



# Go4VocationalSkills

Possibilities of using the IT system to  
assess the competences of the Deaf  
students of vocational schools





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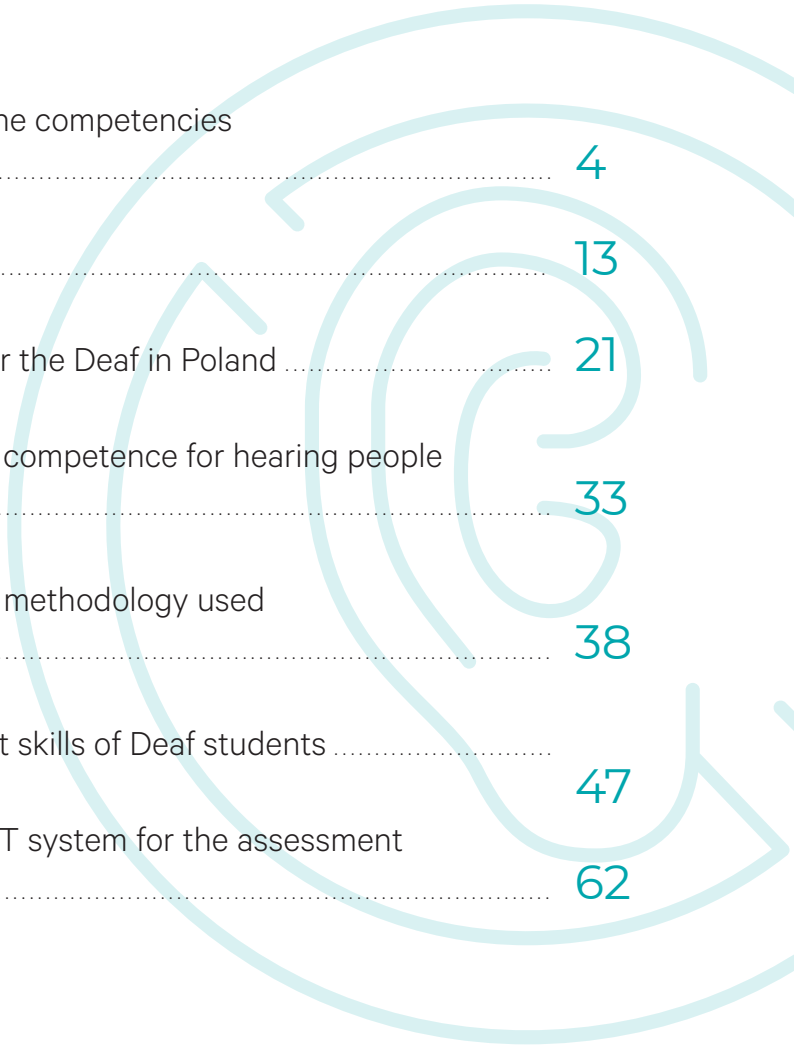
**Possibilities of using the IT system to  
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1.

**ON THE NEED TO DEVELOP  
A TOOL TO ASSESS  
THE COMPETENCIES OF DEAF  
VOCATIONAL STUDENTS**





**D**eaf people are a special group of students whose educational needs differ from those of hearing students. A communication barrier and difficulties in understanding abstract concepts in written language may limit their ability to objectively assess their skills and choose their future career path. This report aims to identify potential opportunities for using IT systems to assess the competencies of Deaf students in vocational education. It is hoped that it will serve as a guide, so to speak, to support career counsellors and teachers advising Deaf students in their career decisions. It will also support Deaf students themselves to better recognise their potential to successfully enter the open labour market.

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A few words of commentary are required on the spelling of the word Deaf (capital letter) we have used. People with hearing disability are a very diverse group. Depending on many factors, Deaf may have communication skills at a high, average or low level. We encounter two possible notations of deafness:

- **deaf** (lower case) means a person who has a hearing loss of more than 90 dB, a medical term;
- **Deaf(s)** (capitalised) is a term associated with belonging to the Deaf community. It denotes the Deaf community who use sign language and are proud to have hearing disability. The term is used in a cultural sense.

Deaf culture is associated with certain behaviours and perceptions belonging to Deaf people (or hearing children of Deaf parents, so-called CODA). It signifies the Deaf's acceptance and pride in their own identity. It involves, among other things, belonging to a linguistic minority, following a kind of code of conduct (cultural norms) of the Deaf, participating in various kinds of social gatherings (e.g. in clubs, community centres managed by various organisations). One can be included in Deaf Culture by being born into a Deaf family or by attending a Deaf boarding school. The cause of the hearing defect, its degree, type and even the age at which the hearing loss occurred does not matter to Deaf people. What matters most is the sense of identity, the community of experiences. Writing Deaf with a capital letter does not accommodate the perception of deafness as a disability. Nowadays, the world advocates recognising Deaf people as a linguistic and cultural minority, whose status is defined by their linguistic difference from the hearing majority speaking phonemic languages.

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As Deaf and hearing people find it much more difficult to communicate with each other and therefore to fulfil various social needs (colleague, student/student, employee/employee, etc.) in our report we will use the notation Deaf/Deaf.

In the EU-funded **Go4VocationalSkills** partnership project, we were concerned with developing a solution to comprehensively assess the competences of vocational technical school students. We treated competences according to the literature as knowledge, skills and attitudes. We prepared competence profiles for a dozen professions within three fields of study (construction, logistics, renewable energy). The competences distinguished included both **professional competences** specific to the given profession/position, as well as **universal competences** useful regardless of the occupation or position held (e.g. analytical competences, teamwork, openness to development). In the latter, **soft competences**, which are of great importance in making informed career decisions, occupied a special place, as they largely concern attitudes. We have prepared single-choice test questions to assess the level of the different types of competences and an IT system that gives the opportunity to verify the students' preparation (test score) to employers' expectations (competence profiles). It is worth emphasising that the IT tool has a modular structure, i.e. it is possible to freely change individual components, e.g. selected questions to assess competences, adjust preferred levels of competences for each profession, etc. Several hundred students of vocational schools from Poland, Bulgaria and Spain participated in the testing phase of the tool.

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As part of the testing, we also attempted to use our tool to assess the competences of Deaf students at the Maria Grzegorzewska Special School and Educational Centre No. 12 for Deaf and Hard of Hearing Students and those with other disability in Wrocław. Due to the various fields of study available in the Centre's offer, we decided to use in the testing only questions referring to the assessment of the level of soft competences, such as communication, teamwork, time management, independence, openness to continuous development, loyalty, commitment, responsibility, resilience. Twenty-eight tests were carried out among students from a vocational and technical school. The comments received from testing the tool with this target group inspired us to prepare this report, which we see as the first step in developing an effective tool for assessing the competences of Deaf students as well. This is all the more important as, according to the current system in Poland, in the case of this group, vocational counsellors do not examine the abilities, competences of the child, and when choosing a potential direction of education, they suggest the offer of a school in a given city. Most often parents decide for the child, usually having no idea about the child's predispositions.

The main comments made by young people testing the system concerned a **lack of understanding of the concept of competence itself**, which appeared to be too abstract a concept. In doing so, it was noted that a better understanding of the need for the test was directly related to the test taker's higher level of spoken language. According to the students, **the language used to write the questions is difficult for Deaf people**. In the case of the four answer options, the students had great difficulty in understanding and in choosing the correct one. According to the youngsters, the answers were too similar for them to be able to clearly identify the right one for themselves.



