<diversamente="coding" >

coding for improving social inclusion

project no: 2018-1-IT02-KA204-048292

ERASMUS+ KA204
Strategic Partnerships for adult education

Duration: 24 months (01/11/2018 - 31/10/2020)

IO1/A1 Activity 1:
UPDATE ABOUT TRAINING NEEDS ON
DIGITAL SKILLS AND DEAFNESS STUDY IN EUROPE
REPORT OF DEAF PEOPLE AND DIGITAL COMPETENCES IN EUROPE

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1. Context and Background >>

The team of the project in composed of 6 partners from 5 different countries.

- **P1 Ergon Association from Italy** is involved in the coordination of the project and in the development of the general supervision of the training modules, together with a specific involvement in the pilot test as specified in the section dedicated to the IO2;
- **P2 Dlearn** from Italy is responsible for the Quality Plan, as well as for some tasks in validating the non-formal and informal learning system, and it is responsible for guiding the IO1 as specified in the dedicated section, along with the leadership of the exploitation plan;
- **P3 Emphasys from Cyprus** is the leader for the IO2 and it is also involved in the development and supply of e-tool kits for learning, and finally co-responsible in the design of specific training modules;
- **P4 Platon from Greece** will be coleader for the IO2 and co-responsible in the design of specific training modules;
- **P5 Funteso** from Spain will deal with P6 of the dissemination, of some specific activities in the IO1, as well as contributing to the methodological structure and the validation system of non-formal and informal learning, together with the support of P2;
- **P6 equalizent from Austria** is the leader in the dissemination results, as well as co-responsible in the phases of deepening the training needs in the first phase, the design of specific training modules and the pilot test of results.

Deafness in Europe

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 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 of 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 high level of education because of the bad external conditions. As a result of the aforementioned, transition from school to studies and work is harder for them especially if they do not follow academic studies.

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It is undeniable that the last decades have been characterized 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 efforts have 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, despite the fact that many studies have confirmed that technology and the internet can play 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 in 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 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.

In this context, the <diversamente="coding" > project aims to develop a training course addressed to people with hearing disabilities in order to improve their digital and coding skills by using a methodology that applies the European recommendations or the validation of formal and

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non-formal learning for the recognition and transfer of learning outcomes. The project's purpose is to facilitate social inclusion and increase the employment opportunities of people with hearing disabilities in an innovative context.

<diversamente="coding" > aims to promote social inclusion by focusing on the development of digital skills of hearing impaired people, not by teaching only passive use of digital devices, but by making them able to program and actively learn the basics of coding. The project, therefore, aims to improve their digital and programming skills, with a methodology that applies the European recommendations for the validation of non-formal and informal learning, in order to facilitate the recognition and transfer of learning outcomes so that they are exportable in Europe.

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, in 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 the coding improves, to promote the right exploitation of skills, autonomy and social inclusion.

Non-formal learning activities and an open and innovative pedagogical approach are milestones of the project: **the main tangible result will be an interactive and multifunctional open source platform of training on coding adapted to people with hearing disabilities**.

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2. Introduction (How was the survey carried out? How did you approach the respondents? What was the response rate?) >>

2.1 Activities, Methodology and Comparative Analysis

January 2019 - June 2019

The project team realised an analysis regarding the status quo based on a study on the target group needs. The analysis deeply explored, the attitudes and gaps of deaf people regarding the specific themes of digital literacy, codification, and computational thought.

The analysis made on the direct beneficiaries of the project focused on:

- general level of digital literacy in the deaf community;
- attitudes and perceptions of deaf people on computer programming;
- ideas on the application of the basics of the codification knowledge in everyday life;
- interest to participate in training activities;
- ICT fields suited to create new jobs
- common terminology within partner's countries;
- favourite training methods and instruments

PURPOSE OF THE ANALYSIS: Updated definition of the training areas of the training course

<diversamente="coding" > **TARGET GROUP**

The direct project target group: is represented by ADULT PEOPLE (18-60) WITH HEARING DISABILITIES who also have difficulty entering into an increasingly technological society (both from a personal and a professional point of view), in order to improve access to the labour market. Indirect target*:* training centres, adult education providers, universities and any kind of organisation providing education, especially for deaf people.

Each of the partners involved in the study at least 40 people representatives of the direct target group (30 people with hearing disabilities) and 10 representing organisations working with deaf people.

01/12/2018 - 20/02/2019

Development of the methodology for the acquisition and the comparison of the obtained data: the methodological relation is a guide-line for the partners, included the objectives, methods, questionnaires as analytical instruments, models of analysis for local relations. For the survey, which took place as part of Intellectual Output 1 in the framework of the <diversamente="coding" > project, the Consortium decided to create and distribute questionnaires electronically, using Google Forms and written questionnaires.

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20/02/2019 - 30/03/2019

Selection of the target group, distribution and collection of 40 questionnaires with the involvement of 40 people in total, representative of the target groups (30 deaf people and 10 representing disability organisation) for each country.

In order to conduct the survey, two separate questionnaires were developed, one for people with hearing disabilities, (the main target group of the project), and one for organizations that work with the target. The questionnaires were sent through e-mail and data was collected through Google Forms and organized in excel documents, in some cases written questionnaires were used. Descriptive statistics were used in order to analyse the results.

01/04/2019 - 15/06/2019

Results analysis and development of the local relations on the preliminary reports of the results.

01/07/2019 - 01/09/2019

Comparative analysis and development of the final report about digital literacy and the attitude of deaf people to the code. This report is an analysis of all the collected information at country level, and it offers a comparative analysis between countries and subgroups. The report will be useful for the development and the planning of the training contents.

In this period, 5 Country Reports were realised.

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3. Country Report - Cyprus >>

Historical Data on Deaf people education in Cyprus

Historical information about education of hearing impaired and deaf in Cyprus begins in the twentieth century with the founding of the first school for the deaf. Specifically, in 1953 the first school for the deaf was founded in Nicosia. Until then there was no provision for hearing impaired or deaf individuals and the opportunities provided for them were very little. As most schools for the deaf at that era, the first Cypriot school for the deaf aimed more at offering protection and care to hearing impaired individuals than offering education.

Education for hearing impaired and deaf in Cyprus has gone through three important periods. The first period began with the foundation of the first school, meaning 1953, and ended in 1986. In this period hearing impaired individuals were exclusively enrolled in the school for the deaf. The second period started in 1987 and ended in 1992. In this period the incorporation of hearing impaired and deaf students is attempted for the first time and as a result the first educational units for such students are established to general schools. The last period, which began in 1993 and runs up to the present, is perhaps the most important, as full inclusion of hearing impaired and deaf individuals is attempted, and students are included in general schools which develop appropriate services to support them.

Educational policy for the hearing impaired and deaf in Cyprus has been affected by ideas about integration of children with disabilities in general schools, which over the last decades seem to affect educational contexts worldwide. In 1987, the Cyprus Parents' Association of Deaf Children (CPADC) was established. The Association demanded the integration of hearing impaired or deaf students in general schools as special schools for the deaf were considered places of isolation that led to low educational outcomes. It was not until 1993 when the Cyprus Parliament passed the "Law for the Integration of Deaf Children in the Education of Cyprus" covering all levels of education. The law faced many challenges in its implementation. In 1999, the Cyprus Parliament passed another law concerning Special Education. According to it, general schools were "the most appropriate educational environments for children with special needs unless otherwise stated.
Nowadays, as a result of the aforementioned efforts and laws, the majority of hearing impaired or deaf students in Cyprus attend general schools, with or without support, depending on the case. Schools for the deaf operate mainly as providers of various services for them and their families.

Deaf people Education in Cyprus

While there are policies and infrastructure to provide General Primary and Secondary training to the hearing impaired in Cyprus, there is little to no provision for lifelong learning targeted towards adult hearing impaired individuals.

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The main responsibility for the education and hearing impaired individuals is taken on by the government-funded School for the Deaf in Nicosia, where students between the ages of 3 and 21 are accepted. This institution offers an Audiology Centre and Technology Resource Service, where counselling and audio logical assessment is provided for individuals 0-18 years old. There is also an Early Intervention and Education Service, which targets and supports children between the ages 0-3 and their families, and a Psychological Support Service for the students. Most importantly, the School for the Deaf also functions as a day school, providing students with school leaving certificates equivalent to those of other public schools. Depending on demand, departments of Kindergarten, Elementary, Middle and High School level are created. The curricula taught are the same as in mainstream schools, appropriately adapted for language, and taught by corresponding teachers in each level and subject.

Concerning Higher Education, the Republic of Cyprus has legislated various facilities for applicants with disabilities who wish to participate in the national exams. Applicants can claim various facilities such as extension of the time limit and simplification of the language version. Also, 6% of positions in the Public Universities of Cyprus is to be allocated to "Cypriot candidates with serious health problems or other serious problems". Attending students may claim facilities such as transcription of the exam, simplified examination essay, indulgence in syntactic and spelling errors, and more specifically for the hearing impaired, sign language interpreters. These facilities may be granted after evaluation of the applicant by the Special Committee, responsible for the provision of facilities. With regard to lifelong learning, the Republic of Cyprus offers courses of various subjects at the Adults Educational Centres, which can be attended by individuals of all ages. For individuals with a disability of 75% or more, attendance is free for all the subjects offered. Despite this, hearing-impaired individuals would have difficulty attending such classes if they are not trained in lip-reading, as the courses are not tailored to the needs of any group with disabilities.

Regarding employment, the Republic of Cyprus offers schemes to assist with the incorporation of disabled individuals in general in the work force. More specifically, the government employs the "Scheme for the Creation and Operation of Small Units for Self-Employment Purposes of Persons with Disabilities", where funding is provided to help with setting up a small business. The Supported Employment Scheme is an additional programme which subsidizes organizations for persons with disabilities, where the sponsorship is used to pay the salary of a job coach for each supported employment programme. Additionally, there is a provision for the employment of disabled individuals in the public sector, where 10% of the vacancies are to be covered by disabled individuals who fulfil specified objective criteria.

Statistically, the Labour Force Survey of 2011 showed that 20.6% of employed persons in Cyprus, aged 15-64 years, reported that they face serious long-term health problems or chronic diseases. The respective percentage among non-workers was shown to be 30.9%. It was also demonstrated that 6.4% of employed individuals and 16.2% of not-employed individuals report that they face serious difficulties in elementary activities. Focusing on the group which mentioned a serious long-

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term health problem or chronic disease, and difficulties in basic activities, it was shown that 14.5% of working individuals and 52.9% of not-employed individuals would be restricted in the number of hours per week they could work, 28.4% of employees and 60.2% of non-workers stated that due to the abovementioned conditions they would also be restricted or limited to the type of their work, 2.9% of employees and 21.9% of non-workers would face difficulties in transportation to and from work, 3.9% of employees and 25.7% indicated the need or the possibility of needing personal assistance at work and 6.2% of employees and 40.5% of non-workers reported the need of special arrangements in the work environment.

The above data paints a picture where it is evident that although the laws and regulations to support individuals with disabilities are indeed in effect, there is a gap between theory and practise, which needs bridging. According to the final report of Cyprus for the United Nations Convention on the Rights of Persons with Disabilities, Cyprus has in place a modern and powerful legal framework for the protection and promotion of the rights of persons with disabilities. An example of good practices to promote the integration of disabled persons into the workforce is the "Motivation Scheme for the Employment of Persons with Disabilities in the Private Sector". However, in spite of this, "systematic mechanisms for the assessment of disability, functioning, vocational needs and abilities for employment of persons with disabilities as well as mechanisms to offer adequate motives for integration in the work force and in occupations on demand, have still not been established".

Concluding, although there is substantial information to be found regarding the facilities and provisions for disabled individuals in Cyprus, detailed information specifically regarding the hearing impaired community in Cyprus is sparse. The need for more detailed research is evident. Moreover, it is clear that although there are various mechanisms in place to aid hearing impaired individuals with education and employment, the opportunities for lifelong learning and educational advancement in areas other than vocational are limited.

- **Survey Report-Needs Analysis**

The questionnaires were distributed to each partner country through available media. In Cyprus in particular, "Emphasys Centre", has contacted organizations that deal with hearing impaired individuals through email. In this way the survey could be communicated and the questionnaire could be filled from hearing impaired individuals as well as staff members.

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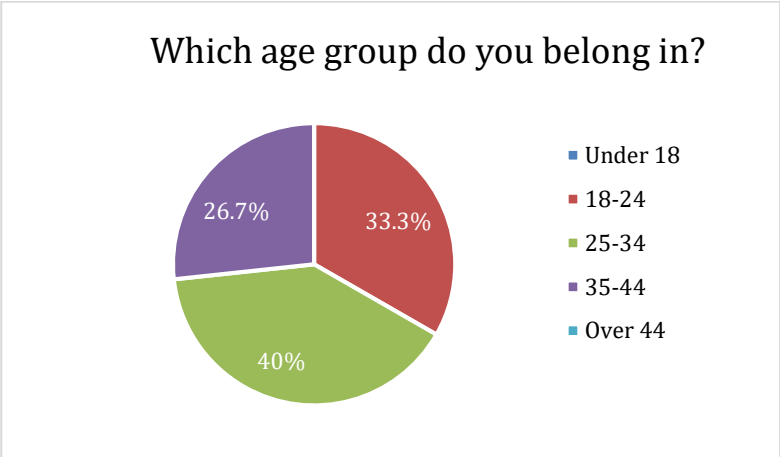
A total number of 40 participants took part at the survey which was open for participation starting on May 9th, 2019 and ending on May 17th. Thirty (30) of the participants were hearing impaired individuals and the rest (10) of the participants were organizations. All of the individuals were Cypriot citizens and currently living in Cyprus. Also, all of the organizations were in Cyprus.



Half of the participants with hearing impairment were male and the other half were female. As far as age is concerned, all of the participants were in the age group targeted by the project meaning between 18 and 55 years old. Specifically, most of the participants (40%) were between 25 and 34 years old, followed closely (33.3%) by those who were between 18 and 24, whereas the rest (26.7%) were between 35 and 44 years old. It is noticeable that there were no participants between 45 and 55 years old.

All of the organizations that took part in the survey deal with individuals who face problems of hearing impairment. Most of the participants are caregivers (30%), teachers (20%), members of staff (20%) and volunteers (20%). The majority of organizations (60%) deal with less than 50 individuals with hearing impairment whereas the rest (40%) deal with between 50 and 100 individuals. There were no organizations that deal with more than 100 individuals with hearing impairment. All of the organization that participated in the survey work with individuals that are between 18 and 54 years old.

Needs Analysis-Key Findings

The questionnaire used for individuals with hearing impairment was divided in five parts. The first part concerned the demographic characteristics of participants. Following, the second part aimed at investigating the general level of literacy of individuals with hearing impairment. The third part focused on the attitudes and perceptions of participants towards programming. The fourth part aimed at mapping ideas on application of basic programming knowledge in the everyday life of participants. Finally, the last part aimed to study the interest of individuals in training activities and find out about the preferred methods and tools.

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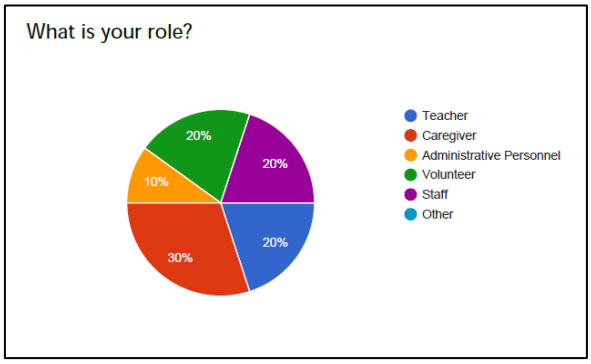
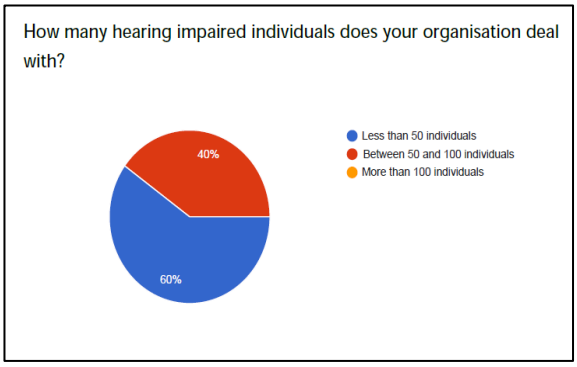
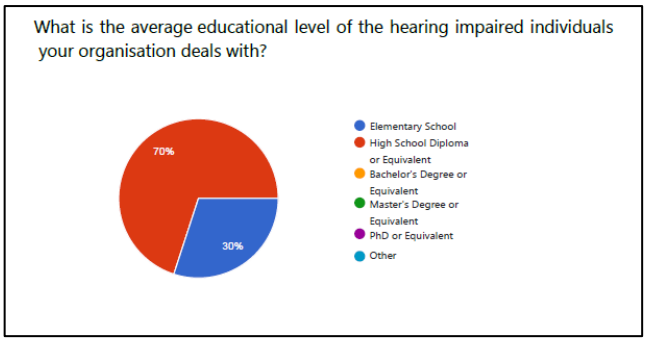


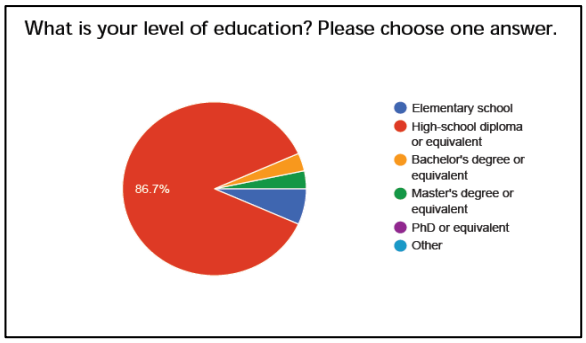


Respectively, the questionnaire used for organizations was divided in five parts. The first part concerned the "demographic characteristics" of the organization such as whether or not it deals with individuals with hearing impairment, the age of its target group etc. The second part aimed at mapping the general level of literacy of hearing impaired individuals that the organization deals with. The third part concerned the training courses offered by the organization. The fourth and fifth parts were respective with the questionnaire of individuals.

General Level of Literacy of Hearing Impaired Individuals

As far as the level of education of individuals with hearing impairment is concerned, it appears that the vast majority of participants (86.7%) has a high-school diploma or equivalent. Participants with a bachelor or master degree are a minority whereas there are no participants with PHD or equivalent degrees. Results are respective in the questionnaire addressed to the organizations. The majority (70%) of individuals that organizations deal with has a high school diploma and the rest (30%) an elementary school diploma. In this case there are no participants that have higher education diplomas. These results seem to agree with existing aforementioned researches that highlight that there are barriers towards access of deaf in higher education and that hearing impaired individuals hardly ever finish academic studies (see General Overview). Also, these results highlight the need for providing opportunities for the latter to access higher education and acquire high quality skills.





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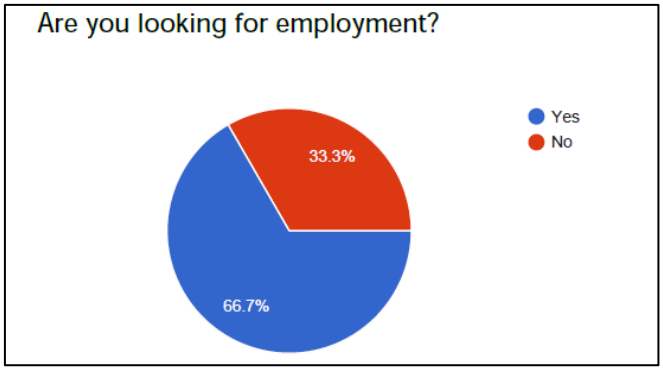
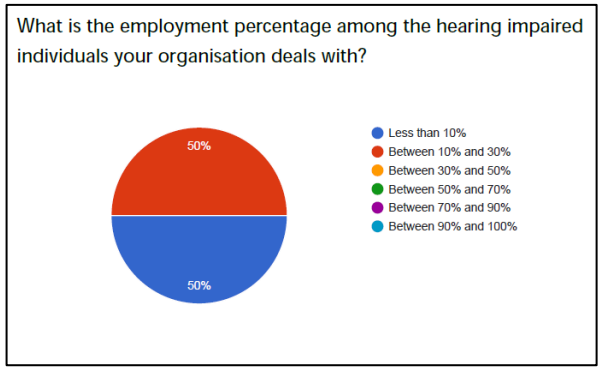
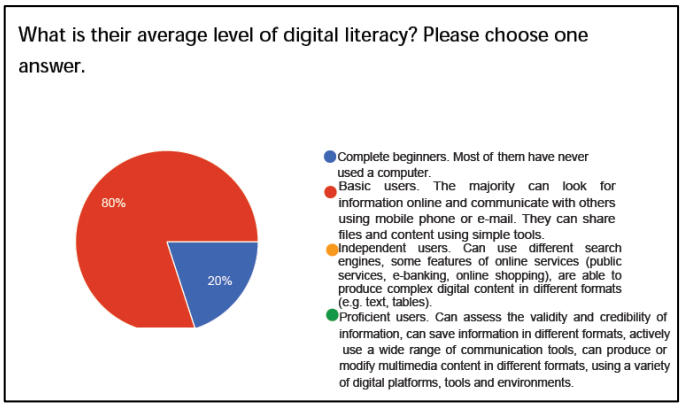
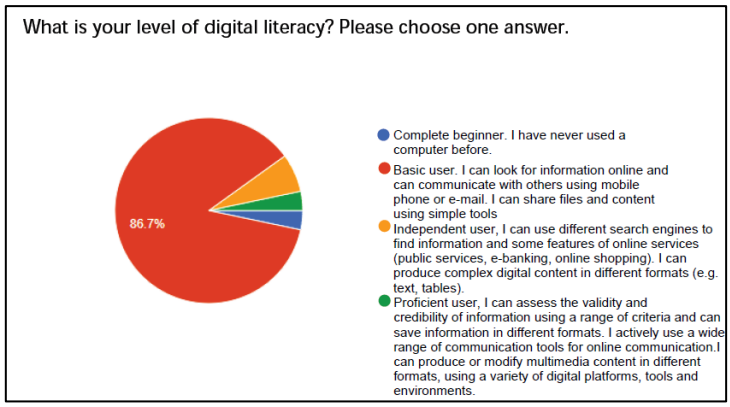
As far as employment is concerned, the majority (66.7%) of individuals answered that they are looking for employment. This comes in accordance with the results of the questionnaire addressed to organizations where it appears that only a minority of individuals with hearing impairment are currently employed. This finding highlights the aforementioned fact that transition from school to work is hard for deaf individuals (see General Overview). The main sectors of employment for hearing impaired individuals are office and administrative support (80%), public sector (50%) and education (40%). Only a minority (10%) seems to be employed in the field of IT.





