ordering.

Non-conventional word formation was also observed, as in *We feel comfortance*. The form *comfortance* is not a conventional English lexical item; depending on the intended construction, *comfortable* or *comfort* would normally be expected. Nevertheless, the derived form remains semantically interpretable and appears to represent an attempt to construct a lexical item from an available English base.

A further pattern involved lexical repetition, as illustrated by *We get tired after walk to walk*. The repetition of *walk* may function to convey repeated or prolonged walking. Although the expression diverges from conventional English formulation, the relationship between walking and tiredness remains interpretable.

Taken together, these patterns indicate that lexical divergence did not necessarily result in communicative breakdown. Learners frequently combined familiar words, generated non-conventional lexical forms, or repeated lexical items to convey intended meanings. Compared with the grammatical categories discussed below, lexical variation occurred less frequently and generally retained a relatively high degree of semantic transparency.

MORPHOSYNTACTIC PATTERNS

Morphosyntactic deviations constituted 56 occurrences (32.9%), making them the second most frequent category in the dataset. The recurrent features primarily involved subject–verb agreement, auxiliary and participial constructions, tense and aspect marking, plural morphology, and pronoun selection. In contrast to orthographical and lexical variation, these patterns directly affected grammatical form, although the central propositional content was generally retained.

Subject–verb agreement variability was among the recurrent features, as illustrated by *Resource person teach us*, and *The BST have many transport bus*. In the first example, the third-person singular subject would conventionally require the inflected form *teaches*, whereas the base form *teach* is used. In the second example, variability is evident in verbal agreement as well as nominal number marking in *transport bus*. Despite these morphosyntactic departures, the principal participants and actions remain identifiable.

Variability in auxiliary and participial constructions was also evident. In *I have meet new friend*, the learner employs the auxiliary *have* but combines it with the base form *meet* rather than the expected past participle *met*. The construction therefore demonstrates partial representation of the English present-perfect structure: the auxiliary is present, but the participial morphology is not conventionally realised.

Tense and aspect marking similarly showed instability. In *After completed classwork I feel hungry*, the construction combines *after* with *completed*, followed by a present-tense main clause. The temporal sequence remains semantically recoverable, but the relationship among tense, aspect, and clause structure differs from conventional English usage. Such examples indicate that temporal relationships could be communicated even when the corresponding grammatical morphology was variably realised.

Number marking and pronoun selection also showed inconsistent patterns across the dataset. Singular and plural forms were not always morphologically differentiated, and pronouns were occasionally selected in ways that did not correspond conventionally to their antecedents. Across these examples, variability was concentrated primarily in grammatical morphology, particularly inflectional forms and function-word systems, rather than in the lexical content carrying the central propositional meaning.

SYNTACTIC CONFIGURATIONS

Syntactic configurations constituted the most frequent category in the dataset, accounting for 66 occurrences (38.8%). The recurrent patterns involved non-canonical word order, omission of obligatory clause elements, copula or auxiliary reduction, article omission, and simplified clause organisation. In comparison with the morphosyntactic patterns described above, these configurations affected the broader structural organisation of sentence constituents.

Non-canonical word order was evident in constructions such as *I Book grammar Like*. The lexical elements required to convey a proposition are present, but their ordering differs from the conventional English subject–verb–object sequence. Depending on the intended meaning, a conventional English construction might be *I like the grammar book*, or *I like grammar books*. The example is particularly illustrative because lexical content is preserved while the syntactic organisation makes the precise relationship between *book* and *grammar* less certain.

Reduced clause structures were also observed, particularly where finite verbs or copular elements were absent or incompletely realised. For example, *I first time at UBS* conveys a first experience at the university but lacks a finite verb or copular construction that would conventionally organise the relationship among the subject, temporal expression, and location. Depending on the intended meaning, a fuller English construction might be *It was my first time at UBS*, or *I was at UBS for the first time*. Despite the reduced clause structure, the central experiential meaning remains accessible from the lexical sequence.

