

**A study into the effect of microphone placement on the effectiveness of the  
new Phonak Roger radio aid system**

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2015

Word count

19 918

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This dissertation is submitted in part fulfilment of the requirements governing the  
award of the Master of Arts in Education

## **Abstract**

This study investigates what impact microphone placement has on the effectiveness of the digital Phonak Roger radio aid system in real classroom situations. Research has shown that the improvements made to the Phonak Roger radio aid system lead to an increase in users' speech perception at high background noise levels, however, up until now no research has been carried out which aims to accurately simulate real classroom conditions. This study conducted a survey which recorded how mainstream classroom teachers use their radio aids equipment and found that less than half of the users wore the microphone correctly.

The survey was used to inform the design of a range of speech in noise perception tests which measured the effectiveness of the Roger radio aid when its microphone was clipped in the three most observed positions. Further tests were carried out to compare the Roger equipment with the previous Phonak analogue FM radio aids.

The results showed misplacing the Roger microphone had a negative impact on the effectiveness of the Roger radio aid system in some positions with an effect size of up to 28 percentage points, while other misplaced positions had no effect. When the microphone was clipped correctly, Roger radio aids were more effective than the previous analogue FM systems at background noise levels of 65dBA with an effect size of 11.8 percentage points. Changes to the Roger microphone settings means that the position it is clipped is much more critical than with the analogue system. This has important implications for teachers using this equipment as they must clip the microphone much more precisely. This is not always the case as this study has shown that 10% of observed teachers had the microphone clipped in detrimental positions.

These findings have important implications for teachers of the deaf as better training and monitoring of radio aid equipment is now needed in order to ensure the benefits of the new Roger equipment are not lost due to misuse.