Project No. 2023-2-IT03-KA220-YOU-000179130

WP 2: Final Survey Report

Prepared by: equalizent

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About Deaf Young Code

Deaf Young Code is a project is about programming and coding. We are 8 organisations from 7 countries (Austria, Slovakia, Serbia, Romania, Hungary, Greece and Italy) specialising in working with young deaf people and young people with disabilities.

Our project is about preparing information on coding and programming in different languages, in plain language and sign language.

Our project wants to enable young deaf people to develop valuable transferable skills and provide them with an introduction to coding and programming skills. The acquisition of such skills makes them more attractive to potential employers; as a result, they are more resilient and demonstrate greater self-determination and independence.

Through the project, we will develop:

- A clickable map
- A video toolkit
- A blended learning training package

The Deaf Young Code Survey

Deaf Young Code partners conducted an online survey in Sign Languages to assess the needs of Deaf youth with regard to programming and coding. The survey consisted of 24 questions, available in written form and on video in Austrian, Slovakian, Serbian, Romanian, Hungarian, Greek and Italian Sign Languages. A total of 175 responses were collected across 6 countries:

- Austria: 26 responses
- Greece: 27 responses
- Hungary: 25 responses
- Italy: 14 responses
- Romania: 28 responses
- Serbia: 30 responses
- Slovakia: 25 responses

Background information

Even nowadays, people with hearing impairments still seem to be socially excluded. Social exclusion for hearing impaired individuals comes as a result of a combination of factors such as educational and economic policies, social welfare regulations and attitudes of societies in general. Lifelong learning is considered a crucial parameter for the social inclusion of hard-of-hearing or deaf adults. It is quite common for hearing-impaired or deaf individuals to face literacy difficulties. Research has shown that many of these students do not develop reading and writing skills that are appropriate for their age. It is true that it is hard to define a "standard" hearing-impaired or deaf individual, as far as education is concerned, as there are

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various factors which impact on deafness and also deafness has impact on educational paths. This results in heterogeneity in achievement levels.

Nevertheless, hard-of-hearing or deaf individuals hardly ever finish higher studies. Academic education can be challenging for them. Research highlights the gap in enrolment and participation in higher education between students with and without disabilities, which results in limited opportunities for the former to gain high skills and future employment. Hearing-impaired and deaf individuals often do not reach a high level of education because of the poor external conditions. As a result of the aforementioned, the transition from school to studies and work is harder for them, especially if they do not follow academic studies.

It is undeniable that the last decades have been characterised by an immense evolution of Information and Communication Technologies (ICTs), especially Internet-based services and facilities. The Web is providing a lot of opportunities for access to information, communication and interaction for all. Nevertheless, little effort has been made to exploit such opportunities in education and especially in lifelong learning, educational and vocational training for the hearing-impaired or deaf individuals. Moreover, although many studies have confirmed that technology and the internet can play a crucial role in student attention and motivation for the hearing impaired accessibility issues still remain mostly unresolved.

By using technology, it is possible to create inclusive educational environments that will offer optimal conditions and accommodate the special needs of hard-of-hearing individuals. By incorporating appropriate technologies and Multimedia ICT tools in the educational curricula, the provision for the hearing impaired could be improved. Such technologies have essential features that can help teaching and learning processes, such as interactivity and multiple representations. Furthermore, hearing-impaired individuals are highly motivated by computing because of the new ways of communication and the possibilities it offers and appear to be early adopters of technology, particularly communication technologies.

However, access to the digital world and suitable skills for exploiting its resources can have a serious impact on one's relationships, career, and overall quality of life, and this can create social disparities in contemporary societies. Vulnerable social groups, such as people with disabilities in general, and the hearing-impaired and deaf in particular, may be affected by such inequalities.

It is the lack of direct access to language that has been historically problematic for people with hearing impairment. For that reason, new technologies and the Internet can act as catalysts for them, on a social, educational and vocational level, since they are mostly based on textual and visual information. Deaf people are able to communicate with each other and the general population through written language, and new technologies can fully implement this possibility; nonetheless, they may face difficulties in the process of acquiring reading and writing skills. They can participate in online discussions, access and exchange information with other Internet users, take online courses and conduct business. ICTs can also play a crucial role in providing solutions to the problems associated with communication in the workplace by offering alternative means of communication and collaboration.

When we look more closely at the relationship between hearing disability and digital technologies, we see that it is a story of both exclusion and possibility. There is an ever-growing need to provide opportunities for hearing-impaired individuals to acquire digital literacy skills.

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In this context, the Deaf Young Code project aims to develop a training course addressed to people with hearing disabilities in order to improve their coding and programming skills by using a methodology that applies to the European recommendations or the validation of formal and non-formal learning for the recognition and transfer of learning outcomes.

Neglected skills and the knowledge of deaf people constitute an important part of human and social capital, as they codify, learn more languages and "see" communication in a way very similar to what is coding. Society is now wasting a considerable part of this heritage that it does not know it has, which is a shame for the information society, based on knowledge. They could, I some way, support almost naturally the increasingly digital and technological society.

The project aims to strengthen the key contribution that such an innovative and specific training has for deaf people, for their personal development, social inclusion and participation. The basics of learning coding will be a way to increase digital literacy, but substantially, it also promotes the development of those transversal skills that coding improves, to promote the right exploitation of skills, autonomy and social inclusion.

