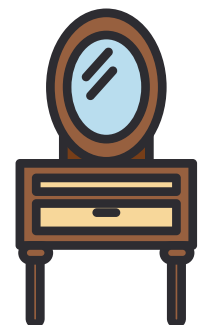
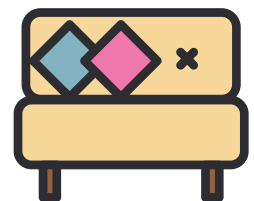
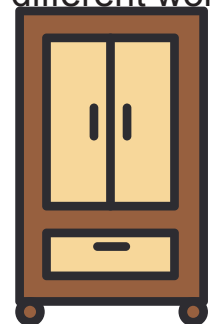




## Intellectual Output 1

Directory with words, expressions, actions that it has to be necessary for a suitable communication with people with hearing impairments in 3 different work environments

### Report of Furniture sector



Erasmus+



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## 1. Introduction: From O1-A2 to O1-A3

In the first project step (check the report of O1-A2 which it is complementary to this one) of IO 1 "Directory with words, expressions, actions that it has to be necessary for a suitable communication with people with hearing impairments in 3 different work environments", the SWING field study was conducted in four countries with a total of 15 observations for the furniture sector in different kind of enterprises (upholstery and joinery/furniture):




Country/Type	 Spain	 Italy	 Germany	 Hungary	Total number
Joinery/Furniture Enterprise	4	1	3	1	9
Upholstery Enterprise	5	1	-	-	6
<b>Total number</b>	<b>9</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>15</b>

Figure 1: Number and distribution of the observations in furniture. Source: "Report about Observations in Furniture (O1-A2)"

The observations involved the systematic collection of all words that appeared explicitly or implicitly in the activities and situations inside upholstery and joinery/furniture enterprises. A total of 2169 words were detected and 1,757 different inputs. After a few analysis steps, the amount of data could be reduced to a list of the 254 most important words. In fact, it was selected the 245 words that were detected in 2 or more observations. To that number, it was added the 5 sentences that were detected in 2 or more observations and finally it was added the 4 words which were appearing more times in a single observation. Compared to the final list of 150 words, this still quite extensive compilation needed to be presented to the hearing and hearing-impaired experts for review in the next stage of the project. In the furniture sector, the words were as follows:

	WORD	Word appeared in how many different observations?	Word appeared how often?
1	Accessories	2	2
2	Adjustments	2	5
3	Angle	2	2
4	Armchair	3	3
5	Arm	3	4
6	Ash	3	3
7	Aspiration	2	2
8	Avoid mistakes	2	2
9	Back	8	10
10	Bands	1	8
11	Bandsaw	6	8
12	Base	3	5
13	Bed	2	2
14	Beech	4	4
15	Beige	2	2

16	Between	4	7
17	Black	2	2
18	Blue	2	2
19	Board	4	5
20	Box	4	4
21	Break	2	2
22	Breakdown	2	2
23	Brown	5	5
24	Brush	2	2
25	Bubble	2	2
26	Buttons	2	2
27	Carry	3	3
28	Carving	2	2
29	Centimetre	5	5
30	Chaise longue	3	3
31	Change	4	6
32	Circular saw	3	6
33	Clamping	2	2
34	Clean	6	9
35	Coating	2	4
36	Colour	7	14
37	Computer	2	2
38	Contact	2	2
39	Container	2	2
40	Contour	2	3
41	Control	2	2
42	Couch	3	5
43	Coworker	2	2
44	Cushion	5	18
45	Cut	4	11
46	Cutter	2	2
47	Detail	2	4
48	Dimensions	2	2
49	Documents	2	2
50	Door	4	4
51	Dowel	2	2
52	Drawer	5	5
53	Drawings	2	2
54	Drill	8	10
55	Dry	3	3
56	Drying time	2	2
57	Dust	7	11
58	Edge	2	2
59	Edge banding machine	2	2

60	Effective	2	3
61	Engine	2	3
62	Fabric	6	18
63	Fact	2	2
64	Feather	3	3
65	Fill	5	7
66	Finishing	3	6
67	First	2	2
68	Flange	1	8
69	Flat	5	5
70	Flexible tube	2	2
71	Foam	2	2
72	Foam rubber	5	8
73	Forklift	4	4
74	Frame	6	6
75	Front	5	6
76	Furniture	2	3
77	Girth	4	10
78	Gloves	5	5
79	Glue	4	5
80	Gluing	2	2
81	Good	2	3
82	Grain	2	3
83	Grinding	4	7
84	Gum	2	2
85	Hammer	3	3
86	Hardwood	4	4
87	Hearing protection	2	2
88	Heat	2	2
89	Hidden	2	2
90	Hold	5	6
91	Hole	4	5
92	Horizontal	6	6
93	Immersion	2	2
94	Impacts	2	3
95	In stock	2	2
96	Instructions	3	8
97	Inventory	4	4
98	Invoice	3	4
99	Issues	2	2
100	Knot	2	2
101	Label	4	12
102	Leather	3	3
103	Left	3	3

104	Light	3	3
105	Line	3	4
106	Long	3	4
107	Machine	6	11
108	Manufacture	2	2
109	Mark	2	2
110	Material	2	5
111	Measurement	8	19
112	Melamine	2	2
113	Mill	5	5
114	Millimetre	3	3
115	Milling machine	3	3
116	Miter saw	2	4
117	Model	5	14
118	Modern	2	2
119	Moulding	4	4
120	Nails	4	6
121	Now	2	2
122	Numbers (1, 2, 3...)	2	2
123	Numerical control computer	2	2
124	Nylon	1	6
125	Oak	3	3
126	Open	3	3
127	Order	9	15
128	Packaging	6	8
129	Paint	4	6
130	Pallet	2	4
131	Pallet jack	2	2
132	Paper	2	2
133	Parts	2	4
134	Pattern	3	3
135	Pause	2	2
136	Pencil	2	2
137	Perfect	3	3
138	Perform	2	3
139	Personal Protective Equipment	2	2
140	Piece	3	4
141	Pillow	1	4
142	Pine	6	7
143	Plan	2	2
144	Planer	4	4
145	Planning	2	2
146	Point	2	2

147	Polyurethane	2	2
148	Press table	3	3
149	Production manager	4	5
150	Program	3	3
151	Project	2	2
152	Protective	2	2
153	Punctuality	2	2
154	Push	3	6
155	Put away	2	2
156	Ready	5	6
157	Receipt	2	2
158	Red	3	3
159	Resin	4	4
160	Right	3	3
161	Risk	2	2
162	Roll	7	7
163	Round	2	2
164	Ruler	2	2
165	Sample	2	3
166	Sand	6	14
167	Sanding	5	11
168	Sandpaper	3	4
169	Saw	8	18
170	Sawdust	3	4
171	Scissor	5	7
172	Scraper	2	2
173	Screw	2	2
174	Screwdriver	5	5
175	Seal	2	2
176	Seat	6	9
177	Sewing book	3	4
178	Sewing line draw	3	3
179	Shape	4	6
180	Shelves	2	2
181	Shifts	2	2
182	Shove	2	2
183	Side	3	4
184	Silicone	2	2
185	Skills	3	3
186	Slat	2	2
187	Sliding table saw	2	2
188	Smooth	3	4
189	Sofa	2	6
190	Solid wood	2	2



191	Solvent	4	4
192	Spike	2	2
193	Splash	2	4
194	Splinters	3	8
195	Spray gun	4	4
196	Spruce	2	2
197	Squares	2	2
198	Stackable	3	3
199	Strap	4	10
200	Suction	3	3
201	Supervisor	2	2
202	Supplier	5	5
203	Switch off	3	3
204	Switch on	2	2
205	Symmetric	2	2
206	Task	2	4
207	Team	2	2
208	Temperature	4	5
209	Template	2	3
210	Termites	2	2
211	Tests	2	2
212	Texture	3	5
213	Thickness	4	4
214	Thickness planer	4	4
215	Thin	2	2
216	Thread	5	11
217	To fill pillows	2	4
218	To sew	2	4
219	To stretch	3	4
220	Tool	7	13
221	Trim	3	4
222	Truck	2	2
223	Turn on	2	3
224	Tyed	2	2
225	Units	2	4
226	Upholstery	2	4
227	Vacuum cleaner	3	3
228	Varnish	2	3
229	Velcro	3	9
230	Veneer	3	3
231	Walnut	2	2
232	Warehouse	4	6
233	Wash	3	3
234	Washer	2	2

235	Water	2	2
236	Water level	2	2
237	Weight	2	2
238	White	2	2
239	Width	4	5
240	Window	2	2
241	Wood	7	18
242	Work	2	4
243	Work table	4	8
244	Workshop	2	4
245	Worktop	2	2
246	Wrist	3	4
247	Wrong	2	2
248	Yardstick	2	2
249	Zipper	5	14

Figure 2: Words to be tested in O1-A3 – sorted alphabetically. Source: “Report about furniture observation (O1-A2)”, p. 10

Selected sentences are the following:

	SENTENCE	Observations	Number of times used
250	"I don't know."	3	4
251	Instructions of the boss	2	2
252	May I help you?	2	2
253	Take measures	2	2
254	"What?"	2	2

Figure 3: Sentences to be tested in O1-A3 – sorted alphabetically. Source: “Report about furniture observation (O1-A2)”, p. 10

The methodological embedding of this list in the following project step as well as other types of survey are explained in the next section.

## 2. Description of the Methodology of O1-A3

The work package O1-A3 used the methodology of **interview** and **role-playing** to collect data in order

- to review the significance of the words gained in O1-A2,
- to add new words (if it is necessary),
- to obtain explanations,
- to have the most important words represented in sign language and
- to grasp the context in which certain words are commonly used.

### Interviews:

In the furniture sector, a total of 40 people was interviewed, including 20 hearing people and 20 people with hearing problems. These were to be distributed among the partner countries as shown in Figure 3.

### Role Playing:

The role plays (named “mock conversations” in the application) served to simulate typical conversations between people with and without hearing problem in typical situations in furniture/joinery or upholstery enterprises. The aim was to find out the most important words. The plan was to carry out one role play per partner - i.e. 5 role plays in total, with at least one role play in each of the three sectors (culinary, tourism, furniture).