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From testing the IT system with a group of Deaf students, we have drawn important conclusions for the future. The most important one concerns the **need for a new tool to test the abilities and competences of Deaf people**. The tool would have to use the simple language used in the country or the sign language spoken by the Deaf community (e.g. PJM in Poland). Images could also be used to present the situations addressed by the question. Based on the findings from the testing phase and the needs assessment, we believe that a good vocational counsellor for the Deaf should know the labour market, what vocational schools are on offer in the country, understand the cultural diversity of the Deaf and know the sign language used in the country or work closely with a sign language interpreter. He or she should also be familiar with the legislation concerning people with disability. It would also be useful to prepare a sign language dictionary on competences, self-development and especially social competences. It would also be useful to have English language training for Deaf people and to expand their language competences.



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In the opinion of our experts, it would be systemic to go a step further, which unfortunately excludes the possibility of any Erasmus+ project. Based on an assessment of the situation in Poland, the need to adapt the educational offer for Deaf people to the needs of the changing economy should be pointed out. There should be changes in special education. Currently, most of the professions offered do not require communicative competences. Occupations that require working at heights and exposure to noise (damaging auditory residues) are excluded from the offer for the Deaf. Examinations in special education should be modified, as the current theoretical coverage of the material is the same as in mainstream schools. Some Deaf people do not pass the theoretical exams because they do not have the chance to master the material while studying. Meanwhile, they pass the practical exams without problems. But these demands are a dream for now....



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So let us return to the formulation of potential conditions giving opportunities to adapt the competence assessment tool also to the needs of Deaf students. The universal competences studied in the project are mainly based on communicative skills and competences. Most of the personal, social competences are based on contact with colleagues, i.e. verbal contact is necessary. In the case of Deaf and hard of hearing people (also foreigners, people who stutter, people with aphasia), these competences will almost always be below certain standards, norms. On the other hand, non-verbal communication, i.e. reading all non-verbal messages, could level the playing field between hearing and deaf people. Therefore, it would be a good idea to extend competence tests to include a set of non-verbal messages (e.g. body movement, gestures, facial expressions, facial expressions) using, for example, videos, photos. Another solution could be to prepare videos of situations depicting the questions in the tests, which for hard of hearing people who do not use sign language, for people with intellectual disability, foreigners, could be helpful in understanding the meaning of the question. For Deaf people, the videos should be with a sign language interpreter. All questions should be prepared using simple language adapted to the level of people with low knowledge of the phonic language of the country.

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The capacity of the **Go4VocationalSkills** project does not allow for all the advice presented. This is rather an idea for a separate project. However, we have attempted to formulate test questions tailored to expectations, which we present later in this report. In this way, we want to initiate work leading to the creation of a tool to assess the soft competences of Deaf students. This tool will be helpful in identifying the students' strengths and areas for development, allowing them to be better prepared for their future professional life. With this tool, Deaf students will get the chance to make more informed educational and professional decisions, which will contribute to their better personal and professional development.



# 2.

## SPECIFICS OF TEACHING THE DEAF





**D**eaf people are a unique social and cultural group that is often misunderstood by hearing people. Deafness is not just a matter of not being able to hear – for many Deaf people it is part of their cultural identity and sign language, such as Polish Sign Language (PJM) or Greek Sign Language (GJM), is their first and natural means of communication. It is worth noting that in each country Deaf people have developed their own sign language, which is their native language. Interestingly, in countries that share the same phonic language (e.g. Greek in Greece and Cyprus) there are two independent sign languages – Greek Sign Language and Cypriot Sign Language. Sign language is not a direct translation of phonic (spoken) language into signs – it has its own grammar, syntax and rules. Deaf people usually develop in a visual culture, as their world is mainly based on the sense of sight. Sign language is a multidimensional language. Facial expressions play a very important role in it. It indicates, for example, whether the speaker has said an affirmative or a question sentence. It is worth mentioning that in most countries, there are two sign languages, e.g. in Poland:

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- **SJM is the Sign Language System** – an artificial language that is a carbon copy of the Polish phonic language, a sub-code created by hearing people, often incomprehensible to deaf people.
  - **PJM is Polish Sign Language** – the natural language of deaf people, distinct from Polish. It has its own visual-spatial grammar, making it a multidimensional language.

As we pointed out earlier all nations have their own sign languages, there is no one universal language. But the peculiarities of sign language mean that it is much easier and quicker to communicate using different sign languages than phonics.

Having their own native language makes Deaf people, as it were, foreigners in the country where they live, learn and work. Why? Because usually their knowledge of the country's current phonic language is limited – usually the level of language proficiency is rated at A1-A2. Because of this, the vocabulary used is limited. So, there are situations where the phonic language is too difficult to understand and interpret. When communicating with a person who is Deaf, it is important to speak clearly and avoid complicated, „flowery” statements.

It is useful to use simple grammatical forms, including in written language and gestures. For Deaf people, abstract concepts and complex language structures can be difficult to understand, especially if they are expressed in a phonetic language that is not their native language. As a result, Deaf people often find it difficult to learn and understand abstract concepts, which can translate into problems in education and, later, in understanding concepts such as soft skills or specialised/professional skills.

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Another important aspect is the communication barrier, which can hinder Deaf people's full participation in society, including the labour market. Deaf people often face difficulties in communicating with hearing people, which can affect their confidence and motivation to take on professional challenges. Problems with access to sign language interpreters or a lack of knowledge among hearing teachers/trainers/employers about the needs of Deaf people are further challenges they face.

Deaf education differs significantly from hearing education due to the specific communication and cognitive needs of this group. Understanding these differences is key to creating a learning environment that fosters the development of Deaf students.

In teaching the Deaf, the use of visual communication is of great importance. Deaf schools often use sign language, which is a natural language for Deaf people. However, in many cases students have to cope with learning in phonics-based language that is a second language for them, similar to a foreign language, which creates additional challenges. This means that teaching materials need to be adapted to the specific needs of Deaf people – content should be simplified and delivered in a visual way, such as using videos, pictures, diagrams or symbols.

Deaf students, because of their specific way of communicating, often have difficulties in understanding abstract concepts in written language which requires an advanced understanding of phonic language. Therefore, in the educational process, it is important for teachers to adapt content to make it more concrete and visually understandable. Tasks that require abstract thinking should be visualized as much as possible and set in an everyday context with which students can identify.



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Deaf students who attend mainstream schools, not just schools dedicated to the needs of Deaf people, often face social exclusion, which can negatively affect their social and professional development. Lack of full integration with peers and communication barriers mean that Deaf students can feel isolated. As a result, they do not fully develop soft competences such as teamwork, which can later negatively affect their situation in the labour market.

In many cases, Deaf students have limited access to career counsellors who can understand their needs and communication specificities, as well as counsellors who have reliable tools to assess competences. Because of this, Deaf people are often obligated to choose an occupation from an 'accessible pool' where communication barriers may be less onerous. The lack of soft competence assessment tools adapted for Deaf people means that Deaf students are less able to make an independent, informed choice of their career path.

If a child with a hearing disability is born into a hearing family, his or her parents usually want the child to use verbal speech (without sign language support) at all costs and it is the spoken language that will become that person's native language. If a child with a hearing disability is born into a deaf family, a family immersed in Deaf Culture, his or her parents use sign language on a daily basis and it is the sign language (visuospatial) that will become that person's native language. It is important to remember that spoken language is a foreign language to native sign language users. Many phrases, words, idioms are outside their language. This is not to say that a person with hearing disability who grows up in a 'sign' home is unable to learn phonic language. The process of acquiring verbal speech will be different, often slower, depending on whether there is someone in the family who speaks to the child, and on whether the child has hearing prostheses and how the hearing and speech rehabilitation goes.

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So how does the process of teaching a person with hearing disability work at school? Is it easy to teach such person? What should a teacher keep in mind? First of all, undoubtedly about proper communication. An act of linguistic communication is a written or oral utterance created in a specific situation by a sender and addressed to a recipient. The sender and the receiver must communicate in the same code. Therefore, we cannot talk about effective communication, and therefore effective teaching of people with hearing disability, if the teacher and the student do not communicate in the same language. It is worth remembering that Deaf people can communicate in many ways, such as:

- they use spoken language (depending on the degree of hearing loss),
- they use sign language,
- they read speech from the lips (but only some people and just a small percentage can be understood)
- they write on a piece of paper, on a blackboard (but – for many the level of phonics language may be low),
- they texting, e-mailing,
- they use communicators.