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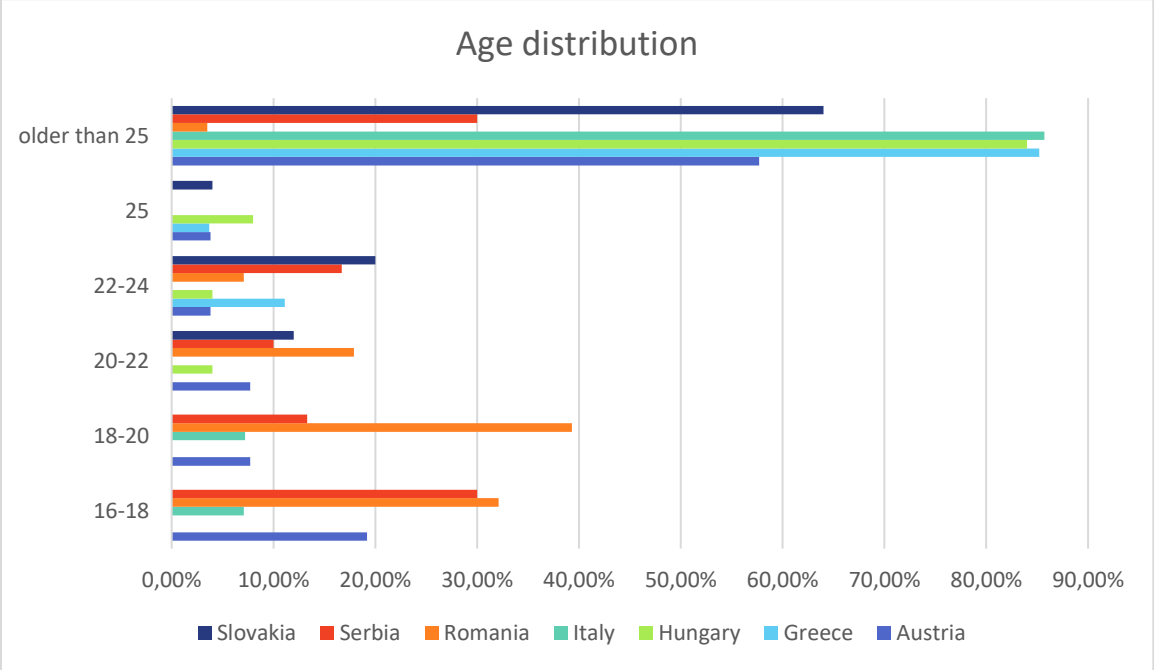
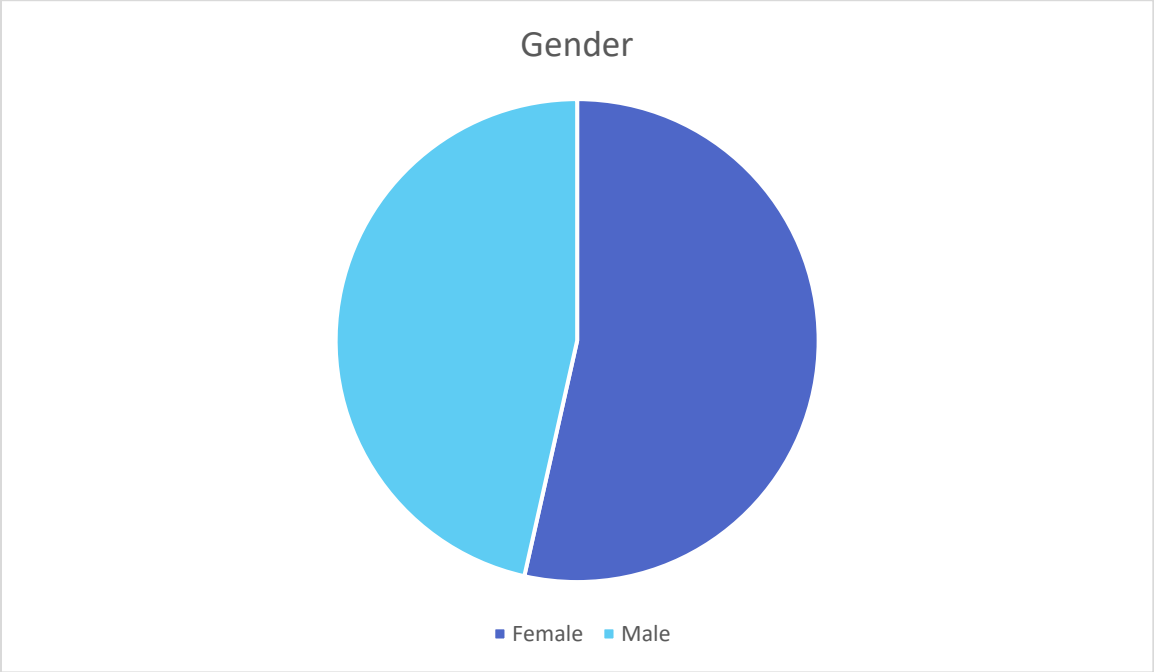
Survey Results

