Visual Biofeedback Therapy for Articulation Disorders

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Abstract

Children with articulation difficulties or disorders will often see a speech language pathologist (SLP) to undergo traditional speech therapy. In this type of therapy the SLP will give the child auditory cues about where to place their tongue and other articulators to accurately produce the sounds that they are having trouble with. Sometimes children do not respond to traditional therapy and cannot decipher differences in phonemes with these cues (McAllister, 2017). This research looks at the possible benefit to incorporating visual biofeedback practices and determining if it might be a more effective treatment tool. Visual biofeedback therapy is a treatment for articulation disorders and accent reduction that shows the patient where their tongue placement is. It incorporates a visual cue for increased targeting of certain phonemes. Results from this research show that the combination of traditional therapy and visual biofeedback therapy show the most benefit for correcting articulation errors in children.

Research Questions

- Is biofeedback therapy more effective for articulation disorders than traditional speech therapy?
- How does biofeedback therapy compare to traditional therapy in terms of acquisition and generalization?

Literature Reviews

Generalization

Generalization is an important outcome of speech therapy for articulation disorders. It allows the child to extend what they learn in a session to outside environments. Two articles suggest that V-UBF might not have the same outcome of generalization as traditional articulation therapy. Sugden et al., 2019 states that there was "...difficulty with generalization observed for some participants..." following treatment using visual biofeedback therapy. Results from Cleland et al., 2010 found generalization to be more variable. Limitation of generalization as an outcome of therapy "belies the ultimate goal of intervention for SSD, which is to improve the communicative abilities and participation of people with speech disorders" (Cleland et al., p 11). Thus, determining that this therapy wouldn't be completely effective if used on its own. These findings suggest that U-VBF might not be effective for generalization if it is the only therapy being used to treat articulation disorders.

Acquisition

Acquisition is another vital component to speech therapy because it shows the SLP how quickly a child grasped a concept or acquired it. A study that administered visual biofeedback therapy before traditional therapy found that there is a " clear benefit for U-VBF in the initial stages of intervention compared to the traditional approach" (Cleland et al., p 10). The quicker onset of acquisition for visual biofeedback may suggest that it is more efficient than traditional therapy (McAllister 2020), however, the same study found that acquisition was the same by the end of both therapies, so visual biofeedback is not necessarily determined to be more effective overall than traditional therapy.

Non-responsive to Traditional Therapy

Since traditional therapy practices only provides auditory cues and feedback from SLPS on the placement of articulators, those with auditory/ hearing impairments have difficulty with it (Sugden et al., 2019) Those who have trouble with auditory feedback and those who do not respond to traditional therapy can benefit from incorporating visual biofeedback into their therapy. "Such information is thought to be useful for remediating SSD as it allows for both the client and the clinician to access hitherto unavailable information about the client's articulation" (Sugden et al., p 2). There are others who do not respond to traditional therapy for unknown reasons, however, McAllister et al., 2019 believes that these children could benefit from Visual biofeedback therapy, especially for rhotic /r/ sounds. Cleland et al., 2019 agrees with this by stating that "U-VBF can be an effective adjunct to more traditional intervention approaches targeting rhotics in both prevocalic and vocalic position for those individuals who have not responded to other treatment approaches" (p. 10), specifically for the rhotic /r/ as well.

Conclusion

- Visual Biofeedback used alongside traditional therapy can be most beneficial especially for rhotic sounds
  - Visual biofeedback therapy shows a faster acquisition rate than tradtional therapy
  - Visual biofeedback therapy does not provide the same generalization outcomes as traditional therapy
- Visual biofeedback therapy can be beneficial for those who are unresponsive to traditional therapy

Future Research

- Study on visual biofeedback therapy for articulation disorders associated with other comorbidities
  - I.e. motor impairments, cleft lip/palate
- Study the effects on hearing impaired population
- The effects of this treatment used for accent reduction

References

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