

Acquisition of Object Knowledge through Exploratory Acts

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Although we manipulate objects with our hands, object knowledge has mainly been investigated through vision. Previous research has attempted to study the contribution of haptics in object knowledge often from a restrictive interaction (e.g., time-restricted one hand manipulation) and often resulting in visually dominated data. We aimed at investigating the specific acts one utilizes to acquire information about a given object haptically. This was done through the use of a “thinking aloud”, time- and manipulation-unrestricted approach where the elicitation of active touch was not explicitly requested. The stimuli were lithic tools, which are considered novel yet man-made with a specific functionality. The experimental instructions were unrestrictive and general (i.e., object description and possible use) so that verbal and movement information would be elicited without requesting evaluation of a particular object property. This experimental set-up allowed the collection of a large number of spontaneous hand movements that were executed either to explore or demonstrate the use of a given object. This spontaneous movement generation led to the classification of different active touch strategies for the acquisition of object information defined as Exploratory Acts (EAs). Upon definition of the EAs, we conducted a series of analyses on participants’ verbal reports for defining how an object feature is ‘discovered’ through active touch. Our data shows that there is not a one-to-one match between EAs and object features, as previously supported, but instead a set of EAs is optimal for the acquisition of a particular feature.