Task Validity in Neuroimaging Studies: Perspectives from Applied Linguistics

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Abstract : Recent years have seen an increasing number of neuroimaging studies related to language learning as imaging techniques such as fMRI and EEG have become more widely accessible to researchers. By using a variety of structural and functional neuroimaging techniques, these studies have already made considerable progress in terms of our understanding of neural networks and processing related to first and second language acquisition. However, the methodological designs employed in neuroimaging studies to test language learning have been questioned by applied linguists working within the field of second language acquisition (SLA). One of the major criticisms is that tasks designed to measure language learning gains rarely have a communicative function, and seldom assess learners' ability to use the language in authentic situations. This brings the validity of many neuroimaging tasks into question. The fundamental reason why people learn a language is to communicate, and it is well-known that both first and second language proficiency are developed through meaningful social interaction. With this in mind, the SLA field is in agreement that second language acquisition and proficiency should be measured through learners' ability to communicate in authentic real-life situations. Whilst authenticity is not always possible to achieve in a classroom environment, the importance of task authenticity should be reflected in the design of language assessments, teaching materials, and curricula. Tasks that bear little relation to how language is used in real-life situations can be considered to lack construct validity. This paper first describes the typical tasks used in neuroimaging studies to measure language gains and proficiency, then analyses to what extent these tasks can validly assess these constructs.

Keywords : neuroimaging studies, research design, second language acquisition, task validity