Section 1: Demographics

Total respondents: 175





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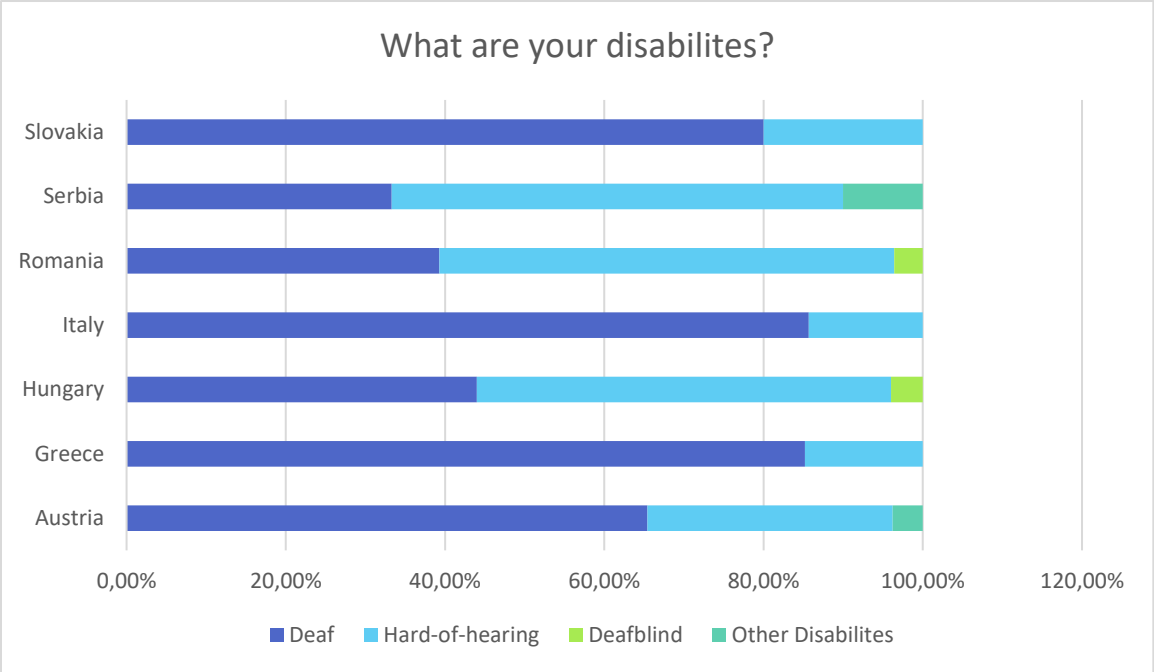

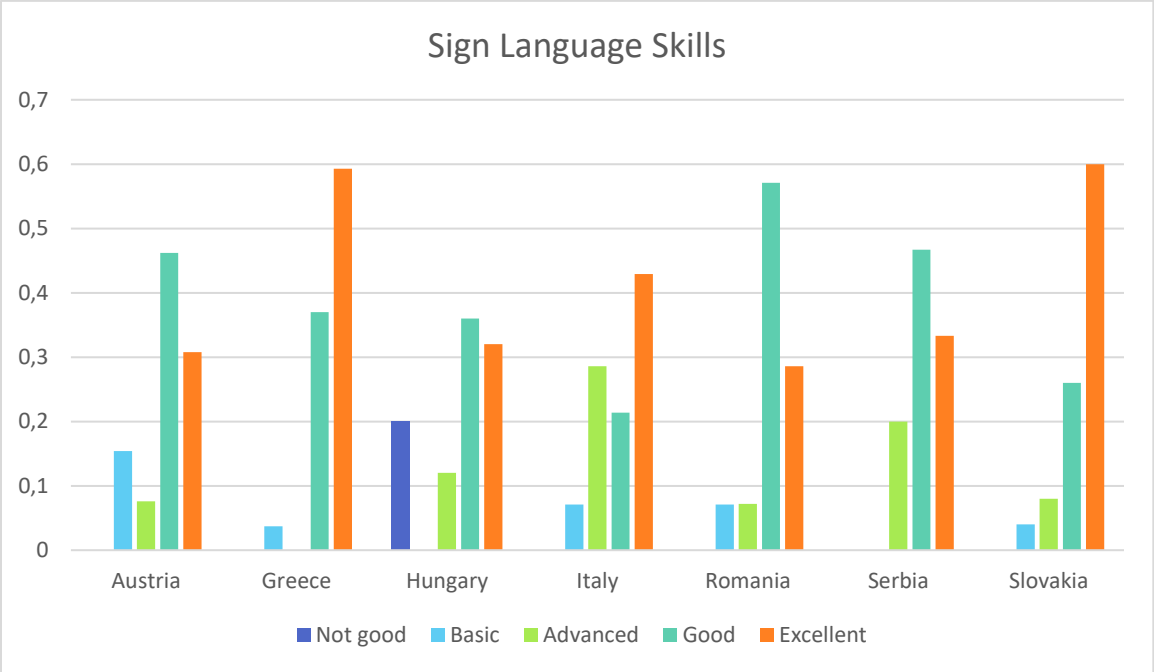

The demographics highlight a diverse sample, with a significant proportion of respondents over the age of 25. The majority identify as Deaf and feel confident in their Sign Language skills.

