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Le recours à la réalité virtuelle pour un entrainement vocal plus écologique

Angélique Remacle

Développement d'une salle de classe virtuelle

- Stimuli visuels
- Stimuli auditifs
- Contrôle par le thérapeute (arrêt, difficulté, répétition)

Validation scientifique de la salle de classe virtuelle

Virtual Reality
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ORIGINAL ARTICLE

A virtual classroom can elicit teachers' speech characteristics: evidence from acoustic measurements during in vivo and in virtuo lessons, compared to a free speech control situation

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Abstract
To achieve pedagogic goals and deal with environmental constraints such as noise when lecturing, teachers adapt their speech production in terms of frequency, intensity, and temporal aspects. The mastery of appropriate vocal skills is key to teachers' speech intelligibility, health, and educational effectiveness. This project tests the relevance of virtual reality (VR) for training teachers' vocal skills by simulating a lesson in a realistic VR environment characterized by adjustable constraints such as background noise and fidgety children. The VR environment depicts an elementary school classroom with 16 pupils aged 9 to 12 years old animated with typical childlike actions. To validate this virtual classroom in terms of speech characteristics, we conducted acoustic analyses on the speech productions of 30 female teachers in three conditions: (1) giving a free speech while facing the experimenter (control), (2) teaching in their usual classroom (in vivo), and (3) teaching the same lesson in a virtual classroom (in virtuo). The background noise in the VR setting was adjusted for each talker so it was similar to the level measured in vivo. Repeated measures ANOVAs showed that teachers significantly increased their voice frequency, intensity, and intonation and made longer pauses while speaking in vivo and in virtuo, compared to the control condition ($p < .001$). These voice and speech adaptations (partly related to background noise), the strong feeling of presence, and the lack of side effects suggest that the virtual classroom may facilitate voice training and rehabilitation for teachers.

Keywords Virtual reality · Vocal behavior · Lombard speech · Acoustic measurement · Speech and language therapy · Teacher training

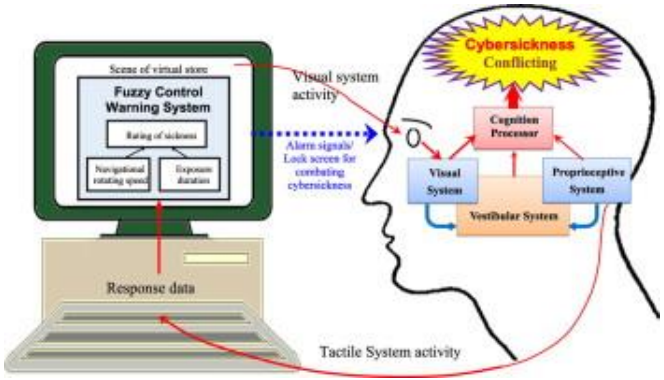
Validation scientifique de la salle de classe virtuelle

I. Validité écologique

II. Expérience en RV de qualité

III. Absence d'effets secondaires

Cybermalaise = fatigue oculaire, maux de tête, désorientation, déséquilibre, vertige, nausée



(Cheng-Li Liu, 2014)

