

The Impact of Anxiety on the Access to Phonological Representations in Beginning Readers and Writers

Authors : Regis Pochon, Nicolas Stefaniak, Veronique Baltazart, Pamela Gobin

Abstract : Anxiety is known to have an impact on working memory. In reasoning or memory tasks, individuals with anxiety tend to show longer response times and poorer performance. Furthermore, there is a memory bias for negative information in anxiety. Given the crucial role of working memory in lexical learning, anxious students may encounter more difficulties in learning to read and spell. Anxiety could even affect an earlier learning, that is the activation of phonological representations, which are decisive for the learning of reading and writing. The aim of this study is to compare the access to phonological representations of beginning readers and writers according to their level of anxiety, using an auditory lexical decision task. Eighty students of 6- to 9-years-old completed the French version of the Revised Children's Manifest Anxiety Scale and were then divided into four anxiety groups according to their total score (Low, Median-Low, Median-High and High). Two set of eighty-one stimuli (words and non-words) have been auditory presented to these students by means of a laptop computer. Stimuli words were selected according to their emotional valence (positive, negative, neutral). Students had to decide as quickly and accurately as possible whether the presented stimulus was a real word or not (lexical decision). Response times and accuracy were recorded automatically on each trial. It was anticipated a) longer response times for the Median-High and High anxiety groups in comparison with the two others groups, b) faster response times for negative-valence words in comparison with positive and neutral-valence words only for the Median-High and High anxiety groups, c) lower response accuracy for Median-High and High anxiety groups in comparison with the two others groups, d) better response accuracy for negative-valence words in comparison with positive and neutral-valence words only for the Median-High and High anxiety groups. Concerning the response times, our results showed no difference between the four groups. Furthermore, inside each group, the average response times was very close regardless the emotional valence. Otherwise, group differences appear when considering the error rates. Median-High and High anxiety groups made significantly more errors in lexical decision than Median-Low and Low groups. Better response accuracy, however, is not found for negative-valence words in comparison with positive and neutral-valence words in the Median-High and High anxiety groups. Thus, these results showed a lower response accuracy for above-median anxiety groups than below-median groups but without specificity for the negative-valence words. This study suggests that anxiety can negatively impact the lexical processing in young students. Although the lexical processing speed seems preserved, the accuracy of this processing may be altered in students with moderate or high level of anxiety. This finding has important implication for the prevention of reading and spelling difficulties. Indeed, during these learnings, if anxiety affects the access to phonological representations, anxious students could be disturbed when they have to match phonological representations with new orthographic representations, because of less efficient lexical representations. This study should be continued in order to precise the impact of anxiety on basic school learning.

Keywords : anxiety, emotional valence, childhood, lexical access

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