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When writing about the specifics of Deaf education, it is worth referring to the legal conditions. For example, in Poland, according to the Constitution of the Republic of Poland, everyone has the right to education, and public authorities ensure that citizens have universal and equal access to education. The right to education without discrimination and on the basis of equal opportunities is guaranteed primarily by the UN Convention on the Rights of Persons with Disability adopted by the United Nations General Assembly on 13 December 2006. It is worth emphasising that the Convention has been ratified by all EU countries, so its provisions should apply in every EU country, regardless of latitude and longitude. Unfortunately, this is not so easy in practice, and the provisions of the Convention often remain ‚only on paper’.

Referring to the situation in Poland, based on the provisions of the Constitution and the UN Convention ratified in 2012. UN Convention, it seems obvious that lessons (including lessons in vocational subjects), conducted for a student using sign language, should take place in that language. This, unfortunately, is often not the case. The report of the Supreme Audit Office (the most important audit body in Poland) entitled „Education of Deaf and Hard of Hearing Children and Youth” from 2022 indicates that among teachers and educational staff working in special schools, knowledge of PJM (Polish Sign Language) was declared by 41.8% of teachers and 14.5% of teachers in integrated schools or with integrated branches, while SJM (Sign Language System) was declared by 34.4% of teachers in special schools and 40.8% of teachers in integrated schools or with integrated branches. Thus, for a Deaf student for whom sign language is the native language, most lessons are inaccessible or poorly accessible. In addition, assimilation of subject knowledge is hampered by the lack of textbooks translated into PJM.

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Teachers who work with students with hearing disability on a daily basis try to use all available communication methods (writing, illustrations, symbols, body language). Unfortunately, in external examinations, students only rely on the phonic language, which they very often do not know at a level that would allow them to pass the exam without too much difficulty.

In the aforementioned report of the Supreme Chamber of Control, directors of schools educating young people in various professions indicate a very high pass rate for the practical part of vocational examinations (at the level of over 90%,) which shows a high level of students' mastery of the skills provided for in the core curriculum for vocational education. It also shows that students are well prepared for their learned profession. On the other hand, the theoretical (written) part of the exam, its verbal casing, does not allow students to demonstrate their qualifications. Students often do not understand instructions and therefore are not able to properly perform tasks, which, also in the case of vocational examinations, are often explained with concepts abstract to them.

Students with hearing disability who use spoken language on a daily basis may also have difficulty understanding some of the concepts that arise in lessons. Abstract thinking in deaf children can be delayed if they lack access to appropriate language and educational resources. The student may have difficulty in understanding the meaning of a word depending on the context in which it is found, and thus may misunderstand the text being read depending on the abstract concepts and more difficult sentence structures present.

# 3.

## CHARACTERISTICS OF VOCATIONAL EDUCATION FOR THE DEAF IN POLAND





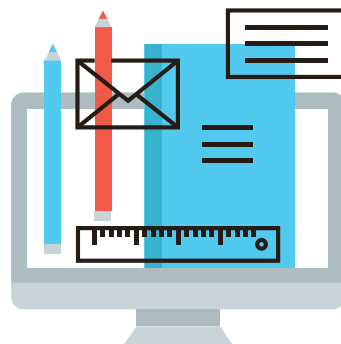
Vocational education for the Deaf in Poland takes place mainly in special education and training centres for the deaf and hard of hearing, as well as in trade schools, technical schools and post-secondary schools in special education and training centres for students with different types of disability. The decision to choose education in special centres is dictated primarily by the adaptation of the way classes are conducted to the communication needs of the Deaf. One of the most important elements in this respect is the provision of interpreting into Polish Sign Language, i.e. employing teachers with an adequate level of knowledge of this language, or possibly involving sign language interpreters. This is usually not a problem in centres dedicated to Deaf people, where the management is familiar with the specifics and educational needs of Deaf students.

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It is unfortunately different in centres for students with different types of disability, where the person in charge does not always understand these needs. In addition to the provision of classes in sign language, special centres also use other solutions to support Deaf education, including educational tools such as visuals, videos with sign language translations and communication support technologies. Classes in special centres have an average size of about 6 students, usually between 4 and 8 students, although there are also sometimes classes of 10 students. In most cases, classes are created with a specific single field of study. However, if there is not enough interest in a particular field of study, classes are also created in which there are students studying different fields of study. In this case, general subjects are taught together and vocational and practical subjects are taught separately. Deaf people also attend mass vocational schools, but much less frequently than in the case of special centres. Undertaking an education in a mass school usually raises significant concerns about the lack of sufficient support in the form of a sign language interpreter, an educational assistant (support teacher), educational materials adapted to the needs of the Deaf. Concerns also arise from a lack of adequate teacher training to teach Deaf people and difficulties integrating with peers due to communication barriers. Class sizes that are too large in mass schools and too fast-paced classes that are not adapted to the needs and perceptual abilities of the Deaf are also a problem.

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Characteristics of vocational education for the Deaf in Poland were prepared separately for lower secondary vocational schools and schools giving the title of vocational technician. In the second case, branch schools of the second degree, technical schools and post-secondary schools were taken into account. The analysis included statistical data, the offer of special education centres in the area of vocational education for the school year 2024/2025, the number of groups of students with disability, including hearing disability in one of the special centres for people with various types of disability. Statistical data were obtained from the publication of the Central Statistical Office entitled *Oświata i wychowanie w roku szkolnym 2023/2024* (CSO, Warsaw, Gdańsk 2024). On the basis of websites, the offer of 24 special education centres for both deaf and hard of hearing and people with different types of disability was analysed.





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## LOWER SECONDARY VOCATIONAL SCHOOLS

A total of 123 deaf students and 447 hard-of-hearing students were educated in first-level trade schools in the 2023/2024 school year. Of the deaf students, 19 attended mass schools and 104 attended special schools.

In the educational offer of specialised centres for lower secondary vocational schools for the school year 2024/2025, there was a proposal for 29 different fields of study. Among these faculties were those that respond to the needs of the current economy, mainly due to the large unmet demand for employees, such as hotel worker or catering worker. But there were also courses of study that prepare for professions that are generally considered obsolete and for which demand has died out or will die out in the coming years, such as bookbinder or leatherworker. The proposal of 29 training courses does not mean that all of them were launched. This was conditioned by interest from potential students, including within a specific centre. It is worth noting that, geographically, there are places where a larger number of fields of study are offered (especially in the case of large urban centres), but there are also places where this offer is very limited (e.g. to two fields of study).

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Although most special centres have boarding facilities, students rarely choose to study far from their place of residence or in a centre other than where they have previously attended primary school. This severely limits the choice of education in which the student is actually interested or has an aptitude. This is a disadvantageous situation, especially given the fact that there is a much greater variety of educational courses in mass schools, where Deaf people nevertheless face many challenges that they are unable to cope with.

The proposed fields of study in lower-level specialised schools are presented in Figure 1 by means of a word cloud. The larger font size of the occupation names (in the Figure 1a), the larger size of the 'bubble' (in the Figure 1b) indicates the higher incidence of proposals for education in a given occupation in the offer of special centres. Deaf students had the greatest access to education in the profession of chef. This field of education was offered in 22 of the 24 special centres considered. These were followed by such professions as confectioner, hairdresser, tailor and gardener. For them, however, the offer was only in the case of 8 out of 24 centres, so access to it was significantly limited. Single indications (the possibility to study in only one centre) concerned as many as 15 out of 29 offered fields of study. It is worth noting an example of the proportion of students with hearing disability studying at a first-level vocational school in a centre for people with various disability.