When it comes to digital literacy, results of both questionnaires indicate that most of the hearing impaired participants (80% and 86.7% in the questionnaires respectively) are basic users of computers. This highlights, once more, the need to provide opportunities for hearing impaired individuals to acquire digital skills, especially bearing in mind the possibilities the latter can offer as far as communication issues are concerned.





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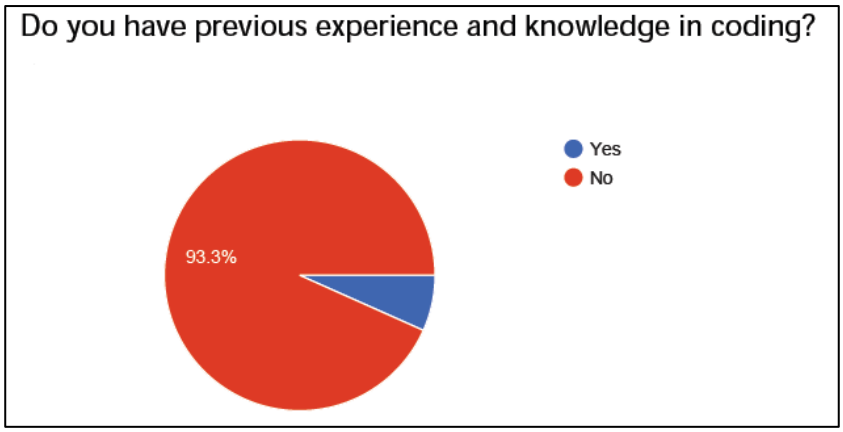
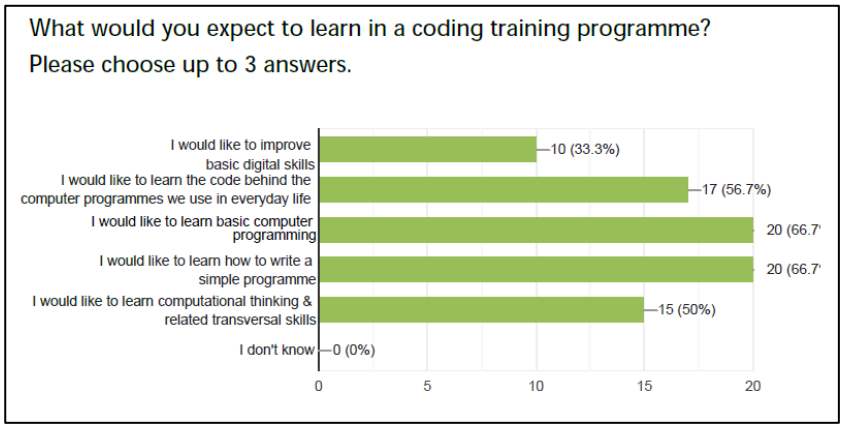
Attitudes and perceptions of the hearing impaired on computer programming



All of the hearing impaired individuals (100%) that participated in the survey are interested in learning programming whereas only 7% have some kind of previous experience or knowledge in this field, coming from school or other studies. This result shows the gap in provision of educational programs, concerning coding, addressed to hearing impaired individuals. The majority of participants (66.7%) would like to learn how to write simple programs, learn the code behind the computer programs they use in everyday life (56.7%) and acquire computational thinking and related transversal skills (50%). This interest may come as a result of the aforementioned fact that hearing impaired individuals are highly motivated by digital technologies and appear to appear to adopt them early (see General Overview).



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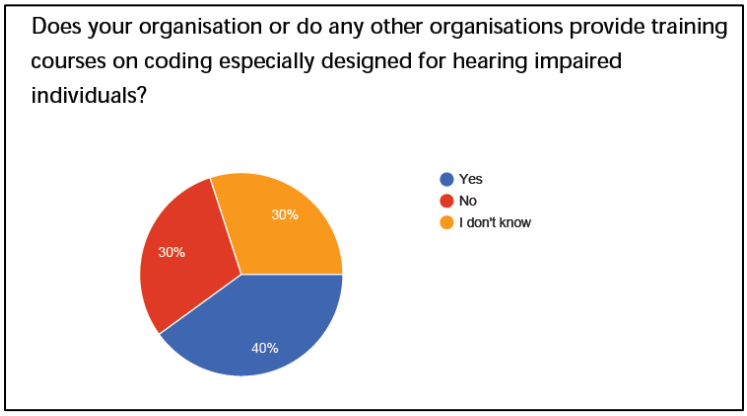
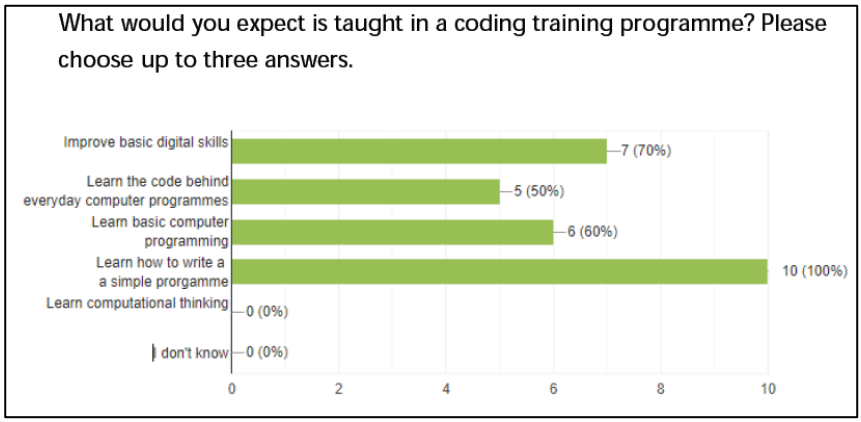
Training Courses offered by organizations



It appears that only a minority (20%) of the organizations that participated in the survey offer training courses for digital literacy towards hearing impaired individuals (basic skills, general digital literacy as part of the education provided). 40% of the participants answered that there are organizations which provide programming training courses especially designed for hearing impaired whereas the rest of participants answered that either there aren't or they aren't aware of such programs. When asked what they expect to be taught in a coding training program the most popular answers where learning how to write a simple program, improve basic digital skills and learn basic computer programming.



Ideas on the application of the basics of knowledge of coding in everyday life

The majority (63.3%) of hearing impaired individuals would like to learn how to program in order to become more competitive and stay connected with job opportunities. This comes in accordance with the respective result in the questionnaire addressed to organizations as the vast majority of participants (90%) answered that the main reason that individuals could be interested in learning coding is in order to be able to interact and stay connected with the new job market opportunities. This highlights, the need to provide opportunities for hearing impaired to gain high quality skills that are connected with the needs of the labour market and can lead to future employment.

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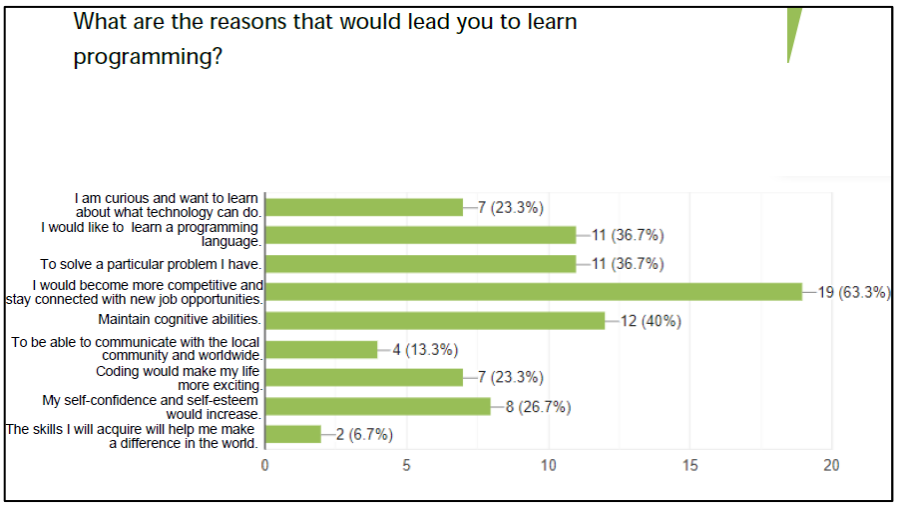

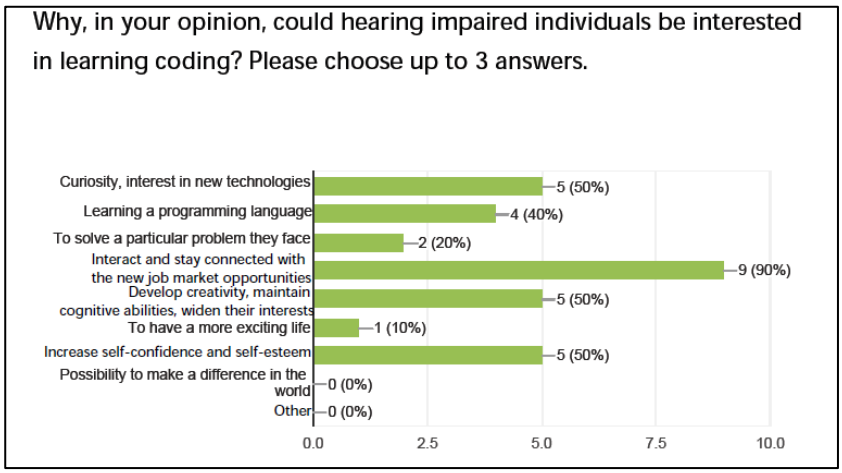

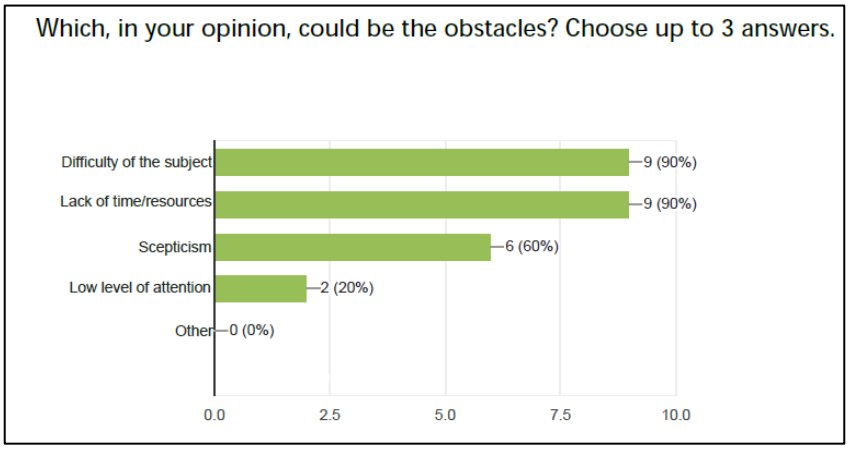

Participants from organizations answered that the main obstacles for programming training courses for hearing impaired individuals will be the difficulty of the subject (90%) as well as the lack of time and resources (90%). This is expected as teaching students with disabilities is challenging,

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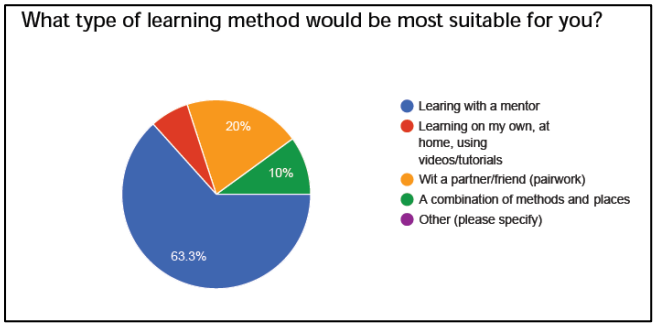
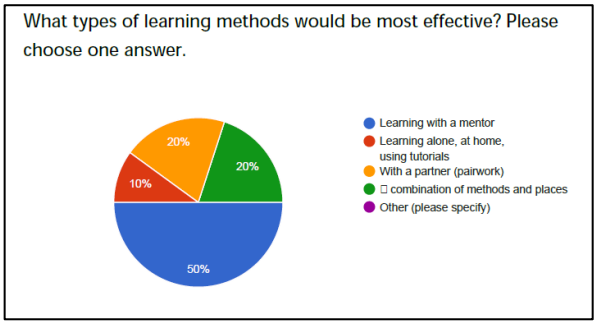
especially teaching computer science and programming, which require a lot of practice and teamwork (see General Overview).

Interest in Training Courses

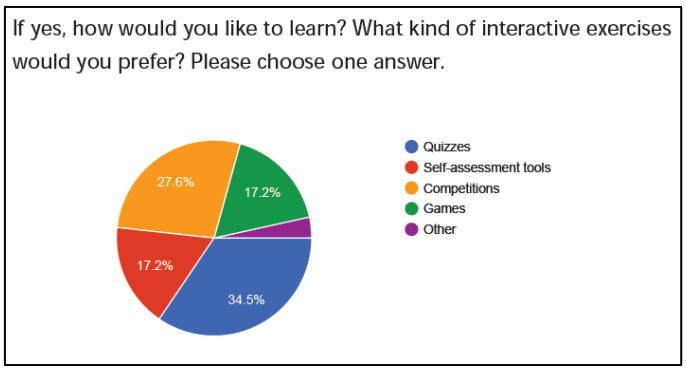
All of the hearing impaired participants stated that they would be interested in attending a specific training course to upgrade their digital skills and learn more about programming as expected by the participants from organizations.

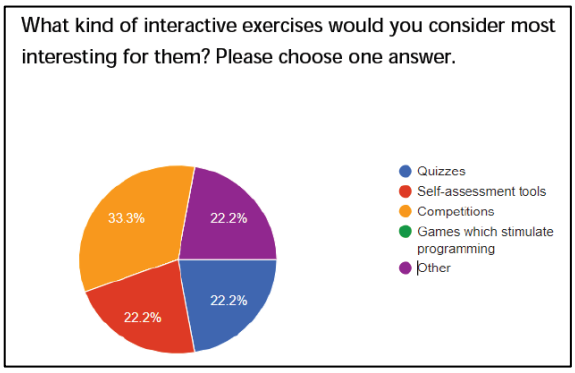
When it comes to learning methods all of the participants answered that learning with a mentor would be the most effective way of learning for such programs. Learning with partners or friends was also a popular answer. This result is supported in the research of Distante & Huang (2007) who highlight that a close contact and collaboration between participants is needed in order to continuously follow the learning progression of the hearing impaired individuals (see also General Overview).





Finally, quizzes and competitions seem to be the most popular kind of interactive exercises that participants consider important to be part of such programs.





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Conclusion

From the study and analysis of existing research as well as the results of the survey conducted it is obvious that there is a fundamental need to provide equal opportunities for hearing impaired individuals as far as literacy and specifically digital literacy are concerned. By improving their digital literacy skills, hearing impaired individuals will be able to overcome the difficulties that their disability induces and will have respective opportunities for future employment with individuals with no disabilities. Being a part of the digital world will facilitate the social inclusion of hearing impaired individuals in all domains of contemporary life.

DEAF DEALING ORGANIZATIONS

10 subjects from organization dealing with people the face problems of hearing impairment answered to the survey from each:

- 2 teachers
- 3 caregivers
- 1 administrative staff
- 2 volunteers
- 2 generic staff
- 2 other roles

Regarding the size of the organisation:

- 60% deal with less than 50 individuals every year;
- 40% deal with a number of beneficiaries between 50 and 100.

All of the interviewed organisations work with people between 18 and 54 years old.

Worth's to be noticed the fact that 70% of the organizations from Cyprus deal with people that have a relatively good level of education (High School Diploma or Equivalent) and only 30% deal with people that graduated only from the elementary school.

The bad news regards the fact that the number of the employed people is very low (all of them gave an employment rate beneath 30%).

- 34% of the employed deaf people work in the Office and administrative support;
- 4% in the Software development and IT;
- 8% in the Sales Activities;
- 22% in the Public Sector;
- 17% in Education;

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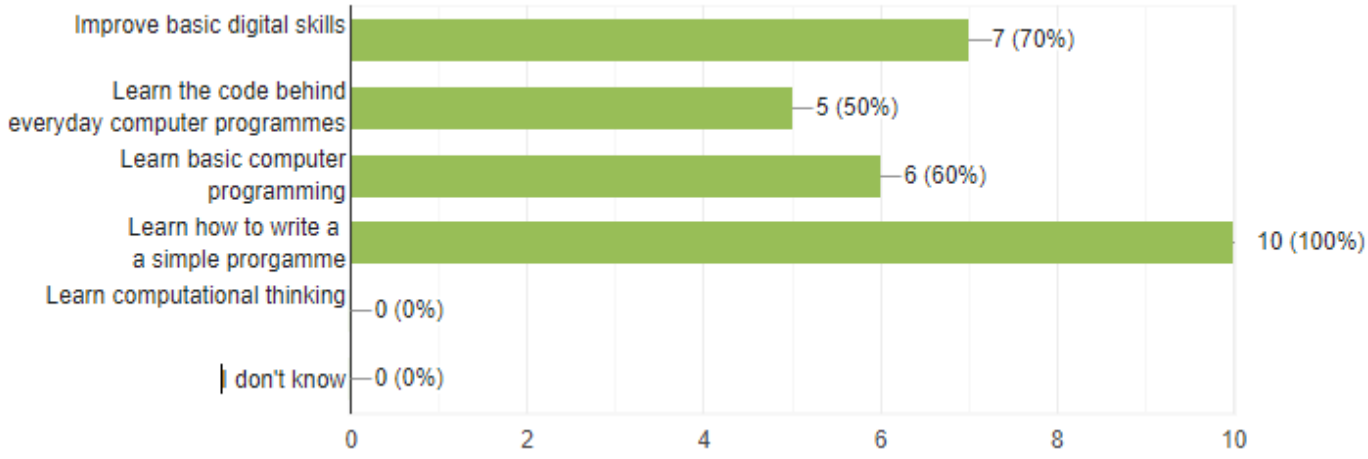
- 8% in Tourism;
- 4% in Training;

Only 20% of the interviewed organisation plan to organise or provide training courses for computer or digital literacy targeted towards hearing impaired individuals.
The situation gets a little bit better regarding the intention to provide training courses on coding especially designed for hearing impaired: 40% of them agree in organising such training and 30% still don't know and 30% of the involved association do not intend to organise coding training at all.

All of the provided courses give a final certification.

What do the organizations expect from a coding training programme:

The motivation that could push the people affected by deafness to attend a coding course regard principally:



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4. Country Report - AUSTRIA >>

The population of Austria is 8.9 million.

Precise data on the number of people with hearing impairments is difficult to come by for several reasons. In 1996, the number of people who were deaf, hard of hearing or late deafened was 456,000. This number included 51,000 people who had great difficulty hearing even in a quiet environment, as well as 10,000 people who were fully deaf.

The data from the statistics collected in 2007 and 2015 vary greatly and show consistently falling numbers of deaf, hard of hearing or late-deafened people. In 2015, 2.1% of the population in Austria aged 15 or over (around 157,000 people) was affected by a permanent hearing impairment, including 19,000 people (0.3%) with serious hearing problems. In 2007, 2.8% of the population in Austria aged 15 or over (around 198,000 people) was affected by a permanent hearing impairment. In 2015, men had slightly more hearing problems than women (2.4% and 1.9% respectively); in 2007, more women were affected (3.1% vs. 2.6%). Concerning the severity of the hearing problems, 0.8% were slight, 1.1% medium and 0.3% severe (2007: 0.5%, 1.4%, 0.9%).

The fall in the number of deaf, hard of hearing or late-deafened people is explained partly by the fact that in 2015, the survey was conducted by telephone, so that people with severe hearing impairments could not be interviewed.

The estimate of severe hearing problems (degree of impairment of 50% or more) in the Austrian population aged 15 and over, based on the DESTATIS 2013 survey, showed a figure of 32,500 persons (0.4% of those aged 15 or over) in the category "Speech or speech disorders, deafness, hard of hearing, balance disorders".

Most deaf children are born to hearing parents (approximately 90 %) which means that when they start school, they are often already at a disadvantage to their hearing peers, as can be seen in the diagram:

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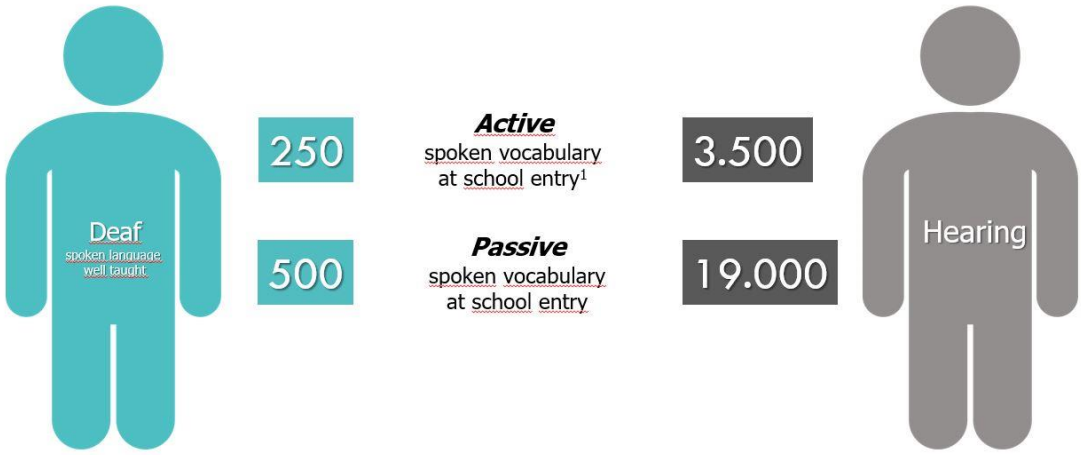
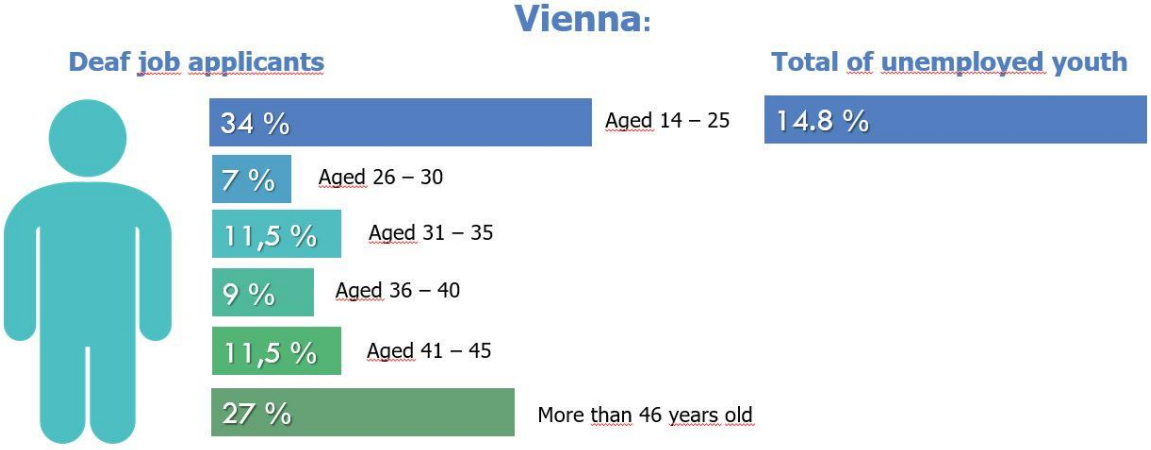


In 2013/14 school year, there were 683,006 children of compulsory school age attending school in Austria; 1,422 of which were deaf or hearing impaired. A disproportionately large number of deaf and hearing-impaired children attended school in Vienna - 424 or 30% of all deaf and hearing-impaired children in the whole country). Just 50% attended a mainstream school, while the remainder attended a special school for children with disabilities. 29 deaf children attended a high school.