Country/Type	 Spain	 Italy	 Germany	 Hungary	Total number
Interviews with hearing people	8	4	4	4	20
Interviews with people with hearing problems	8	4	4	4	20
<b>Total number</b>	<b>16</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>40</b>

Figure 3: Distribution of Interviews in the furniture sector (O1-A3)

Country/Type	 Spain	 Italy	 Germany	 Hungary	Total number
Furniture	1	-	-	-	1
Tourism	-	1	-	-	1
Culinary	-	1	1	-	2
<b>TOTAL</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>-</b>	

Figure 5: Distribution of mock conversations (role-playing) in the different sectors and countries (O1-A3)

### 3. Interviews in Furniture (O1-A3)

The interviews were based on the previously developed interview guidelines by the partnership. These guidelines are really similar between the different sectors. First of all, interviewers have been familiarized with the interview protocol before starting in order to keep in mind the necessary information that we want to obtain from the interviewees. The idea of the interview is the possibility of conducting a flowing dialogue, above all in the first part, and for that, the interviewers should be able to react flexibly and ask additional questions if it is necessary to obtain the required information.

The structure of the interview was divided in 4 parts:

1. Insertion part
2. Interview
3. Evaluation of the word list (the most important part)
4. Definition of the most important terms in words to be used in IO2

The interviewers had instructions to be respectful, empathic and listen with attention and interest to every part of the interview. It was established the possibility of recording the interviews, but it would depend on the acceptance of the interviewee.

The structure of 4 parts were implemented with the following questions:

#### A. Introductory Part

1. Welcoming words
2. Self-introduction of the interviewer and their institution
3. Introduction to the SWING project and the aims of the interview
4. Information about data protection and asking permission of keeping records (taking notes, video/audio)

#### B. Some Information about the Interview Participant

5. What is your name?
6. What is your job title?
7. What training did you complete?
8. What is your position in the company?
9. How long have you been with this company?
10. Were you already employed in this profession elsewhere before?
11. What professional experience do you have? (number of years, job areas)?
12. Will you tell us your age?

#### C. Previous knowledge and experience in relation to the target group

13. Have you already had contact with hearing-impaired people?
14. Was this contact private and/or professional?
15. If so, how did you manage to communicate with each other?
16. Do you already know sign language?

#### D. Questions about cooperation (cooking, furniture) or business relations (tourism) with hearing-impaired people

17. Could you imagine working with someone with hearing impairments?
18. What opportunities do you see in this?
19. What challenges do you see?
20. Do you know how to facilitate communication?
21. Do you think it would be helpful for the communication to have a video dictionary available with signs for the most important words in your profession?
22. Could you imagine even learning the most important words in sign language?
23. Could you imagine that it could also be helpful at your workplace to communicate some words in sign language with hearing colleagues (for example, because of high volume or to bridge distances)?

#### E. Common Reflection of the word list

24. During our field research, we have listened to you and your colleagues in your workplace activities. We have tried to identify the most important words, including both professional terms and frequently used everyday words.

We have created a list (in this moment it is given to the interviewee a list with the 254 words) and would like to ask you now to look through this list. Please use a pen

- to rate the words according the use of it in real environment (it could be rated as “It is used a lot in the sector – Essential”, “It is useful in the sector. Commonly used”, “It can be used occasionally” and “It is not present or it is useless”,
- to add important words to list that we have overlooked.

F. Please express briefly in your own words the definition of those words that you have rated as “It is used a lot in the sector - Essential” (in this case it was recommended to explain, at least, 15 words of that category)

G. Do you have any other comments?

The interviews with people with hearing problems had some small particularities according the target. In fact, some extra instructions were given to the interviewees, moreover, it is necessary to take into account that a sign translator would be present and it is necessary a good coordination with him/her. On the guideline about interviews were added information about lip reading and communication in sign language. Obviously, every partner had their own sign translator and it was necessary to make a previous session with the sign translator to explain the project, the objectives of the interview and give the opportunity to familiarize with the questions and the words. It is supposed that these interviews will last longer than with people without hearing problems. Finally, some questions were changed because the perspective and trying to be worded more simply for the people with hearing problems in part C according the recommendations of sign translators:

#### A. Introductory Part

1. Welcoming words
2. Self-introduction of the interviewer and their institution
3. Introduction to the SWING project and the aims of the interview
4. Information about data protection and asking permission of keeping records (taking notes, video/audio)

#### B. Some Information about the Interview Participant

5. What is your name?
6. What is your job title?
7. What training did you complete?
8. What is your position in the company?
9. How long have you been with this company?
10. Were you already employed in this profession elsewhere before?
11. What professional experience do you have? (number of years, job areas)?
12. Will you tell us your age?

C. Previous knowledge and experience with hearing colleagues

13. Have you already worked with hearing colleagues?
14. If so, how did you manage to communicate with each other?
15. Do your colleagues already speak sign language?
16. Do you read lips?

D. Questions about cooperation (cooking, furniture) or business relations (tourism) with hearing people

17. What opportunities do you see in working with hearing people?
18. What challenges/problems do you see?
19. How hard is it to get a job as a hearing-impaired person? What are your experiences?
20. Do you know how you can facilitate communication?
21. Do you find it helpful to get a video dictionary? This contains gestures for the 150 most important words in the profession.
22. Do you think your hearing colleagues would also learn these 150 most important words in sign language?
23. What would you wish for? Better integration etc.?

E. Common Reflection of the word list

24. During our field research, we have listened to you and your colleagues in your workplace activities. We have tried to identify the most important words, including both professional terms and frequently used everyday words.

We have created a list (in this moment it is given to the interviewee a list with the 254 words) and would like to ask you now to look through this list. Please use a pen

- to rate the words according the use of it in real environment (it could be rated as “It is used a lot in the sector – Essential”, “It is useful in the sector. Commonly used”, “It can be used occasionally” and “It is not present or it is useless”,
- to add important words to list that we have overlooked.

F. Please express briefly in sign language those words that you have rated as “It is used a lot in the sector - Essential” (in this case it was recommended to explain, at least, 15 words of that category)

G. Do you have any other comments?

### 3.1. Samples and Results in Spain



In Spain, a total of 16 surveys were carried out for the field of furniture, 8 of which were interviews with hearing people and 8 with hearing impaired people.

#### 3.1.1. Answers to Interview Questions from Hearing and Hearing Impaired Interviewees

##### 1. Results from the Interviews with Hearing People

A total of 7 hearing men and 1 hearing woman were interviewed in the field of furniture. This is a sector where men predominantly work, especially in the part of the factory, then there is a better ratio of women in the administration part. They are between 25 and 49 years old.

Their job positions are: 5 of them were salesmen, 1 assembler, 1 accountant, and finally 1 girth fitter and technician for finishing frames. Salesmen are given accurate answers because they usually control all the process to manufacture the pieces of furniture and they are usually in contact with all the departments.

2 of the interviewees have studied in the University (industrial technical engineer and translation and interpretation graduated), 3 of them have VET studies and the other 3 have secondary school studies. It is usual that people who are working in furniture sector has dropped out the studies re-ally soon, sometimes before the age when it is compulsory being in the national education system.

The hearing respondents have been employed between 2 years and 19 years in their current company; it is true that in furniture sector, there are really little rotation, and it is common that a worker spends the most part of their working life in the same job position or, at least, in the same company. In spite of this, some of them had previous contacts with other job positions or companies, for example, one of them have worked cutting polyurethane during 10 years, other one like technician in different job positions inside the furniture manufacturing process and other one assembling. For other ones, this is their first job.

Three of the hearing people had already had contact with people with hearing problems, always in private, that means that no one of them had ever had contact with people with hearing problems at work before. About the three who had contact in a private sphere, the communication was possible through gestures, with a lot of effort (especially by the deaf person) and difficulty because no one of them could speak sign language. In fact, none of the interviewees knew sign language at the time of the interview.

7 of the 8 hearing respondents can imagine to work with someone who has a hearing impairment, the other one said that he has not thought about it before. About the opportunities, one respondent said that learning sign language would be a personal achievement, other one said that it is an opportunity to start learning sign language at basic level, the third one said that the use of a common language between people who can and cannot hear is really pleasant and rewarding for everyone because we are improving the communication, other one said that it is an opportunity to improve the tolerance, other one commented that it serves to improve the communication skills, other one thought that they need to have the same opportunities than everyone and finally the last one said that it is an opportunity to learn and collaborate with new people. One of the respondents had not answered.

Regarding the problems and challenges encountered, one interviewee said that it means a time investment that he did not have (even he wanted), other one said that it is a challenge to learn sign language because he thought that it could be really difficult, the third one stated that the challenge is to be able to communicate with them in a short time because in factories it is necessary to do everything immediately, otherwise, it would be useless; the fourth one affirmed that the biggest challenge is getting a fluid and adequate

communication because it is essential inside the factory; two of the interviewees said that the challenge would be to understand each other, it is a problem of two ways; the final one said that the problem is only in one way, to achieve that the people with hearing problems could understand him. One of the respondents had not answered.

Three of the hearing professionals did not know how to facilitate those communications, two of the other 5 said that it would be a good idea to learn sign language in a basic level (only useful words for the situation), other one said that it would be necessary to offer a course inside the enterprise of 1 hour or 1 hour and a half to learn about it (like other courses), other one said that it was necessary that workers would know the methodology about making adequate communications; the final one said that it could be improved the communication with a lot of things like speaking slowly to facilitate the lip-reading, writing some words or expressions, with images or learning sign language.

All 8 respondents believed that a video dictionary in sign language with the most used words in the sector would be helpful for communication. 7 of them could imagine learning the most important words in sign language, the other one said that he had not thought about it before. All of them believed that it would be useful to use sign language in the workplace even if they are not people with hearing problems there, three of them had answered absolutely yes, it is useful.

Some words were added by the interviewees to the list: Glass, Mirror, TV cabinet, Chair, Table, Cupboard, Leg, Handle, Clock, Hunger, Thirst, Cold, Price, Fee, Available, Seat, Composition, Joined, Set apart, Assembly, Lunch, Hour and Transport.