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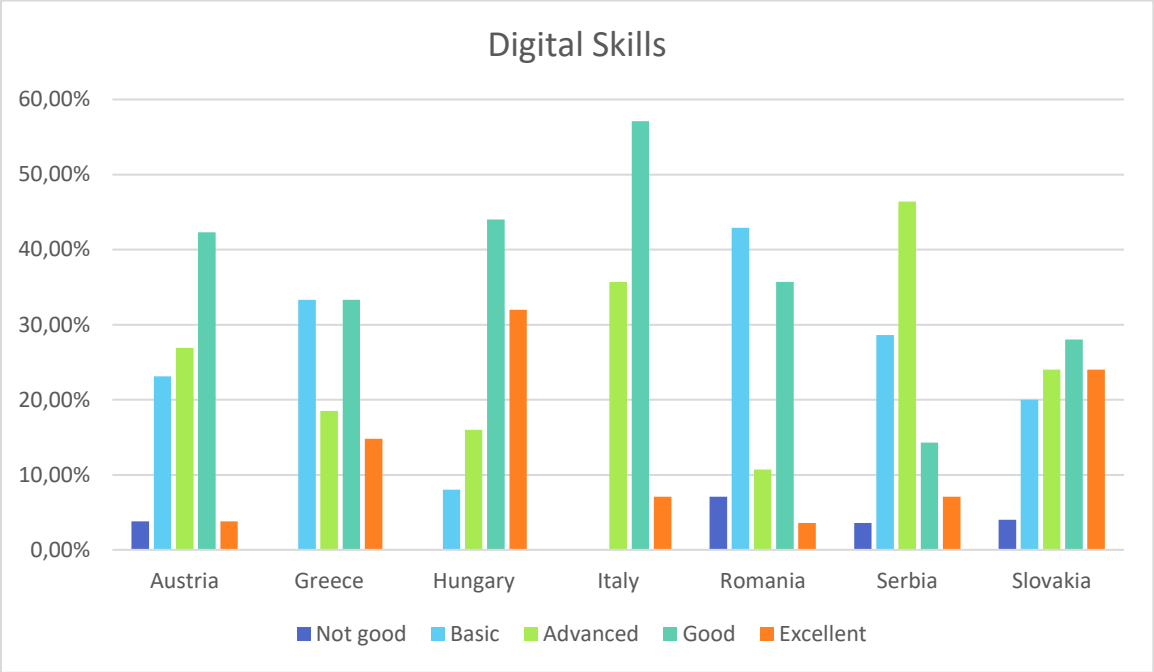
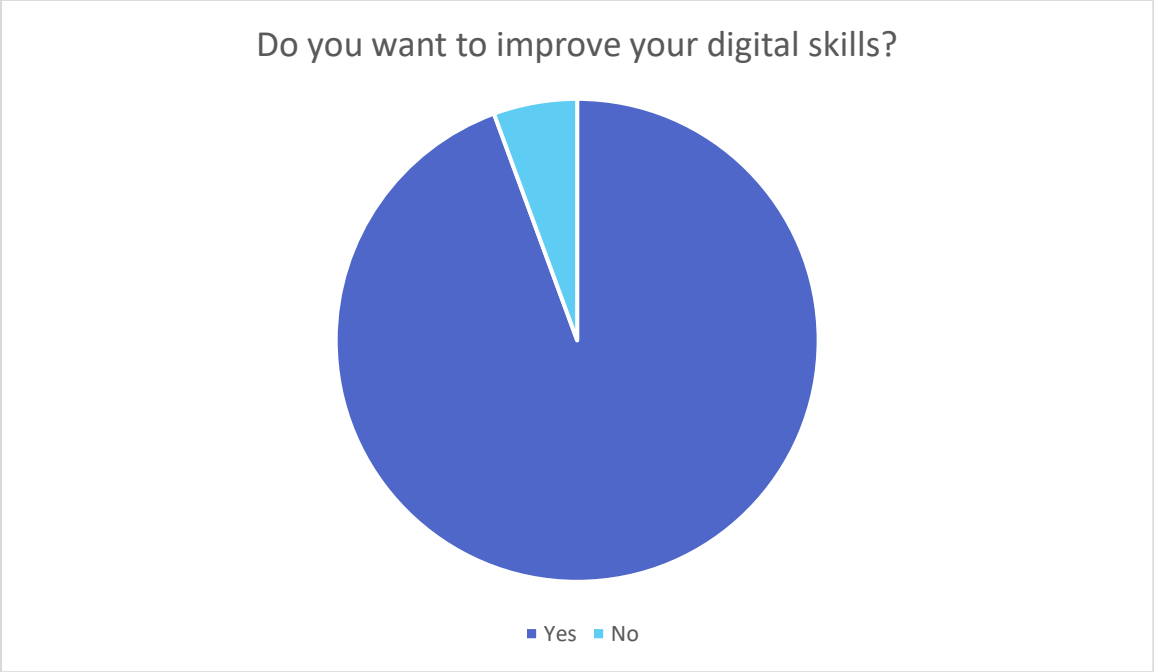
Section 2: Digital skills in general





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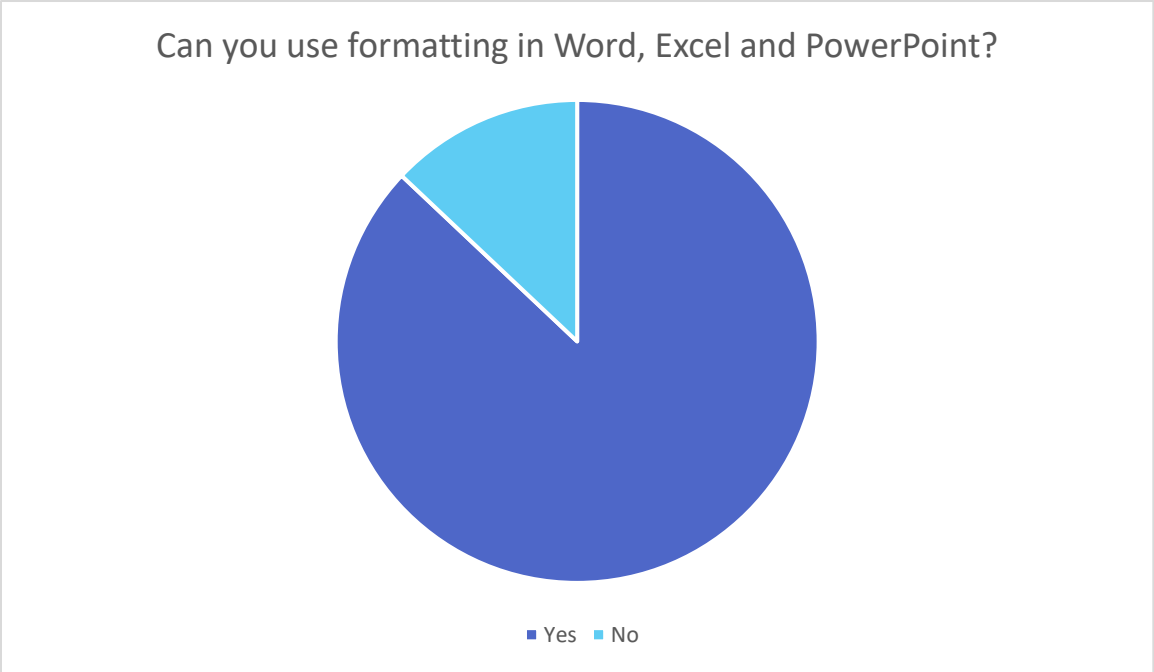

The results suggest that participants have a solid foundation in basic digital skills but have a desire to expand their expertise beyond common software like Word, Excel and PowerPoint.