In Austria, the prevailing trend in teaching, even in special schools, is oralism. There are only limited places in inclusive schools, and only some of these schools provide lessons in Sign Language. Even then, most lessons are taught orally with the provision of Sign Language interpretation for deaf students, rather than being prepared and adapted to the needs of hearing impaired pupils, and taught bilingually (in written / spoken German and Austrian Sign Language). Deaf and hearing-impaired school leavers achieve lower levels of education and fewer qualifications than their hearing peers. This is reflected in unemployment rates:



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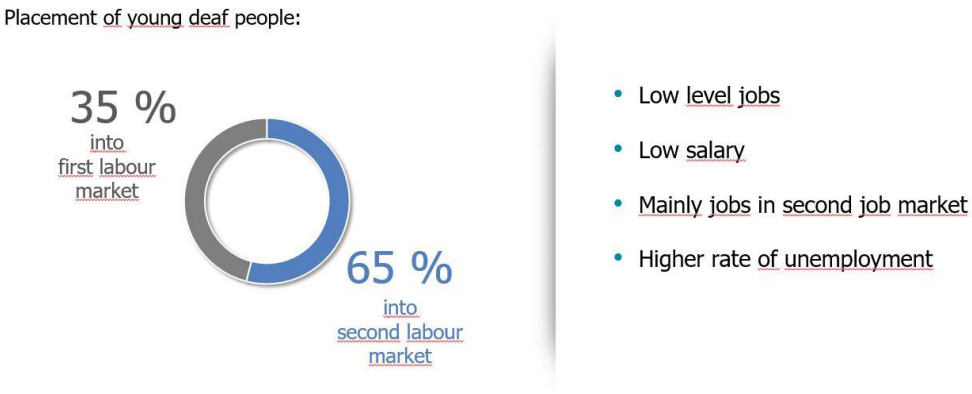
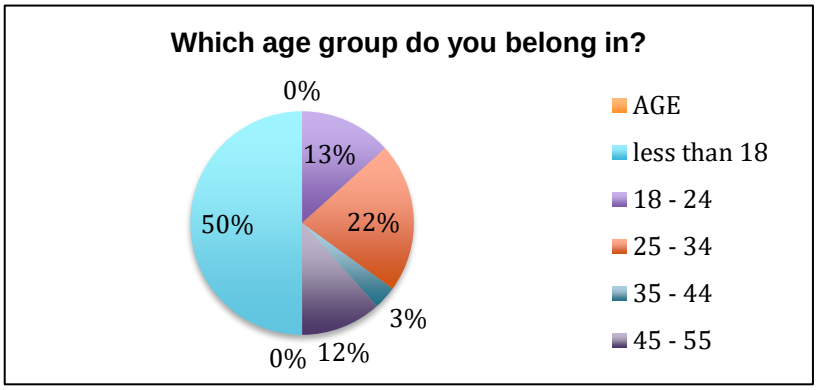
Not only is unemployment considerably higher amongst people of working age who are deaf, only 35 % of those who find work find placements on the first labour market:



There is also a severe lack of qualified interpreters in Austria. According to the Austrian Deaf Association (Österreichischer Gehörlosenbund), there are 141 active interpreters working in the country, not all of whom work fulltime. Regional distribution is very uneven; 89 interpreters are currently working in Upper Austria, Lower Austria and Vienna. Interpreters in Vienna and Lower Austria tend to work in both regions where more than half of Austria's Deaf population is concentrated. Carinthia is the worst served region with only four interpreters to 175 Deaf people. Upper Austria is the best-served region with one interpreter to every 25 Deaf persons, a fact that can probably be attributed to the variety of further education possibilities in Upper Austria (GESDO http://gesdo.at/) which are partly financed by the regional government. Nevertheless, Austria is lagging a long way behind Scandinavian countries.

Survey of individuals - results

30 deaf and hard of hearing participants took part in the survey so the sample size is 30 out of 30. All of them are aged between 18 - 55.



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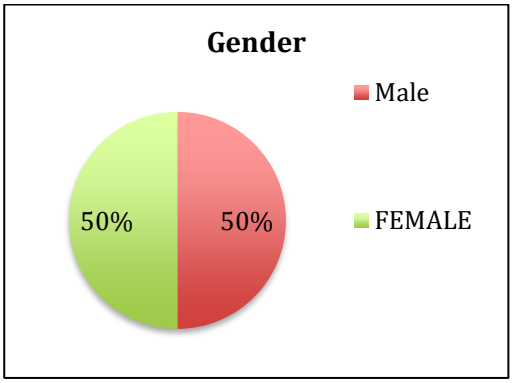
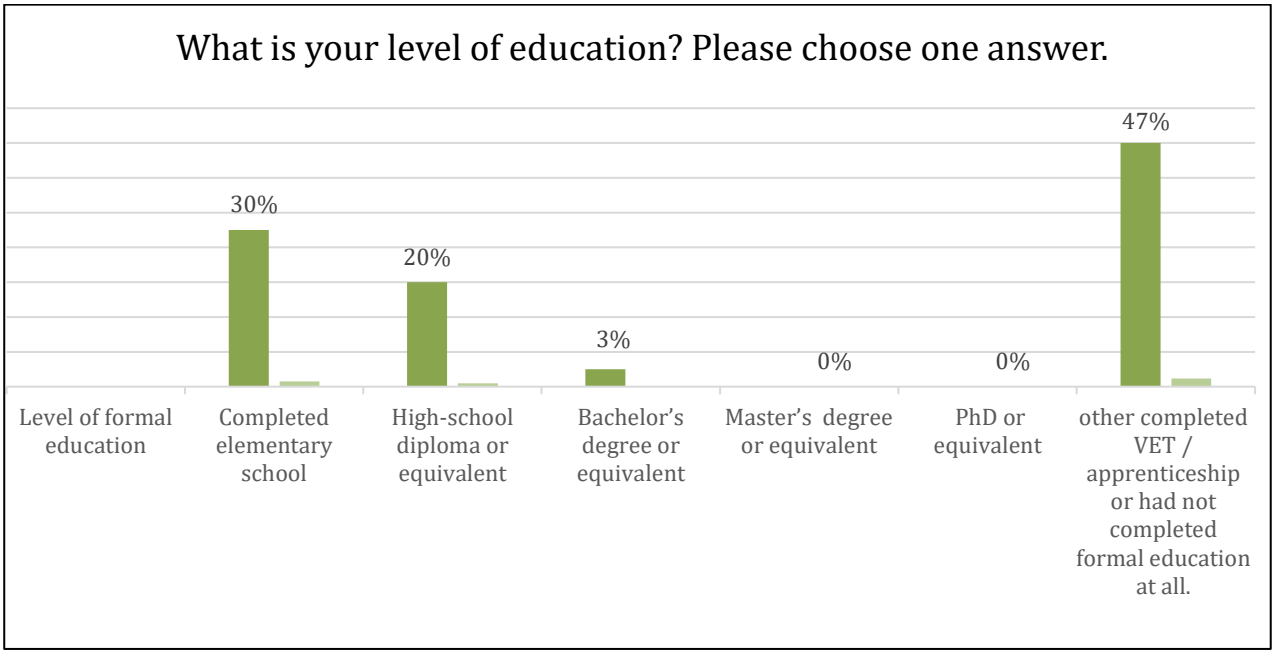
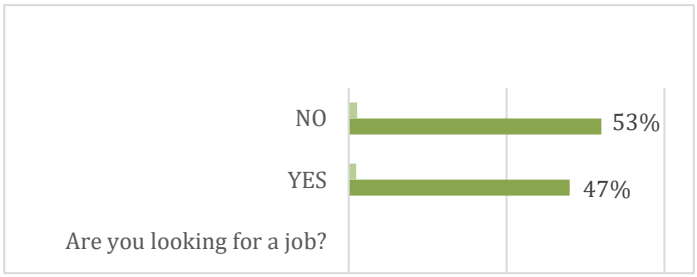
Equal number of male and female:





53% of participants are currently looking for employment. More than 30% said they didn't know which field is suitable for them:



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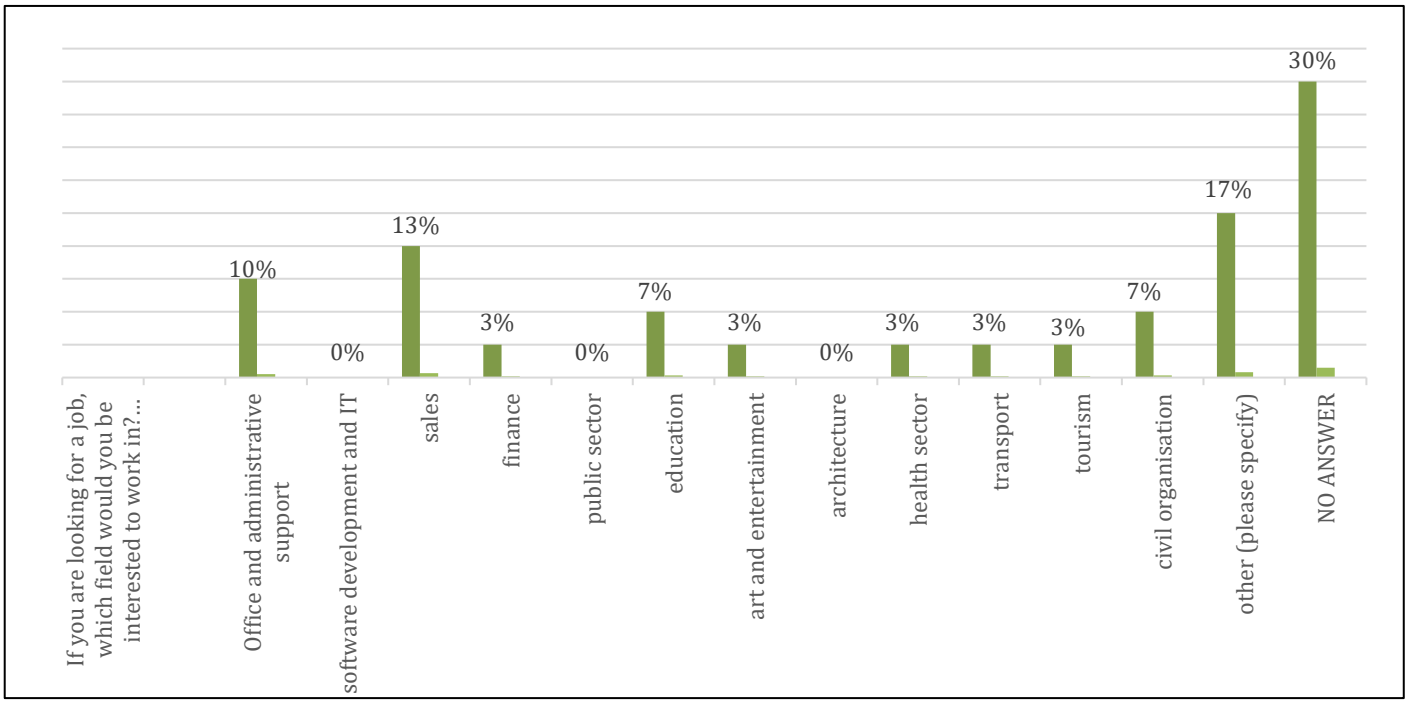
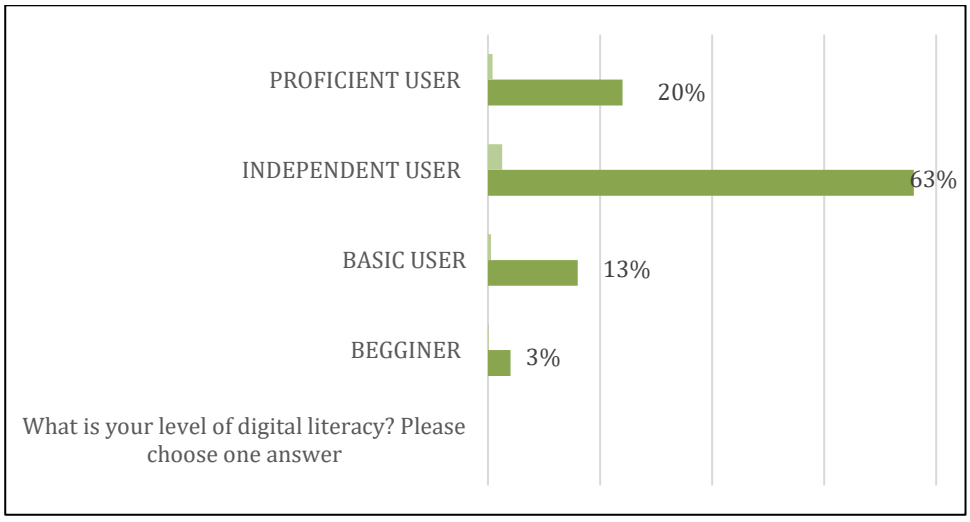


Good news regarding their level of computer literacy - 63% said that they are independent users:



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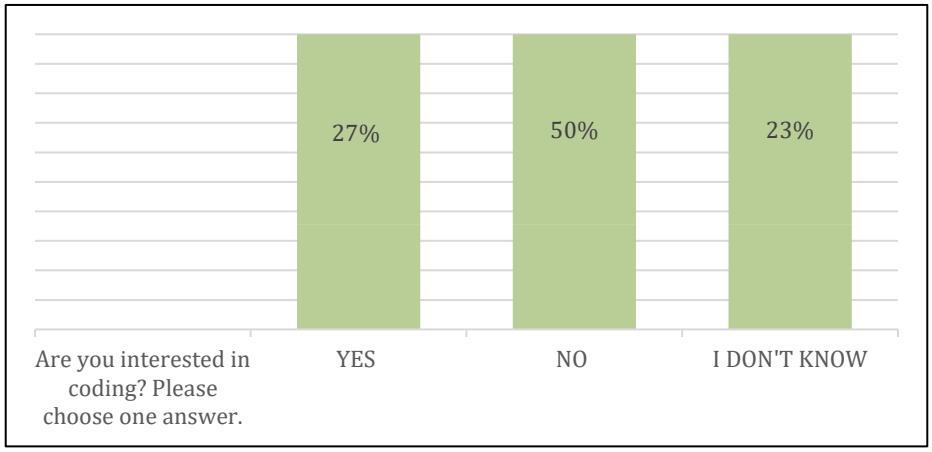
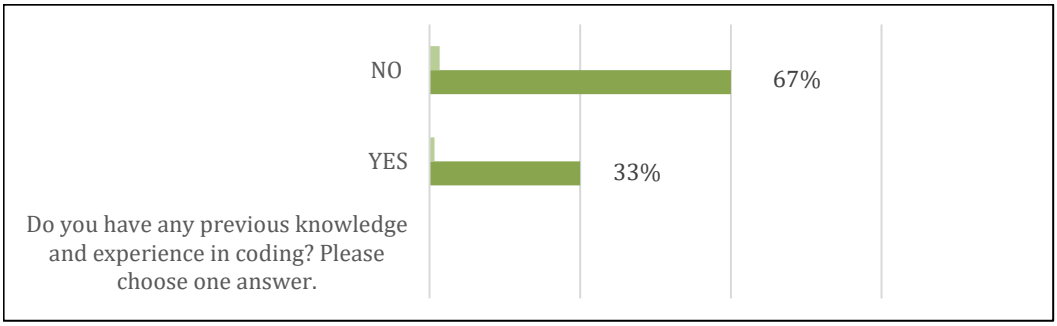
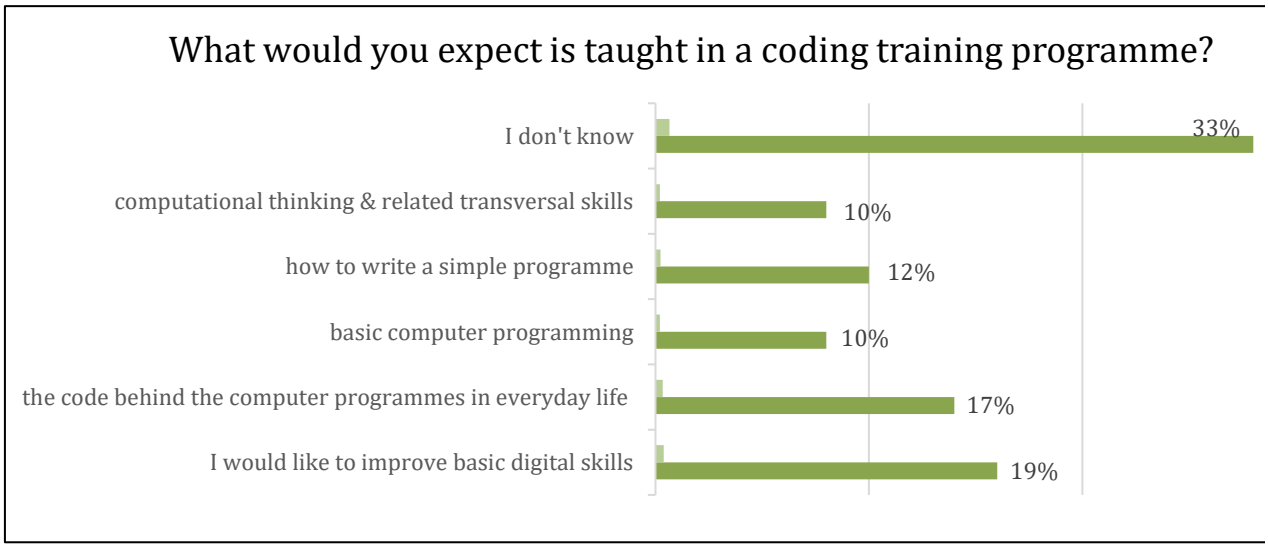
27% are interested in coding, 23% do not know, 50% said they were not interested. 67% said they had no previous experience of programming.





33% of the participants answered that they do not know what to expect from a coding course. 19% want to improve their digital skills and 39% want to learn about basic programming, how to write simple programmes and the coding behind the computer programme.



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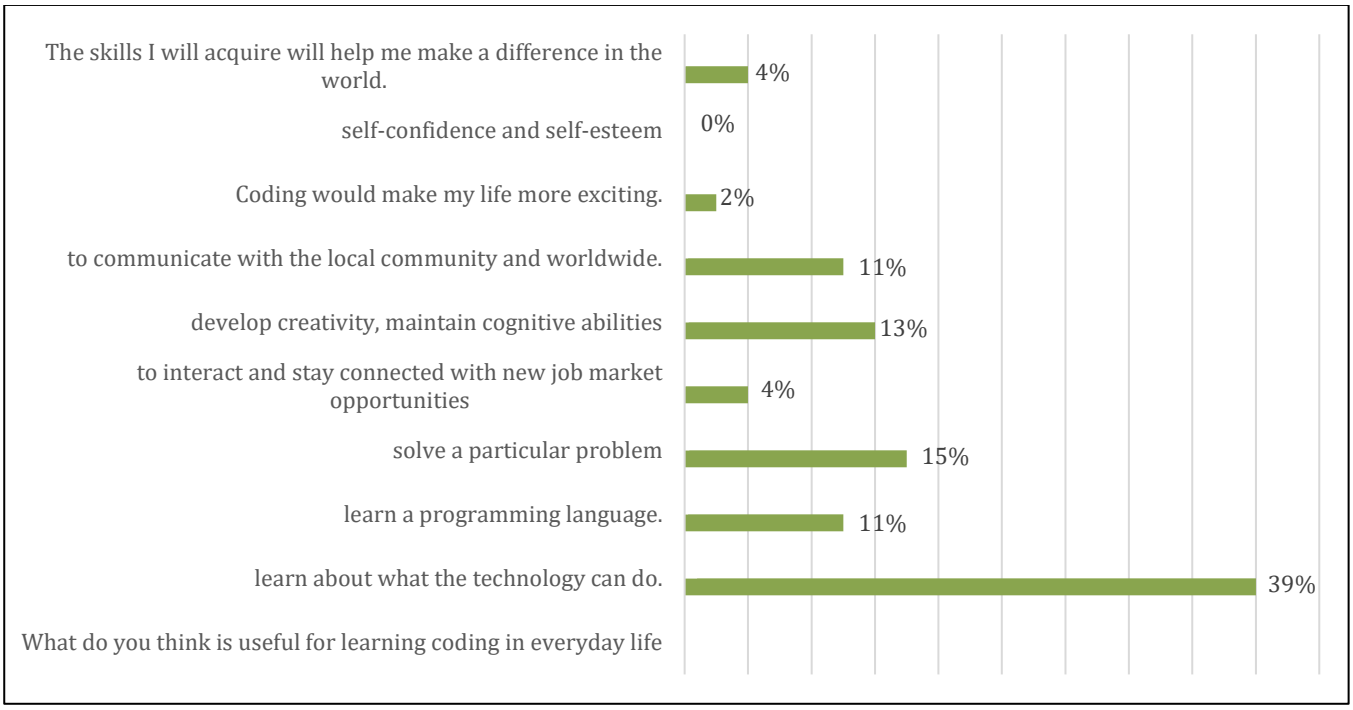
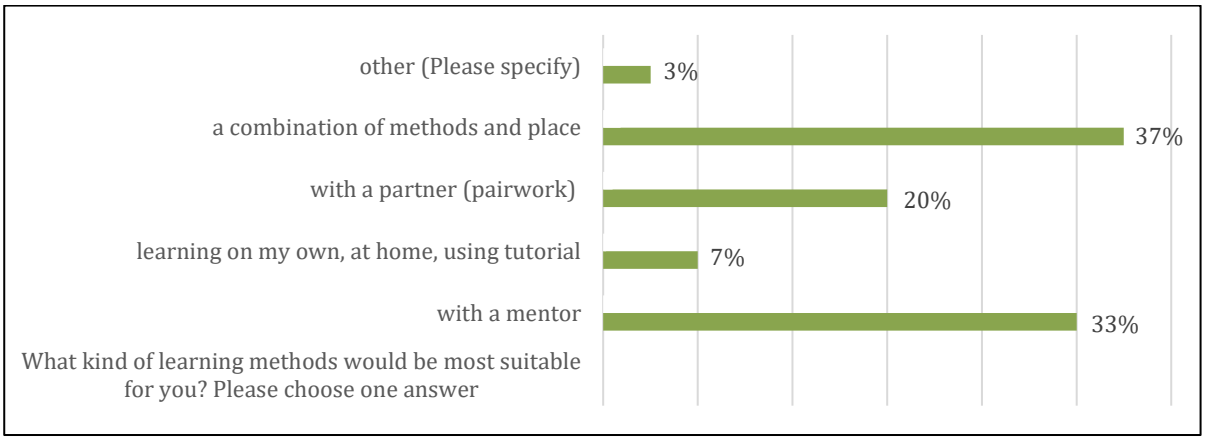
The participants agreed that coding could be useful in their everyday life even though only 50% would like to attend such a training activity.