Some words were added by the interviewees to the list:

- Glass
- Mirror
- Tv cabinet
- Chair
- Table
- Cupboard
- Leg
- Handle
- Clock
- Hunger
- Thirst
- Cold
- Price
- Fee
- Available
- Seat
- Composition
- Joined
- Set apart
- Assembly
- Lunch
- Hour
- Transport

## **2. Results from the Interviews with Hearing-Impaired People**



A total of 7 men and 1 woman were interviewed in the furniture sector with hearing problems. They are between 34 and 78 years old, this means that different generations have given their re-sponse to this interview. They were experienced workers on the sector, their work positions are: upholsterer, carver, technician of different job positions, polisher, packer and 3 cabinetmakers. It is represented different parts of the process inside furniture sector.

They did not want to give data about their studies, but most part of them had dropped out school in secondary. It is usual that the people who are working in this sector had started really young.

They had been employed between 10 and 30 years in their current company; and even some of them were worked in other companies related with furniture before. It is clear that the interview-ees could keep their job position during a lot of years and that it is a really good sign.

In their professional life 2 of them have worked with colleagues with hearing problems in furni-ture sector, but 6 of them have not worked with co-workers with hearing problems; the two who had worked with hearing problem co-workers had communicated with them in sign language. 4 of them did not have workmates who could speak in sign language but the rest had co-workers who could use sign language, one of them said that they knew only some basic signs, other one said that they only knew the signs that she had thought them, other one said that some of them knew some signs, and the last one said that their co-workers could speak sign language.

7 of the respondents could make lip-reading without problem, the other one said that he could un-derstand several words in lip-reading but he was not an expert on this.

For the hearing-problems respondents, the question of what opportunities they see for people with hearing problems in furniture sector are controverted because some of them believed that people with hearing problems could have a lot of opportunities in a sector like furniture but other ones said that they felt a bit discriminated, in fact one of the respondents said that the employers did not want to hire deaf people because they did not want "problems", other one said that she could not feel that people with hearing problems had opportunities, other one said that they had less opportunities that someone without disability, and finally one said that they had less opportunities because currently it is a really extremely competitive world and in that world nobody is waiting to help people with disability. On the other side, one said that almost any job could be done by peo-ple with hearing impairment, above all if it is not necessary to hear in that job position, other one said that they could do a lot of job position only excluding job like salesman where you have to be in contact with clients; other one said that for several job position they could do it better because they were less distracted by noises, finally one said that they have the same opportunities, the only thing important is to prove that they could do it but it is the same with the rest of the people with-out disability, in case that they could not do something properly they would be fired, for that it is not good for them to be shield in the excuse of disability.

The interviewees said that it is a challenge to achieve that more people with hearing problems would be hired in the sector, two of them said that a big challenge would be in case of alarm due to an accident or fire how to warn them because the main alarm system are acoustical, other one said that the main issue would be in communication with co-workers and managers, other one said that she had never had a problem of communication with their fellows, other one said that the only problem is to do the tasks of your job like the other people and the final one said that the main problem is when they had to be in contact with other workers or collected orders.

About how to improve the communication, one of them said that it would necessary to use light signals and communication devices, other one said that it would enough with a notebook to write down the message that they want to share (people with hearing problem or co-workers); other one said that the communication

would be better if the others could express in LSE (Spanish Sign Language), at least in a basic level; other one said that it would be necessary that sign language would be used as the main communication language inside the factory by all; other one said that it was not necessary to improve the communication, because worker has to focus in their work, not on what others do; other said that it could be used sign language, lip-reading, writings and images; finally, two of them said that they did not know how to improve communication.

7 of them thought that a video dictionary would be helpful for working with hearing and not hear-ing people and the rest one said that he did not know it. Moreover, the same 7 believed that their hearing colleagues could learn the most important words in sign language, but the last one did not think that his co-workers could learn sign language.

About their wishes, one of them wanted that people with hearing problems would be more hired in every sector; other one said that it would be great more integration, staff with more people with disability, nowadays, there are a lot of organisation without people with disability in their staff; other one said that his desire was more realisation about their problems; other one said that she wanted that her co-workers could understand some signs in LSE; other one said that he wanted more integration in work environment and more opportunities; other said that his only desire is to be treated as everyone without positive or negative discrimination; other one said that he wanted more integration; and the last one wanted more possibilities of working.

One word was added by the interviewees to the list:

- Springs

### 3.1.2. Review of the Wordlist by Hearing and Hearing Impaired People

The word list from the furniture sector with its 254 words was presented to the respondents at the end of the interview. Respondents went through the list word by word and considered its relevance. Respondents were allowed to ask questions to the interview leader if anything was unclear. All comments were noted. Finally, the respondents were able to suggest further relevant words to supplement the list.

At the end, people without hearing problems have the opportunity of giving a definition of the words who they have found essential for the sector. Respondents with hearing impairment were also asked to indicate signs for the words that they have found essential in the sector. However, this task was really difficult to do because major part of them did not want to be directly filmed when they were doing the signs and for that, in most part of the occasions, the interviewee showed the sign to the sign translator and she made it in front of the camera.

#### Explanation of the diagrams:

On the X-axis the words from the furniture sector are listed. For space reasons they had to be displayed very small. However, at this point it is not so much the individual words that are of interest, but the general response behaviour of the group. The values on the Y-axis from 0 to 3 show the extent of relevance of the words with the following categories:

- 0 = It is not present or it is useless;
- 1 = It can be used occasionally;
- 2 = Commonly used - It is useful in the sector;
- 3 = It is used a lot in the sector – Essential.

The blue dots in the diagram mark the Median values. The median of a list of numerical values is the value that stands at the middle position when the values are sorted by size. The vertical lines indicate the range of answers. The results are sorted by median height (as high as possible) and range (as low as possible). Therefore, values with a median of 3 and a range of 0 come first, followed by values with a span width of 1, 2 and 3.

#### 1. Results in the group of hearing people:

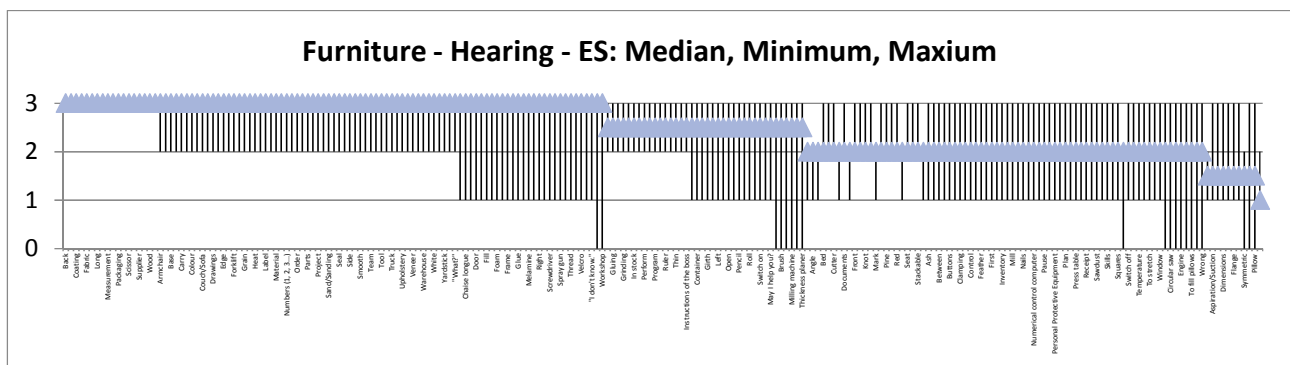


Figure: Relevance assessment of the furniture words: Hearing people, Spain

In the group of hearing people in Spain, the median of 18 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- Back
- Board
- Coating

- Cut
- Fabric
- Invoice
- Long
- Manufacture
- Measurement
- Millimetre
- Packaging
- Ready
- Scissor
- Screw
- Supplier
- Water
- Wood
- Work

A further 57 words have a median of 3 with a range of 1, 16 words a median of 2.5 and a range of 1 and 26 words with a median of 3 and a range of 2.

It is noticeable that 25 words were evaluated with an average relevance of 1 or less and only 2 words with an importance of 0 or 0,5. Those **least relevant words** with medians 1.0, 0.5 and 0 are:

- Contour
- Hardwood
- Sewing book
- Splash
- Turn on
- Beige
- Break
- Flexible tube
- Hidden
- Impacts
- Sewing line draw
- Spike
- Spruce
- Suction
- Thickness
- Tyed
- Water level
- Nylon
- Polyurethane
- Resin
- Vacuum cleaner
- Worktop
- Shove
- Immersion
- Termites



- Polyurethane
- Nylon
- Project
- Receipt
- Resin
- Sewing book
- Slat
- Spruce
- Strap
- Thread
- Tyed
- Walnut
- Zipper

### 3. Results for the two groups of hearing and hearing-impaired people combined:

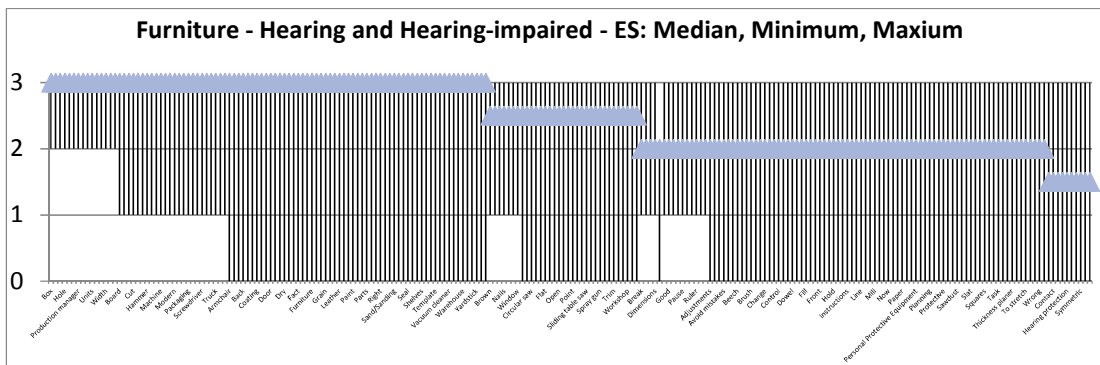


Figure: Relevance assessment of the furniture words: Hearing and hearing-impaired people, Spain

In both groups of hearing and hearing-impaired people in Spain, any word has the maximum median of 3 combined with a range of 0, for that we are considering the most important those 15 words with a median of 3 and a range of 1. Those words considered to be **most important** are:

- Box
- Colour
- Cworker
- Hole
- Measurement
- Millimetre
- Production manager
- Scissor
- Tool
- Units
- Weight
- White
- Width
- Work
- Work table

33 words a median of 2.5 and a range of 1, 24 words with a median of 3 and a range of 2, and 57 words with a median of 3 and a range of 3. A total of 129 words including most important ones.