Despite feeling confident in their current abilities, participants express a desire to improve their skills. This indicated a growth mindset, where they understand the importance of continuous learning and recognise that digital skills are constantly evolving.

Offering training programs or resources that focus on higher-level skills, specialised digital tools, or emerging technologies would meet this need and help participants stay competitive in the evolving digital landscape.

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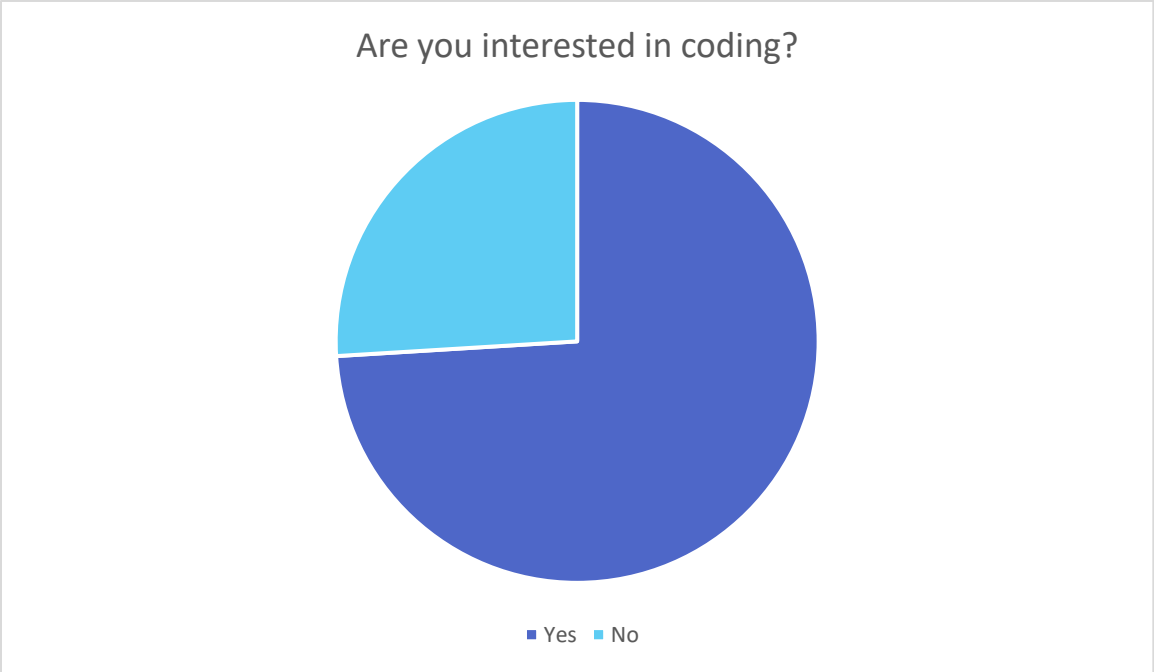
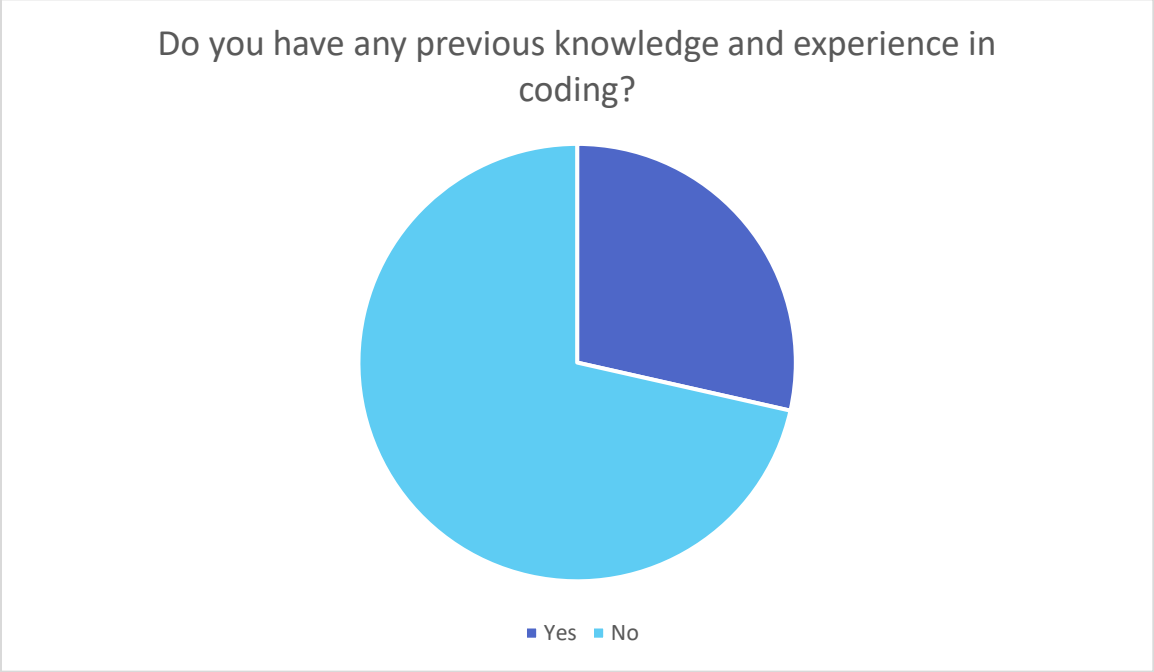
Section 3: Coding





These results show that there is a need for training materials for coding, as the interest in learning is very high, but the previous knowledge is very low.

