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Promoting inclusion, digital innovation and green transition in VET through the acquisition of green entrepreneurial skills of DHH students for better skills match with the labour market

2024-1-PL01-KA220-VET-000246899





Article 6





Co-funded by the European Union

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Digital, Green and Inclusive: Building Accessible Learning Experiences for DHH Learners

The green and digital transitions are reshaping education, training and the world of work across Europe. Digital technologies are creating new possibilities for learning, while the transition towards a more sustainable economy is changing the knowledge and competences people need for the future.
But innovation alone does not guarantee inclusion.
For digital education to create meaningful opportunities, learners must be able to access, understand and actively engage with the learning experience. For Deaf and Hard-of-Hearing (DHH) learners, this means thinking beyond simply transferring traditional educational materials into a digital format. Accessibility needs to be considered as part of the learning experience itself.
This idea has been central to the **GreenSkills4Deaf project**, which combines green education, digital innovation and inclusion to support DHH learners in developing competences relevant to a changing and increasingly sustainable world.

When technology becomes part of the learning experience

Digital learning offers much more than access to information. When designed around different ways of learning, technology can help transform complex concepts into more interactive, visual and practical experiences.
This is particularly relevant when teaching green skills. Sustainability includes concepts that learners need not only to understand, but also to recognise and apply in different situations. Digital tools can provide different ways of exploring these concepts, allowing learners to move between theoretical knowledge, practical activities and simulated experiences.
GreenSkills4Deaf has therefore approached digital learning through different but complementary tools, creating opportunities for learners to **learn, interact and experience**.

Learning through the e-learning platform

The **GreenSkills4Deaf e-learning platform** provides a central digital environment through which learners and educators can access the project's educational content.
The platform supports the development of knowledge and competences connected with the green transition while giving users the flexibility to engage with learning materials digitally. Rather than viewing online learning simply as a digital version of classroom teaching, the project seeks to provide resources that can support different learning contexts and allow users to progress through the educational content in an accessible environment.
For educators and VET professionals, digital access to project materials also creates opportunities to integrate GreenSkills4Deaf resources into their own educational activities and continue using them beyond the formal lifetime of the project.

Bringing learning closer through the mobile application

Learning does not need to remain within a classroom or formal training session.
The **GreenSkills4Deaf mobile application** extends the project's learning experience to a format that learners can access more flexibly. Mobile learning can complement structured educational activities by allowing users to interact with project content through a familiar digital environment.

This flexibility is particularly valuable when learning is viewed as an ongoing process. Green competences develop not only through formal instruction but also through repeated engagement, reflection and application.
By connecting digital learning with a tool that can be used beyond traditional learning environments, the mobile application contributes to a more flexible approach to skills development.

Experiencing green learning through Virtual Reality

Some competences are easier to understand when learners have the opportunity to experience situations rather than only read about them.
Virtual Reality (VR) adds an experiential dimension to the GreenSkills4Deaf learning ecosystem. Through simulated environments and interactive activities, learners can engage with situations connected to green skills and professional contexts in a visual and immersive way.
VR can help bridge the distance between theoretical learning and practical experience. Instead of only describing a workplace, task or environmental challenge, a simulated environment can invite learners to observe, interact and make decisions.
For DHH learners, the visual and interactive nature of immersive technology also provides opportunities to explore learning beyond approaches that rely heavily on spoken communication.
The aim is not to replace educators, workplace experiences or practical training. Rather, VR can provide an additional learning environment in which knowledge can be explored and reinforced through interaction.

Accessibility is more than a feature

Developing digital tools for DHH learners also raises a broader question: **When can a digital learning experience truly be considered accessible?**

Accessibility should not be understood as a final feature that is added once a digital product has already been developed. It needs to influence how information is presented, how users navigate through an environment and how they interact with learning content.

Clear visual communication, text-based information, subtitles and sign-language support, where applicable, can all contribute to reducing barriers and creating a learning experience in which DHH users can participate more independently.

But accessibility is also about usability. A resource may technically contain accessible elements while still being difficult to navigate or understand. Effective digital inclusion therefore requires attention to the overall user experience.

This principle extends beyond GreenSkills4Deaf. As education becomes increasingly digital, accessibility should form part of the starting point for educational innovation rather than being treated as an additional consideration.

One learning ecosystem, different ways to engage

The value of the GreenSkills4Deaf digital approach lies not simply in developing individual technological products, but in providing **different ways of engaging with learning**.

The e-learning platform provides structured access to educational content. The mobile application extends opportunities for flexible interaction. Virtual Reality introduces an experiential dimension through simulated environments.

Together, these tools demonstrate how digital technologies can support different stages and forms of learning.

They also reflect an important principle: there is no single digital solution that meets every learning need. Creating inclusive digital education requires a combination of approaches that gives learners different opportunities to access information, develop knowledge and apply what they have learned.

Beyond GreenSkills4Deaf: a digital legacy

As GreenSkills4Deaf reaches the final stage of its Erasmus+ journey, the digital resources developed through the project represent more than individual project outputs.

They provide resources that can continue to be used by **DHH learners, educators, VET trainers and organisations** interested in connecting green skills development with more inclusive approaches to digital education.

At the same time, the experience of the project offers a broader lesson for future educational initiatives.

The green, digital and inclusive transitions should not be approached separately. Digital technologies can support the development of green competences, but their impact will depend on whether learners can meaningfully access and use them. Likewise, inclusion should not be considered only after innovative educational solutions have been created.

These dimensions need to develop together.

Towards a greener, digital and more inclusive future

The end of a European project does not have to mean the end of its impact.

The resources, experiences and approaches developed through GreenSkills4Deaf can continue supporting learning while also contributing to a wider conversation about the future of accessible digital education.

Technology has significant potential to make learning more flexible, interactive and engaging. Yet its real value lies not in how advanced a tool is, but in **what it enables people to do**.

For DHH learners, accessible digital education can create new ways to explore knowledge, practise competences and participate in learning experiences connected with the green transition.

As Europe continues moving towards a greener and more digital future, the challenge is therefore not simply to create more technology. It is to create technology that **more people can use, learn from and benefit from**.

That is where digital innovation becomes meaningful inclusion.

You can find all available resource on the project's website: https://greenskills4deaf.eu/



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