It is noticeable that 24 words were evaluated with an average relevance of less 1 or less and 2 words of them with an importance of 0. Those **least relevant words** are:

- Breakdown
- Flexible tube
- Accessories
- Beige
- Feather
- Hardwood
- Hidden
- Impacts
- Nylon
- Pillow
- Polyurethane
- Receipt
- Resin
- Sewing book
- Sewing line draw
- Splash
- Spruce
- Suction
- Thickness
- Tyed
- Water level
- Worktop
- Immersion
- Termites

## 3.2. Samples and Results in Italy



In Italy, a total of 8 interviews and surveys were carried out for the field of furniture, 4 of which were interviews with hearing people and 4 with hearing impaired people.

### 3.2.1. Answers to Interview Questions from Hearing and Hearing Impaired Interviewees

#### 1. Results from the Interviews with Hearing People

The interviews with hearing people took place in Palermo, Sicily. A total of 4 respondents, 3 hearing men and 1 hearing women, were interviewed in the field of furniture.

The hearing respondents are between 18 and 40 years old and currently all of them currently work in the field of furniture. One of the respondents is a designer and the others are craftsmen.

Not all the hearing respondents had contact with hearing impaired people. Some of them professional and private contact too. None of them knows the sign language alphabet, so all of them communicate making their lips read.

Three of the hearing respondents can imagine working with hearing impaired people. One considers that can work with them but not managing the project or the working relationship.

Hearing respondents provide the following answers to the question of how communication between hearing- and hearing-impaired people can be improved: Write notes, use body signs, use fingers and ask questions. All hearing respondents would find it helpful to get a video dictionary with the 150 most important terms in sign language. All hearing people would agree to learn sign language.

All hearing respondents believe that sign language would be useful in the workplace to communicate with colleagues at a distance or in similar scenarios.

#### 2. Results from the Interviews with Hearing-Impaired People

The interviews with hearing impaired people also took place in Palermo, Sicily. A total of 4 respondents, 2 hearing-impaired men and 2 hearing-impaired women, were interviewed in the field of furniture. The hearing-impaired respondents are between 27 and 30 years old.

All hearing-impaired respondents are currently working as designers.

All hearing impaired people have previously worked with hearing people and used the following forms of communication: writing down notes and using gestures, lip-reading.

Working together with hearing people is considered as a chance, even if the communication with hearing people is poor.

All of them think that is very difficult for the hearing-impaired people find a job because of prejudice and disinformation.

Hearing-impaired respondents provide the following answers to the question of how communication between hearing and hearing-impaired people can be improved: writing, reading, speaking clearly and loudly, mouth reading and a quiet environment.

All hearing-impaired respondents would find helpful to receive a video dictionary with the 150 most important terms in sign language. They believe that their hearing colleagues would learn the gestures.



All of them suggests other useful words like: design, designer, architecture, architect, AutoCAD, room, wall, floor, column, beam, ancient, furniture, window, prototype, zipper, rotation, weight, to decorate, to design, leather, price, instructions, manual, composition, element, sitting, side, square, single, matrimonial, queen-size.

### 3.2.2. Review of the Wordlist by Hearing and Hearing Impaired People

The word list from the furniture sector with its 254 words was presented to the respondents at the end of the interview. Respondents went through the list word by word and considered its relevance. Respondents were allowed to ask questions to the interview leader if anything was unclear. All comments were noted. Finally, the respondents were able to suggest further relevant words to supplement the list.

#### Explanation of the diagrams:

On the X-axis the words from the furniture sector are listed. For space reasons they had to be displayed very small. However, at this point it is not so much the individual words that are of interest, but the general response behaviour of the group. The values on the Y-axis from 0 to 3 show the extent of relevance of the words with the following categories:

- 0 = It is not present or it is useless;
- 1 = It can be used occasionally;
- 2 = Commonly used - It is useful in the sector;
- 3 = It is used a lot in the sector – Essential.

The blue dots in the diagram mark the Median values. The median of a list of numerical values is the value that stands at the middle position when the values are sorted by size. The vertical lines indicate the range of answers. The results are sorted by median height (as high as possible) and range (as low as possible). Therefore, values with a median of 3 and a range of 0 come first, followed by values with a span width of 1, 2 and 3.

#### 1. Results in the group of hearing people:

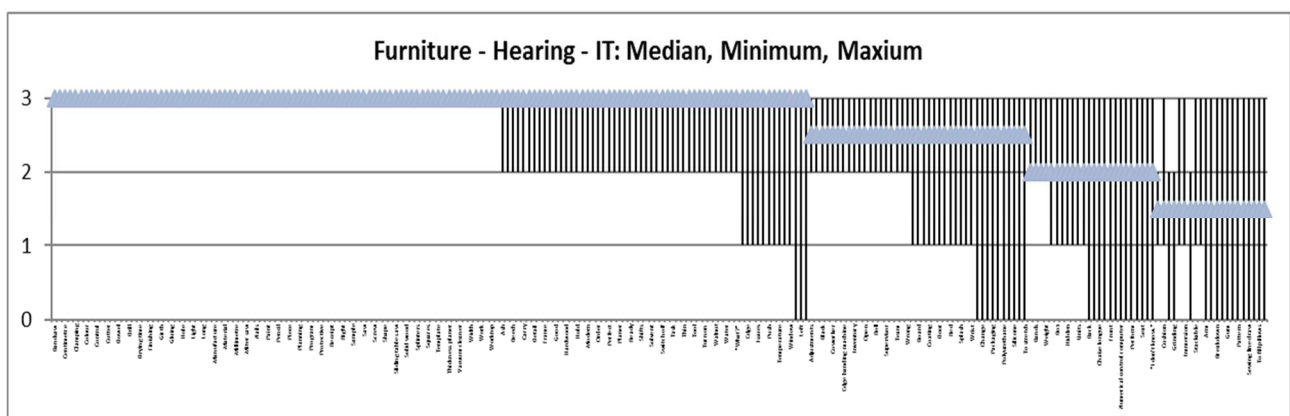


Figure: Relevance assessment of the furniture words: Hearing people, Italy

In the group of hearing people in Italy, the median of 84 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- Bandsaw
- Base
- Centimetre

- Circular saw
- Clamping
- Clean
- Colour
- Contour
- Control
- Cut
- Cutter
- Dimensions
- Dowel
- Drawings
- Drill
- Dry
- Drying time
- Fact
- Finishing
- Furniture
- Girth
- Glue
- Gluing
- Grain
- Hole
- Knot
- Light
- Line
- Long
- Machine
- Manufacture
- Mark
- Material
- Measurement
- Millimetre
- Milling machine
- Miter saw
- Model
- Nails
- Numbers (1, 2, 3...)
- Paint
- Parts
- Pencil
- Personal Protective Equipment
- Piece
- Plan
- Planning
- Point
- Program
- Project
- Protective
- Put away

- Receipt
- Resin
- Right
- Risk
- Sample
- Sandpaper
- Saw
- Sawdust
- Screw
- Screwdriver
- Shape
- Shelves
- Sliding table saw
- Smooth
- Solid wood
- Spike
- Splinters
- Spruce
- Squares
- Supplier
- Template
- Thickness
- Thickness planer
- Tyed
- Vacuum cleaner
- Varnish
- Width
- Wood
- Work
- Work table
- Worktop
- Take measures

A further 45 words have a median of 3 with a range of 1, 19 words a median of 2.5 and a range of 1, and 10 words with a median of 3 and a range of 2.

It is noticeable that only 21 words were evaluated with an average relevance of 1 or less and only 1 word with an importance of 0. Those **least relevant words** are:

- Angle
- Flexible tube
- Armchair
- Beige
- Blue
- Bubble
- Feather
- Fill
- Foam rubber
- Forklift
- Mill

- Moulding
- Pillow
- Round
- Sewing book
- To sew
- Washer
- Zipper
- Melamine
- Flat
- Yardstick

**2. Results in the group of hearing-impaired people:**

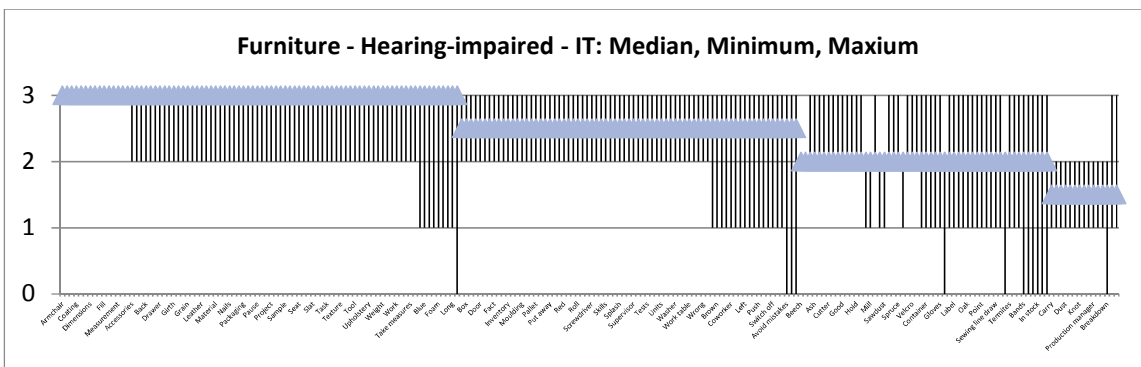


Figure: Relevance assessment of the furniture words: Hearing-impaired people, Italy

In the group of hearing-impaired people in Italy, the median of 15 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- Armchair
- Bed
- Chaise longue
- Coating
- Couch/Sofa
- Detail
- Dimensions
- Drawings
- Fabric
- Fill
- Finishing
- Frame
- Measurement
- Parts
- Pattern

A further 62 words have a median of 3 with a range of 1, 54 words a median of 2.5 and a range of 2, and 8 words with a median of 3 and a range of 2.