The next questions focused on the expectations of what to learn in a coding programme. There were six possible answers:

- Basic digital skills
- The code behind the computer programmes we use in everyday life

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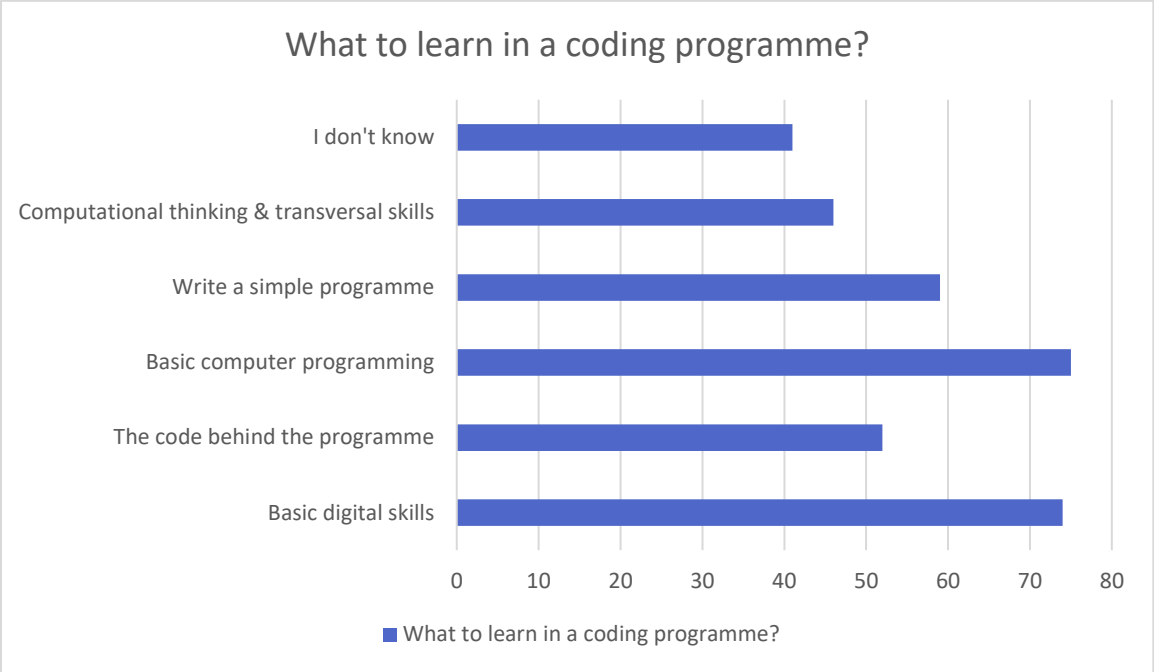
- Basic computer programming
- Write a simple programme
- Computational thinking and related transversal skills
- I don’t know

The participants could choose up to three answers.



As shown in the diagram, basic digital skills, basic computer programming, and writing a simple programme were the most chosen answers. Basic programming skills are becoming more valuable in many careers, not just in technology-related fields. The most chosen answers reflect a combination of the increasing importance of technology in modern life, the demand for digital skills in the workforce and greater access to learning resources that make these skills more attainable.

The next question was: Why do you think coding in everyday life is useful?

- Learn more about the potential of technology
- Learn a programming language
- Be able to interact and stay connected with new job market opportunities
- Develop creativity, maintain cognitive abilities, and widen my interests
- Coding will make my life more exciting
- Self-confidence and self-esteem would increase

The participants could choose up to three answers.