Regarding the learning methods they prefer:



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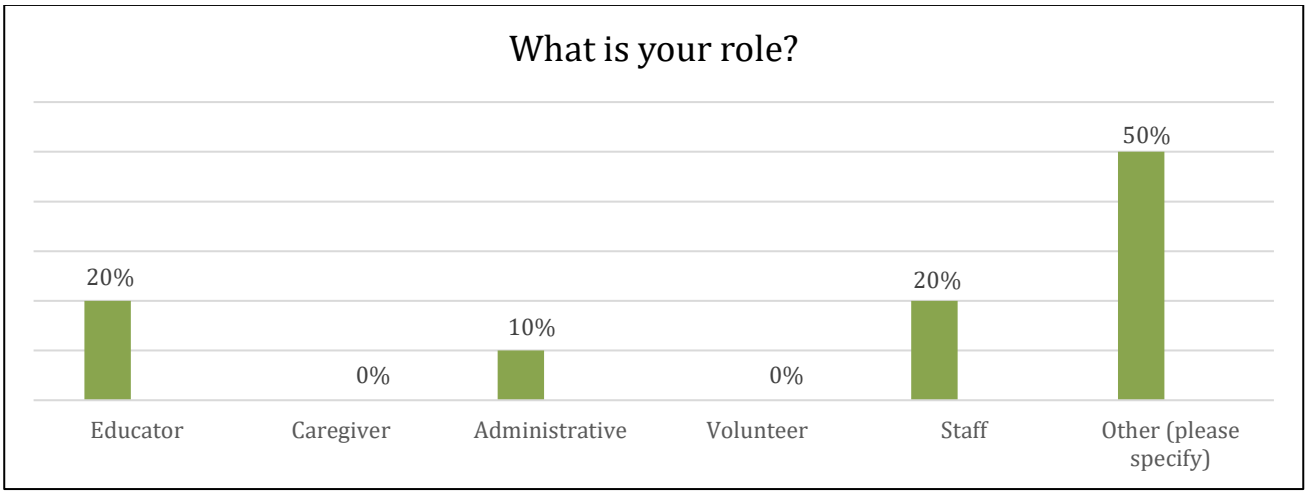
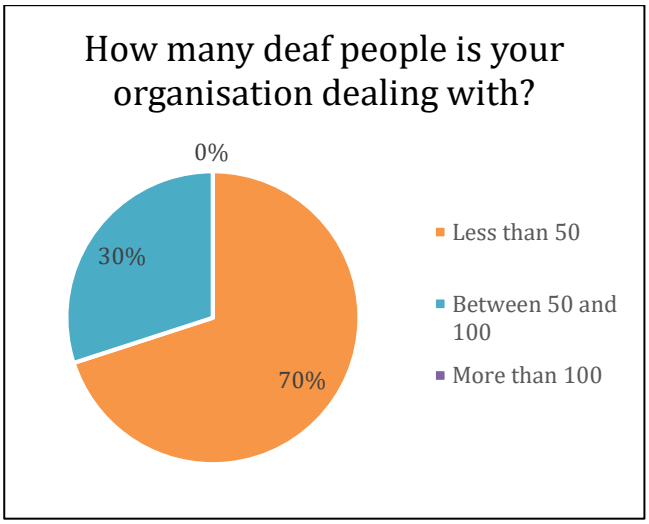
Regarding the data from the organisation survey - 10 organisations representing deaf and hard of hearing people took part in the survey so the sample size is 10 out of 10.



The other (f) answers include:
The secretary of the national deaf association (ÖGLB) who is also a private entrepreneur and holds voluntary posts in several Austrian Deaf organisations; the chairwoman of a regional deaf association; Interpreter; the others did not specify.



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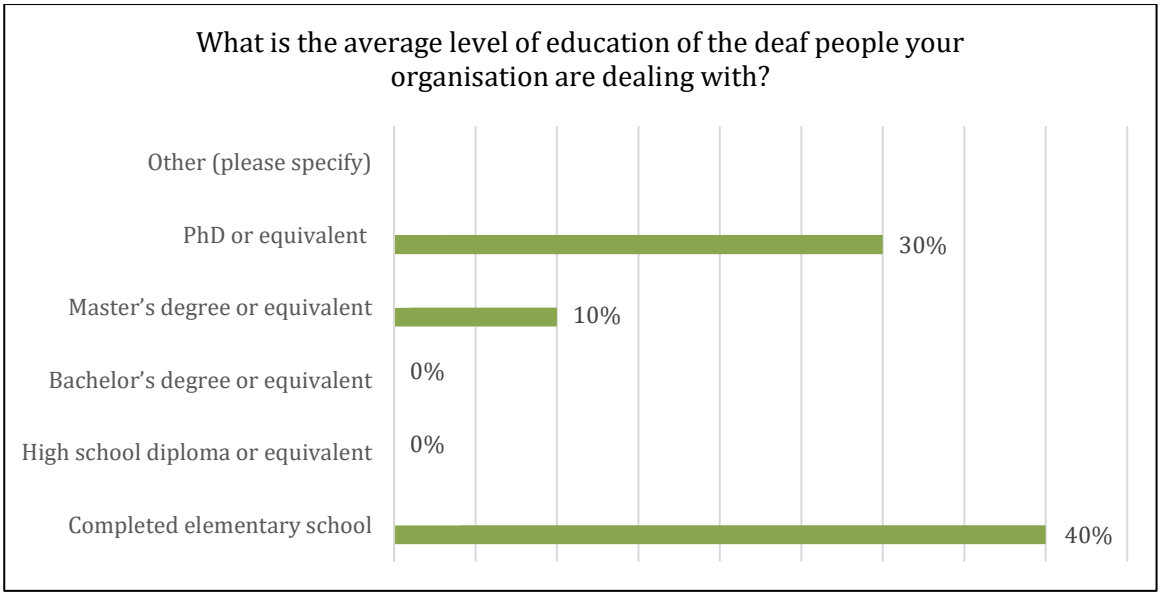
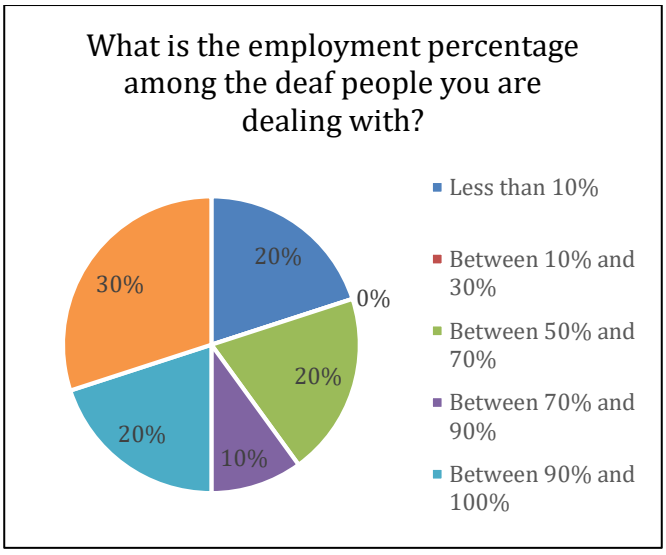


Additional comments:

There was a lot of criticism of the question about educational levels. It was felt by most respondents to be inappropriate to the target group. In Austria, many deaf and hard of hearing people do not even complete compulsory schooling. Our respondents commented that there were far too many questions relating to academic study (BA, MA and PhD) and too few (not enough differentiation) relating to vocational qualifications such as an apprenticeship or similar.



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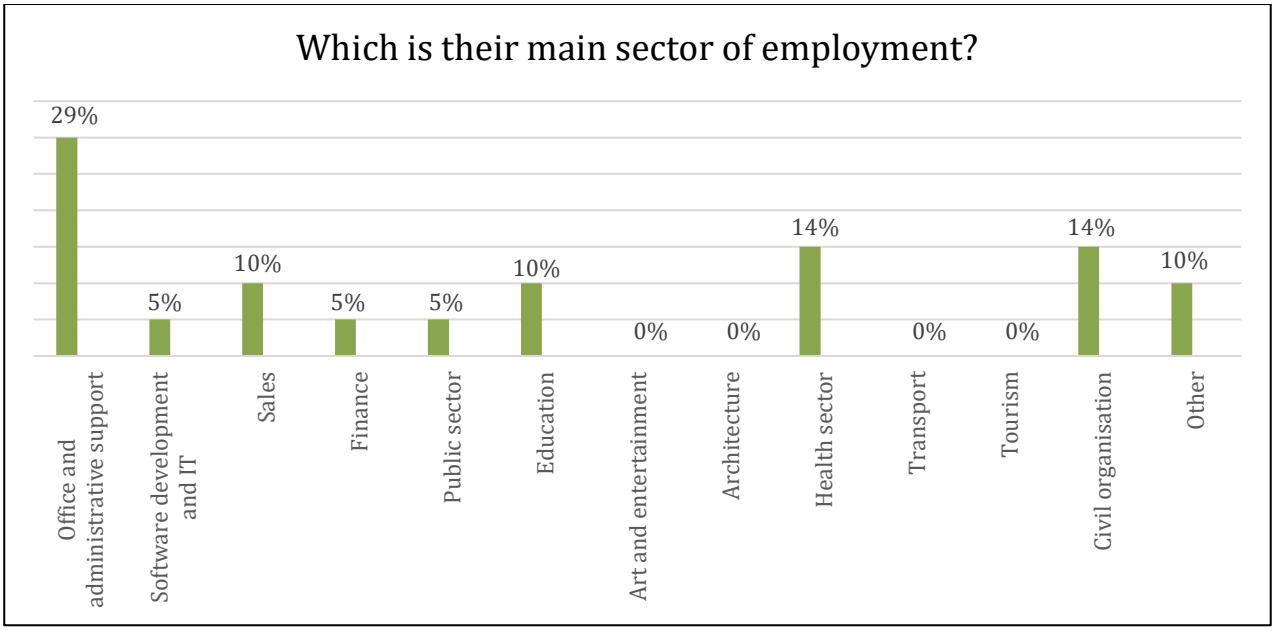

Additional comments:

Although two participants answered with m, only one specified – gardener

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5. Country Report - GREECE >>

The population of hearing impaired people is quite large and heterogeneous if one includes the percentage of people who lose their hearing in old age but also those who are born with hearing problems. The majority of deaf people (about 90%) come from listening parents (Labropoulou, Hatzikakou and Vlahou, The integration and participation of deaf and hard-hearing students in normal schools 2003).

For a number of reasons, the Greek State is not providing a curriculum for people with hearing problems. There are 2 special schools for students with hearing problems, one in Athens, the first in Greece since 1923, and one in Thessaloniki, since 1984 (Stagiopoulos, Aidona and Psifidis 2006). In these schools the inclusion and co-education model is applied. The students with hearing problems in other areas of Greece are mainly attending special schools. In those schools students follow the same Curriculum, the same lessons and are taught the same subjects as the corresponding classes with other schools, and at the same rate of teaching. So all those schools are following the official state Curriculum but usually they are missing specialized teachers in Informatics.

More than that, coding is only in Curriculum of the final grade of secondary education not as general knowledge but only as part of a specific specialization and even then students are learning only basic programming skills. The primary issue involved with the provision of educational services to deaf people is that communication often requires additional effort, knowledge, patience, and (where available) technological aids. Greek schools usually lack the specialized personnel and technological aids.

Other research has concluded that students with hearing disorders are experiencing intense discrimination because of the lack of specialized educators and infrastructures, especially when it comes to digital skills and competences and that leads them usually to unemployment and /or works with low income (Bouzaki and Seitanidou 2014).

The Institute of Educational Policy on 2014 suggested that the only digital skills that students with hearing problems get throughout secondary education are:

- Using www to search for portraits of great painters on the internet to get them use as inspiration for their own creations
- Use a digital camera (photograph their classmate and choose the download they want to perform portraits)
- Introduction to printing (Karapanagiotou and Hatzopoulou 2014)

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On the previous edition of the analytical Curriculum (Labropoulou, Analytical Curriculum for Deaf people 2004) there were more digital skills supported for people with hearing problems but there was no evidence that they were supported by Special Schools.

The most recent research points out that although people with hearing problems are keen users of internet, they lack basic digital skills, amongst them coding (Strouvali, 2016). The proposed solution to narrow that gap with people without hearing problems is the use of e-learning tools based on image and/or special applications that translate text to sign language. However, many research efforts and the constructive combination of image, video and text are needed.

Post-secondary education and vocational education also lack a national framework for people with hearing disabilities, so it is very hard for deaf students to study in Universities or Vocational Schools. The ministry of education statistics point out that in total almost 30% of deaf people graduating high school intend to find a job right after school, 20% are attending higher education, 10% to study at a Vocational Training center and almost 40% haven't decided about their future.

Greek origin deaf people enroll in Greek universities without examinations, but face enormous difficulties during their studies (Labropoulou, Hatzikakou, & Vlahou, The integration and participation of deaf and hard-hearing students in normal schools, 2003). These difficulties mainly stem from the indifference of Greek universities to provide supportive services to pupils with special needs. Of those students with hearing impairment who wish to continue their studies on higher education, only 20% showed a preference for an Informatics faculty.

Until recently there was no framework for deaf people attending Vocational Training Institutes. On 2014 was the first year of operation for public Vocational Training Institutes for Disabled People in Athens and Thessaloniki, although this did not go far enough. These public Vocational Training Institutes could be attended by people with vision and hearing problems and one of the predicted specialties was the IT Application Technician. The aim of the program is for people with disabilities who complete Special Needs Schools to be able to obtain for the first time in Greece additional skills and outlets to help them integrate more labour - intensive into the labour market. Graduates of these schools have not yet acquired professional rights.

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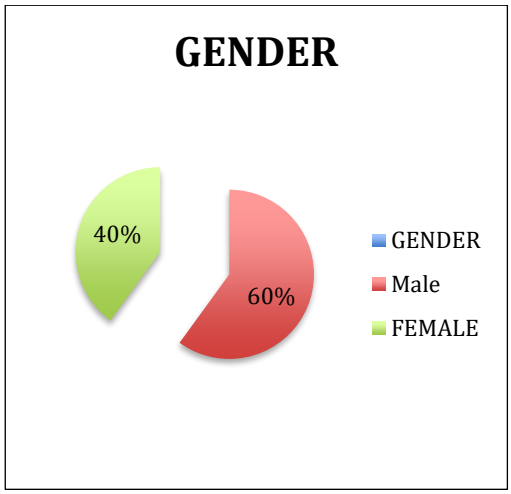
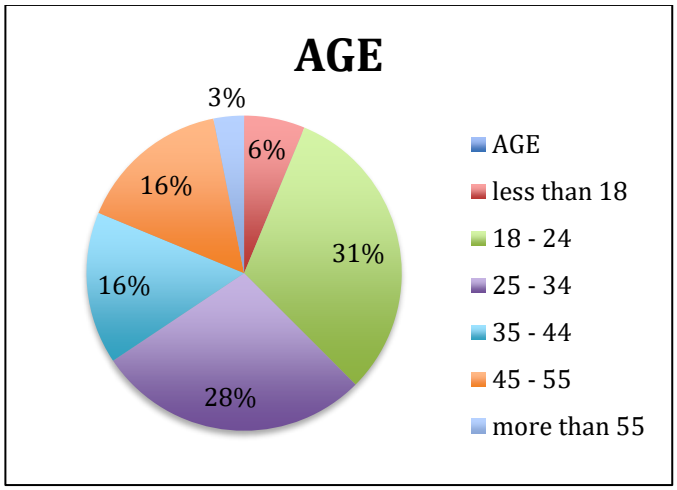
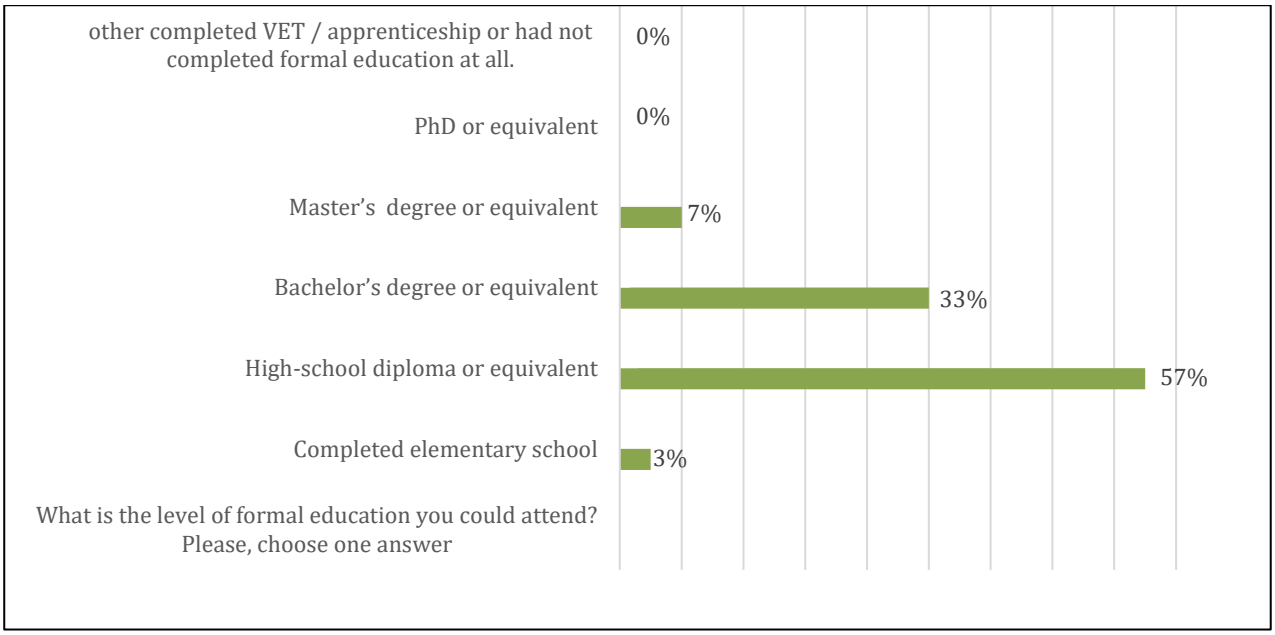
30 deaf and hard of hearing participants took part in the survey so the sample size is 30 out of 30







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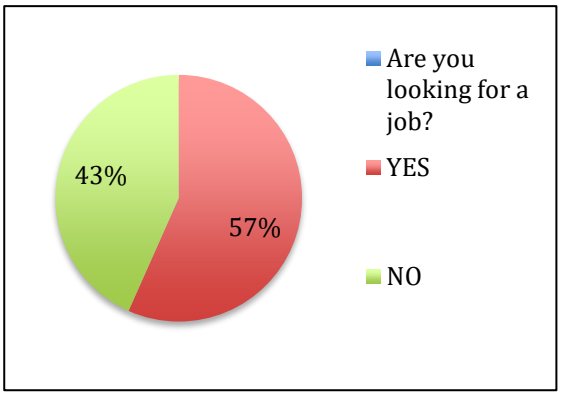
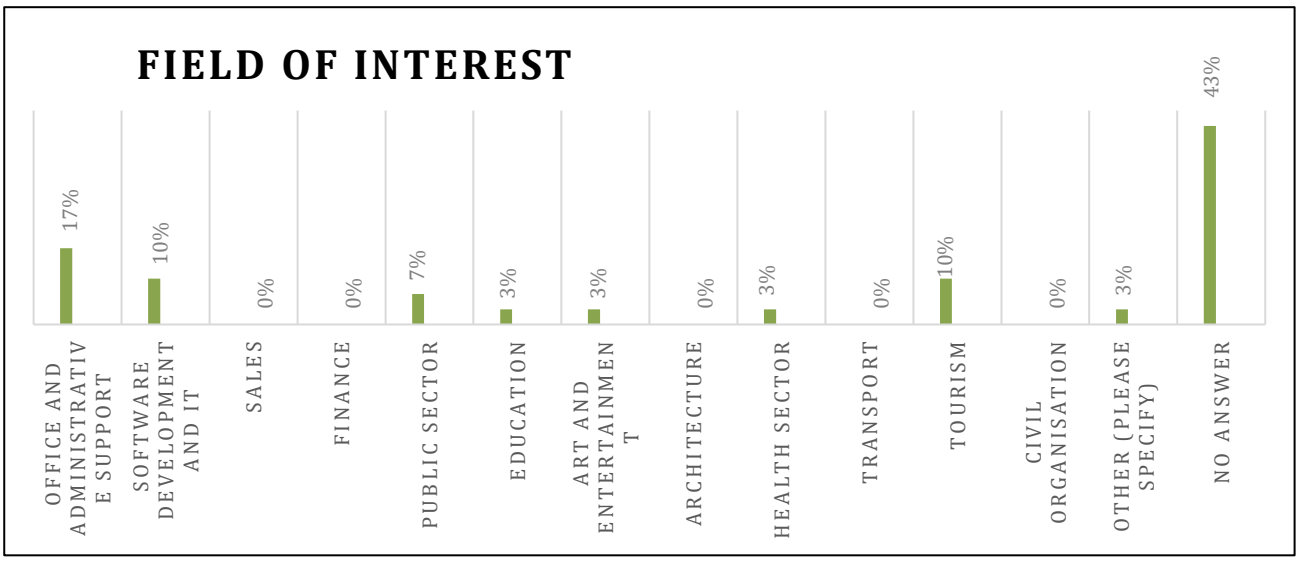
57% are looking for a possibility to be introduced on the labour market; but the majority don't know which field could be best for them.