It is noticeable that 7 words were evaluated with an average relevance of 1 or less with only 1 of them with a median of 0,5. All these **least relevant words** are:

- Bandsaw
- Break
- Clamping
- Effective
- First
- Flange
- Yardstick

### 3. Results for the two groups of hearing and hearing-impaired people combined:

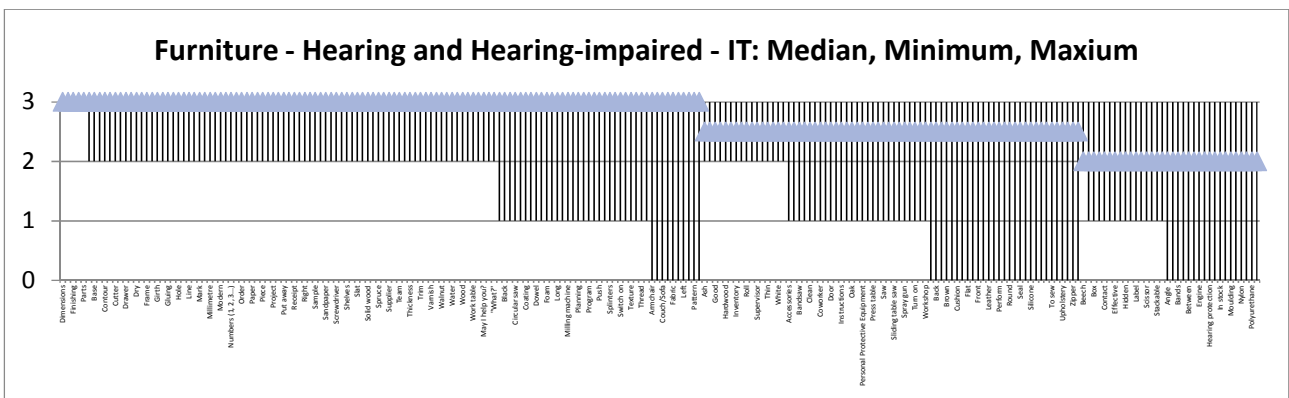


Figure: Relevance assessment of the furniture words: Hearing and hearing-impaired people, Italy

Across both groups of hearing and hearing-impaired people in Italy, the median of 5 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- Dimensions
- Drawings
- Finishing
- Measurement
- Parts

A further 78 words have a median of 3 with a range of 1, 16 words a median of 2.5 and a range of 2, and 29 words with a median of 3 and a range of 2. A total of 128 words including the most important.

It is noticeable that 16 words were evaluated with an average relevance of less than 2 and 1 word of them with an importance of 0. All these **least relevant words** are:

- Dust
- Flange
- Impacts
- Melamine

- Production manager
- Breakdown
- Buttons
- First
- Forklift
- Immersion
- Truck
- Water level
- Break
- Bubble
- Flexible tube
- Yardstick

### 3.3. Samples and Results in Germany



In Germany, a total of 8 interviews and surveys were carried out for the field of furniture, 4 of which were interviews with hearing people and 4 with hearing impaired people.

#### 3.3.1. Answers to Interview Questions from Hearing and Hearing Impaired Interviewees

##### **1. Results from the Interviews with Hearing People**

The interviews with hearing people took place at the Berufsbildungswerk für Hör- und Sprachgeschädigte in Nuremberg. A total of 2 hearing men and 2 hearing women were interviewed in the field of furniture.

The hearing respondents are between 17 and 20 years old and currently undergoing vocational training to become wood processing specialists (first to third year of apprenticeship). None of the interviewees had previously worked in this occupation.

The interviewees have only come into professional contact with hearing impaired people through training. In order to facilitate communication with them, they write down notes, spent more time and use their mouth pattern. None of them can speak sign language, only one respondent masters the sign language alphabet.

All of the hearing respondents can imagine working with hearing impaired people. The chances hearing people see are that hearing-impaired people concentrate more and are less distracted. During the training hearing people are given more time to help each other and they can learn from each other. However, challenges in working with hearing-impaired people are seen in poor communication.

Hearing respondents provide the following answers to the question of how communication between hearing- and hearing-impaired people can be improved: Write notes, use body signs, use fingers and ask questions. All hearing respondents would find it helpful to get a video dictionary with the 150 most important terms in sign language. With the exception of one hearing respondent with a learning disorder, all hearing people would agree to learn sign language.

All hearing respondents believe that sign language would be useful in the workplace to communicate with colleagues at a distance or in similar scenarios. Two of the respondents indicated that signs are already being used for communication.

##### **2. Results from the Interviews with Hearing-Impaired People**

The interviews with hearing impaired people also took place at the Berufsbildungswerk für Hör- und Sprachgeschädigte in Nuremberg. A total of 2 hearing-impaired men and 2 hearing-impaired women were interviewed in the field of furniture. The hearing-impaired respondents are between 20 and 22 years old.

All hearing-impaired respondents are currently undergoing training as joiners, two of them in their second year of apprenticeship and two in their third. None of the interviewees had previously worked in this occupation.

All hearing-impaired people have previously worked with hearing people and used the following forms of communication: writing down notes und using gestures, lip-reading.

Working together with hearing people is considered as a chance, even if the communication with hearing people is poor, especially in noisy environments.

None of the hearing-impaired had difficulties getting an apprenticeship. One interviewee added that it depends on the profession and that craftsmen are often sought at the moment.

Hearing impaired respondents provide the following answers to the question of how communication between hearing- and hearing-impaired people can be improved: Writing, reading, speaking clearly and loudly, mouth reading and a quiet environment.

Almost all hearing-impaired respondents with the exception of one would find it helpful to receive a video dictionary with the 150 most important terms in sign language. They believe that their hearing colleagues would learn the gestures

The interviewees said that it is a challenge for everyone to try to increase the number of people with disability in furniture sector, one of them said that the communication is the most important barrier, one of them said that the challenge is to understand each other, and the last one said that it should not be problems at all. One of them do not have ideas for improving the communication, the rest have some ideas: for example, maximize the attention to everything, speak slowly with no difficult words, struggle more to solve these problems.

All of them thought that a video dictionary would be helpful for working with hearing and not hearing people. All of them believed that their hearing colleagues could learn the most important words in sign language. About their wishes, one of them wanted less work discrimination, one said that she wanted opportunities; another one said that she wanted a higher salary, and the last one that he wanted to keep having opportunities in this field.

Some words were added by the interviewees to the list:

- Calibrate
- to break edges (Meaning: This is the grinding of sharp-edged workpieces and edges)
- chiseling (cut, shape, or fashion by or as if by carving with a chisel. you may chisel a stone or wood)

### 3.3.2. Review of the Wordlist by Hearing and Hearing Impaired People

The word list from the furniture sector with its 254 words was presented to the respondents at the end of the interview. Respondents went through the list word by word and considered its relevance. Respondents were allowed to ask questions to the interview leader if anything was unclear. All comments were noted. Finally, the respondents were able to suggest further relevant words to supplement the list.

#### **Explanation of the diagrams:**

On the X-axis the words from the furniture sector are listed. For space reasons they had to be displayed very small. However, at this point it is not so much the individual words that are of interest, but the general response behaviour of the group. The values on the Y-axis from 0 to 3 show the extent of relevance of the words with the following categories:

- 0 = It is not present or it is useless;
- 1 = It can be used occasionally;
- 2 = Commonly used - It is useful in the sector;
- 3 = It is used a lot in the sector – Essential.

The blue dots in the diagram mark the Median values. The median of a list of numerical values is the value that stands at the middle position when the values are sorted by size. The vertical lines indicate the range of answers. The results are sorted by median height (as high as possible) and range (as low as possible). Therefore, values with a median of 3 and a range of 0 come first, followed by values with a span width of 1, 2 and 3.





- Solid wood
- Spruce
- Switch on
- Thickness
- Vacuum cleaner
- Veneer
- Width
- Wood
- Worktop
- Yardstick
- Instructions of the boss

A further 40 words have a median of 3 with a range of 1, 17 with a range of 2, 9 with a range of 3, plus 18 words with a median of 2.5 and a range of 1, and 21 words with a median of 2,5 and a range of 2.

There are 6 words were evaluated with a median of 0, 3 words with a median of 0,5 and 12 with a median of 1. Those **least relevant words** are:

- Feather
- Nylon
- Sewing book
- Sewing line draw
- Upholstery
- Cushion

## 2. Results in the group of hearing-impaired people:

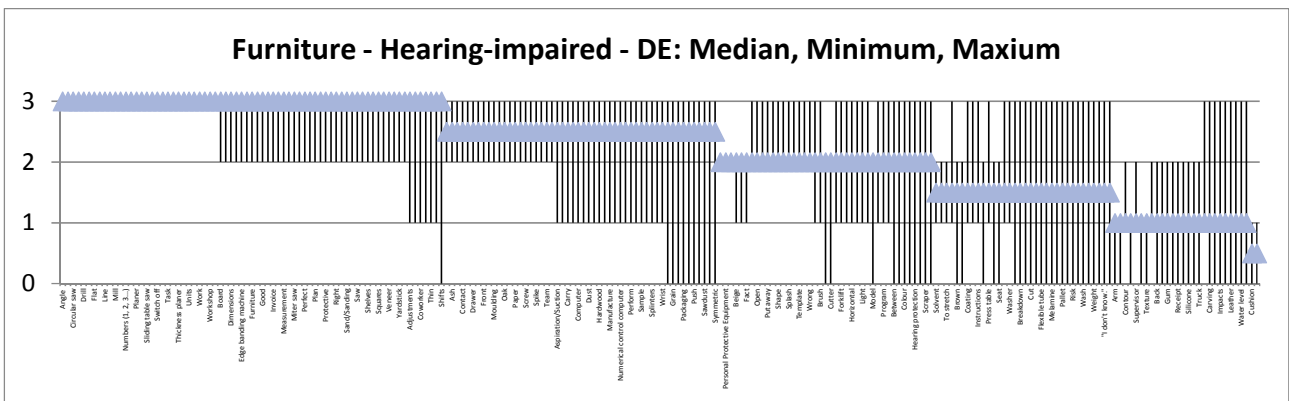


Figure: Relevance assessment of the furniture words: Hearing-impaired people, Germany

In the group of hearing-impaired people in Germany, the median of 30 words is at the maximum of 3 combined with a range of 0. Those words considered to be **most important** are:

- Angle
- Bandsaw
- Circular saw

- Dowel
- Drill
- Edge
- Flat
- Hammer
- Line
- Machine
- Mill
- Milling machine
- Numbers (1, 2, 3...)
- Pencil
- Planer
- Ruler
- Sliding table saw
- Solid wood
- Switch off
- Switch on
- Task
- Thickness
- Thickness planer
- Tool
- Units
- Wood
- Work
- Work table
- Workshop
- Worktop

A further 36 words have a median of 3 with a range of 1, 6 with a range of 2 and 1 with a range of 3. 21 words with a median of 2.5 and a range of 1, and 21 words with a median of 2.5 and a range of 2.

