

Developing a Mobile Serious Game Platform to Improve Orofacial Myofunctional Therapy for Children

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Orofacial myofunctional disorders (OMDs) refer to a collection of conditions affecting oral and facial muscles, causing either functional or cosmetic issues. These disorders encompass improper posture of orofacial muscles, unusual chewing, swallowing, or speech patterns, dental misalignments, and blocked nasal passages (Russel 2017). The exact incidence of OMDs in children is difficult to determine, as they often go unrecognized, and, therefore, are often untreated. There is limited research on the prevalence of OMD in the general population, and the results vary greatly between studies. However, according to (Kellum 1994), the accepted prevalence of OMD is estimated to be 38%.

While a large part of the orofacial myofunctional therapy takes place together with speech therapists in offices, a not to be underestimated part of the therapy consists of exercises for home. A whistle can serve as a tool, resulting in activation of muscles near the lips and cheeks (Shah 2021). Unfortunately, these exercises are often not properly carried out by children or monitored by parents.

This poses two major problems: First, it is difficult for the therapists to assess how conscientiously the exercises have been carried out. Second, the exercises are not fun and parents often have to convince their children to practice.

Assessing, how often exercises were properly carried out, would enable therapists to tailor face-to-face sessions to children's current progress. Therapists assume that the therapy is more successful if the exercises are performed more often. There are also a lot of studies that show, that children are more likely to exercise if they have fun doing so (Watson 2016).

Therefore, we propose a mobile serious game platform to improve orofacial myofunctional therapy for children. It offers various games (e.g., Flappy Bird, a top-down car-racing game), which are not controlled via regular touch input, but the audio signal of before mentioned whistles. Therapists have the possibility to set weekly goals and track the progress of children. Finally, children may benefit from this approach, as they carry out their exercises while playing. Currently, we are designing a pre-study to evaluate the mobile application with children suffering from OMD.

References:

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