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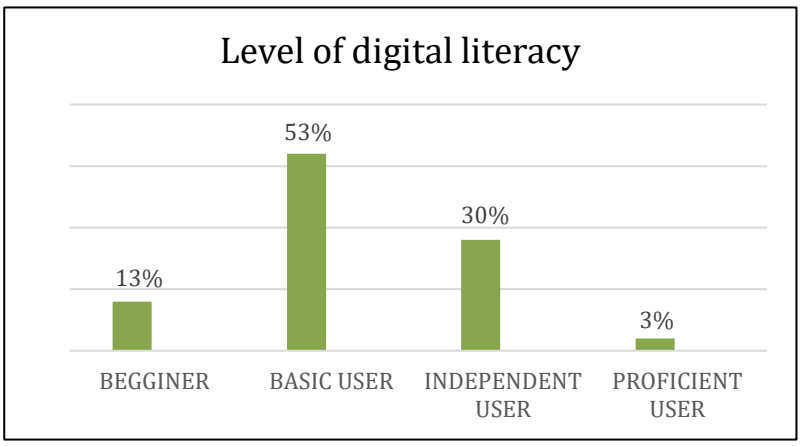
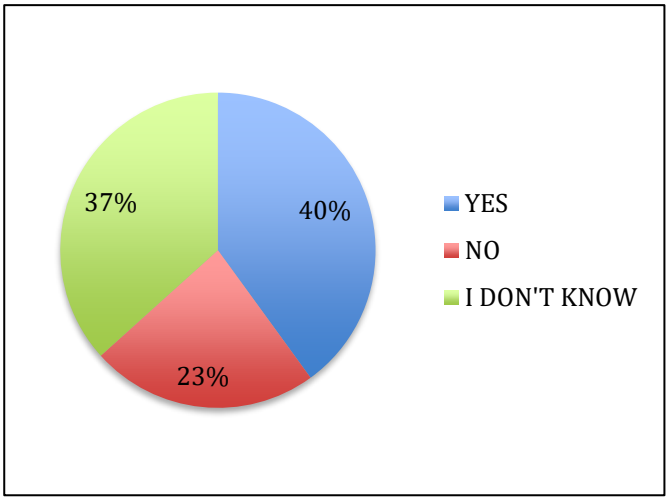
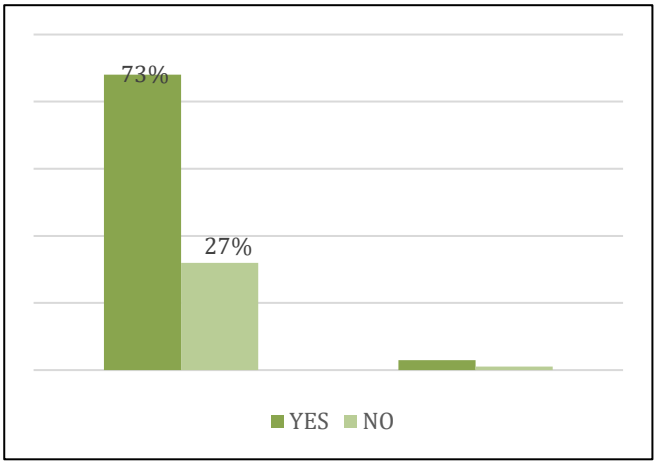
The situation regarding computer literacy in Greece is in the average with the European situation.



And the same for their interest in coding.



- It worth's to be noticed that the coding interest them for the next reason:
- 67% of them would like to improve their basic digital skills and
- 50% of them would like to learn the code behind the computer programmes in everyday life
- 40% would like to learn the bases computer programming or to learn to write a simple programme.
- Only 7% expect to Learn the code behind the computer programmes in everyday life



And that's the reason why the most of them are interested in attend a coding course **to learn about what the technology can do or to develop creativity, maintain cognitive abilities or just to learn a programming language or how to solve a particular problem**.

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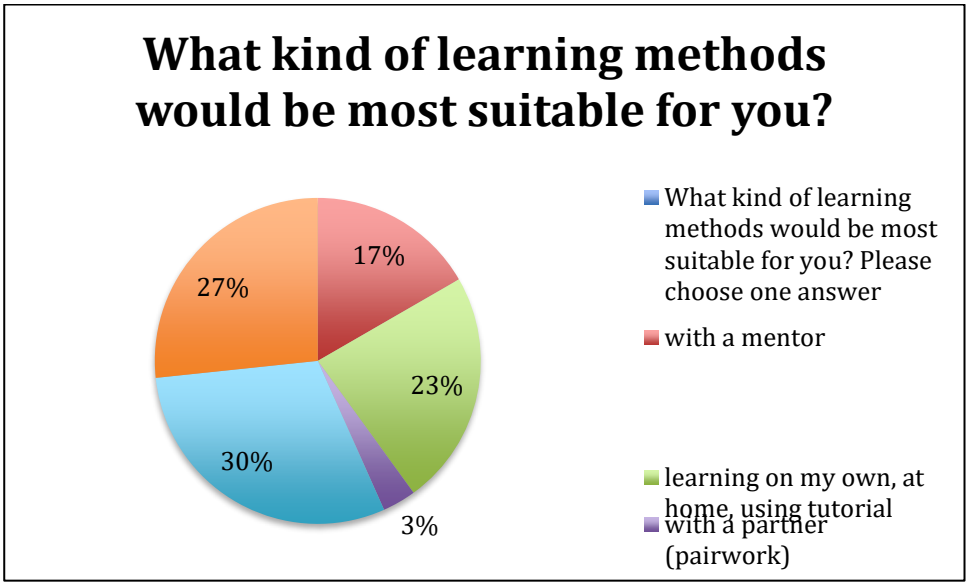

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6. Country Report - ITALY >> (Ergon, Dlearn)

About 8-10% or about 3.5 million Italians have some form of hearing loss. In 1985 Italy became member of the European Union of deaf (EU). Just over 40,800 of the profoundly deaf population has been deaf since birth. The prevalence rate of being born deaf was 0.72 per 1000 people. Overall prevalence of these numbers differ according to gender with the 0.78 per 1000 being male and 0.69 being female.
The majority of the deaf born population is in the southern regions of Italy.

Italy has long been a divided country with respect to its citizens' views on LIS (Lingua Italiana dei Segni - Italian Sign Language) and the education of Deaf people.

Italy is like an outdoor museum, steeped in ancient history and customs. The food and weather are excellent. Italy is a developed, first-world nation, but services for the deaf are lacking and there is widespread discrimination against this community. It is the last major Western European country (other than the tiny state of Luxembourg) to recognize Italian Sign Language or Lingua dei Segni Italiana (LIS). Many of the support services and education for the deaf are sorely lacking or underdeveloped in Italy.

Since 2008, the Italian Deaf Association (ENS) has been pushing for sign language recognition, and they have proposed a bill to that effect to the Italian parliament. The bill arrived to the Italian Senate, but in another arm of the legislative government, the wording was changed from "Italian Sign Language" to a sub set of "Languages of Mimes and Gestures."

The inclusion of deaf people in the Italian society seems to be forced and not natural, because it obligates the society to make compromises due to the lack of resources.
There were 14 Deaf schools established in the 1800 and today at least three Deaf secondary schools in the country, Rome, Turin and Padua. There are at least 5 elementary schools with Deaf programs scattered in the country with many private mainstreamed day classes in religious schools. Italian Sign Language. Italian Sign Language or LIS (Lingua dei Segni Italiana) is the visual language used by deaf people in Italy. According to the European Union for the Deaf, the majority of the 60,000–90,000 Deaf people in Italy use LIS.

ISTITUTO Sordi di Torino - ERGON

The origin of the Institute dates back to 1814, when the king of the noble House of Savoy established a no-profit foundation to offer basic care and services for deaf people, making no distinction of age, sex, religion or ethnicity.

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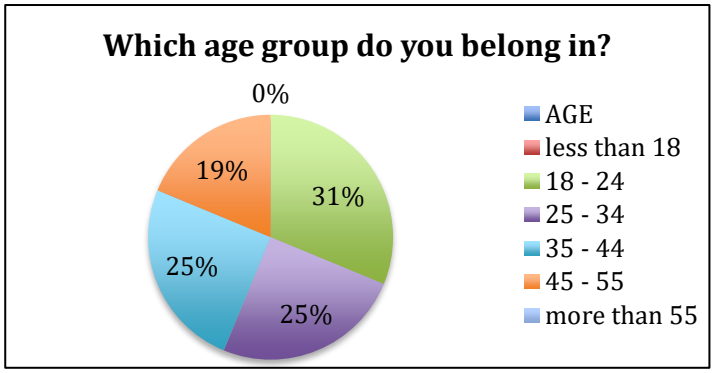
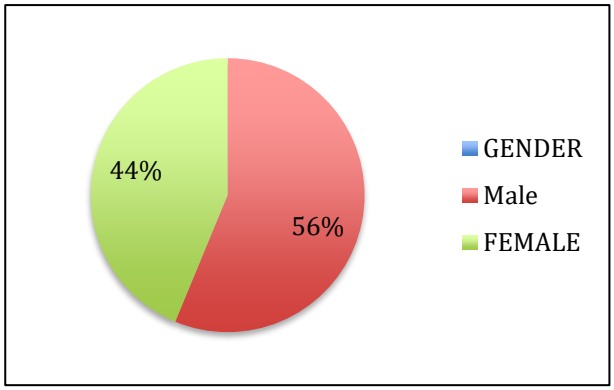
The core of the Institute's activity has always relied in Education, particularly developing ad-hoc learning programmes for deaf and hard-of-hearing students, while at the same time training teachers to deal with this kind of disabilities in their classrooms. Today, the range of services provided includes: educational assistance for other schools where deaf children are enrolled, vocational training for young deaf people, Italian and foreign sign language classes, social housing and a specialized library. In addition, strategic collaborations with the administrators of local cultural heritage enhance the accessibility of cultural venues in the North of Italy.

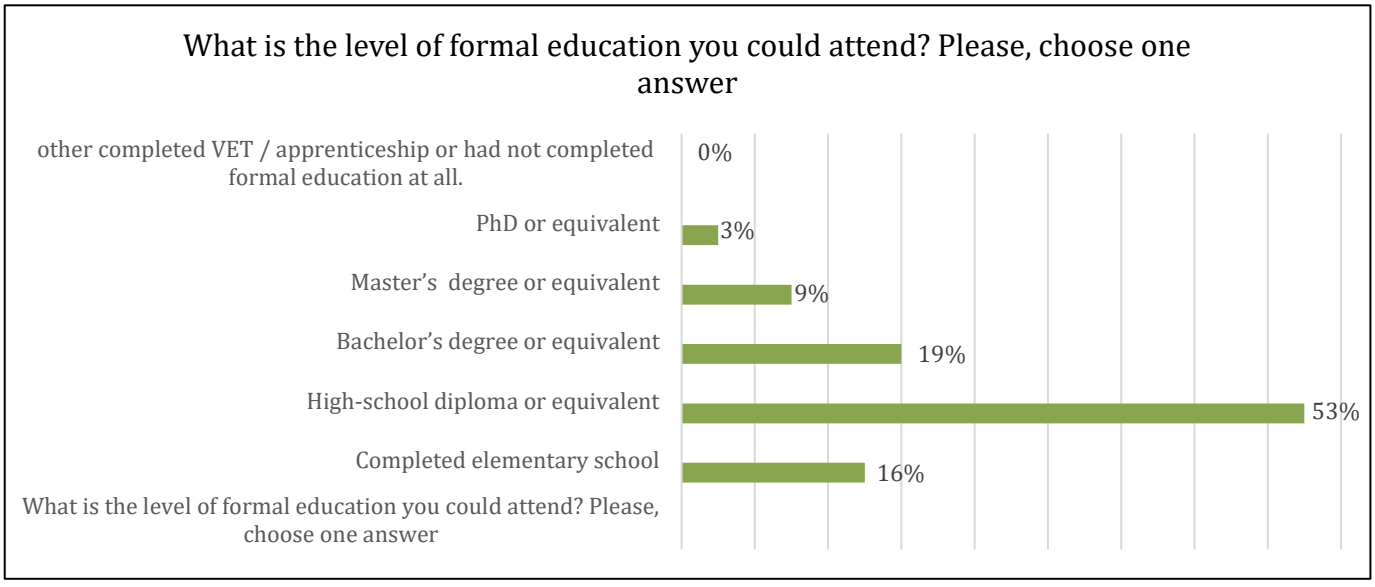
The digitalisation of our society is meant to be a truly democratic process, which is called to help and foster the participation of particularly disadvantaged groups. The sector of ICT solutions for deaf people has certainly made considerable progress in the last years, but there is still a long way to go to keep pace with technological changes.

Survey report: ITALY

32 deaf and hard of hearing participants took part in the survey so the sample size is 32 out of 32







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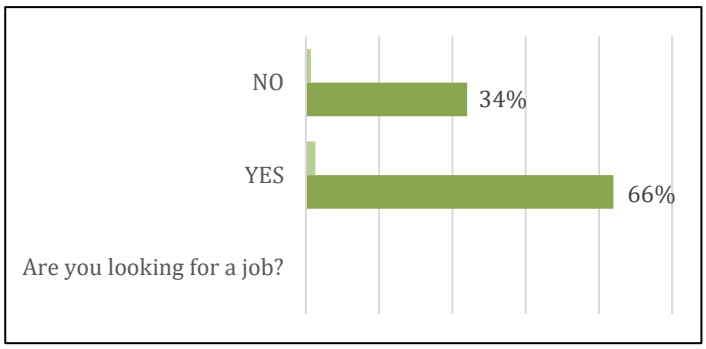
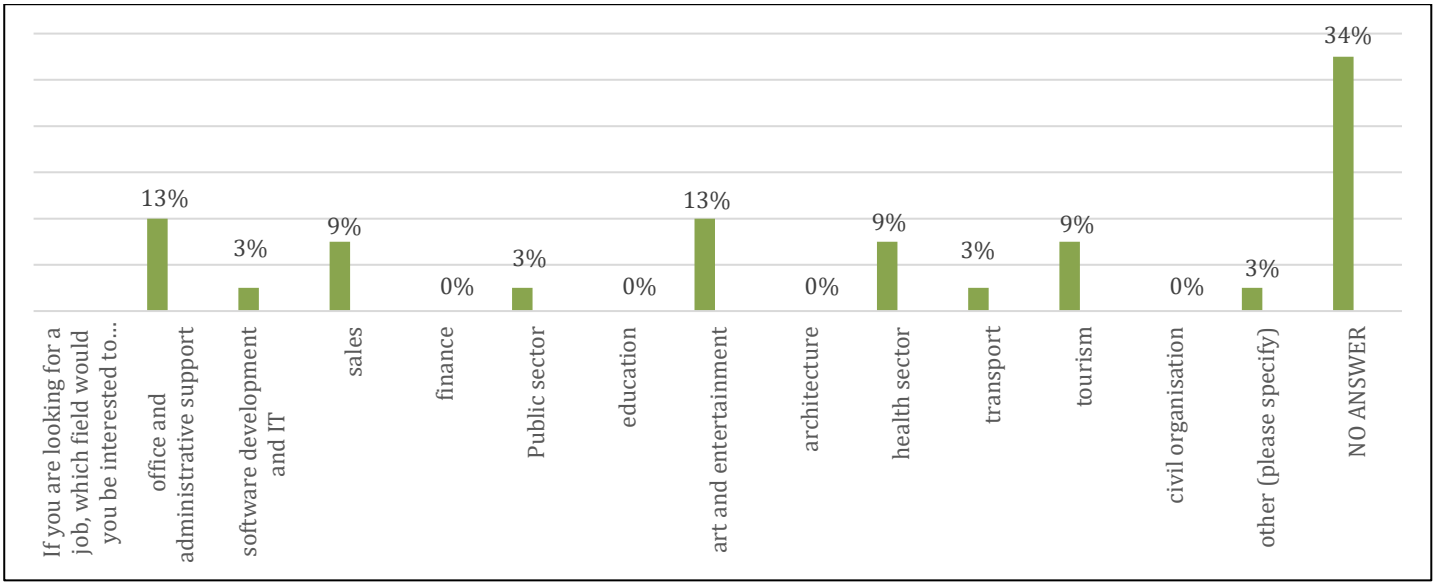
66% (21 from 32) are currently looking for a job.



To the question "In which field would you be interested to work in?" no sector was predominant:



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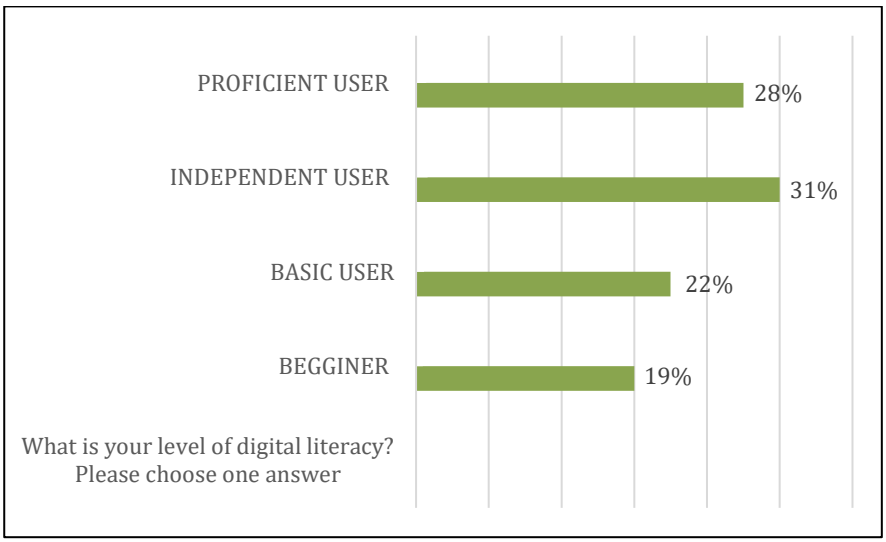
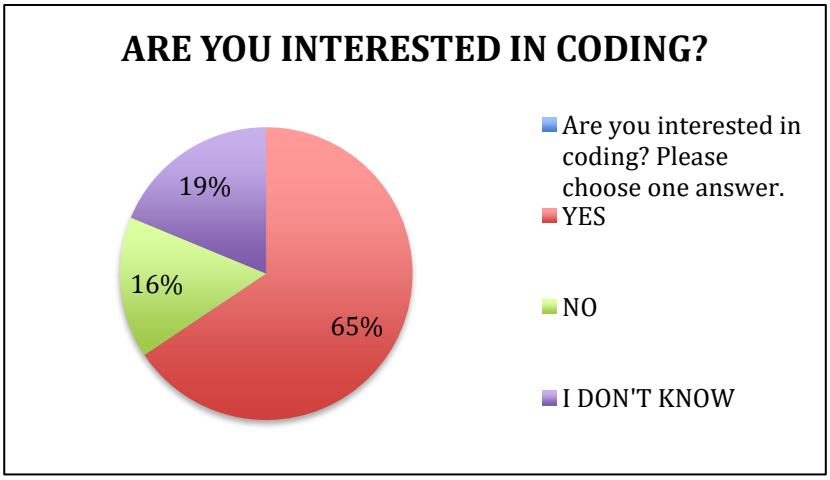
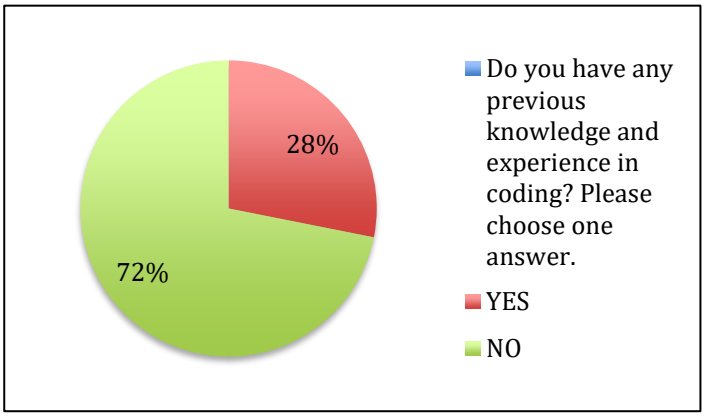
In Italy, more than half of the deaf people consider to be at least an independent user in computer literacy. The situation is quite contradictory given the fact that in Italy only 21% of people between 16 and 65 has a good level of computer literacy and good calculation capacities (that means that they have obtained at least 3 points during the digital literacy test according to the PIAAC method). Is the third worse result from the examined countries according to OCSE).





65% of those interviewed express and interest in coding. Only 16% declare that they don't have any interest. But only 28% (9 people) have some experience in coding activities.