Other constructions displayed variability in the relationship among auxiliary elements, lexical verbs, and complements. For example, in *He is feel brain fresh*, the auxiliary form occurs alongside the base verb *feel*, while *brain fresh* functions as a non-conventional expression of a mental state. The construction nevertheless conveys a recognisable proposition relating to feeling mentally refreshed, although the meaning is packaged through a clause structure that differs from conventional English syntax.

A related configuration appears in *I am feeling resource person*. In this construction, the progressive sequence *am feeling* is morphologically well formed in isolation, but its relationship with the noun phrase *resource person* is syntactically and semantically non-conventional. The example demonstrates that the presence of appropriate auxiliary morphology at one level does not necessarily correspond to conventional predicate selection or overall clause organisation.

Across the dataset, syntactic configurations could therefore be distinguished from morphosyntactic deviations by the linguistic level at which variability occurred. Whereas morphosyntactic patterns primarily involved grammatical elements such as agreement, tense, aspect, number, and auxiliary forms, syntactic configurations involved the ordering, presence, and structural relationships of major sentence constituents. The predominance of syntactic configurations in the dataset indicates that clause construction represented the most frequent area of variability in the analysed writing.

Overall, the results reveal a clear distributional pattern across the four linguistic domains. Orthographical and lexical patterns occurred comparatively less frequently and generally allowed the intended meaning to remain accessible. Greater variability emerged at the morphosyntactic level, particularly in agreement, tense and aspect marking, auxiliary constructions, and number morphology. Syntactic configurations constituted the largest category and involved broader differences in word order, clause completeness, and constituent organisation. Thus, the frequency of identified patterns increased from surface-level conventions and lexical selection to grammatical morphology and clause structure. At the same time, many of the analysed constructions retained identifiable propositional meaning despite their divergence from

conventional written English. These findings provide the empirical basis for the Discussion, where the observed patterns are interpreted in relation to restricted language access, cross-modal multilingual experience, interpreter-mediated instruction, and usage-based accounts of language development.

DISCUSSION

The present study examined the English writing of Deaf undergraduates in Pakistan through the complementary perspectives of restricted language access, cross-modal multilingualism, and usage-based language learning. Across the writing dataset, orthographical and lexical patterns occurred less frequently than morphosyntactic and syntactic configurations, indicating that the greatest linguistic variability emerged in grammatical morphology and clause organisation rather than in vocabulary or surface writing conventions. Rather than viewing these patterns as isolated errors, the findings suggest that Deaf learners' written English reflects systematic linguistic adaptation shaped by the interaction of language access, multilingual educational experiences, and the nature of English input available throughout schooling. These findings extend current scholarship on Deaf literacy by providing empirical evidence from a multilingual Global South context that remains largely absent from English Language Studies.

The predominance of morphosyntactic and syntactic variability is consistent with previous research demonstrating that delayed access to an accessible first language has enduring consequences for grammatical development. Participants in the present study frequently produced constructions characterised by auxiliary omission, tense inconsistency, subject–verb agreement variability, and reduced clause structures. Similar grammatical patterns have been widely documented among Deaf learners in North American and European contexts, where delayed or restricted language access has been associated with persistent difficulties in functional morphology despite otherwise successful conceptual and cognitive development (Mayberry, 2007; Mayberry & Kluender, 2018; Mayer & Wells, 1996; Paul et al., 2013). The present findings therefore support the proposition that grammatical vulnerability reflects differences in language experience rather than hearing status itself.

These observations further reinforce the Language Deprivation Hypothesis proposed by Hall, Levin, et al. (2017), which argues that linguistic outcomes commonly attributed to deafness are more accurately explained by inadequate access to a fully accessible natural language during early development (Hall, Hall et al., 2017; Henner & Robinson, 2021; Humphries et al., 2012). The dominance of morphosyntactic and syntactic patterns within the present dataset closely parallels findings reported by Hall and colleagues, particularly regarding the long-term effects of delayed language exposure on functional morphology and complex sentence construction. While previous work has largely focused on cognitive, developmental, or educational consequences of language deprivation, the present study extends this perspective to academic English writing in higher education. It demonstrates that the effects of restricted early language access continue to shape literacy practices well into university education, particularly in multilingual contexts where English functions as the principal language of academic participation.