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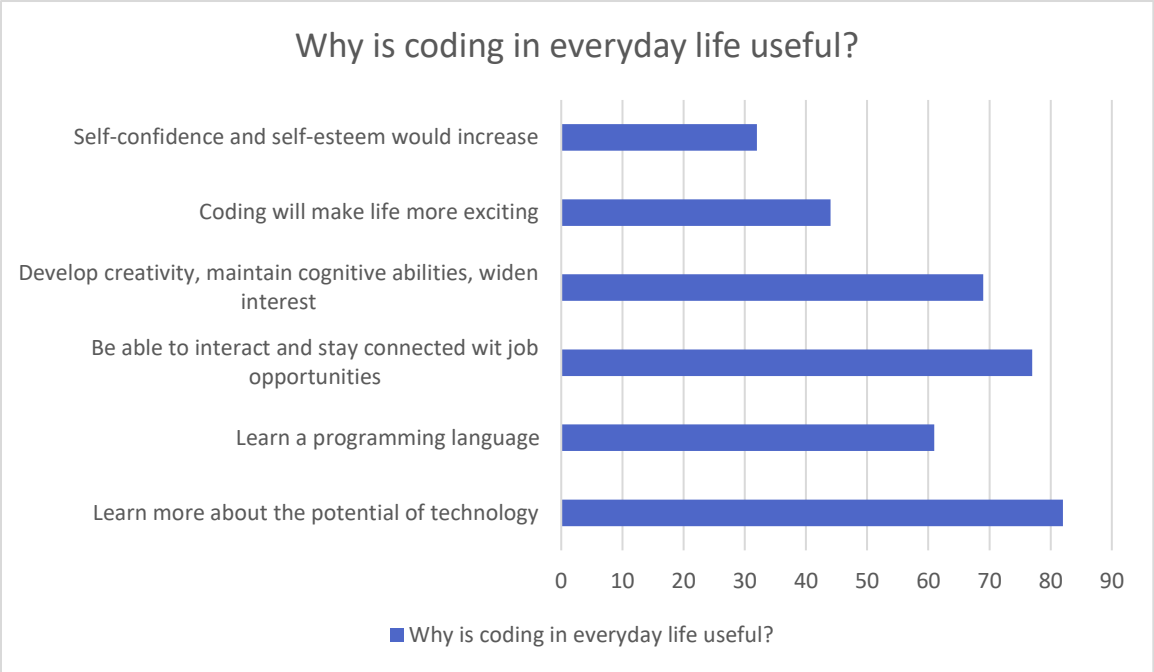
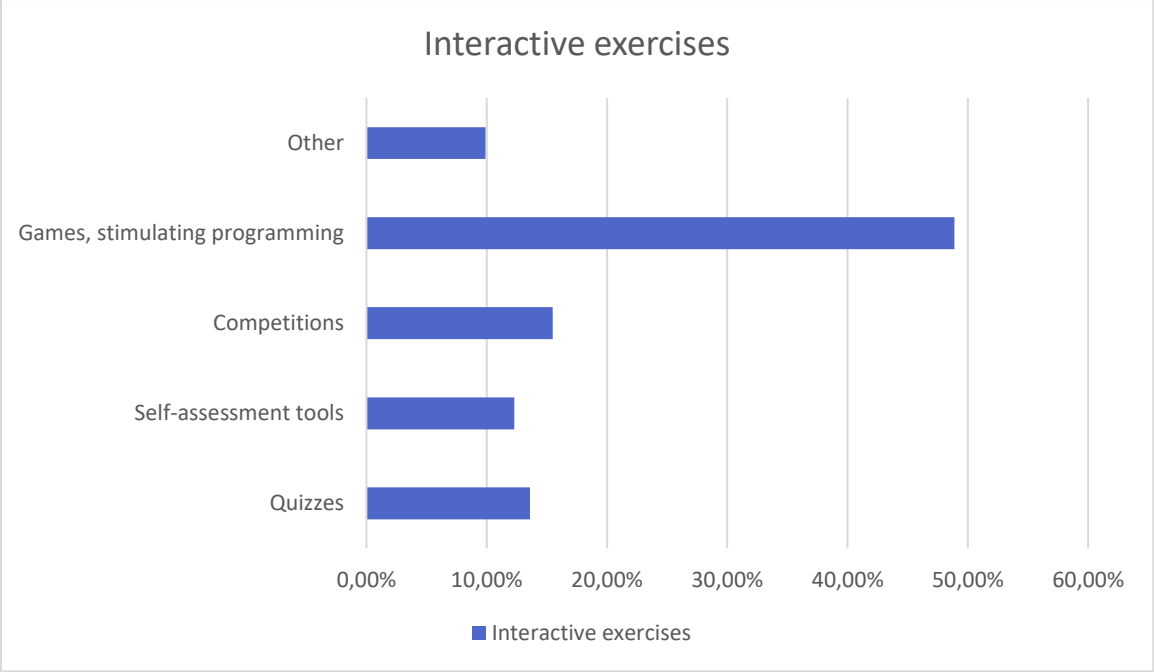


Learn more about the potential of technology, be able to interact and stay connected with new job market opportunities and develop creativity, maintain cognitive abilities, and widen my interests were the most chosen answers. This indicates that the participants view technology not just as a tool for practical tasks, but as a means for personal and professional development. They see technology as a way to stay connected, enhance creativity, explore new opportunities and continue learning. These answers reflect a strong interest in leveraging technology to improve various aspects of life, from career prospects to cognitive health and personal growth.

The next part focused on preferred interactive exercises and learning methods.