In one centre, the total number of students is 206, of which 60 are deaf requiring sign language instruction. In a first-level vocational school, there are 49 students, 21 of whom are with hearing disability. These proportions show that providing appropriate instruction for the Deaf is somewhat of a challenge, but above all it requires knowledge, openness, understanding and interest in needs on the part of the management and teaching staff. This situation is unfortunately not always reflected in reality, and this hinders effective vocational education for Deaf people.



Fig. 1a.

Prevalence of the field of study – lower secondary vocational school -word cloud



Fig. 1b.

Prevalence of the field of study – lower secondary vocational school -bubble chart

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## SCHOOLS AWARDING THE PROFESSIONAL TITLE OF TECHNICIAN

A total of 107 students were educated in specialised upper secondary vocational schools in the 2023/2024 school year. They were studying in occupations mainly related to services for the population. Unfortunately, there is no data on the hearing disability, including the deaf. However, taking into account the total number of students (107) in comparison to the total number of students in first-level trade schools (12 580), it should be concluded that a very small percentage of students with disability continue their education in second-level trade schools. This also applies to Deaf students. In special technical schools in the school year 2023/2024, there were a total of 843 students, including 114 deaf students and 98 hard of hearing students. In the mass schools, the numbers of deaf students were 108 deaf and 1,284 hard-of-hearing students respectively. The numbers of deaf students in special and mass technical schools are similar. This is quite different from the situation in lower secondary vocational schools.

In the educational offer of specialised centres in the case of schools granting the vocational title of technician for the school year 2024/2025, there was a proposal for 36 different fields of study. These majors were dominated by those that meet the needs of the current economy, both due to the development of modern technologies (e.g. IT technician, digital graphic processes technician) and the large, unsatisfied demand for employees (e.g. catering technician). As in the case of the previous type of school, the proposal of 36 fields of study does not mean that all of them have been launched. There is also a geographical variation in terms of the available fields of study.

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The proposed fields of study in schools granting the vocational title of technician are shown in Figure 2 by means of a word cloud. The larger font of the occupational names (in the Figure 2a), the larger size of the 'bubble' (in the Figure 2b) indicates the higher frequency of the educational proposals for a given occupation in the offer of special centres. Deaf students had the greatest access to education in the occupation of food and catering services technician. This field of education was offered in 17 of the 24 special centres taken into account. This was followed by IT technician (13 offers), florist (8 offers) and beauty services technician (6 offers). Single indications (possibility to study in only one centre) concerned as many as 23 out of 36 specialisations offered.

Similarly, as before, it is worth noting the exemplary proportion of students with hearing disability attending a technical school in a mixed disability centre. In this centre, the total number of students is 206, of which 60 are deaf requiring sign language instruction. The technical school has 40 students, 18 of whom are with hearing disability. Successful vocational education for Deaf people again depends on the school's policy. On the openness to the needs of Deaf students, especially those related to the provision of classes taught in sign language or the preparation of dedicated educational materials. It is worth remembering that the effects of education will influence the students' later situation on the labour market and their chances of employment in line with their learned profession and providing job satisfaction.

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# food and catering services technician



Fig. 2a.

Prevalence of the field of study – upper secondary school, technical school, post-secondary school  
– technician – word cloud



Fig. 2b.

Prevalence of the field of study – upper secondary school, technical school, post-secondary school  
 – technician – bubble chart



# 4.

## A FEW WORDS ABOUT COMPETENCE – WHAT IS COMPETENCE FOR HEARING PEOPLE AND WHAT IS IT FOR DEAF PEOPLE?





Competence is a set of skills, knowledge and attitudes that enable one to perform specific tasks effectively. Competence is a broader concept than qualifications. Vocational qualifications comprise the knowledge and skills required to carry out professional tasks, they show the range of a person's capabilities in a specific job. In the literature we can find many divisions of competences depending on the purpose of the analysis. Most often competences are divided into hard and soft competences. Hard competences are specific skills that are measurable and easy to identify, e.g. knowledge of a foreign language, operating a computer programme, driving licence. Hard competences are often equated with qualifications.

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Soft competences, on the other hand, are interpersonal skills such as communicativeness, teamwork, adaptability, time management, openness to change. Soft competences enable people to effectively discharge their professional duties and achieve their own intentions. Another common division is the division into professional competences useful in a given profession/position (most often it is specialised knowledge and skills necessary to perform a specific job) and universal competences useful regardless of the profession or workplace. Universal competences often include social competences such as the ability to cooperate, solve conflicts and build team relationships, analytical competences, i.e. the ability to solve problems and logically analyse conditions, or digital competences related to the use of digital technologies, e.g. working in the cloud, basic programming, knowledge of digital tools. Developing different competences enables you to better adapt to the changing needs of the labour market and increases your chances of being effective in the workplace.

In the **Go4VocationalSkills** project, we set ourselves the goal of comprehensively assessing the level of competence of technical school students. We focused our attention on soft competences, the assessment of which is usually neglected in vocational education, but to the level of which employers attach great importance. The object of employers' interest is the behaviour of employees that is desirable from the point of view of the effectiveness of performing the tasks defined for the positions they hold in specific occupational groups. In a world of fast-paced technology and constant change, it is the soft competences associated with adaptation to the workplace that can be crucial.

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Soft competencies are capabilities that go beyond subject matter knowledge. They include skills such as communication, teamwork, problem-solving skills, time management, flexibility in the face of change and a set of interpersonal skills. In the world of work, the ability to communicate and collaborate is crucial to professional success. Soft skills often enable hearing people to achieve professional success because they help them work effectively in teams, adapt to new situations and cope with pressure.

For Deaf people, the concept of competences, especially soft competences, can be confusing, especially in a professional context, as these skills are often linked to communication, which is more challenging for Deaf people. Since the natural language is sign language, soft competences need to be defined in a more concrete and practical way so that Deaf people can understand and develop them – for example, **„What does it mean that I, a Deaf person, work?“**.

Deaf people’s understanding of soft competences may differ from that of hearing people due to specific communication and cultural challenges. Soft competences such as effective communication, empathy, teamwork are crucial, but their development and interpretation may be shaped by the unique experiences of Deaf people. Communicative competence for Deaf people can mean not only the ability to convey information, but also adaptation and knowledge of methods that facilitate communication with hearing people (e.g. lip reading, use of handwriting, use of sign language interpreters).

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Soft competences for Deaf people can include, for example, the ability to explain one's job clearly and concretely, the ability to work as a team despite a language barrier, and the ability to adapt to changes at work, which often requires reacting quickly to a new situation, even if it is initially incomprehensible. It is also about dealing with conflict situations and being able to communicate effectively with people who do not know sign language. This means, for example, using available tools such as text communicators, sign language interpreters or simple visual cues to help with daily functioning at work. These skills allow Deaf people not only to work better with their team, but also to be more independent and confident employees.



# 5.

## **COMPREHENSIVE COMPETENCE ASSESSMENT METHODOLOGY USED IN THE GO4VOCATIONALSKILLS PROJECT**





**C**omprehensive competence assessment means assessing a whole set of competences of a different nature. The **Go4VocationalSkills** project considers professional competences and universal competences. Vocational competences are related to a specific field of study and their assessment concerns theoretical knowledge, practical skills and knowledge of specialised software. Universal competences are not related to the field of study or future profession, and are useful in a variety of jobs and situations, not only professional ones. Among these competences, 9 areas related to both knowledge and skills and attitudes have been distinguished. Examples of the former are linguistic competence (knowledge of foreign languages) or analytical competence (problem-solving skills). Attitudes are mainly associated with soft competences such as, for example, interpersonal competences or those concerning openness to continuous development, commitment, creative working style.