The findings also contribute to contemporary understandings of multilingualism by demonstrating that Deaf learners' English writing develops through interaction across linguistic modalities rather than through conventional second-language acquisition alone. Recurrent patterns such as copula omission, non-canonical word order, and subject omission frequently reflected structures compatible with Urdu-mediated signing and Pakistani Sign Language rather than simple

transfer from Urdu or incomplete English learning. This observation supports Swanwick's (2017) characterisation of Deaf education as an inherently translanguaging environment in which learners negotiate meaning across sign, spoken, and written languages (Swanwick, 2017). Similar arguments have been advanced by García (2009) and García and Wei (2018), who conceptualise multilingual speakers as drawing dynamically upon their entire linguistic repertoire rather than separating languages into discrete systems. Within Deaf educational contexts, this repertoire necessarily includes modality as well as language, an argument further supported by Kusters et al. (2017), Emmorey (2002), and Tang et al. (2014). The present findings therefore extend existing translanguaging research by illustrating how multilingual negotiation across Pakistani Sign Language, Urdu, and English shapes written production within a university setting.

An important contribution of this study lies in demonstrating that interpreter-mediated instruction forms part of the linguistic ecology through which academic English is acquired. Interview data indicated that English input was frequently mediated through interpreters, simplified classroom discourse, Urdu-based explanations, and memorised instructional materials. These forms of mediation inevitably influence the linguistic constructions that learners repeatedly encounter and subsequently reproduce in writing. Comparable observations have been reported by Marschark et al. (2014), who argue that educational outcomes among Deaf learners are strongly influenced by the quality and accessibility of classroom communication rather than by hearing status alone. Likewise, Davidson et al. (2014) and Hermans et al. (2010) have demonstrated that stronger sign-language competence and richer bilingual educational environments are associated with improved literacy development. The present findings complement this literature by highlighting how interpreter practices and institutional language policies shape English writing in a multilingual Pakistani context.

The observed linguistic patterns are equally consistent with usage-based theories of language acquisition, which explain grammatical development in terms of the frequency, salience, and distribution of linguistic constructions within learners' input (Bybee, 2010; Ellis, 2019; Tomasello, 2003). Across the dataset, instability was concentrated in auxiliaries, agreement morphology, determiners, and complex clause structures, whereas lexical meaning was comparatively stable. Such a distribution is compatible with usage-based accounts predicting that less salient and less frequently encountered grammatical forms are less likely to become entrenched than highly meaningful lexical constructions. Earlier usage-based research similarly demonstrates that the acquisition of linguistic constructions is sensitive to the frequency and distribution of exemplars in learners' input (Ellis & Ferreira-Junior, 2009). The present study extends this body of work by demonstrating that accessibility itself constitutes an important dimension of linguistic input. When English is encountered primarily through interpreted classroom discourse, simplified instructional language, and examination-oriented memorisation, opportunities to internalise fully inflected grammatical constructions become correspondingly limited.

Collectively, these findings challenge deficit-oriented interpretations that continue to characterise much discussion of Deaf learners' English writing. Although participants' writing diverged from conventional written English in several grammatical domains, the dataset consistently demonstrated coherent semantic organisation and successful communication of intended meaning. Rather than indicating limited linguistic competence or instructional failure, the identified patterns reflect systematic adaptation to multilingual, cross-modal educational environments. This interpretation is consistent with broader calls within multilingualism research to evaluate language users in relation to their communicative repertoires rather than monolingual

norms (García, 2009; García & Wei, 2018; Swanwick, 2017). It also supports evidence that limited English literacy has substantial implications for Deaf adults' educational, occupational, and social participation (Furlonger, 2016), underscoring the importance of improving language accessibility throughout higher education.

Overall, this study contributes to English Language Studies by integrating Deaf studies, multilingualism, and usage-based linguistics within a single explanatory framework for understanding Deaf academic writing. It demonstrates that recurrent grammatical patterns are not random deviations but systematic outcomes of language learning under conditions of restricted accessibility and multilingual mediation. By foregrounding the experiences of Pakistani Deaf undergraduates, the study broadens existing scholarship on multilingual writing beyond hearing-centred perspectives and establishes Deaf learners as legitimate multilingual writers whose linguistic practices offer important insights into language development, literacy, and educational inclusion in the Global South.

