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Anatomy of the brain and brain ventricles: 3D models for the blind

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ABSTRACT

The study of the anatomy and physiology of the human body is an integral part of the National Common Curricular Base (BNCC), and is, therefore, fundamental content for the development of an understanding of the structure and functioning of the body itself. In view of this, it is necessary to ensure quality access to this knowledge for all students. Students often have difficulty understanding internal structures that are not visualized. In relation to the blind, this difficulty becomes even greater. Thus, the objective of this project was to develop didactic 3D models of the brain and its internal structures, the brain ventricles, in order to include visually impaired students in regular classrooms. The models were obtained in STL format and opened using a free CAM software. In total, ten three-dimensional models were produced with texture (for blind individuals) and painting with strong and contrasting colors (for individuals with low vision). QR Codes were also developed, using the Canva website, with links to two videos inserted on the Youtube platform containing explanatory audios about the structure and functioning of the brain and ventricles. Part of the models was incorporated into the collection of the Anatomy Museum of UNESP in Botucatu and part was delivered to the partner school for use in the resource room. After the completion of the material, a visit was scheduled, accompanied by a presentation-class, by the students of the partner school to the Museum of Anatomy, to explore the models elaborated and the rest of the museum's tactile collection. Based on this visit, it was evident that the use of three-dimensional tactile models as facilitators of learning promotes, in addition to the inclusion of the visually impaired in regular classrooms, a more dynamic learning also for other students, since it stimulates the use and combination of senses beyond sight, such as touch and hearing.

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