There are 11 words with a median of 0, 2 of them with a range of 1. Those **least important words** are:

- Flange
- Walnut
- Bed
- Fabric
- Girth
- Label
- Pillow
- To fill pillows
- Black
- Feather
- Red

### 3. Results for the two groups of hearing and hearing-impaired people combined:

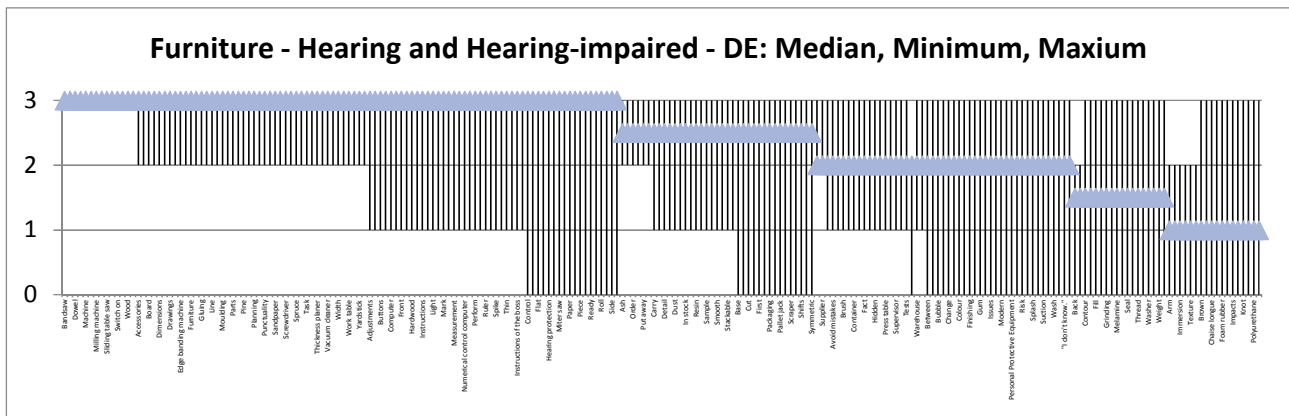


Figure: Relevance assessment of the furniture words: Hearing and hearing-impaired people, Germany

If the answers of both groups are combined and averaged over the median, there is only 14 words that reaches the median 3 with a range of 0. This **most important** word is:


- Bandsaw
- Circular saw
- Dowel
- Drill
- Machine
- Mill
- Milling machine
- Planer
- Sliding table saw
- Solid wood
- Switch on
- Thickness
- Wood
- Worktop

A further 44 words have a median of 3 with a range of 1, 6 words with a median of 2.5 and a range of 1, and 30 words with a median of 3 and a range of 2.

It is noticeable that only 7 words were evaluated with an average relevance of less than 2 and no word with an importance of 0. Those **least relevant words** are:

- Bed
- Nylon
- Sewing book
- Sewing line draw
- Upholstery
- Cushion
- Feather

### 3.4. Samples and Results in Hungary

 In Hungary, a total of 8 interviews and surveys were carried out for the field of furniture, 4 of which were interviews with hearing people and 4 with hearing impaired people

#### 3.4.1. Answers to Interview Questions from Hearing and Hearing Impaired Interviewees

##### 1. Results from the Interviews with Hearing People

The interviews were carried out with 4 hearing men, two of them are from Budapest and two ARE from rural towns. We are talking about two workers of the furniture manufactures around the Balaton and the Danube regions, who do not only the joinery but necessary cutting works and every related operations as well. They manufacture every kind of furniture, like kitchen and bedroom furniture.

Their age ranges between 32 and 70 years. All of them are professional, skilled joiners. Two of them have completed a vet education in furniture, while the other two have the profession as joiners for buildings. All of them work in this profession from the beginning of their career, including the 70-year-old man who is a wood manufacture engineer.

So, two of them work at a company where all kind of furniture is manufactured, two of them prepare piece of furniture on demand. One of them prepares kitchen and hall furniture, according to customers' orders. The other man works as a furniture restorer, so restores old wood furniture, wood overlays, stairs of wood. He has always worked in this profession, starting with the renewal of the House of Parliament, which is a very old building; furthermore, in private he has always done professional work, such as restoring more than hundred-year-old furniture, and he is still doing it today.

One of them has met with a hearing-impaired person at a wood manufacture located next to the Balaton. But he did not work with him because he usually works with big machines, doing the cutting of blockboards, cutting into sizes according to plans. So, he saw the hearing-impaired employee as a private person, without having any work experiences with him.

Considering this, no-one could respond the question about what would make communication easier with hearing-impaired people. As their Theoretical point of view, they mentioned gestures and writing, but they did not think of loud speaking at all. Not even sign language was taken into consideration by them, because they did not hear of that before.

All of them could imagine working with a hearing-impaired person. However, the restorer cannot work in pairs. Sometimes he has an assistant who prepares the materials, mainly the chemicals, but the restorer wants to get every supply, he wants to disassemble and assemble the furniture by himself, so his response was rather a gesture of politeness. But no-one of them excluded the possibility of working with a hearing-impaired person.

They did not have any idea of what difficulties could encounter when working with a hearing-impaired person. They did not think of that because it was not necessary during their previous work experiences.

To the question if the communication between hearing and hearing-impaired could be improved, they said yes if it is necessary. They saw a possibility in gestures, written communication. They thought that they should make a drawing of everything and every work process, - such as cutting and assembling - should be exercised, with a suitable assistance. They did not think of just letting them work without teaching them every necessary step.

About the sign language video dictionary, they said it would help for sure because everything can help that makes visible the different work processes. If there is a word or expression that is used at the specific company, they can look up for the words in this dictionary, they would be glad to learn its use. So, in theory they would find it very practical and useful.

About learning sign language they reacted with an unsure look. They do not know what sign language is, nor what it is used for, they did not know that there is a group of hearing-impaired people who live with such a severe hearing impairment, that they have to learn a completely different language to understand each other. In the two factories, there are employees who work quite distantly from each other, they find the signs useful, however they can create their own signs as well, that are independent from the sign language. They would engage in this, whenever their time makes it possible for them.

## **2. Results from the Interviews with Hearing-Impaired People**

We met with hearing impaired people, when they were about to seek for a job and we helped them to find their jobs. They do not belong to the same area, one of them was born in Slovakia, and has worked there, another one arrived from Transylvania, other was born in Hungary in a rural town and there is another one who is from Budapest. Their age ranges between 35 and 45 years. Now, they work in and around Budapest in their profession but it was not always so because they did not find a wood manufacture before or they were not accepted there because the employers were afraid of them. But now everyone works in his field. And at some level, they have always worked with wood or in joinery.

All of them have worked with hearing people and everyone has experiences with them. Mainly lipreading and gestures were the ways of communication, but writing was important as well. It is important that there should be at least two hearing impaired person at a given company, i.e. someone who would help the newcomer. He could help with learning the different work processes in the language that is best spoken and understood by the new employee. We call it as audio mentoring. However, in the present case it is rather about sign language mentoring, but there is not always a hearing-impaired person at a given workplace. In a situation like this, the help of an audio mentor should be requested, or a work assistant could help who demonstrates the different work processes in a slow and accurate way.

The hearing-impaired respondents find just natural working with hearing people because they have worked with them before. And there are not a workplace where only hearing-impaired people are employed.

When the environment is noisy, they just turn off their hearing aid, making themselves become completely deaf. This is an undoubted fact. This means, that they do not react even to loud calls,

only to touch or flashing lights but it rather works in smaller workplaces, in bigger factories some kind of vibrating system is needed, that communicates with the body and gives the hearing-impaired the necessary alerts. Here, the situation is a bit more complicated, communication has to be combined with the technology and technical equipment.

For our hearing-impaired respondents, finding a job has not been a big problem. According to their responses, joinery is a good profession. In Hungary, you can easily find a job in this field. They do not always get enough information, or they are not encouraged to find a job, or they do not able to send their CVs, or they even miss someone who could help them. They need some kind of courage and determination. But joinery is a profession that can be carried out by them and it is a good profession according to their opinion. Two of them worked as joiners, and enjoyed their work a lot.

What can improve the ways of communication between hearing and hearing-impaired people? Primarily they thought of visualization, to see what and how should they assemble, cut, what do the different work processes mean, so they are just like every other hearing-impaired people, stick to videos and pictures. They would like to see the work processes because, in their everyday lives, they orientate themselves using visual information. If there is a word that they do not understand, they look it up on Google, look the related pictures, and try to memorize it, however they probably have to give it a look for a second time, because at first, words usually do not imprint. They mentioned writing as a second way, because behind writing there is not the possibility of looking up what does the word mean. Often, we just write down a word but if they do not see what is it, they cannot identify the word. But in most factories, there is a continuous film screening, which is showing the different work processes.

They mentioned clear and loud speaking, but they do have lesser patience to this. Moreover, loud speaking allows them to understand the information only with 30% of accuracy. As an addition, they have to dispose with the ability of lipreading, writing, and the conversation must be in a total silent environment, but there is a high chance, even in these circumstances, that, without the help of an audio mentor, they do not understand the words. This is their practical experience.

The video dictionary has been found very useful by all of them. They are interested in everything that is accompanied with movements, that helps them with the imprinting of the information. And they experience that a few of their colleagues is trying to learn some signs. They just get curious when they see their deaf colleagues signing between each other and they do not want to miss out the conversation. But it should be noted that is not valid for everyone, especially joiners, who rather concentrate on their work.