CONCLUSION

This study investigated English writing produced by Deaf undergraduates in Pakistan and demonstrated that recurrent linguistic patterns across orthography, lexis, morphosyntax, and syntax are best understood as outcomes of restricted language access and cross-modal multilingual negotiation. Drawing on the Language Deprivation Hypothesis (Hall, Hall, et al., 2017), age-of-acquisition research (Mayberry, 2007; Mayberry & Kluender, 2018), translanguaging theory (García, 2009; Swanwick, 2017), and usage-based grammar (Bybee, 2010; Ellis, 2019), the study advances a non-deficit account of Deaf ESL writing. The findings put forward four main claims: linguistic vulnerability is hierarchically distributed; syntactic reduction reflects stable clause schemas; Urdu–PSL mediation produces predictable structural transfer; and frequency dominance indicates threshold failure, not fossilisation.

In line with Mayberry's work, the findings confirm that delayed access to a fully accessible first language has enduring consequences for later English literacy, even among academically successful Deaf students (Boudreault & Mayberry, 2006; Hall, Hall et al., 2017; Mayberry, 2007). Consistent with Hall, Hall et al. (2017), the data underscore that language deprivation—not deafness—shapes grammatical outcomes across the lifespan. By extending Swanwick's and García's work, the study highlights modality as a crucial but under-theorised dimension of multilingualism (García & Wei, 2018; Kusters et al., 2017; Swanwick, 2017), demonstrating how Deaf learners navigate meaning across sign, spoken, and written languages within institutional constraints. Finally, through Ellis's and Bybee's usage-based frameworks, the findings show how grammatical patterns emerge from the distribution of accessible input rather than from abstract rule learning.

Pedagogically, the study challenges inclusion models that prioritise physical integration over genuine linguistic accessibility. Effective English language education for Deaf learners requires sign-language-aware pedagogies, interpreter training grounded in linguistic knowledge, curriculum reform that moves beyond memorisation-based literacy practices, and sustained opportunities for formative feedback on academic writing. Universities should also recognise Pakistani Sign Language as a legitimate linguistic resource within English language teaching, enabling bilingual instructional approaches that build on learners' existing linguistic repertoires rather than expecting exclusive reliance on spoken-language norms. At the policy level, these findings support greater investment in interpreter education, the integration of Deaf linguistics into

teacher education, bilingual teacher preparation, and institutional language-access policies that ensure equitable participation of Deaf learners in higher education.

Beyond these practical implications, the study opens several directions for future research. Longitudinal investigations are needed to examine how Deaf learners' English writing develops across different stages of higher education and whether targeted bilingual interventions improve grammatical and academic literacy outcomes over time. Comparative studies across universities and countries could explore how different sign-language policies, interpreter practices, and educational models influence writing development in multilingual Deaf populations. Future research may also incorporate multimodal corpora, classroom interaction data, and intervention-based designs to examine the relationship between sign-language proficiency, interpreter mediation, and academic writing. Such work would not only strengthen theoretical understanding of cross-modal multilingualism and language accessibility but also provide an evidence base for designing more inclusive English language curricula and literacy policies for Deaf learners.

By situating Deaf ESL writing at the intersection of multilingualism, language accessibility, and grammar, this study contributes to broader efforts to reconceptualise Deaf learners as legitimate multilingual writers rather than as deficient users of English. In doing so, it advances understanding of how restricted language access, cross-modal bilingualism, and educational ecologies shape academic literacy development. These insights contribute to the achievement of the United Nations Sustainable Development Goals, particularly SDG 4 (Quality Education) by promoting equitable and inclusive language education, and SDG 10 (Reduced Inequalities) by supporting more accessible and linguistically inclusive higher education systems. The study therefore provides both a theoretical foundation and an empirical basis for developing more equitable English language policies and pedagogical practices for Deaf learners in multilingual contexts.

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