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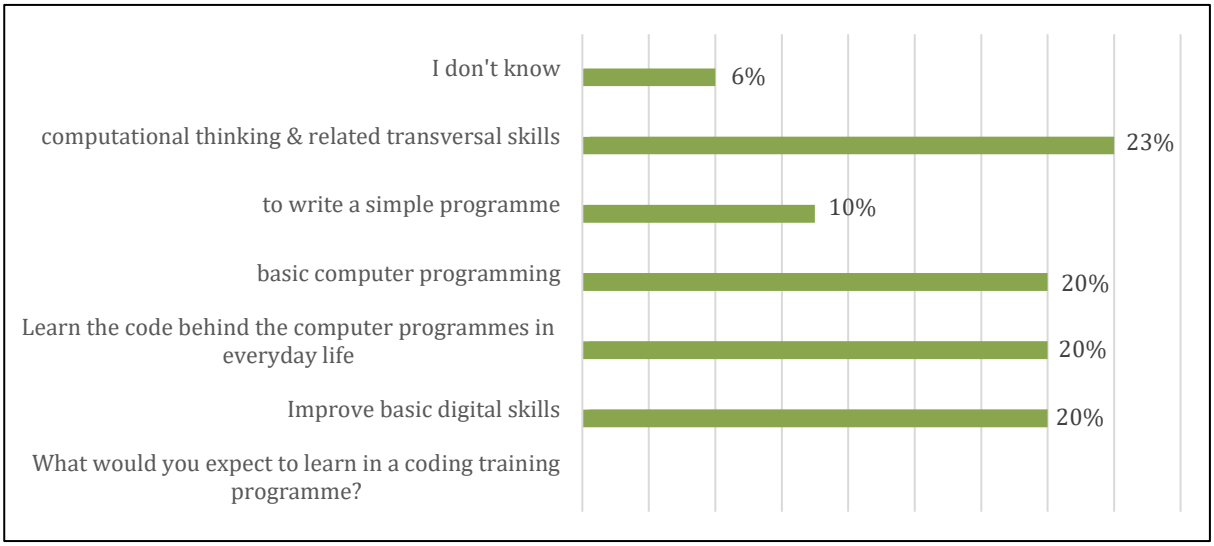

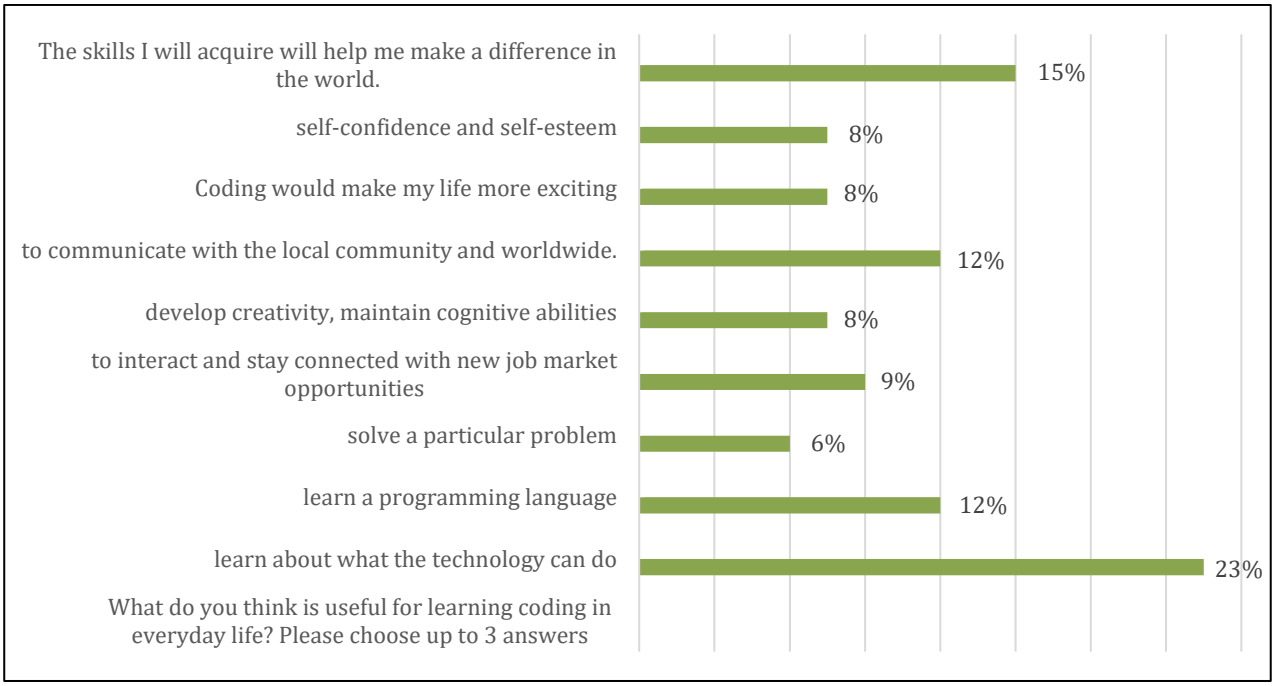

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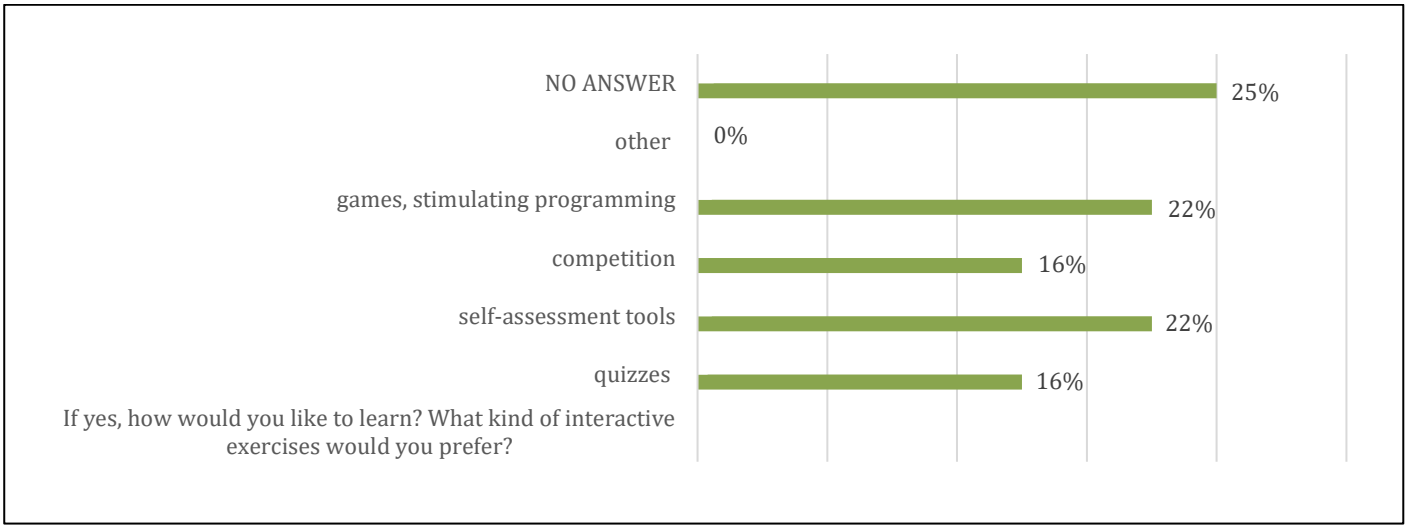

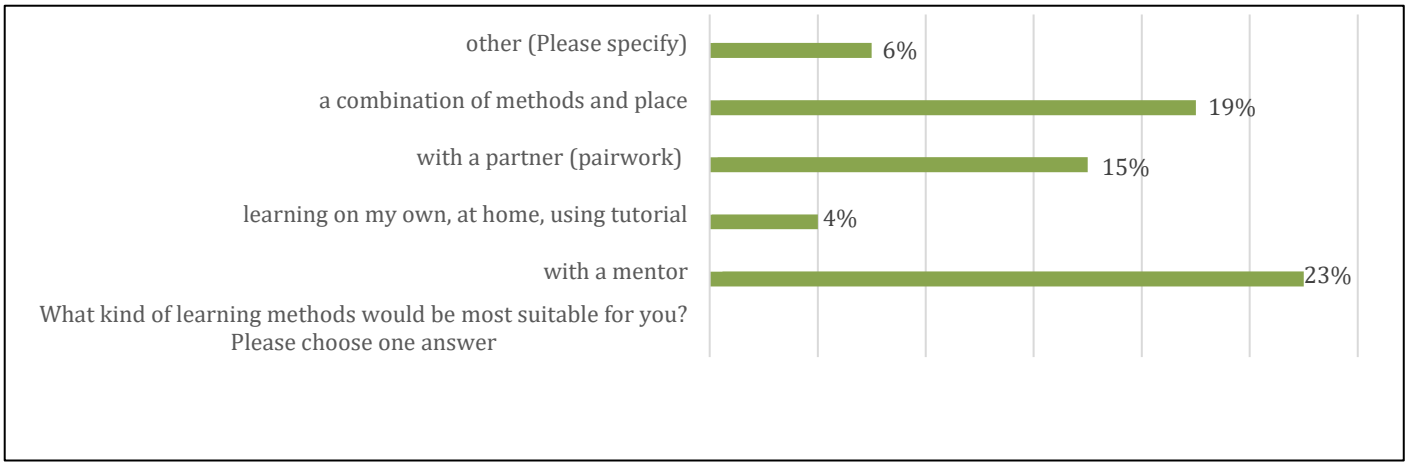

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7. Country Report - SPAIN >>

Deaf people are those with hearing loss who find communication barriers in their everyday life (a limiting environment). These barriers often make difficult or impede the development of their capacities and their equal participation in society.

Deafness has traditionally only been analysed from a pathological point of view, considering the condition as the only factor that determined everything that a deaf person is and needs. But limiting one's understanding only to its sensorial aspect is ignoring a reality, and it has caused, and still causes, social, cultural and work exclusion for deaf people.

Deaf people are a lot more than just hearing loss, they are people who, with more or less hearing loss, have the same capacities and rights as other citizens, but have to deal with barriers that impede their full citizenship daily.

Throughout history and around the world, deaf people have naturally developed sign languages, a creative alternative to a sensory limitation. That has created certain cultural and linguistic values associated to the sign language of each country. For a great number of deaf people sign language is their mother tongue, placing the oral and written language as a second language.

In Spain, sign language has been discriminated against for many years, forbidden in the classrooms. Most deaf people attended schools where sign language was forbidden, and only acquired that communication tool much later, which affected their personal development and social participation.

The European Council, on the 1st of April 2003, urged its member states to recognize sign language officially as the main tool towards the complete social integration of European deaf people. Currently, the European countries that have recognized their respective sign languages are: Finland, Denmark, Sweden, United Kingdom, Northern Ireland, Germany, Portugal and Spain, where the demands of the CNSE were finally acknowledged with the approval of the Law 27/2007, by which Spanish sign languages are recognized and the means of support for oral communication for the deaf, hearing impaired and deaf-blind are regulated. The Centre for Linguistic Normalization of Spanish Sign Language (CNLSE) was founded on the 21st of December 2010, in compliance with the Law 27/2007, according to which the Spanish sign languages are recognized and the means of support for oral communication for the deaf, hearing impaired and deaf-blind are regulated. The CNLSE is public and it is a part of the Royal Board of Disability.

Its goal is to work on the normalization of Spanish sign language, providing a space for reference and diffusion that ensures its proper use and contributes to guaranteeing the rights of the people who use this language, as well as promoting research in the area.

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In Spain, the percentage of registered disabled people from the age of 6 has decreased 0,5% during the last decennium. According to the provisional results of the Survey of Disabilities, Personal Autonomy and situations of Dependency (EDAD) of 2015, the percentage decreased from 9% to 8.5%.

However, this decrease is misleading. If we include the growth of the total population, we will get another picture; the total population in Spain increased from 40 millions to 46 and respectively the number of registered disabled people increased as well, from 3.528.220 to 3.847.900 (Instituto Nacional de Estadística). In other words, the growth of the population is a parameter for the decrease of the percentage from 9 to 8.5% but this doesn't explain the increase in numbers. To understand the growth of the number of registered people we have to take into account the retirement of a big part of the population (14.4%) older than 65 years, which led to more aid requests for disabilities and other limitations during the last decennium.

In addition, the promotion of a better life quality through the improvement of the social and health policy had an impact as well, not only as prevention but also in the provision of aid to those who suffer from diverse disabilities[3].

Within these, 3.847.900 registered cases of disability above the age of 6, over 900.000 concern hearing impairments. What has been said about the improvements of the social and health policy goes as well for hearing impairments; the important role played by the prevention of auditory disabilities, especially in the period of maternal gestation and infancy, together with progress in health care have considerably reduced the number of deaf in Spain.

EDUCATION for deaf people in Spain

It's important to underline that Spain has its own pioneer in the education of deaf people. In the 16th century Pedro Ponce de León (1509-1584), a Benedictine friar, took charge of the education of the deaf-born sons of the Condestable of Castilla. In the documents, his method for teaching the oral language to deaf pupils kept being used in the Monastery of Oña in Burgos, (the original documents were lost in a fire at the Ponce de León´s monastery in the 17th century). However, the education of the deaf, as the education of the hearing, was the privilege of a few, especially the aristocracy. In due time, the teaching method of Ponce de León, was for different reasons no longer used.

The foundation of the first public special schools for the deaf began at the end of the 18th century. Thereafter more schools were established; all followed the educational models used in other European countries, in particular France.

However, after the congress of Milan in 1880, "oralism", i.e. teaching the oral Spanish language to the deaf, became practice during the rest the 19th and the major part of the 20th century. At the moment Spain introduced a compulsory basic education system, the education of the deaf,

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although implemented in specific centres for the hearing-impaired until the 80's of the 20th century, became compulsory and free of charge.

During the 70s of the 20th century when social, political, economical changes took place in Europe and beyond, traditional intervention models for pupils with disabilities were discussed and revised. Based on ideas of normalization and integration, new intervention policies were proposed.

Although sufficient educational material and professionals were available, the results of segregated special education were not evaluated as positive. The oral linguistic competence of the deaf student was, in general, low. Together with the poor academic results (the majority of the deaf students didn't reach the elementary levels) and the difficulties to integrate into ordinary life when finishing school, doubts rose to continue with segregated special education. A reorganization of the school system, the programs and educational intervention were proposed.

Simultaneously, an important reform of the regular education system was discussed in the 1980's, which culminated in the old General Education Act15. The Education Act supports the school integration of students with disabilities, who will be taught at regular centers, receiving the support of specialist professionals.

It's a political organizational decision, aimed at concentrating the technical resources, the material means and the necessary professionals to support the educational needs. The former schools for the deaf were closed or reconverted in resource centers to support the integration, or in regular school centers.

Before we finish the developments leading to the institutionalization of bilingual education in Spain, now we will turn to the implemented policy regarding the assessing deafness at the earliest stage and the range of intervention possibilities offered.

BILINGUALISM: DEAF EDUCATION AND EDUCATIONAL SUPPORT

In the recent Education Act, rules are formulated for the education of deaf students in the Spanish mainstream or regular education system. Unless deaf students have other impairments that require the intervention in centres or education in specific classes, every deaf student needs to follow the common educational trajectory.

According to Instituto Nacional de Estadística 17.305 students with hearing impairments attended regular school centres while 799 attended classes at the Specific centres for Special Education. Concerning the teaching orientation, the predominant "oralism" has given way to the bilingualism, which means parallel teaching of the sign language and oral language. Through bilingualism the development of, especially, the written language was stimulated.

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With some adaptations and support from specialists such as language teachers, sign language interpreters and other support teachers, the deaf student follows the mainstream curriculum.
According to the legal guidelines, each educational centre needs to set up an organization for the support of individual identified needs with the available resources present. In every school great efforts are made to conjugate schedules, types of curricular materials and the envisaged support needed by each student in order to organize the intervention policy as beneficial as possible for each case.

The provision of language support and adjusted curricular materials mainly take place during normal school hours. However, in some cases, the support is given after regular school hours at the school or outside the school during activities organized by the different associations. Although these activities may be of great value to the educational development of the child, its regulation and control are not part of the educational administration's policy.

The coordination of the support given by each professional or specialist is very important with respect to the intervention in the development of deaf students and children with special educational needs. Not only it is necessary to plan carefully decisions about the procedures, curricular adaptations, handed out educational materials and other support, but also to document these decisions and to assess periodically the implementation and its effectiveness.

The way these tasks have to be organized and implemented within the school centers are clearly described in legal guidelines. In addition, the complete procedure has to be justified in the plans that each educational centre in Spain has to submit to the public administration every year (In particular, the Annual Plan of the Centre and the Guidance and Support Plan). At the end of each year an evaluation report is required as well.

On the level of each individual student, regulations prescribe to document the student's Individualized Curricular Adaptation. It includes the results of the initial psycho-educational assessment, the modification of goals, contents, methods, activities, and materials in each curricular area, the organizational aspects of the support provided and an assessment of the teachers who worked with the individual student. The Individualized Curricular Adaptation contains also an evaluation about the specialized support, revisions made in comparison to the original plan and previsions for the near future.

Reviewing intervention measures and writing plans is a joint responsibility of all professionals who take part in the support given to each student. Based on these reviews and plans parents have to be informed of the educational interventions that their children receive. The director of the school must ensure that this process is adequately conducted and that the parents are informed. Finally, the inspector of the district as legal representative of the public administration controls the implementation of the prescribed regulations and will approve or disapprove accordingly.

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The parents are the legal representatives of the students; as such, they have rights and also obligations in the educational intervention. The school is obliged to inform them about any problem detected and any kind of extraordinary intervention. The parents have to be informed if a diagnostic exploration is planned or if the child will receive special attention or is going to attend support classes in a special classroom. Also, when the child will receive an adapted educational program or support from a specialist the school has to contact them immediately.

The school is not allowed to act if the parents are not previously informed and no consent has been given.

If the parents don't agree with the intervention proposed in the school centre, they can present their complaint to the district educational inspector. The inspector s
hould mediate the dispute and if it is not possible should look for a solution in another centre.
In addition to these parental rights, parents also have some obligations. First of all, they have to be collaborative and maintain the communication with the teachers. It is also expected that they are present in meetings, interviews and tutorial sessions and when they receive educational guidelines for support at home, they will put them into practice. As mentioned above, the content of the Individualized Curricular Adaptation has to be brought to the attention of parents in order to guarantee the best possible implementation not only at school but also at home.

It is important to state that the lack of agreement between school and parents is something rather exceptional. Generally the parents agree with the educational intervention and actively collaborate with the teachers in the education of their children. Nevertheless, it's important to acknowledge that, frequently, the professional support provided is rather insufficient due to the lack of resources in the school centers.

FINAL REMARKS

Although the amount of bilingual and bicultural experiences in education is increasing, you might say that the Spanish road to bilingual education is still a rather new one. In Cordoba it started to provide bilingual and bicultural facilities in order to enable the learning of deaf culture.

It's very important to have an adequate school context that improves the learning options of the deaf as well as hearing pupils. Active participation is a requirement for each culture, thus also for deaf culture. Deaf culture cannot be solely reducible to language; it's a notion that points to the comprehension of deaf people´s practices. The pupils in these contexts have the opportunity to experience the connection between language and culture. Although exclusion practices are still visible in the hearing as well as the deaf community, the focus on inclusion is becoming more accepted within society. Cultural diversity in society resulting from religion, language, race, nationality offers the possibility to create a multicultural melting pot in which the identity and expression of each group should be promoted and reinforced. But this is a complex assignment,

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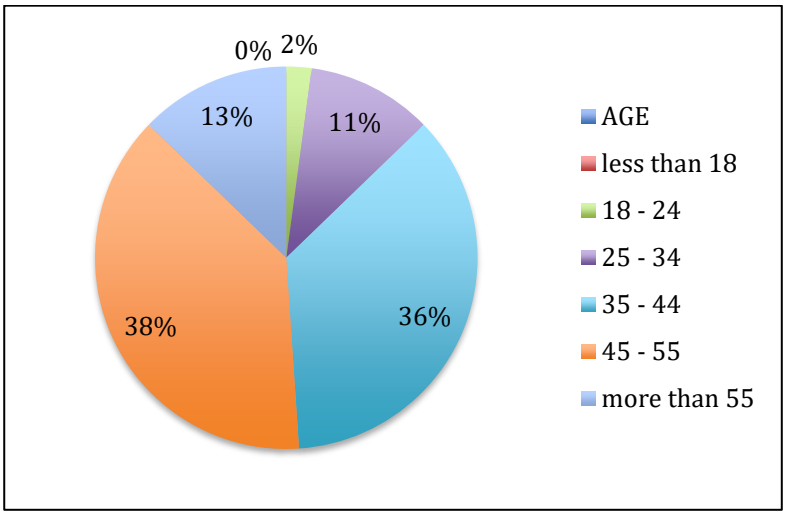
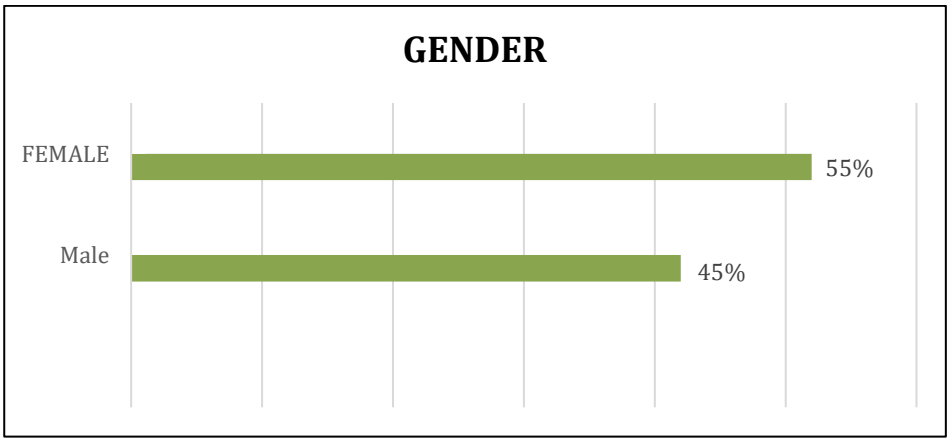
which demands our flexibility. Only, if education is able to change human beings cultural malleability, an adequate shaping of the present and future society is possible.

In Spain 47 people answered the survey together with 10 organisations.





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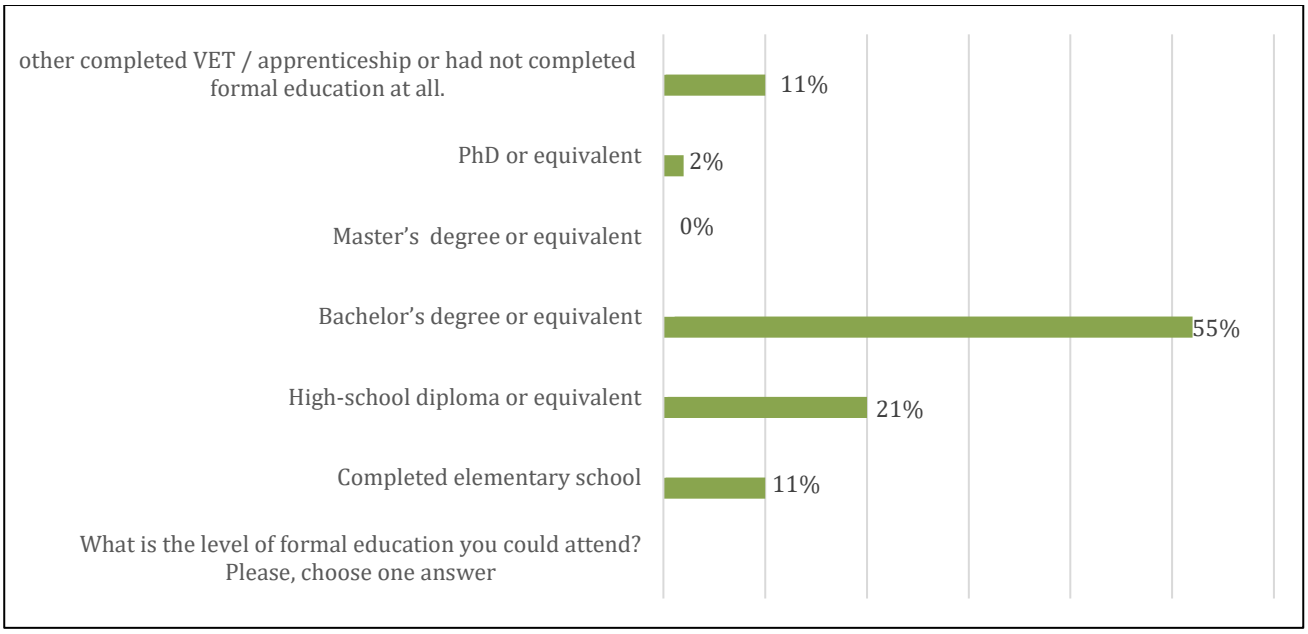
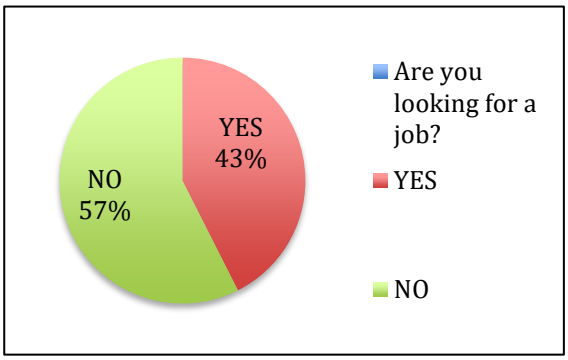
In Spain, diversely from the other countries, a good part of the deaf people have a good or high education level: More that 75% have high school diploma or a bachelor's degree.



Only 43% of them are looking for a job; leaving to understand that 53% either have a job, or that they are satisfied with the one that they already have.