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The diverse nature of the competences required the preparation of different tools to assess them and the use of different ways to measure their level. The following options were prepared:

1. Single-choice test questions used primarily to assess knowledge. These questions distinguish between four answers (one of which is correct) and a ‚Don’t know’ answer (to avoid having to guess if the correct answer is not known).
2. Single-choice test questions requiring simple operations for the primary purpose of assessing skills. In these questions, as in the previous type of question, there are four answers (one of which is correct) and a „Don’t know” answer. In this case, the selection of the correct answer must be preceded by the performance of simple calculations, analysis, appropriate interpretation of the results.
3. Questions with answer choices, in which the choice of answer option is linked to a declaration of the level of knowledge and skills by the learner. In these questions, the learner determines his or her own level of a given competence by selecting one of the variants from a list of available possibilities. The list of answers contains four variants indicating different levels of a given competence from the lowest to the highest. Questions of this type can be used for self-assessment in the case of competences for which there are defined norms for the different levels – this applies, for example, to language competences.



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- 4.** Questions with answer choices requiring the solution of a problem situation. These questions are formulated as a description of a specific problem situation. The answer options contain four propositions describing possible ways of dealing with the situation. The role of the learner is to analyse all the options and determine which way he/she would choose to solve the problem. These questions are used to assess soft skills.

For single-choice questions (options 1 and 2), points are awarded for the correct answer. The level of a given competency is determined by the total points obtained by the student. For questions with multiple choice answers (options 3 and 4), there are no correct or incorrect answers. A level is directly assigned to each answer option. The final level score for a given competence is the average of the levels obtained in the individual questions.

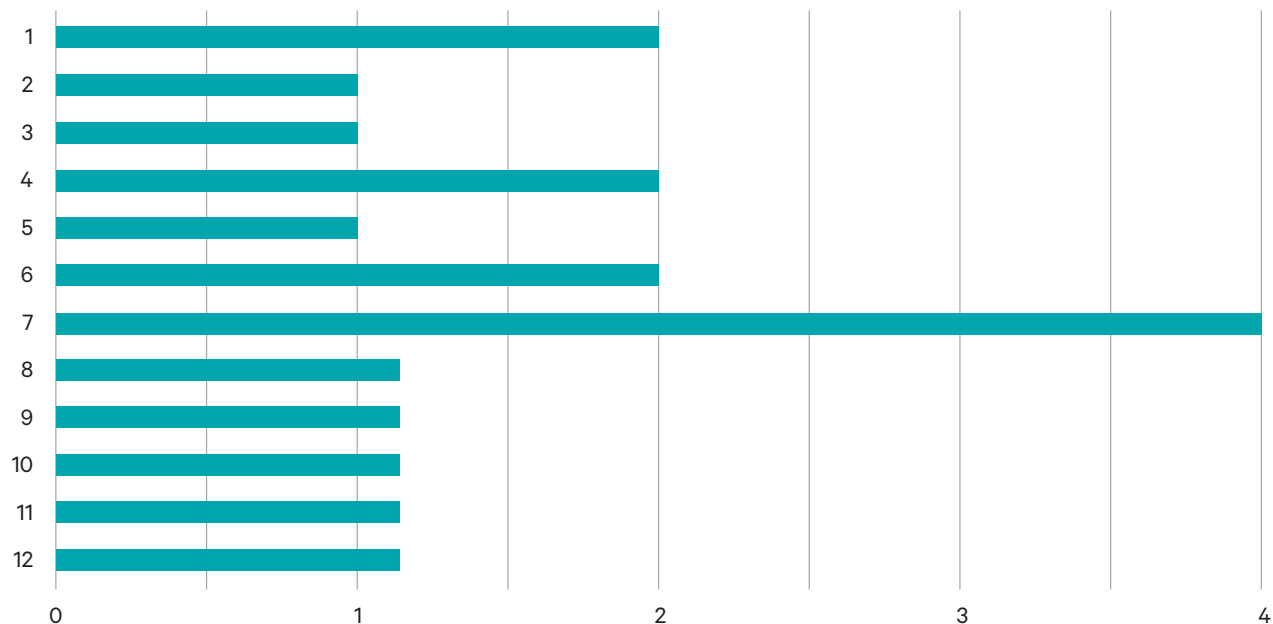
In the **Go4VocationalSkills** project, we have not limited ourselves to assessing competence levels. Competence profiles were also prepared for the professions/positions in which students are most often employed after completing a specific course of study. The profiles include the desired levels of particular competences for a given position. The desired values were determined on the basis of a survey of employers employing technician graduates. Comparing the levels of competences from the competence profiles with the level of competences obtained by the student makes it possible to identify competence gaps and indicated development areas. It also makes it possible to prepare a ranking of professions in which the student is best/worst prepared to work, which facilitates the decision to look for a suitable job.

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The assessment of competence is carried out on a five-point scale from 0 to 4. Level 0 in the case of desirable competence means that the competence is not required, while in the case of the assessment of the learner's level of competence the competence is lacking. Level 4 in the case of desirable competence means that the competence in question is required at the level necessary to perform a number of complex tasks of a diverse nature, while in the case of the assessment of the learner's level of competence its very high level. In order to automate the comprehensive assessment of students' competences, an IT tool (web application) has been prepared. The operation of this tool involves two steps:

- In the first step, the learner is asked random test questions divided into specific areas (competences – e.g. questions on professional knowledge, soft skills). Based on the learner's answers, the tool assesses the level of each competence.
- In a second step, the tool compares the marks obtained by the learner with the competence profiles (desirable levels for the different competences) for the different professions/positions. The results indicate which jobs are closest and which are furthest away in terms of the competency level of the student taking part in the survey, what the differences are between the student's competency level assessment and the desired level for the job.

The way in which the results of the competence level assessment are presented and compared with the competence profiles should be intuitive and not cause students any problems of interpretation. For this reason, we have opted primarily for graphical presentation in the form of bar charts, where the length of the bar depends on the achieved/desired level of particular competences. Example graphs are presented in Figure 3 (assessment of the student's level of competence – top graph, comparison with the competence profile for the given profession – bottom graph).



- 1 – **Professional** – theoretical knowledge
- 2 – **Professional** – practical skills
- 3 – **ICT** – the knowledge of software
- 4 – **Linguistic** – knowledge of foreign languages
- 5 – **Analytical skills** – problem solving
- 6 – **Interpersonal** – communication, teamwork
- 7 – **Interpersonal** – work in diverse teams (e.g. multicultural, multigenerational)
- 8 – **In terms of organization and self-organization** – time management, independence
- 9 – **In terms of creativity** – generating new ideas, a creative style of work
- 10 – **In terms of learning** – openness to continuous development
- 11 – **Personal** – loyalty, commitment, responsibility
- 12 – **Personal** – resistance (stress management, working under time pressure)