#### 3.4.2. Review of the Wordlist by Hearing and Hearing Impaired People

The word list from the furniture sector with its 254 words was presented to the respondents at the end of the interview. Respondents went through the list word by word and considered its relevance. Respondents were allowed to ask questions to the interview leader if anything was unclear. All comments were noted. Finally, the respondents were able to suggest further relevant words to supplement the list.

#### **Explanation of the diagrams:**

On the X-axis the words from the furniture sector are listed. For space reasons they had to be displayed very small. However, at this point it is not so much the individual words that are of interest, but the general

response behaviour of the group. The values on the Y-axis from 0 to 3 show the extent of relevance of the words with the following categories:

- 0 = It is not present or it is useless;
- 1 = It can be used occasionally;
- 2 = Commonly used - It is useful in the sector;
- 3 = It is used a lot in the sector – Essential.

The blue dots in the diagram mark the Median values. The median of a list of numerical values is the value that stands at the middle position when the values are sorted by size. The vertical lines indicate the range of answers. The results are sorted by median height (as high as possible) and range (as low as possible). Therefore, values with a median of 3 and a range of 0 come first, followed by values with a span width of 1, 2 and 3.

### 1. Results in the group of hearing people:

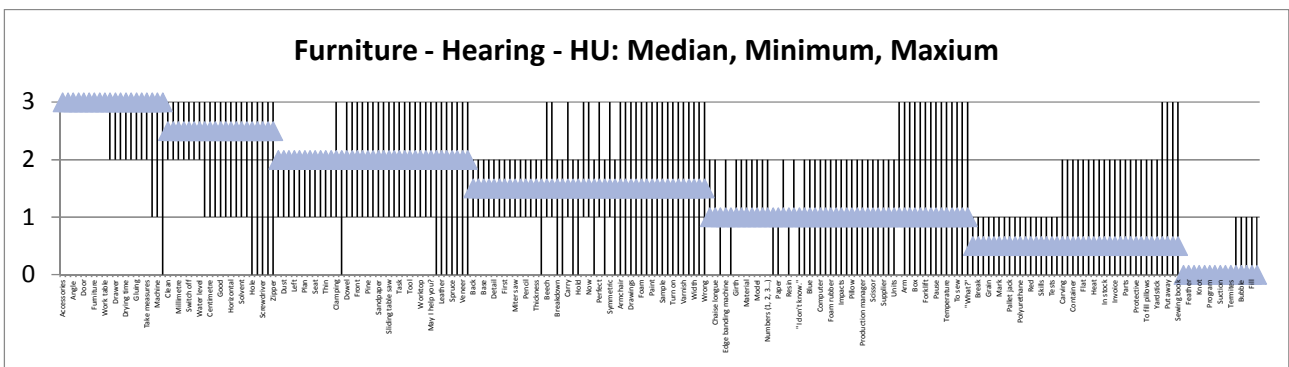


Figure: Relevance assessment of the furniture words: Hearing people, Hungary

In the group of hearing people in Hungary, the median of 9 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- Accessories
- Adjustments
- Angle
- Colour
- Door
- Drill
- Furniture
- Work
- Work table

A further 8 words have a median of 3 with a range of 1, 7 words a median of 2.5 and a range of 1, and 2 words with a median of 3 and a range of 2.

It is noticeable that 78 words were evaluated with an average relevance of 1 or less and 38 words of them with an importance of 0. Those **least relevant words** are:

- Bands
- Break
- Brush



- Grain
- Grinding
- Mark
- Melamine
- Pallet jack
- Point
- Polyurethane
- Press table
- Red
- Scraper
- Skills
- Team
- Tests
- Wash
- Carving
- Change
- Container
- Cushion
- Flat
- Hearing protection
- Heat
- Hidden
- In stock
- Instructions
- Invoice
- Packaging
- Parts
- Personal Protective Equipment
- Protective
- Push
- To fill pillows
- To stretch
- Yardstick
- Perform
- Put away
- Round
- Sewing book
- Ash
- Feather
- Inventory
- Knot
- Numerical control computer
- Program
- Strap
- Suction
- Supervisor
- Termites
- Aspiration/Suction
- Bubble



- Drying time
- Furniture
- Good
- Measurement
- Shelves
- Switch on
- Turn on
- Work
- Work table
- Workshop
- Take measures

A further 19 words have a median of 3 with a range of 1, 7 words a median of 2.5 and a range of 1, and 11 words with a median of 3 and a range of 2.

It is noticeable that 66 words were evaluated with an average relevance of 1 or less and 35 words of them with an importance of 0. Those **least relevant words** are:

- Chaise longue
- Flange
- Immersion
- Melamine
- Skills
- Tyed
- Bubble
- Edge
- Edge banding machine
- Flexible tube
- Foam
- Foam rubber
- Frame
- Invoice
- Production manager
- Computer
- Feather
- Flat
- Perform
- Protective
- Roll
- Round
- Scissor
- Scraper
- Sliding table saw
- Suction
- Temperature
- Tests
- Thickness planer
- Velcro
- Window
- Effective
- Inventory



In both groups of hearing and hearing-impaired people in Hungary combined, the median of only 4 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- Drill
- Furniture
- Work
- Work table

A further 14 words have a median of 3 with a range of 1, 11 words with a median of 3 and a range of 2, 10 words a median of 2.5 and a range of 2, and 13 words with a median of 3 and a range of 3.

It is noticeable that 62 words were evaluated with an average relevance of 1 or less and 38 words of them with an importance of 0. Those **least relevant words** are:

- Melamine
- Nylon
- Shove
- Skills
- Effective
- Foam rubber
- Invoice
- Risk
- Sewing line draw
- Carving
- Fact
- Flat
- Foam
- Frame
- Label
- Pallet
- Perform
- Protective
- Round
- Scraper
- Tests
- Velcro
- Wash
- Window
- Inventory
- Termites
- Ash
- Bands
- Fill
- Mill
- Numerical control computer
- Press table
- Stackable
- Bubble
- Flexible tube
- Heat
- Splinters

- Strap
- Supervisor
- To stretch
- Yardstick
- Aspiration/Suction
- Feather
- Gloves
- Hidden
- Issues
- Knot
- Nails
- Program
- Project
- Receipt
- Roll
- Ruler
- Sand/Sanding
- Seal
- Slat
- Splash
- Spray gun
- Squares
- Suction
- To fill pillows
- Washer

### 3.5. Aggregated Results across All Participating Partner Countries

#### 3.5.1. Review of the Wordlist by Hearing and Hearing Impaired People

In the following, the presentation of the results in diagrams for the hearing and hearing impaired people of all countries will be continued. It should be noted that the average relevance of words (expressed as the Median value) might probably decrease and variety in opinions (expressed as a range) might increase due to the much lower and also more diverse ratings in the Hungarian samples. Therefore, in addition to descriptive representations, statistical tests are also carried out to detect significant similarities and differences in the groups.

#### Explanation of the diagrams:

On the X-axis the words from the furniture sector are listed. For space reasons they had to be displayed very small. However, at this point it is not so much the individual words that are of interest, but the general response behaviour of the group. The values on the Y-axis from 0 to 3 show the extent of relevance of the words with the following categories:

- 0 = It is not present or it is useless;
- 1 = It can be used occasionally;
- 2 = Commonly used - It is useful in the sector;
- 3 = It is used a lot in the sector – Essential.

The blue dots in the diagram mark the Median values. The median of a list of numerical values is the value that stands at the middle position when the values are sorted by size. The vertical lines indicate the range of answers. The results are sorted by median height (as high as possible) and range (as low as possible). Therefore, values with a median of 3 and a range of 0 come first, followed by values with a span width of 1, 2 and 3.

#### 1. Results in the group of hearing people:

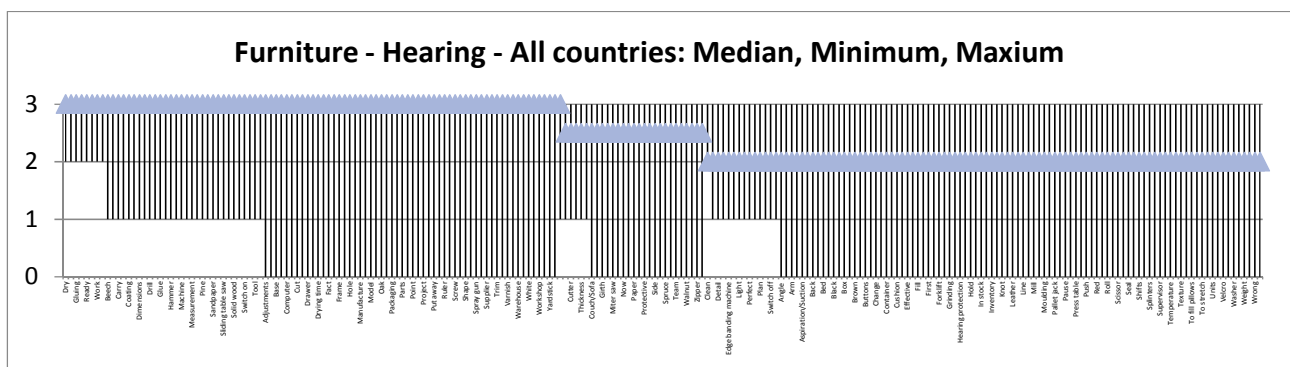


Figure: Relevance assessment of the furniture words: Hearing people, all countries

In the group of hearing people in all countries (Spain; Italy; Germany; Hungary), there are not words with a median of 3 and range of 0, but there are 8 words at the maximum median of 3 combined with a range of 1. Those words considered to be **most important** are:

- Dry
- Furniture
- Gluing
- Millimetre
- Ready

- Wood
- Work
- Work table

A further 30 words have a median of 3 with a range of 2, 5 words a median of 2.5 and a range of 2. There are even 56 more words with a medium of 3, but a range of 3.