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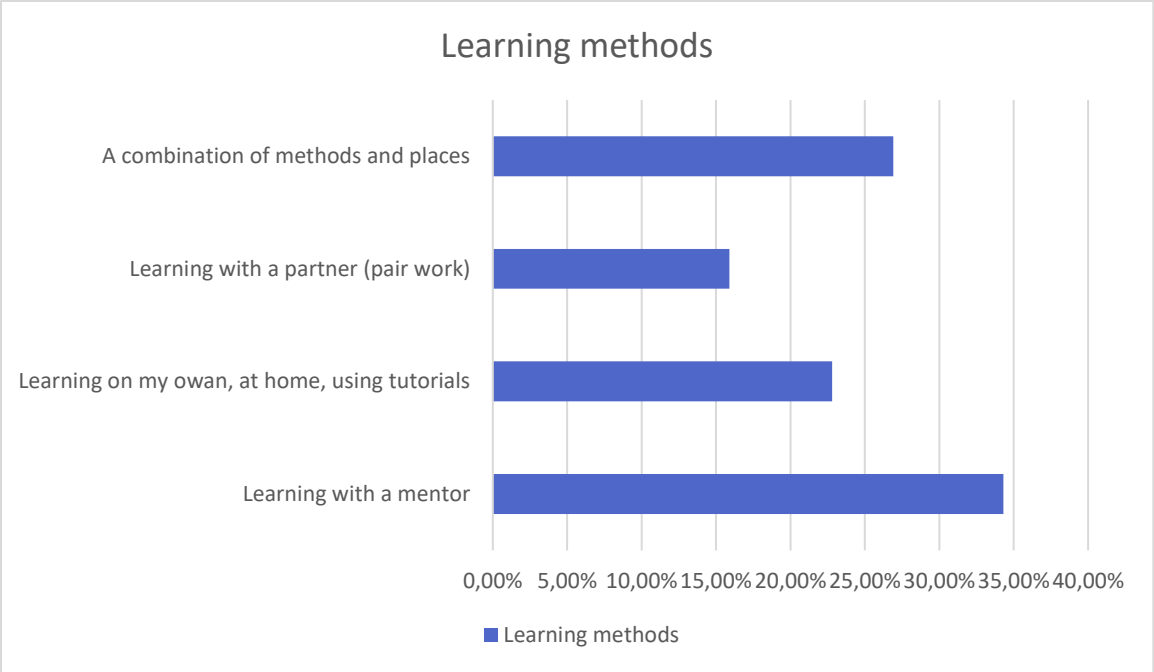
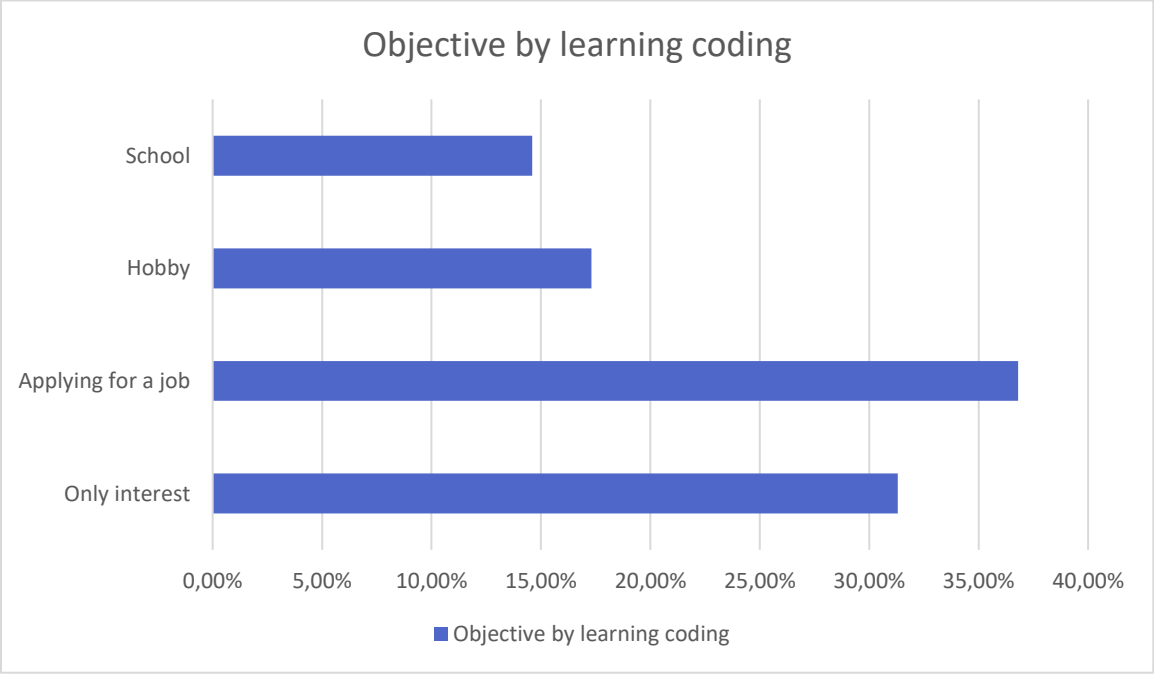


The results show that participants prefer interactive methods like games and stimulating programming. Regarding learning methods, they prefer learning with a mentor, a combination of methods and places and learning on their own, at home, using tutorials.

The results suggest that participants prefer a flexible and dynamic learning experience that includes interactive methods like games and stimulating programming, along with the option for mentorship and self-directed learning. A blend of different learning styles and environments – such as hybrid models with both mentor support and self-paced online tutorials – could optimise learning outcomes and meet the diverse needs of the participants.



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The largest group wants to learn coding for employment purposes. This highlights the increasing importance of coding skills in the job market. Educational institutions or platforms could prioritise offering courses and certification programs that are aligned with job requirements in fields like software development, data science, AI and cybersecurity.

While coding as a hobby or out of interest constitutes a significant portion of the respondents, these learners are likely to be more motivated by personal satisfaction and creativity. They may be less concerned with traditional career paths and more focused on personal projects or self-expression.

The learners motivated by school may need additional support to make coding feel relevant and engaging, especially if they are just fulfilling an academic requirement.

The results suggest that the majority of learners are motivated by practical goals (career development or personal interest), rather than purely academic or school-related objectives. This suggests that educational programs should cater to both ends of the spectrum: job-focused curricula for career-driven learners, and creative, exploratory content for those interested in coding as a hobby or intellectual pursuit. Providing flexibility and different pathways – such as career-oriented tracks and more personal interest-driven options – could address the needs of all learner groups.

Conclusion

In conclusion, the results clearly highlight a strong interest in coding and digital skills development among participants, with a distinct emphasis on both career advancement and personal growth. While many participants already possess basic digital skills, there is a clear desire to deepen their knowledge, particularly in areas like coding and programming, which are seen as increasingly valuable in today's technology-driven world. The findings reveal a preference for flexible, interactive learning methods, such as games, stimulating exercises, and mentorship, combined with self-paced tutorials.

The motivations for learning coding vary, with some participants driven by the need to enhance their career prospects in fields like software development, while others are inspired by personal interest, creativity, and intellectual exploration. These diverse motivations suggest that educational programs should offer tailored learning paths, from job-focused curricula to more creative, exploratory content.

Overall, the results underscore the importance of providing accessible, engaging, and adaptable learning opportunities that cater to the needs of a wide range of learners. By doing so, educational institutions and platforms can equip participants with the skills needed

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to thrive in the evolving digital landscape, whether for professional success or personal fulfilment.

Author of the report:

- Amina-Gandimaa Enkhbayar

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