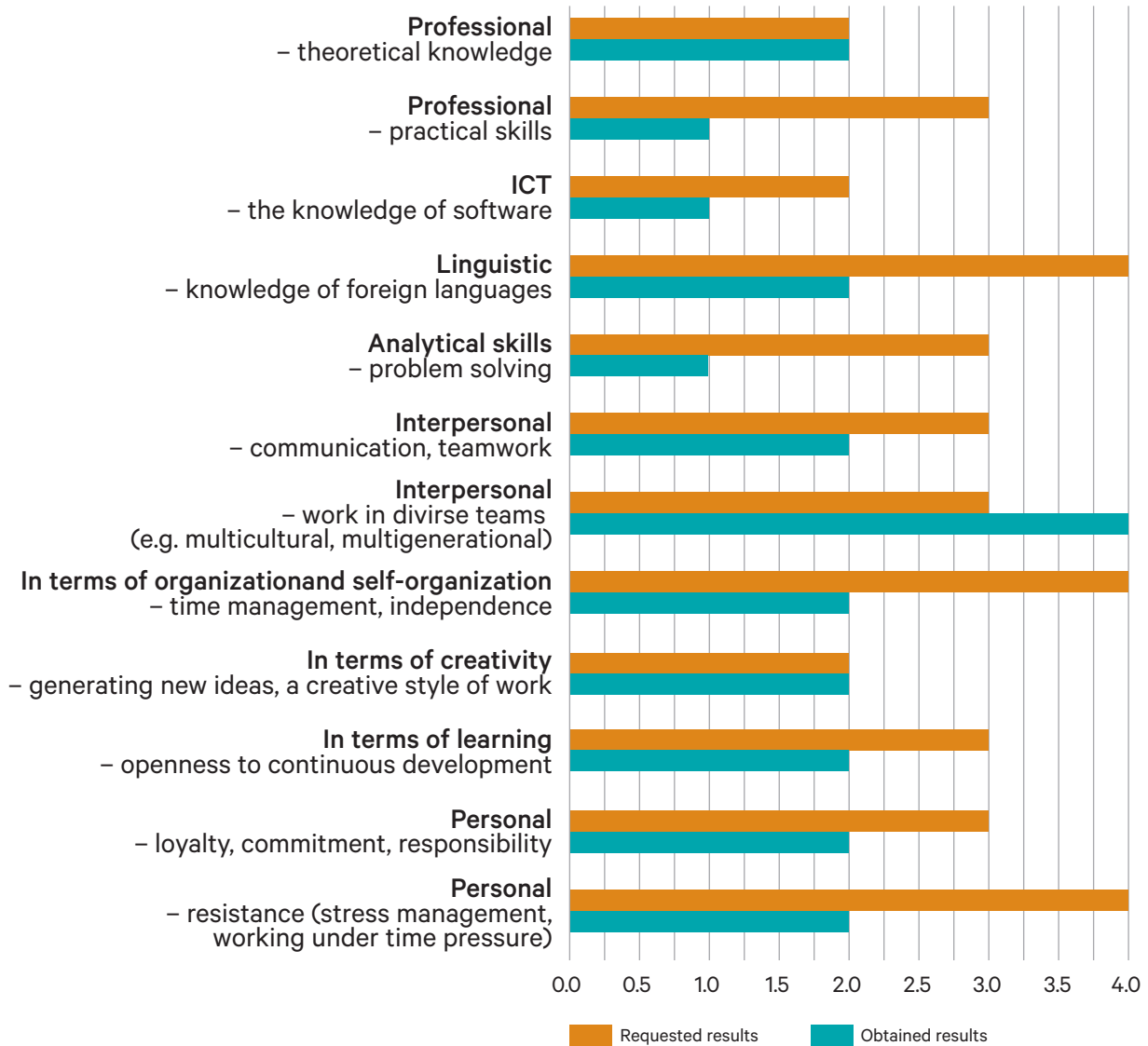


Fig. 3.

Example graph of student's individual competency level assessment – overall assessment, assessment against profession

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The method used for the comprehensive assessment of competences and the presentation of the results of this assessment has worked well for mass school students. However, as indicated in the first section of this paper, it is not a suitable tool for assessing the competences of Deaf students. This is due to several considerations, both of a substantive and technical nature:

- prepared questions were incomprehensible to Deaf students – language is too difficult, problem identifying differences between answer options for questions with choice answers (option 4),
- some of the competences included in the assessment are not and will not be the strengths of Deaf students, and the assessment method itself does not correspond to the specific characteristics of the Deaf student – this applies, for example, to linguistic competences (where, for example, speaking or listening comprehension is assessed) or analytical competences (the problem with abstract thinking in Deaf people),
- The small numbers of Deaf students for each course of study mean that verification of any prepared questions assessing professional competence is not possible,
- the preparation of competence profiles is a problem, due to the lack of experience of employers in employing Deaf people, and this makes it impossible to determine the desired levels of particular competences, or even to define them precisely (what does it mean in a Deaf student?),
- the lack of competence profiles makes it impossible to present the level of the student's competences against selected professions/jobs, to create a ranking that would be helpful in the decision to look for a suitable job.

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These problems make it necessary to prepare a modified tool dedicated to the assessment of Deaf students' competences. The following issues remain to be considered: the choice of competences that should be assessed and whose assessment is justified; the way of preparing questions that will be understandable for Deaf students; the way of presenting the results without a template in the form of competence profiles; the way of interpreting the results without desired values; the planning of development activities on the basis of the results obtained in the absence of a basis for assessing competence gaps for particular competences. Examples of soft competences that could be assessed in Deaf students and questions to assess their level are presented in the next section of this report.



# 6.

## **INITIAL PROPOSAL FOR A TOOL TO ASSESS THE SOFT SKILLS OF DEAF STUDENTS**





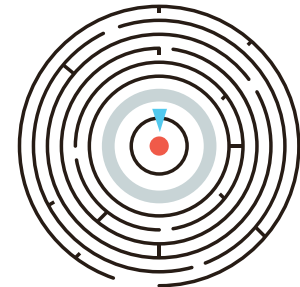
One of the key elements of the report is to provide an initial proposal for a tool that will enable an objective and substantive assessment of soft skills in a way that Deaf students can understand. We propose the possibility to assess the level of several areas of soft skills that are relevant in a professional context. The questions helping to assess the different areas of competence have been designed in a clear, direct way, using examples of everyday situations. Our aim was to adapt the questions and potential answers as much as possible to Deaf people's expectations and perceptions. In the following section, we included a set of 20 questions to assess how Deaf people understand and cope with professional work, namely: „**What does it mean that I – a Deaf person – work?**”.



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We have singled out five areas that we believe are crucial for successful entry into the labour market and adaptation to the demands of functioning in a work team. These are: communication, teamwork, problem solving, time management and adaptation to change. The questions can be approached in relation to work in a broad sense, i.e. situations that may arise in the professional workplace or in working together in a peer group or in carrying out specific tasks in everyday life (e.g. organising a performance, preparing a team homework assignment).

The questions have been structured in a simple and understandable way to respond to specific aspects of group/work functioning. Each question is rated on a scale from 1 to 5 (where the different options mean: 1=never, 2=rarely, 3=sometimes, 4=frequently, 5=always), which allows for a more accurate assessment of individual skills in a given area.



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## COMMUNICATION

Question 1.

Can you explain to others exactly what you do?				
Never	Rarely	Sometimes	Often	Always

Question 2.

Do you ask for help when you don't understand a task or have a problem?				
Never	Rarely	Sometimes	Often	Always

Question 3.

Do you use sign language, writing or other ways to get along with hearing people?				
Never	Rarely	Sometimes	Often	Always

Question 4.

Do you understand when someone tells you that you are doing something wrong?				
Never	Rarely	Sometimes	Often	Always

Question 5.

Can you communicate an important message even when others do not know sign language?				
Never	Rarely	Sometimes	Often	Always

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## **WORKING IN A GROUP/TEAM (TEAM MAY NOT BE UNDERSTOOD, CREATE A DEFINITION OF TEAM AS A TEAM OF PROFESSIONALS)**

Question 6.

<b>Are you able to work with others in the same group/team?</b>				
Never	Rarely	Sometimes	Often	Always

Question 7.

<b>Are you able to establish with others who does what?</b>				
Never	Rarely	Sometimes	Often	Always

Question 8.

<b>Do you accept the ideas of others, even if they are different from your own?</b>				
Never	Rarely	Sometimes	Often	Always

Question 9.

<b>Do you help others when they have a problem?</b>				
Never	Rarely	Sometimes	Often	Always

Question 10.

<b>Are you able to share responsibilities with colleagues?</b>				
Never	Rarely	Sometimes	Often	Always

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## PROBLEM SOLVING

Question 11.

Are you trying to solve problems yourself?				
Never	Rarely	Sometimes	Often	Always

Question 12.

