STEMSiL Newsletter

Fostering STEM in deaf education

The consortium of STEMSiL is thrilled to bring this second edition of the STEM methodologies in Sign Languages (STEMSiL) newsletter, highlighting the significant progress made since the inception of the project on December 31, 2022.

STEMSiL, funded under the KA2 Erasmus+ program, is a collaborative effort of educational institutions and associations from Germany, Italy, Greece, Spain, France, and Portugal. The primary goal is to pursuit equal opportunities and full inclusion by promoting STEM in deaf education, particularly when intertwined with the use and development of Sign Languages.

For this reason, the consortium is carrying out several activities, among which:

- Video documentation of lessons with the aim of creating a lesson plan and teaching methods – each partner is implementing research in the school context, to create innovative approaches and resources for educators and Sign Language interpreters;

- Survey of STEM concepts with teachers, Sign Language interpreters, and deaf students, to create a new methodology using Sign Language and distinct aspects of deaf culture to advance STEM education;

- Interviews with deaf STEM experts, with whom each partner is recording videos in the Sign Language of their own country. This way, deaf students will have role models in the field of STEM and will be inspired and motivated by them;

- Preparation of a chapter on theoretical STEM teaching – It will serve as a guide and it will encourage the participation of teachers, Sign Language interpreters, and deaf students in practical STEM initiatives by providing theoretical fundaments based on research and studies carried out;

- Constant update of the project website, which is available both in written text and Sign Languages (representing all partners' languages). This platform serves as a repository for project deliverables, including videos, interviews with deaf STEM experts, and other resources. It also serves as a means of communication and dissemination of project outcomes. Check it out at the following link: www.stemsil.eu

STEMSiL's objectives and activities espouse the principles of the Declaration on the Rights of Deaf Children, championed by the World Federation of the Deaf. As a global organization, the WFD focuses on advocating for the rights of the deaf community to ensure that deaf individuals are active participants in all aspects of society. The Declaration on the Rights of Deaf Children, comprised of ten fundamental articles, serves as a powerful framework to guide these efforts.

You can find further information at the following link: Declaration on the Rights of Deaf Children - WFD (wfdeaf.org)

As mentioned above, STEMSiL project aims to foster the respect of these rights through STEM. Incorporating STEM concepts into Sign Languages allows for a more comprehensive understanding of scientific and mathematical principles. Visual representations and sign-based explanations can bridge communication gaps, making complex STEM subjects more accessible to deaf children.

Which are further benefits of the STEM in deaf education?

- **Career opportunities and innovation**

STEM fields are at the forefront of technological advancements and innovation. Providing deaf children with a solid foundation in STEM, coupled with Sign Languages, opens doors to diverse career opportunities. When equipped with STEM knowledge, deaf and hard of hearing individuals can actively contribute to scientific breakthroughs, technological advancements, and engineering innovations, fostering a more inclusive and diverse landscape.

- **Cognitive Development and brain's language**

Engaging children in STEM education through Sign Languages contributes to their cognitive development and problem-solving skills. The visual and spatial aspects of Sign Languages stimulate different areas of the brain, enhancing critical thinking abilities. This not only benefits academic performance but also prepares deaf children for real-world challenges in STEM-related careers. Besides, researchers at the Max Planck Institute for Human Cognitive and Brain Sciences conducted a meta-analysis of Sign Language studies, discovering that Broca's area, traditionally associated with spoken language, plays a crucial role in Sign Languages. The study, pooling data from global sign language experiments, challenges the idea that language modality (spoken or signed) is of primary importance. Broca's area, located in the left hemisphere, emerged as consistently involved in Sign Language processing. The findings suggest the brain's language specialization covers both spoken and signed forms. Additionally, the right frontal brain was identified in processing non-linguistic aspects of Sign Language. Broca's area appears as a central node in the brain's language network, handling abstract linguistic information across various language forms. You can check it out at this link: How the brain processes sign language | Max-Planck-Gesellschaft (mpg.de)

- **Technological Accessibility Advancements**

Advancements in technology play a pivotal role in making STEM education more accessible to deaf children. With innovative tools such as educational apps, online resources, the STEMSiL visual lexicon and interactive e-learning platform that incorporate Sign Languages, the barriers to accessing quality STEM education are further dismantled.

In conclusion, recognizing the importance of STEM in Sign Languages for deaf children is not just about education; it's about empowerment, inclusion, and breaking down systemic barriers.

The project is currently in the research phase, involving a collection of signs of STEM concepts, focus groups and interviews with STEM deaf experts, deaf students, teachers and SL interpreters. The research in schools let the consortium discover more about objectives, used strategies, lexicon, activities carried out in the classrooms and about the learning process.

The third project meeting held in Palermo constituted an opportunity to discuss the next steps and about the Learning Teaching Training Activity that will be carried out in Madrid in November!

STEMSiL consortium encourages everyone to follow this journey as the consortium works towards creating a more inclusive and effective STEM education environment for deaf students. Stay tuned for updates on the project progress, achievements, and upcoming events. Visit the project website and follow the project Facebook, Instagram, X and TikTok!