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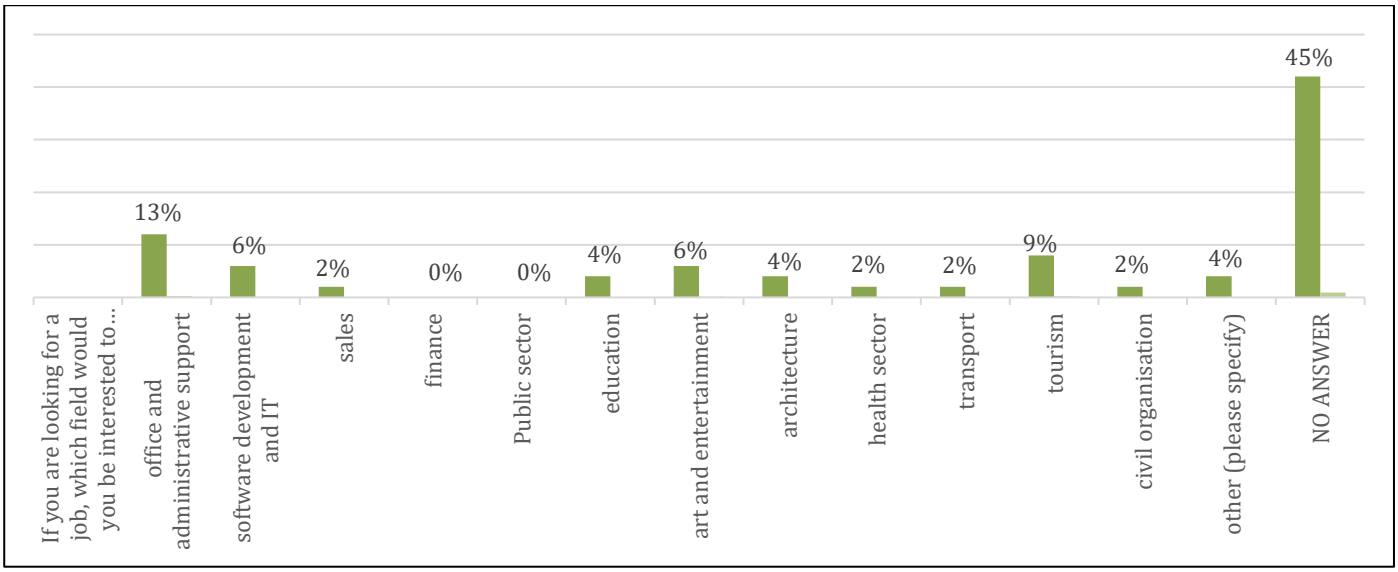
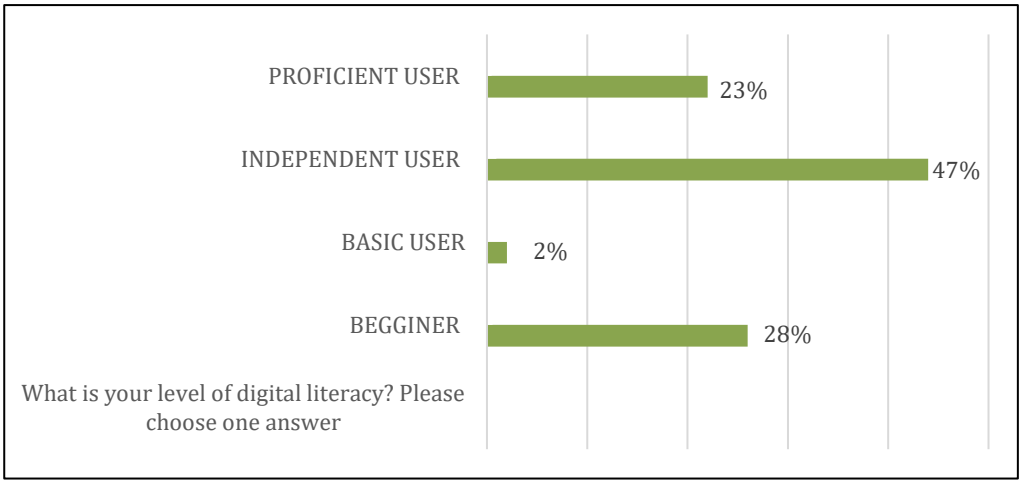
In fact, 45% of the interviewed people gave no answer to the question "If you are looking for a job, which field would you be interested to work in?"





In Spain, just like in Italy more that 65% consider themselves to be at least independent users as it regards the level of digital literacy. only 2% consider themselves as basic users and 28% as beginners.

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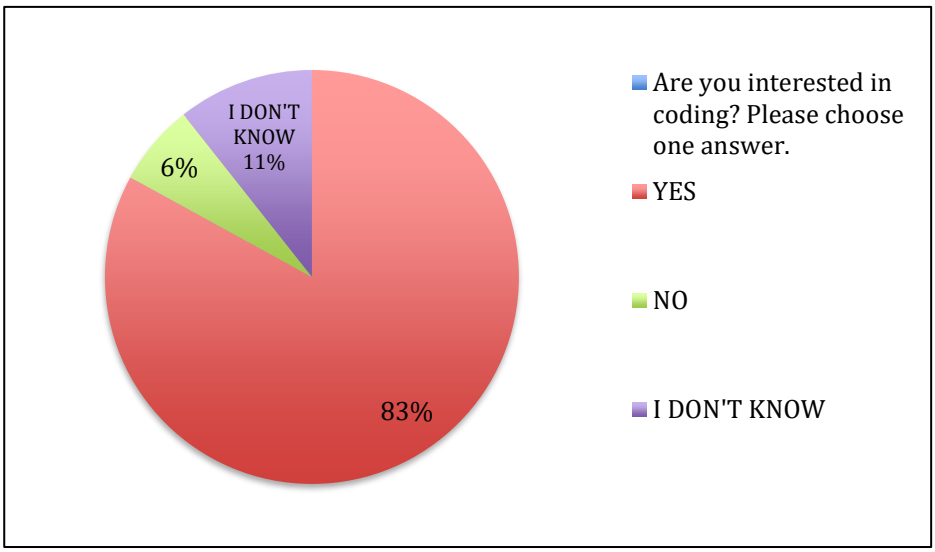
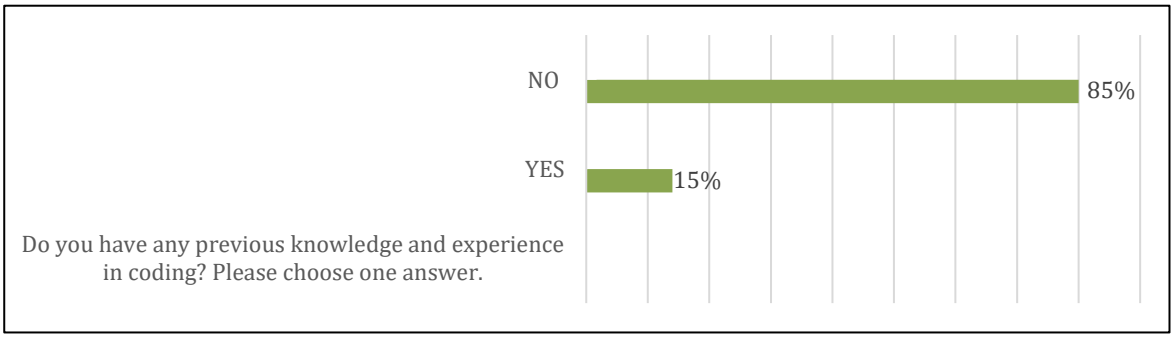
The situation it's more realistic in Spain because 54% of Spaniards have basic digital skills.
A really high part of the participants are interested in coding activities - 83% - even though they don't have any kind of experience in the field.





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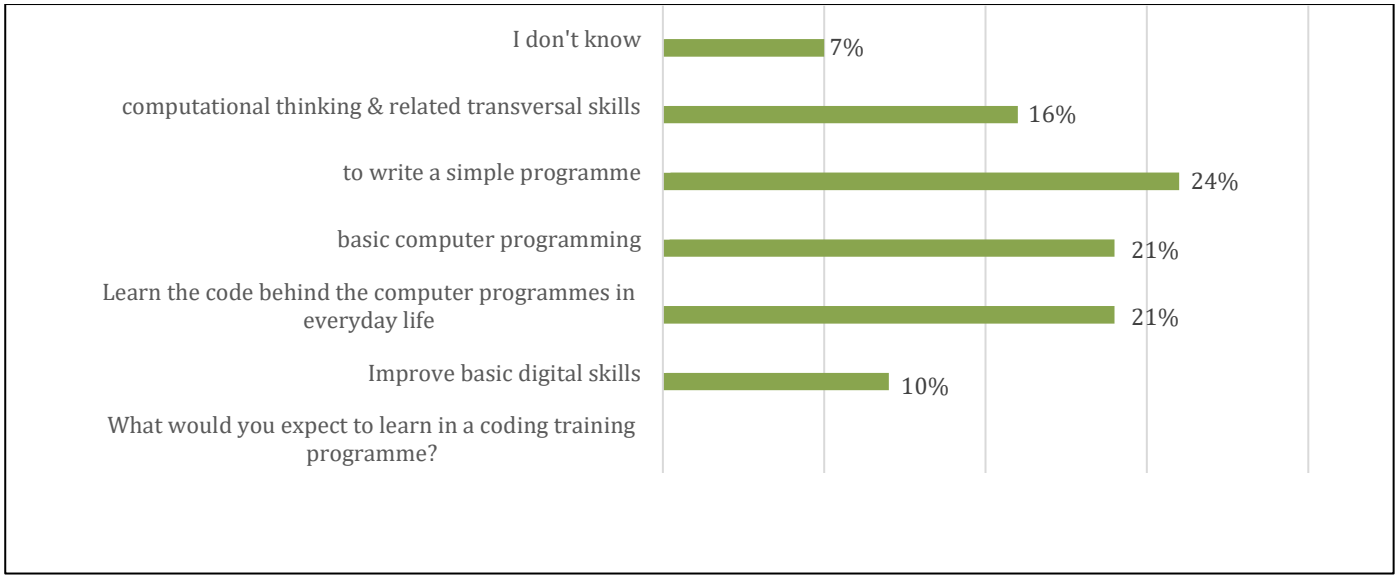

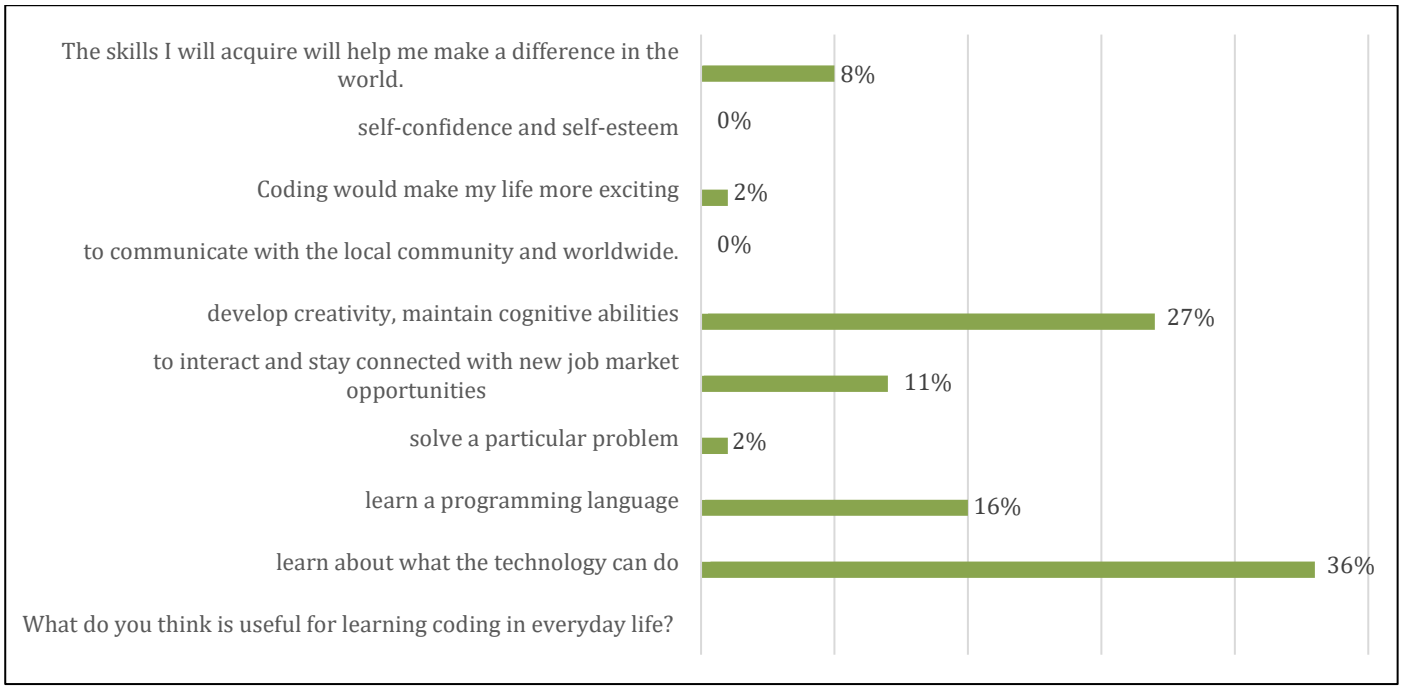

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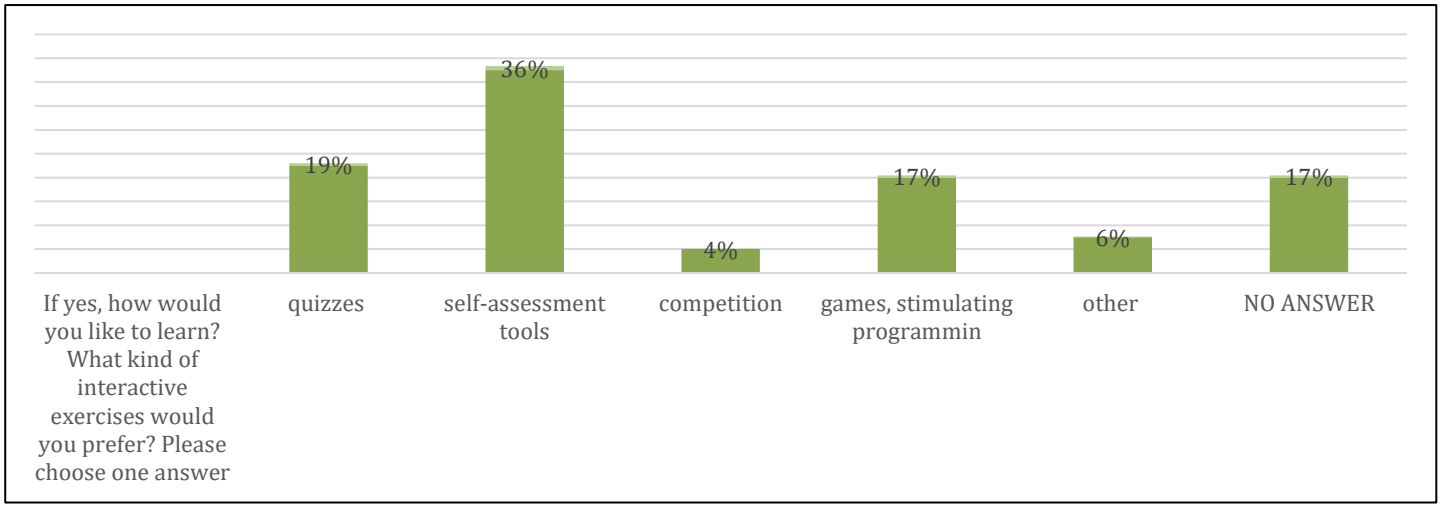
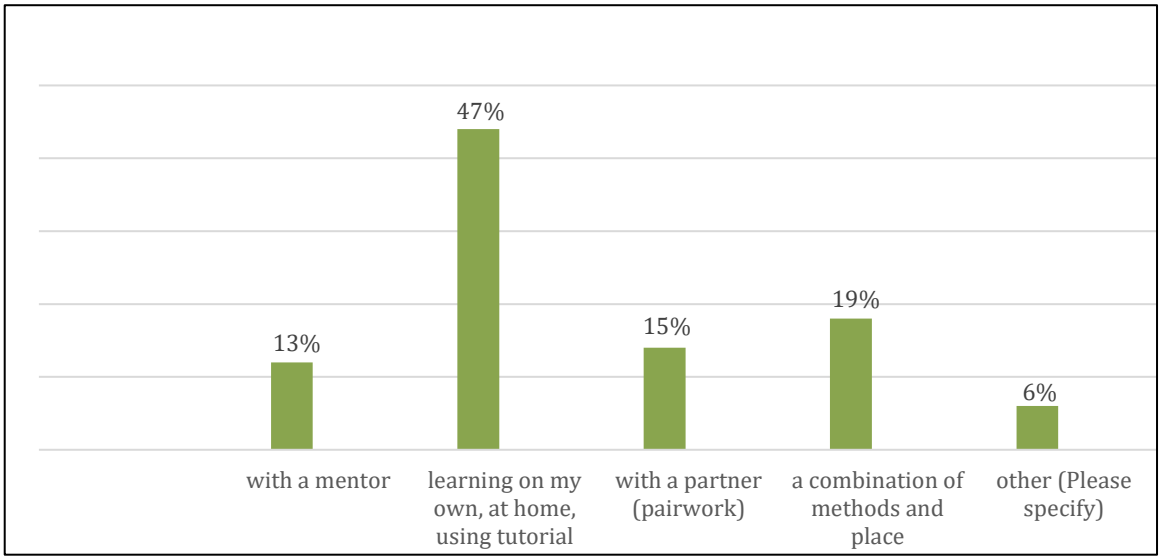
Their expectation from a coding training activity are quite equally divided between the given options.



The participants seem to be also quite independent given the fact that almost half of them prefer to learn by themselves:



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8. European NEEDS ASSESSMENT RESULTS >>

Number of people in EU countries with a disabling hearing loss
(Total and untreated)

Country	People with a disabling hearing loss - 35 dB or greater (1,000)	People with an untreated disabling hearing loss – 35 dB or greater (1,000)
Germany	5,794	3,844
Italy	4,818	3,139
United Kingdom	4,484	3,007
France	4,367	2,873
Spain	3,184	2,085
Poland	2,296	1,484
Romania	1,229	796
Netherlands	969	647
Greece	805	526
Portugal	761	502
Belgium	721	475
Czech Republic	658	428
Hungary	627	407
Austria	530	353
Sweden	511	341
Bulgaria	488	316
Finland	337	223
Denmark	308	207
Slovakia	291	189
Croatia	285	185
Ireland	211	140
Lithuania	199	127
Latvia	137	88
Slovenia	135	88
Estonia	91	58
Cyprus	58	39
Luxembourg	28	19
Malta	28	18
Total EU	34,350	22,604

Source: Report "Hearing loss – Numbers and Costs"
Published by hear-it AISBL

hear-it.org

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SOME INFORMATION AT EUROPEAN LEVEL

- The European Population amounts to 741 million people
- Almost 47 million people suffer from hearing loss and approximately 900,000 are completely deaf.
- it's about 0.0012%

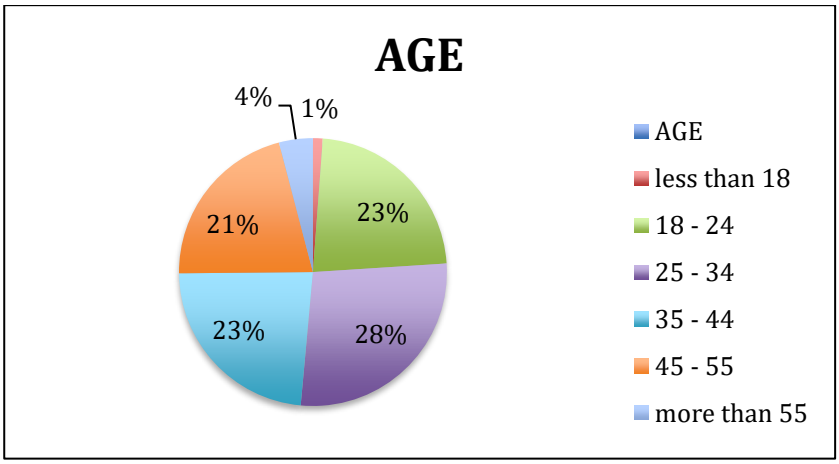
The prevalence of hearing impairment slightly differs according to gender.

The overall prevalence is 10.5 percent for males and 6.8 percent for females. While males at all ages are more likely than females to be deaf or hard-of-hearing, the gap widens after age 18.

It exists an European Union of Deaf. (EUD) based in Brussels, Belgium is a not-for-profit European non-Governmental organisation (ENGO) whose members includes National Associations of the Deaf (NADs). It is the only supranational organisation representing Deaf people at European level and is one of the few ENGOs representing associations from all of the 28 EU Member States, in addition to EFTA countries: Iceland, Norway and Switzerland.

EUD aims to establish and maintain EU level dialogue with its relative institutions and officials, in consultation and co-operation with its member NADs. EUD is a full member of the European Disability Forum (EDF) and is a Regional Co-operating Member of the World Federation of the Deaf (WFD) to tackle issues of global importance, and also has participatory status with the Council of Europe (CoE).

Almost 170 deaf people from all over Europe responded to the survey.
Around 50 organisations and associations that deal with deaf people were involved in the survey.



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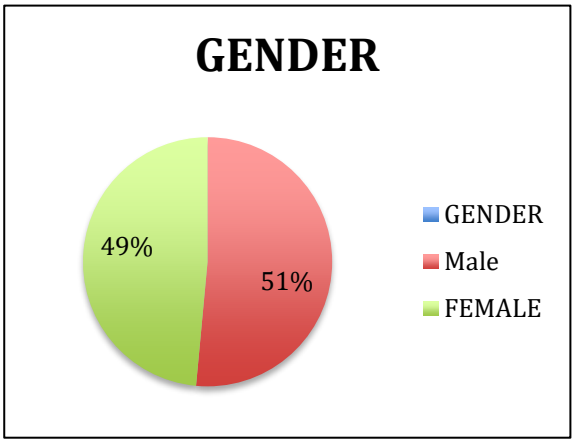

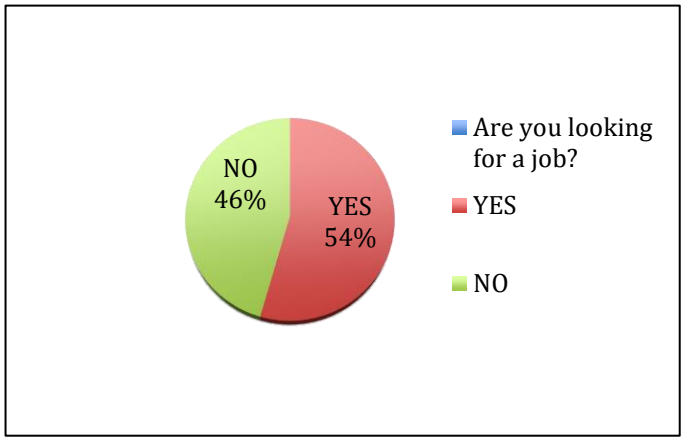

The Labour Market Observatory held a hearing, "Employment Situation of People with a Disability" on 12 of June 2008, presenting numbers, which are still relevant today. DG EUROSTAT presented figures on employment of disabled people in the EU, reporting that 17% of the EU population are disabled (excluding those who live in institutions). They also point out however that it is difficult to find data regarding persons with disabilities because there is no common definition of "disability". The European Disability Forum, listed the barriers people with disabilities face as they look for jobs: low education levels, inaccessible workplaces, lack of support, insufficient resources, and low flexibility. EDF believes that "the EU should aim at reaching the same rate of employment of disabled people as for the rest of the working population. Finally, it was shared that it is actually cheaper to accommodate people with disabilities than including into the labour market. However, there were no specific data on deaf people.