Are you able to look for a solution when something is not working?				
Never	Rarely	Sometimes	Often	Always

Question 13.

Can you choose the best solution when there are several?				
Never	Rarely	Sometimes	Often	Always

Question 14.

Are you able to ask for help when you have a problem with something?				
Never	Rarely	Sometimes	Often	Always

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## TIME MANAGEMENT

Question 15.

Can you plan your time well?				
Never	Rarely	Sometimes	Often	Always

Question 16.

Can you identify which tasks are most important?				
Never	Rarely	Sometimes	Often	Always

Question 17.

Are you able to change your plans when something needs to be done right away?				
Never	Rarely	Sometimes	Often	Always

Question 18.

Do you complete your tasks on time?				
Never	Rarely	Sometimes	Often	Always

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## ADAPTATION TO CHANGE

Question 19.

Do you get used to change quickly?				
Never	Rarely	Sometimes	Often	Always

Question 20.

Are you coping well with new tasks?				
Never	Rarely	Sometimes	Often	Always

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A set of questions has also been prepared to explore how Deaf people assess the value of work in their lives. The questions focus on aspects such as feelings of independence, belonging, satisfaction, stability and personal development. By rating these questions on a scale of 1-5, it is possible to get a better picture of what benefits work brings to Deaf people and how it affects their lives. Again, when we talk about work, we do not necessarily mean professional work, which at least some students may not have encountered yet. It could be other activities aimed at producing specific products, results or fulfilling assigned tasks.

We have prepared a set of 15 questions to help you assess the question: **„What does work give me – Deaf people”**. Here, too, we distinguished five areas: independence and a sense of autonomy, a sense of being part of a group, satisfaction and a sense of fulfilment, stability and a sense of security, and learning new skills. The questions are structured in a simple and understandable way and are designed to assess how Deaf people perceive the value of work in their lives – both in terms of personal development and emotional, social and professional benefits. Each question is scored on a scale of 1 to 5 (where the options mean: 1=never, 2=rarely, 3=sometimes, 4=frequently, 5=always), allowing for a more accurate assessment of each area.

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## AUTONOMY AND A SENSE OF INDEPENDENCE

Question 1.

Does the job make you feel more independent?				
Never	Rarely	Sometimes	Often	Always

Question 2.

Does your work make you feel that you can make important decisions?				
Never	Rarely	Sometimes	Often	Always

Question 3.

Does your work give you a sense of satisfaction?				
Never	Rarely	Sometimes	Often	Always



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## SENSE OF BEING PART OF A GROUP/TEAM (BELONGING)

Question 4.

When you are working, do you feel that you are needed?				
Never	Rarely	Sometimes	Often	Always

Question 5.

Do you come into contact with people you can get along with through your work?				
Never	Rarely	Sometimes	Often	Always

Question 6.

Do you enjoy working with other people?				
Never	Rarely	Sometimes	Often	Always

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## SATISFACTION AND A SENSE OF ACHIEVEMENT

Question 7.

Do you feel proud when you do your job?				
Never	Rarely	Sometimes	Often	Always

Question 8.

Do you feel that by working you are becoming better?				
Never	Rarely	Sometimes	Often	Always

Question 9.

Do you feel that you are doing something important by working?				
Never	Rarely	Sometimes	Often	Always

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## STABILITY AND A SENSE OF SECURITY

Question 10.

Do you feel safe when working?				
Never	Rarely	Sometimes	Often	Always

Question 11.

Can you plan better for the future by working?				
Never	Rarely	Sometimes	Often	Always

Question 12.

Does your work give you benefits?				
Never	Rarely	Sometimes	Often	Always

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## ACQUIRING NEW SKILLS (PERSONAL DEVELOPMENT)

Question 13.

Do you learn new things while working?				
Never	Rarely	Sometimes	Often	Always

Question 14.

Does work motivate you to be active?				
Never	Rarely	Sometimes	Often	Always

Question 15.

Do you learn new methods useful in everyday life while working?				
Never	Rarely	Sometimes	Often	Always

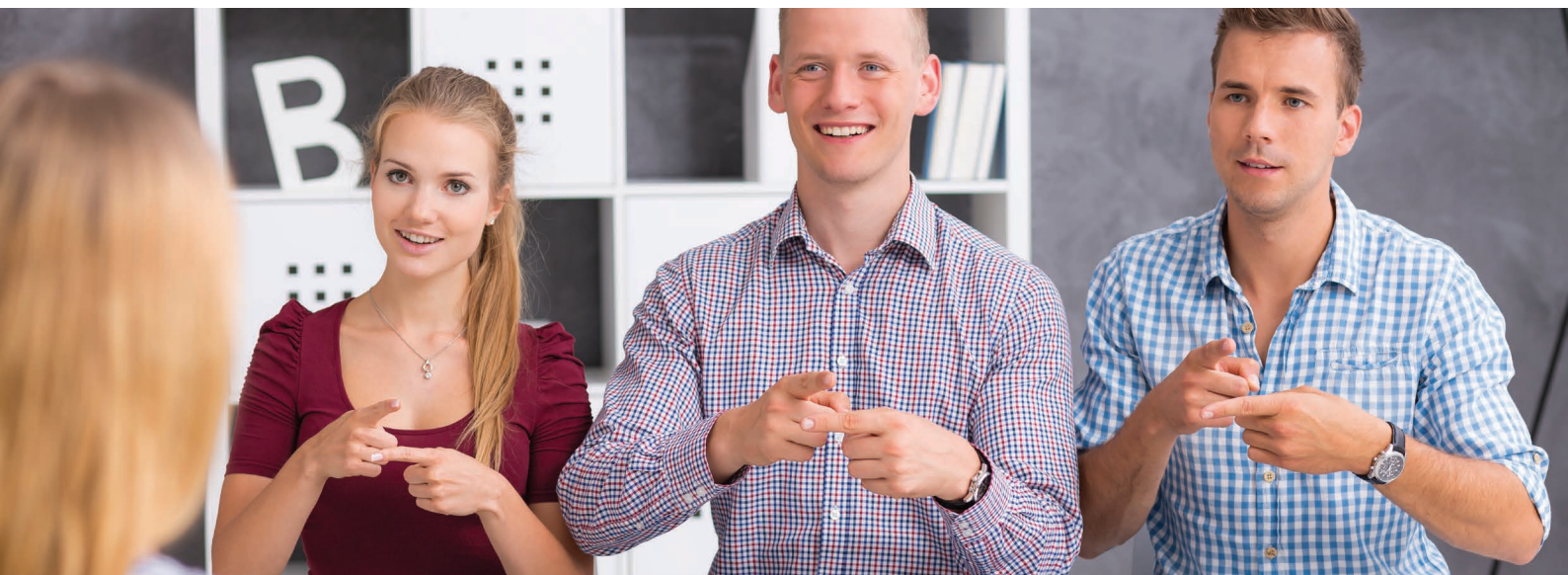
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In assessing a student's level of competence in each area, the average scores obtained from the questions assigned to those areas can be used as a guide. The absence of competence profiles with a desired level for competences can be replaced by adopting as a baseline a value of at least 3, i.e. answers of „sometimes” or answers with lower scores balanced by answers with higher scores in other questions in the area. These are only preliminary proposals that need to be thought through, analysed and carefully defined.

When carrying out a competency level survey of a Deaf student, it is important to make sure that the student fully understands the questions asked and how he/she chooses/interprets the different answer options, especially the middle ones. For example, what does ‚rarely’ or ‚often’ mean to the student? If there are problems with understanding the questions and differences in the answer options, it is advisable to provide additional clarification of the problem issues, e.g. establishing the differences between the answer options, before the student completes the test.

