



Research Article

Making Visual Communication Meaningful: Context and Symbol Use Among Learners with Hearing Impairment

Lee Wood*

Human-Centered Design and Engineering, College of Engineering, University of Washington, United States

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A Consensus Built Mostly on Description

The existing evidence for symbol-based communication in hearing-impaired learners is descriptive rather than inferential. Picture-book exposure has been linked to gains in social communication and imaginative language [1], and visual aids more broadly to improved reading comprehension [2]. The Picture Exchange Communication System (PECS), originally developed for learners on the autism spectrum, has been extended to hearing-impaired populations with reported improvements in vocabulary and communicative initiation [3,4]. These findings are real and useful, but they rest heavily on means, frequencies, and practitioner testimony rather than on tests of association between symbol exposure and language outcomes. The Kenyan study is one of the few in this literature to run that test directly - and its weak correlation is a useful check on how strong the underlying claim should be taken to be.

This is not the same as saying symbols do not help. The qualitative interviews in the same study, and in related work, converge on a more specific claim: symbols help when a competent teacher mediates their use, and contribute much less when simply displayed [3-8]. One head teacher interviewed in the study put it plainly - photographs and picture cards alone cannot teach expressive language; the teacher's professional engagement is what makes the material work. That is a claim about mechanism, not just magnitude, and it deserves more attention than the mean scores of most studies in this space tend to receive.

Aided language modelling research offers one account of why mediation matters so much: symbol comprehension and expressive output improve when an adult consistently

models symbol use alongside speech or sign, not when a symbol board is simply made available [9]. If that mechanism generalizes to hearing-impaired classrooms, then a weak population-level correlation between "having symbols" and "language outcomes" is exactly what should be expected - the active ingredient was never the symbol object itself, but the interaction built around it.

What Cultural and Linguistic Localization Adds

A second contribution of the Kenyan study is less statistical than contextual. The symbols used were not generic AAC card sets; they paired Kenyan Sign Language alphabet charts with locally familiar objects and Dholuo or Kiswahili labels - a photograph of a market labelled "soko" or "chiro," flashcards of local fruit, drawings of traditional beadwork and carving patterns. Most AAC evidence originates from well-resourced, Western educational contexts, and there is comparatively little validation of symbol systems that are linguistically and culturally native to the learner's own environment [10]. That gap matters for a straightforward reason: a picture card is only as effective as the referent it depicts is familiar, and familiarity is not culturally neutral.

Bandura's Social Learning Theory, frequently invoked in this literature, offers a plausible reason culturally grounded symbols might outperform generic ones [11]. Observational learning depends on the model, and the modelled behavior, meaningful to the observer. A drawing of an unfamiliar object asks a learner to do two things at once - decode an unfamiliar image and map it to language - whereas a drawing of a locally familiar scene asks only for the second. Vygotsky's concept of scaffolding, often paired with Bandura's framework in this research, points

the same direction: scaffolds work by building on what a learner already has some purchase on [12].

None of this is a finished argument. The Migori County sample was small, purposively selected, and geographically bounded, and the authors themselves note that this limits how far the findings generalize [3]. What the study offers is not proof that cultural localization outperforms generic symbol sets, but a plausible, contextually grounded hypothesis that the field has had too little data to test directly until now.

Implications for Practice and Further Research

For classroom practice, the most defensible takeaway is a modest one: treat symbols as one component of a multimodal strategy rather than as a self-sufficient intervention. Teachers should be trained not simply to distribute picture cards and photographs, but to model their use actively - pointing, pairing image with sign or speech, and prompting learners to reciprocate - since it is this interactional layer, more than the material itself, that the mediation-focused qualitative evidence consistently credits with the learning gain [3-9].

For research, three gaps stand out. First, intervention studies should isolate teacher-mediation quality as an explicit, measured variable rather than an assumed background condition, since current designs mostly cannot distinguish “symbols work” from “well-taught symbols work.” Second, the evidence base needs longitudinal designs; a cross-sectional correlation of $r = 0.078$, however carefully computed, cannot speak to whether symbol exposure accelerates language development over a school year or two. Third, the culturally localized approach piloted in Migori County deserves replication in other under-represented settings - not to confirm it, necessarily, but to find out whether a weak average correlation is a genuine ceiling on what symbols alone can do, or an artifact of one context.

The Kenyan study’s real contribution, in other words, is not a strong new finding but a useful corrective to an overconfident one. Symbols are genuinely useful tools for learners with hearing impairment. They are not, on the evidence available so far, a self-executing intervention.

Conclusion

Photographs, drawings, and picture cards remain valuable tools for expressive language development in learners with hearing impairment, and the descriptive evidence for their value is not in serious dispute. What recent, more

rigorously tested evidence suggests is that their value is conditional - on skilled teacher mediation, on cultural and linguistic familiarity, and on integration with other teaching methods - rather than intrinsic to the materials themselves. Future intervention and curriculum design should treat symbol-based tools as one instrument within a broader, teacher-led communication strategy, and future research should measure the mediating conditions directly rather than assuming them.

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