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The longitudinal effect of treatment, gender, socio-economic status and home language on primary school children's reading comprehension, annoyance reactions to road and aircraft noise exposure and coping, in KwaZulu-Natal, South Africa.

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Abstract

Aim: In the context of a multi-cultural South Africa, this study sought to investigate and describe the longitudinal effects of treatment, gender, socio-economic status and home language on primary school children's reading comprehension, annoyance reactions to road and aircraft noise and coping in KwaZulu-Natal, South Africa. This was important to explore in order to provide valuable insight into teacher's instruction, particularly in noisy environments. Additionally, insight into potential scholastic and psychological interventions may be provided.

Procedure: This study constituted part of a larger, longitudinal, South African-based study, namely The Road and Aircraft Noise Exposure on Children's Cognition and Health (RANCH – South Africa) study. It was a quantitative, developmental study that utilised data collected in 2009 in schools located within the vicinity of the Durban International Airport and in 2010, after the relocation of the airport to King Shaka International Airport in La Mercy. In total, 408 learners across 5 public schools in the KwaZulu-Natal province participated in the study. A child questionnaire was reviewed to obtain relevant biographical data pertaining to this study, as well as annoyance reactions to road and aircraft noise exposure and coping skills data. The data of the Suffolk Reading Scale 2 (SRS2), which was used to obtain reading comprehension scores, was also reviewed. Data was analysed using both descriptive and inferential statistics. Repeated MANOVA tests were conducted to explore the effects of four variables; treatment group, gender, socio-economic status (SES) and home language. The treatment group consists of learners who were exposed to noise (experimental group) and those who were not exposed to noise (control group).

Results: English First Language (EFL) speakers performed significantly better on reading comprehension tasks over time than their counterparts who spoke English as Additional Language (EAL) ($p< .005$). Treatment group, gender and SES did not have significant influence on reading comprehension tasks over time. Annoyance reactions to both road ($p< .05$) and aircraft ($p< .001$) noise exposure are significantly affected by the treatment group to which learners belong. Learners from the experimental group experienced significantly less annoyance than those from the control group. In terms of aircraft noise exposure, language also has a significant effect on annoyance reactions; EFL learners experienced less annoyance than EAL learners over time ($p< .001$). Lastly, learners from the experimental (noise exposed) group were able to cope significantly better than those from the control group ($p< .001$). These results suggest that language and previous exposure to noise have the most significant impact.

Conclusion: Reading comprehension, annoyance reactions and coping are indeed affected by a variety of variables, most notably that of language and previous exposure to noise. There is no significant effect of gender or socio-economic status. This research implies that the effect that noise exposure has on the

emotional adjustment and resilience of learners exposed thereto is important to consider, as well as role of the educator and the impact that background noise has on their teaching and their own ability to cope.
Key Words: reading comprehension; annoyance reactions; coping; home language; noise exposure; South Africa