# 7.

## RECOMMENDATIONS FOR THE CREATION OF AN IT SYSTEM FOR THE ASSESSMENT OF DEAF STUDENTS COMPETENCE





The content presented in the previous sections shows how complex the specificity of competence assessment is in the case of the Deaf group, mainly due to the differences in perception of soft competences compared to hearing people. In order to effectively support Deaf students in their career decisions, these specific needs and expectations must be taken into account. In our report, we initiated the development of a convenient tool to support this target group. We believe that by using clearly defined competence areas and simple questions, we can help Deaf students to better understand their skills. In this way, we can help them decide what steps to take in the future in terms of career choice and labour market activity. A good understanding of their competence level and thus their abilities and needs will also support their personal development by preparing them for challenges in the working environment.

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The main aim of vocational guidance is to help people choose the right direction in a supportive environment, i.e. to find an occupation that matches their competences. This should take into account factors such as aptitude for the profession, the potential employee's communicative and linguistic competences or psychological comfort. Psychological barriers in Deaf people are related to the concept of stigma. This is due, for example, to the barrier that can arise when interacting with hearing people and the communication disruption that results from the use of other language codes. Often at the final stage of primary education, i.e. during the choice of a further career path, Deaf young people have less life experience or a weaker understanding of the nature of social relations or knowledge of the world. And this translates into the possibility of choosing a suitable profession.

Due to the low communicative and social competences of Deaf people among the hearing group, it is difficult to carry out meaningful tests of occupational preferences. It also depends on environmental factors such as the child's first language or self-acceptance. Deaf students often have limited options when it comes to choosing a profession. This is influenced by the poor and unadapted vocational training offered to them. This can generate frustration and a feeling that all the effort put into education, the pressure from others to finish school is pointless. Particularly since a poorly chosen profession later on will not bring tangible financial or social benefits.



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A possible change of qualifications for Deaf people is very difficult, and often impossible, due to lack of information or inadequate forms of training and vocational training for this group. It is common for Deaf people to choose jobs that are incompatible with their qualifications or aptitudes when trying to obtain any form of employment. For example, after graduating in computer graphics, young people are employed in warehouses or as low-paid helpers. Very often, Deaf people choose a course of study not because of their dreams, but because of how many Deaf people have found work in a particular profession.

It is worth noting that the linguistic competence of a person with hearing disability depends on a number of factors, including, in particular, the timing of the hearing disability, the degree of hearing loss, the prosthetic measures taken or environmental aspects. Before testing any competences of person with hearing disability, it is important to ascertain the language spoken by the person being tested, i.e. whether they use spoken language (at what level?) or whether they use sign language. Depending on the initial diagnosis, you can prepare for the test accordingly (e.g. invite a sign language interpreter, choose a picture test), so that the person being tested can be at ease and truthful during the meeting. Most personal and social competences are based on cooperation between people and, above all, are based on the use of the same language code. In a situation where employers and co-workers are almost always speakers of another language, improving the language competence of Deaf people in the phonetic language used in the country is a prerequisite.

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A more balanced approach might involve both improving language competence and ensuring employers and co-workers create an accessible and supportive environment. This could include:

- Providing sign language interpreters.
- Offering real-time captioning services.
- Using assistive technologies.
- Creating a culture of inclusion and awareness among all employees.

Just as we would expect reasonable accommodations for any group of people with disability, it is equally important for the workplace to adapt to the needs of Deaf individuals rather than expecting them to fully conform to the prevailing communication methods.

Every young person has to undergo an examination in occupational medicine before starting an apprenticeship. Unfortunately, outdated regulations severely limit the choice of profession. According to the current guidelines, in the case of a Deaf person, the doctor pays attention to harmful factors such as work in noise, work at height and work requiring constant vocal effort. It is worth emphasising that occupational health and safety recommendations regarding contraindications to work for people with hearing disability are outdated and inadequate to reality. In the case of total deafness, noise exposure has no adverse effects. Deaf people can successfully perform occupations and activities that require contact with people, examples being checkout clerks in hypermarkets, hairdressers, beauticians. Much depends on the interpretation of decision-makers. The current Polish legislation lacks precise and clear definitions, which creates room for misinterpretation. Probably the situation is similar in other countries.

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In recent years in Poland, young people graduating from the special education system have a low pass rate in theoretical vocational examinations. This is mainly due to the shortcomings of this education system, most notably the lack of bilingual education and the poor phonic language skills of Deaf people. Despite measures taken to prepare the education system for the needs and abilities of the Deaf, we still have unadapted curricula, too narrow a vocational education offer, and consequently an education that is not adapted to the needs of the labour market. This situation of continued impotence or even marasm is difficult to accept, especially as there is constant talk of the need for accessibility and inclusion in education and the labour market. And to improve the situation of people with special needs there is a need for both national resources and EU support, for example from the Erasmus+ programme or the European Social Fund. In the context of the growing need to provide support for Deaf people, especially in the field of vocational education and preparation for entering the labour market, it seems necessary to try to develop effective solutions for a comprehensive assessment of the competences of this group. This is an important step towards equal opportunities and adaptation of the educational offer to real needs. It is worth emphasising that Deaf students, despite having professional potential, often face serious communication barriers that limit their ability to objectively assess their competences and skills. Therefore, the development of an appropriate tool can significantly improve their educational and professional situation.

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To conclude, we would like to make some recommendations we think would be useful for the creation of an IT system to assess the competences of Deaf students:

- 1.** The key importance is the difference in the way Deaf people communicate and assimilate knowledge compared to hearing people. Traditional assessment methods, based on auditory communication and abstract concepts, are often inappropriate or too difficult for this group to understand. The IT system should take these differences into account and offer alternative assessment methods incorporating possibilities such as the use of sign language or the use of images to describe problem situations. Such media will make it easier for Deaf students to interpret questions correctly and to assess their competence.
- 2.** A necessary element of the tool should be to adapt the language of the tests to the abilities of Deaf people. The language used in the questions should be simple, understandable and appropriate to the students' level of phonic language proficiency.
- 3.** A competence assessment tool for Deaf students should be available to all educational institutions that educate Deaf and hard-of-hearing people, and especially to vocational and technical schools. The creation of a dedicated IT system for the assessment of competences will provide access to a professional analysis of the students' strengths, their professional predispositions, as well as areas in need of further development. This, in turn, will help them to make an informed choice of educational direction and better prepare them to enter the labour market.

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4. One important aspect in terms of equal opportunities is that it is currently difficult for Deaf people to receive counselling support that takes into account their individual needs and aptitudes. Guidance counsellors, who often do not understand the specific characteristics of Deaf people and do not use sign language, are limited in their ability to effectively support these students. An IT system that takes these differences into account could become an important tool in working with Deaf people, allowing them to better identify their strengths and choose their career path appropriately.
  
  5. The introduction of IT tools to assess competence levels in vocational and technical schools will allow the curriculum to be adapted to the real needs of employers. By matching competencies to labour market requirements, Deaf students will have the chance to develop in vocational areas that best match their skills and aptitudes. The IT system could also work with recruitment platforms, allowing employers to more easily find candidates who have the right skills and are well prepared to work in diverse professional environments.

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6. Deaf students, like their hearing peers, experience their emotions and develop their intellectual and social abilities differently. These differences are particularly evident in the area of communication, which can affect self-esteem, attitudes towards learning and general attitudes towards educational challenges. Creating a competence assessment system with psychological aspects in mind allows assessment tools to be better tailored to the specific needs of Deaf students. The psychological aspects of Deaf education are inextricably linked to their identification with their community and their self-confidence. Many Deaf people may struggle with feelings of isolation or insecurity, which can affect their educational performance and attitudes. An assessment system that addresses these aspects can help students build a positive identity and motivation to continue to develop. By personalising and adapting the system appropriately to the psychological needs of the students, the system can additionally serve a supportive function rather than just an assessment function.



# Go4VocationalSkills

Possibilities of using the IT system to  
assess the competences of the Deaf  
students of vocational schools