Méthodologie

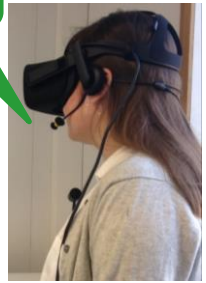
30 enseignantes

In vivo

Blabla…

In virtuo

Blabla…



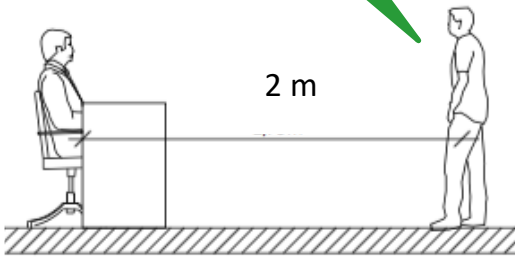
Stimuli visuels

Bruit de classe

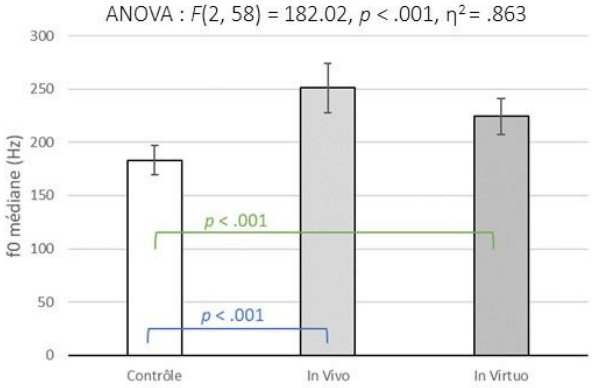
Stimuli auditifs

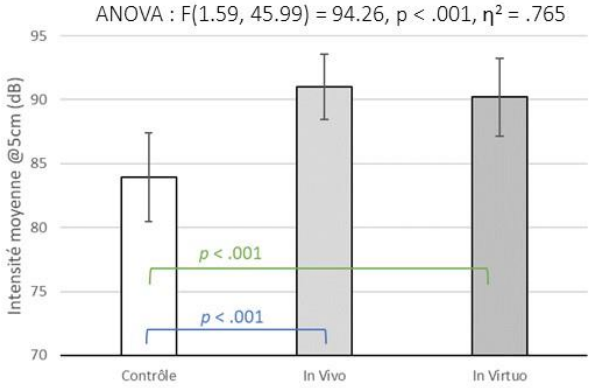
Contrôle

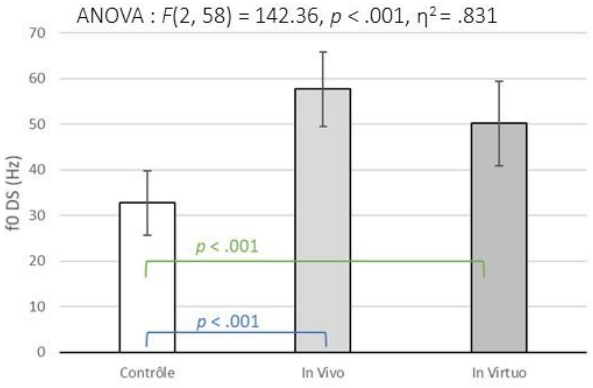
Blabla…

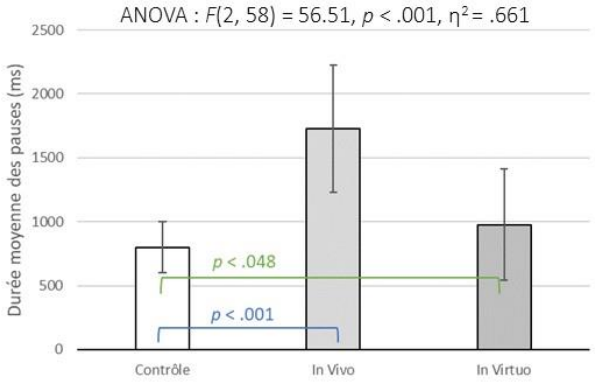


Résultats aux mesures acoustiques









Conclusion

I. Validité écologique

II. Expérience en RV de qualité

III. Absence d’effets secondaires

En pratique …

Etude de l'efficacité d'un programme d'entrainement

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Can teaching simulations in a virtual classroom help trainee teachers to develop oral communication skills and self-efficacy? A randomized controlled trial.

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ABSTRACT

Effective oral communication skills are essential to ensure optimal teaching while preserving the teacher's vocal health. Training these skills in representative settings is expected to promote their generalization. Since the implementation of such training in actual school situations is challenging, virtual reality (VR) may represent a solution.This study evaluated the effects of VR simulations on trainee teachers' oral communication skills. Based on our Theoretical Framework for Teachers' Vocal Behavior, we developed and empirically assessed a voice-related prevention program including noisy communicative situations in a virtual classroom. In a randomized controlled trial, the participants were assigned to one of two conditions: (1) individual voice training including simulations in the virtual classroom and a group information session (experimental group, n=21); and (2) a group information session only (control group, n=20). The purpose was to determine whether the experimental group would exhibit greater changes in communication skills and self- efficacy than the control group. Acoustic measures during speech production in noise (speech rate; spectral slope; phonetographic surface) and self-rated measures (vocal effort; communication self-efficacy in noise) were conducted pre- and post-intervention. Results indicated a positive effect of the intervention on phonetographic surface, vocal effort, and self-efficacy in both groups. The self-efficacy of the experimental group improved more than for the control group, illustrating the benefit of training sessions including simulations of communicative situations in noise and immersions in a virtual classroom. These findings suggest that practicing oral communication skills in situations as close as possible to their professional reality – by using VR – can improve (trainee) teachers' belief in their ability to implement these skills in real-life situations.

- Futur.e.s enseignant.e.s
- Démarche préventive
- Essai contrôlé randomisé

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Merci

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Références

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