

Processing of coherence relations in school students: effect of the connective and the stimulus modality

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Psycholinguistic research has recognized as a non-controversial assumption the need to establish coherence in text comprehension (Kintsch, 1998; Recio et al., 2021). Given its relevance, much research has identified key aspects that must be considered to measure text comprehension. For example, there is a broad consensus on the positive effect of the degree of cohesion of texts (Murray, 1997; Wei et al., 2021; Sanders & Noordman, 2000). In the school context, due to the intrinsic connection between understanding and learning (McNamara, 2011), knowing the variables that affect the establishment of coherence relationships in students allows us to identify factors that affect learning. However, comprehension in the classroom, and therefore learning, does not occur exclusively in written form but also orally (Shanahan et al., 2006; Manghi & Badillo, 2015). In psycholinguistic research, no consensus exists on how modality can influence factors affecting word processing (Cevasco & van den Broek, 2008; Knoepke, Richter, Isberner, Naumann, Neeb & Weinert, 2017). Consequently, this research aims to determine the effect of the cohesive marker and the stimulus modality when school students establish coherent relations. Along with this, reading speed was considered a covariate. To achieve this objective, 144 students (M age= 13) collaborated in an experiment. The experimental tasks were organized into reading and listening phases using the self-paced reading- listening technique. The experiment implementation was carried out with Psychopy, and three main routines were created: one for instructions, one for training, and another for the central task. In the case of written stimuli, these were presented through cumulative windows. The materials were prepared from prototype knowledge genres of school textbooks, and two lists were generated to organize the stimuli in a latin square. Likewise, a standardized test was included to measure reading speed.

The ANCOVA test determined that the cohesive mark facilitates the processing of written coherence relations, as in other investigations ($P > F = 0.000213$) (Murray, 1997; Sanders & Noordman, 2000). The main result of this study evidenced the ease of processing coherence relations in the oral modality compared to the written modality ($P > F = 4.41e-10$). Also, we observed the relevance of the role of the connective for an adequate construction of coherence, especially in the written modality. Likewise, the influence of reading speed as a facilitator of establishing coherence is also quantitatively evidenced in this research ($P > F = 1.79e-14$). Comparing the establishment of coherence in different sensory modalities refers us to certain initial phases of language processing that are different in each sensory modality. Thus, in the oral modality, integrating information other than strictly linguistic information could be more relevant than the presence or absence of the connective.

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