This data is used to push for inclusive labour market. Therefore, to ensure that deaf people are being included, data on the cost of unemployed deaf people should be collected and shared.
In order to improve employment situation for people with disabilities, especially deaf people, data on deaf people in labour market, implementation of legislations for persons with disabilities, new legislations pushing for accommodations, programmes that would support people with disabilities and educate employers, educational programmes for children with disabilities, and accessibility are essential.

In some EU Member States, children and young people with disabilities can benefit from the mainstream education system. In other countries, the situation is very different and in some cases, pupils with disabilities are totally excluded from schools and universities.

People with hearing problems seem to be more fortunate than the others (more than 80% seem to have completed at least high school or equivalent.

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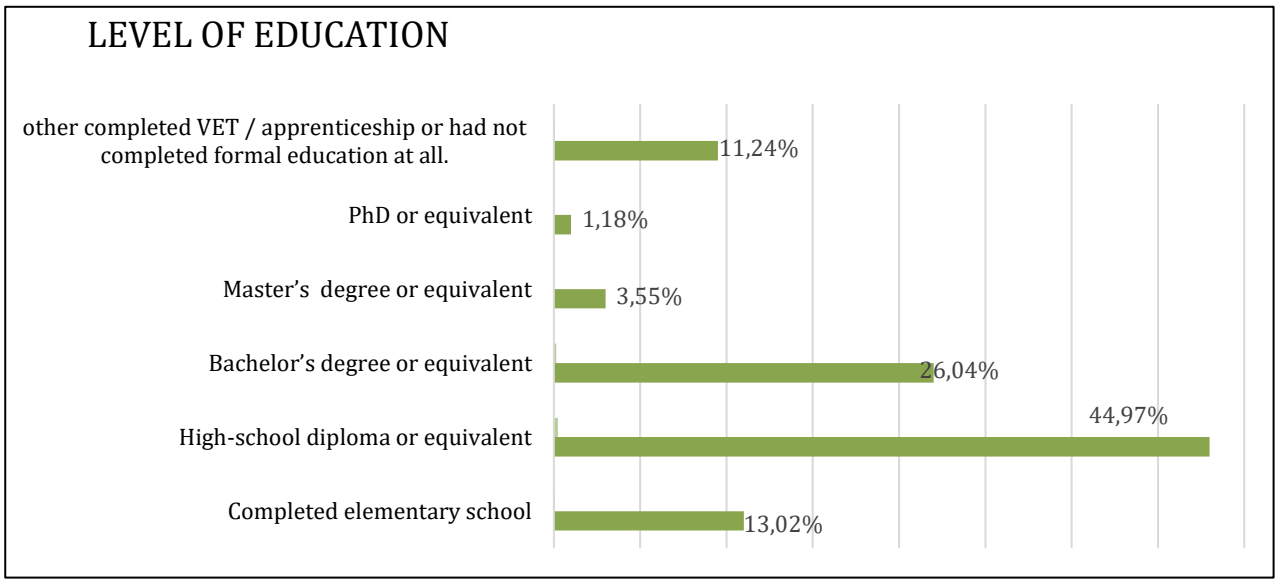
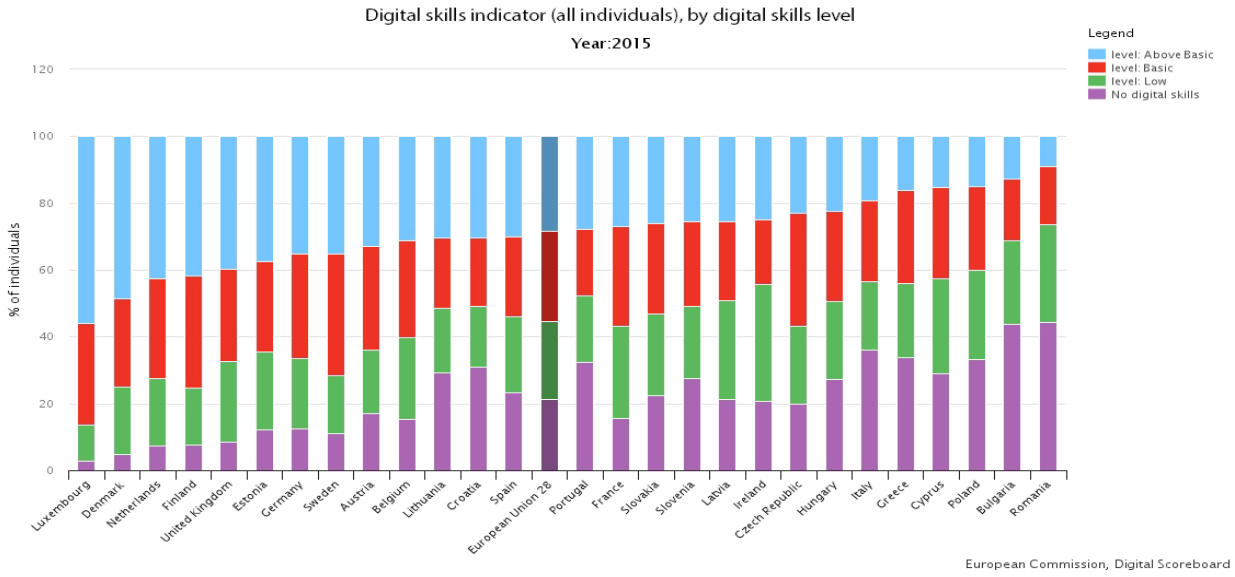


Equipping European citizens with digital competences is at the core of the EU strategy: in 2006 the European Parliament recognized Digital Literacy as one of the eight key competences that every European citizen should master and as one of the four foundational skills for learning. Further, enhancing Digital Literacy is one of seven pillars in the European Commission's 2010 Digital Agenda for Europe.

In the table below there is the situation regarding the digital literacy level at European Level:



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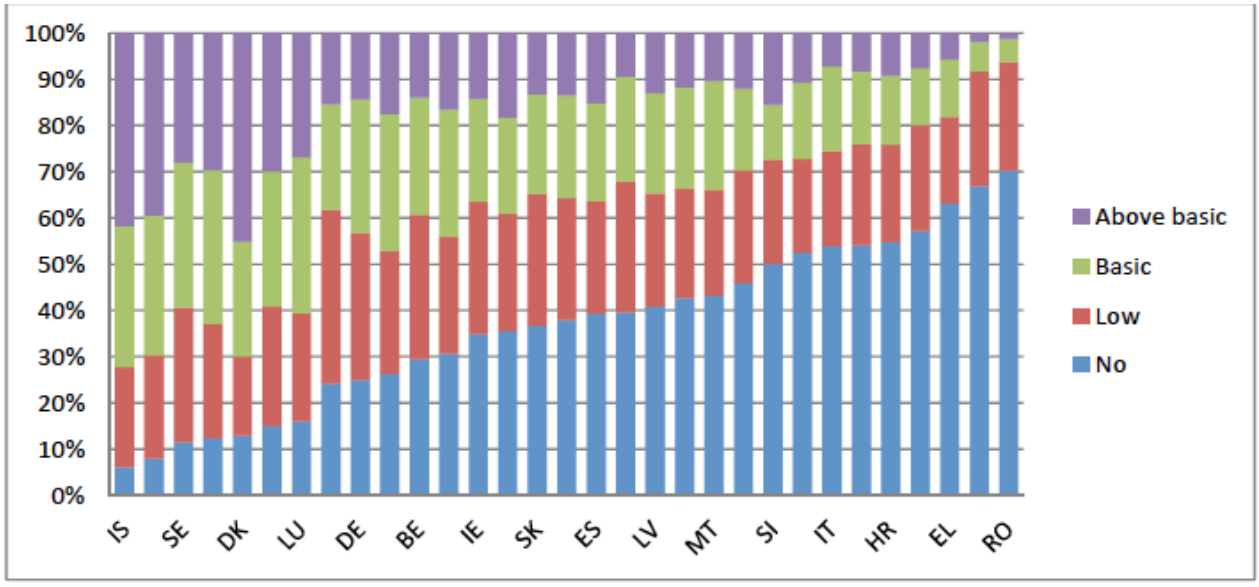
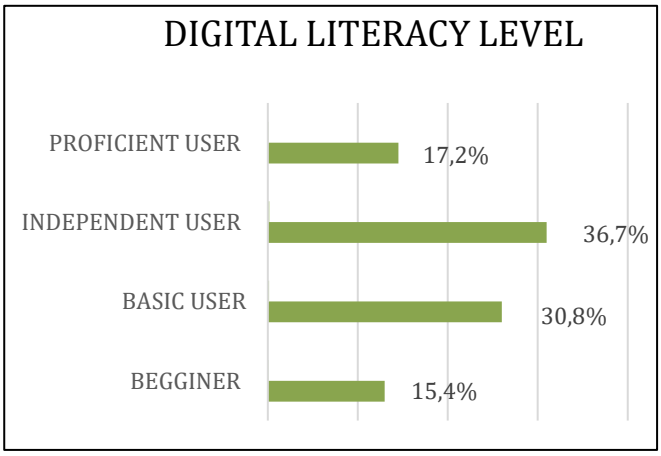
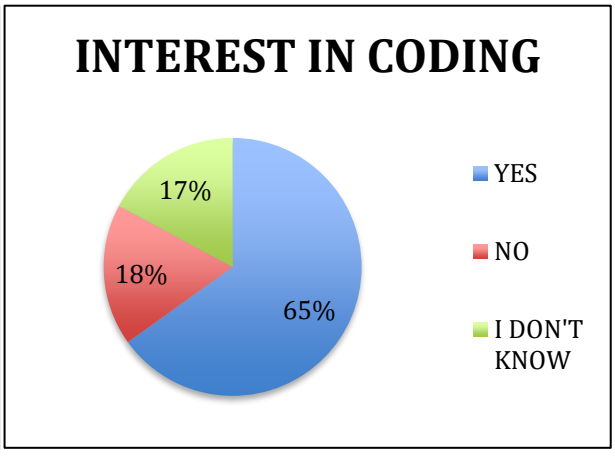
The digital skills of disadvantaged people are generally lower than those of the average population. According to DG CONNECT statistics, 38% of the disadvantaged in the EU-28 have no digital skills. Sweden (11%), the Netherlands (12%) and Denmark (13%) have the lowest rates of disadvantaged people with no skills, while Romania (70%), Bulgaria (67%) and Greece (63%) have the highest rates. Based on the descriptions defining the 'basic' level of skills as necessary for working and living, 64% of the EU's disadvantaged are below this level.



The situation is against statistics regarding the digital literacy level between deaf people:
Most of them consider themselves "good users" of the IT and they are quite interested in learning more about coding even though they lack of experience.





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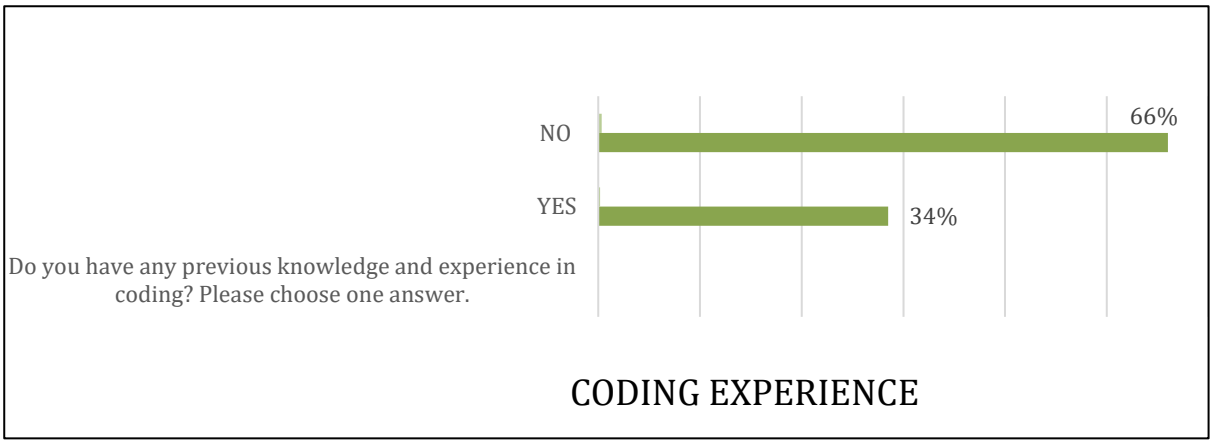
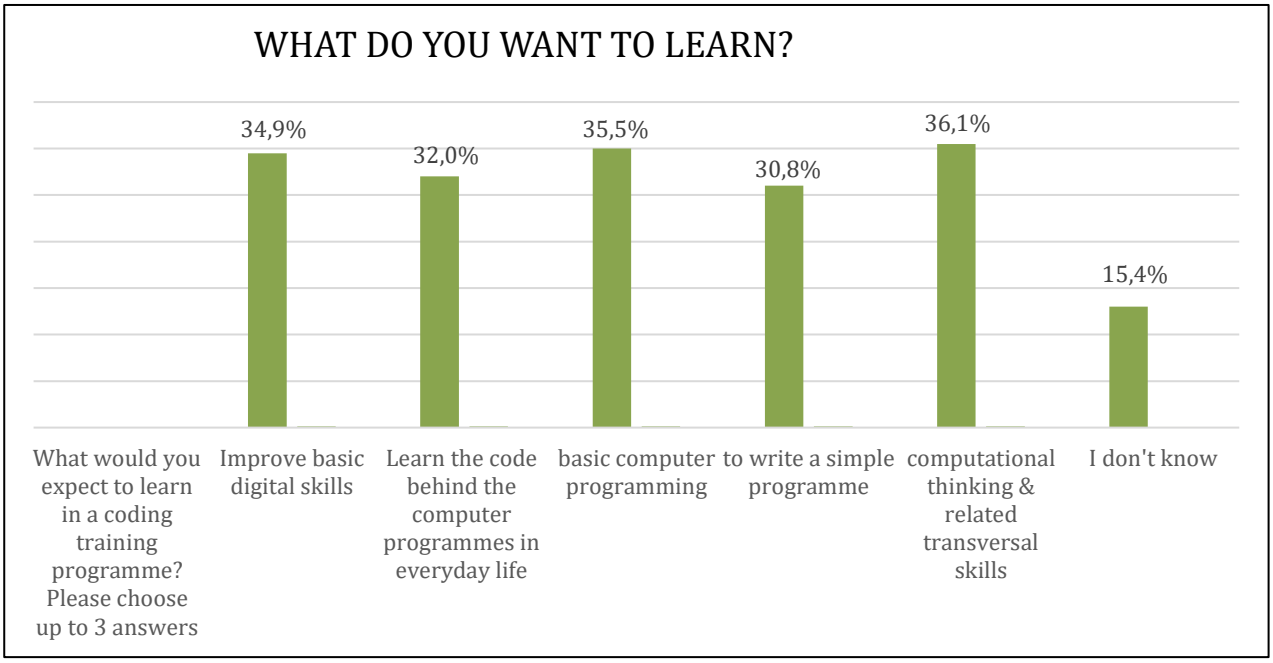


CODING EXPERIENCE



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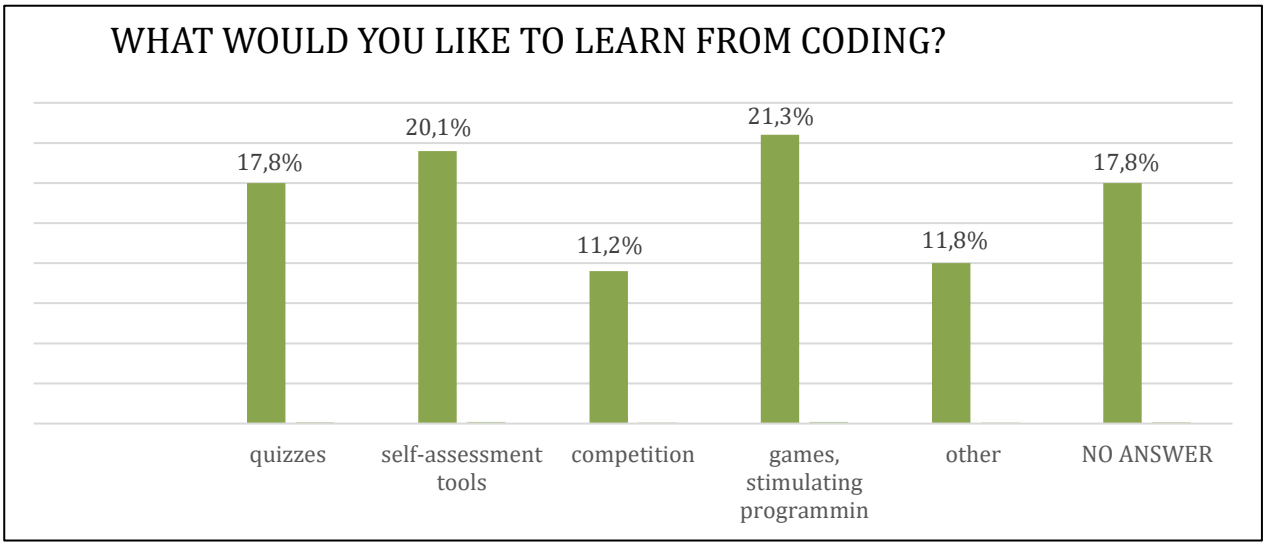

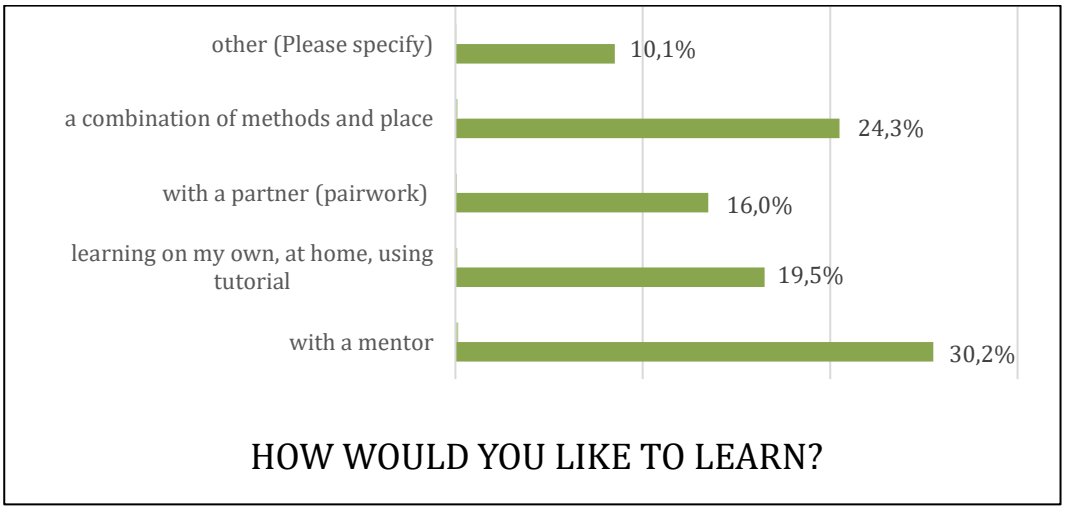

All of the hearing impaired participants stated that they would be interested in attending a specific training course to upgrade their digital skills and learn more about programming as expected by the participants from organizations. When it comes to learning methods all of the participants answered that learning with a mentor would be the most effective way of learning for such programs. Learning with partners or friends was also a popular answer.

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9. CONCLUSIONS and Final Remarks >>

Coding provides confidence in the ability to learn and innovate, in addition to the pride of actually creating something, as opposed to other types of learning which can cause confusion and frustration in the experiences of many students with disabilities.

If we apply these concepts also to **the deaf**, we can come to the same conclusions but with an even more positive aspect: **coding is an activity that can be put into a daily practice** for them. And **easily**.

The **deaf have been used to decrypting the world around** them, to "visualize" all the sounds and noises in common lives, including "words". And they are already "skilled" to use different languages to communicate.

Coding offers these learners **"special" real-world skills**, as claimed by some studies made in the last decade, as **they are so converted into producers of digital culture**, since they would simply apply the skills they already possess. Coding "[...] also involves them and makes them more available and open to socializing", often building the important skills of teamwork and socialization, frequently lacking, due to their inherent communication deficits.

In a survey, StackOverflow 2017, it is stated that 2.7% of professional computer software developers have been identified as disabled. And this demonstrates that coding can be a skill also for this special population. This is a baseline that deserves a deepening. Digital technologies can create new opportunities for individuals, workers or job-seekers, to acquire better digital skills and consequently to get better job opportunities in the digital sector. By removing the constraints of space and time, these technologies can open numerous new opportunities for self-directed learning and continuous professional development.

From the study and analysis of existing research as well as the results of the conducted survey, it is obvious that there is a fundamental need to provide equal opportunities for hearing impaired individuals as far as literacy and specifically digital literacy are concerned. By improving their digital literacy skills, hearing impaired individuals will be able to overcome the difficulties that their disability induces and will have respective opportunities for future employment with individuals with no disabilities. Being a part of the digital world will facilitate the social inclusion of hearing impaired individuals in all domains of contemporary life.

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The comparative analysis show:

- an equal distribution regarding the age and the sex of deaf people among the survey participants;
- most of them have good level of studies;
- only half of them are looking for a job;
- The good news is that more than 80% already use the computer in the every day life and 65% are interested in knowing more about coding in order to improve basic digital skills and computer programming
- they are very interested about the opportunities technology can offer.
- the most interesting coding applications for them are: Quizzes, games and self assessment tools and they would like to learn with a mentor or with a partner. Only 19% want to learn by themselves.

It seems that the lack of direct access to language 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. 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.

In this context, the <diversamente="coding" > project aims to develop a training course addressed to people with hearing disabilities in order to improve their digital and coding skills by using a methodology that applies the European recommendations or the validation of formal and non-formal learning for the recognition and transfer of learning outcomes. Throughout the Coding training activities we will facilitate social inclusion and increase the employment opportunities of people with hearing disabilities in an innovative context.

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