It is noticeable that only 24 words were evaluated with an average relevance of 1 or less and no word with an importance of 0. Those **least relevant words** are:

- Carving
- Contour
- Melamine
- Skills
- Spike
- Flexible tube
- Beige
- Break
- Bubble
- Feather
- Flange
- Hidden
- Immersion
- Impacts
- Nylon
- Pillow
- Polyurethane
- Resin
- Sewing book
- Sewing line draw
- Splash
- Suction
- Tyed
- Termites

## 2. Results in the group of hearing-impaired people:

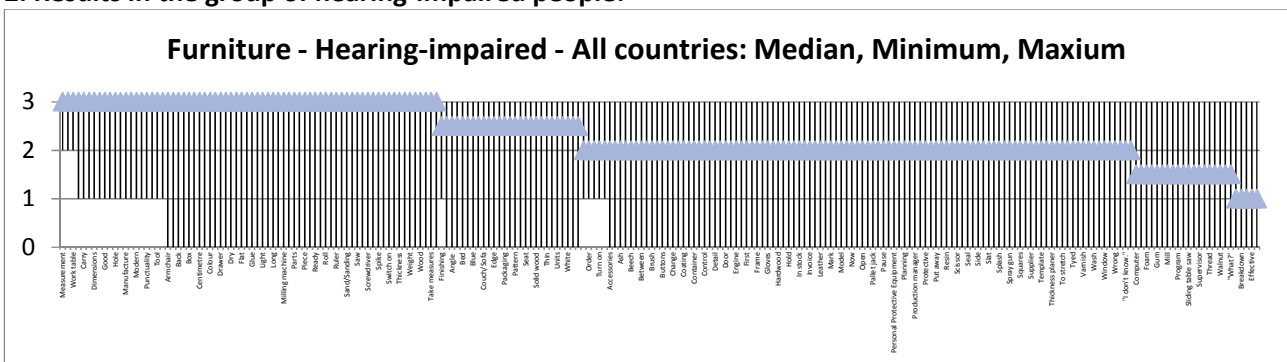


Figure: Relevance assessment of the furniture words: Hearing-impaired people, all countries

In the group of hearing-impaired people in all countries (Spain; Italy; Germany; Hungary), there are not words with the maximum median of 3 combined with a range of 0. 3 words have a median of 3 but a range of 1 and 17 more with a median of 3 and a range of 2. Those words considered to be **most important** are:



- Measurement
- Work
- Work table
- Board
- Carry
- Coworker
- Dimensions
- Drawings
- Good
- Hammer
- Hole
- Machine
- Manufacture
- Millimetre
- Modern
- Numbers (1, 2, 3...)
- Punctuality
- Smooth
- Tool
- Vacuum cleaner

A further 51 words have a median of 3 with a range of 3, 1 word a median of 2.5 with range of 2. There are even 25 more words with a medium of 2,5, but a range of 3.

It is noticeable that only 31 words were evaluated with an average relevance of 1 or less and only 1 word with an importance of 0. Those **least relevant words** are:

- Bands
- Breakdown
- Chaise longue
- Effective
- Feather
- Fill
- Flexible tube
- Foam rubber
- Grinding
- Hearing protection
- Impacts
- Inventory
- Issues
- Label
- Melamine
- Numerical control computer
- Nylon
- Polyurethane
- Press table
- Receipt
- Risk
- Sewing book
- Sewing line draw
- Termites

- Texture
- To fill pillows
- Water level
- Zipper
- Immersion
- Flange
- Strap

### 3. Results for the two groups of hearing and hearing-impaired people combined:

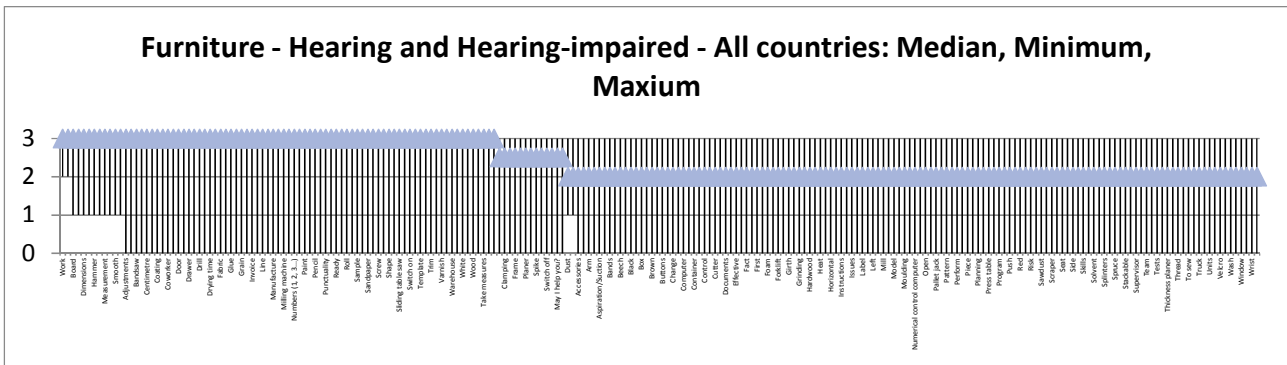


Figure: Relevance assessment of the furniture words: Hearing and hearing-impaired people, all countries

The final diagram summarizes the results of all countries (Spain; Italy; Germany; Hungary) and both groups of hearing and hearing impaired people. Here the median of 12 words is at the maximum extent of 3 combined with a range of 1 or 2. Those words considered to be **most important** are:

- Work
- Work table
- Board
- Carry
- Dimensions
- Good
- Hammer
- Machine
- Measurement
- Millimetre
- Smooth
- Tool

A further 70 words have a median of 3 with a range of 3, 12 word a median of 2.5 with range of 3. In total 94 words.

It is noticeable that only 16 words were evaluated with an average relevance of 1 or less and no words of them with an importance of 0 or 0.5. Those **least relevant words** are:

- Chaise longue
- Feather
- Fill
- Flange
- Flexible tube

- Hidden
- Immersion
- Impacts
- Melamine
- Nylon
- Pillow
- Polyurethane
- Sewing book
- Sewing line draw
- Suction
- Termites

### 3.5.2. Significant Words Related to Statistical Indicators

In the next evaluation step, statistical test procedures were performed for ordinally scaled independent data, namely the Mann-Whitney-U test for comparison between the hearing and hearing impaired groups and the Kruskal-Wallis test between the four country groups (Spain; Italy; Germany; Hungary). Thus, for each of the 254 words, a statement was available as to whether the assessments of importance differ significantly by country or by hearing ability.

Now in order to reduce the word list from 229 to a maximum of 150 words in a meaningful way, the results tables of the groups of hearing and hearing impaired people in each participating country were used again and those words were specifically selected from them which had a very high median of 2.5 to 3.0. This procedure led to the following list of 167 words:

<b>Words with a median of 2.5-3 and a range of 0-2 across all groups and countries</b>	<b>Frequency</b>
Measurement	8
Work table	8
Work	8
Take_measures	7
Manufacture	7
Milimetre	7
Solid_wood	7
Centimetre	7
Dimensions	7
Switch_on	7
Furniture	7
Coworker	7
Machine	7
Hammer	7
Gluing	7
Drill	7
Hole	7
Glue	7
Wood	7
Numbers_(1,_2,_3)	6
Screwdriver	6
Adjustments	6
Punctuality	6
Switch_off	6
Drawings	6
Material	6
Pencil	6
Colour	6
Smooth	6
Width	6

Carry	6
Ready	6
Order	6
Board	6
Screw	6
Tool	6
May_I_help_you	5
Sandpaper	5
Warehouse	5
Computer	5
Workshop	5
Shelves	5
Solvent	5
Varnish	5
Invoice	5
Sample	5
Veneer	5
Drawer	5
Spike	5
Frame	5
Parts	5
Nails	5
Ruler	5
Beech	5
Good	5
Task	5
Dust	5
Door	5
Team	5
Edge	5
Trim	5
Dry	5
Cut	5
Instructions_of_the_boss	4
Sliding_table_saw	4
Milling_machine	4
Vacuum_cleaner	4
Sand/Sanding	4
Drying_time	4
Accessories	4
Protective	4
Finishing	4
Packaging	4
Thickness	4
Template	4
Hardwood	4

Put_away	4
Squares	4
Contact	4
Coating	4
Perform	4
Worktop	4
Project	4
Gloves	4
Detail	4
Pallet	4
Planer	4
Wrong	4
Units	4
Brown	4
Paper	4
Model	4
Black	4
Water	4
Right	4
White	4
Light	4
Angle	4
Base	4
Long	4
Roll	4
Fact	4
Line	4
Plan	4
Pine	4
Box	4
Saw	4
Oak	4
Numerical_control_computer	3
Edge_banding_machine	3
Production_manager	3
Thickness_planer	3
Instructions	3
Circular_saw	3
Horizontal	3
Supervisor	3
Spray_gun	3
Container	3
Yardstick	3
Splinters	3
Clamping	3
Planning	3

Supplier	3
In_stock	3
Moulding	3
Silicone	3
Grinding	3
Forklift	3
Scissor	3
Program	3
Perfect	3
Bandsaw	3
Weight	3
Walnut	3
Modern	3
Shifts	3
Thread	3
Spruce	3
Window	3
Skills	3
Issues	3
Grain	3
Girth	3
Clean	3
Paint	3
Dowel	3
Shape	3
Point	3
Pause	3
Resin	3
Piece	3
Front	3
Round	3
Flat	3
Open	3
Side	3
Hold	3
Foam	3
Thin	3
Mark	3
Blue	3
Risk	3
Left	3
Slat	3
Push	3
Bed	3
Ash	3





frequency	word (with median of 2.5 or 3 and range between 0-2)	significant differences: <u>country</u> comparison (Kruskal-Wallis Test)		significant differences: <u>hearing capacity</u> comparison (Mann-Whitney-U Test)			word (with median of 2.5 or 3 and range between 0-2)	frequency
		differe nt median	different distribution	differe nt median	differe nt range	different distributi on		
8	Measurement				yes		Measurement	8
8	Work				yes		Work	8
8	Work_table				yes		Work_table	8
7	Centimetre				yes		Centimetre	7
7	Coworker				yes		Coworker	7
7	Dimensions		yes		yes		Dimensions	7
7	Drill				yes		Drill	7
7	Furniture				yes		Furniture	7
7	Glue				yes		Glue	7
7	Gluing				yes		Gluing	7
7	Hammer				yes		Hammer	7
7	Hole				yes		Hole	7
7	Machine				yes		Machine	7
7	Manufacture				yes		Manufacture	7
7	Millimetre		yes		yes		Millimetre	7
7	Solid_wood				yes		Solid_wood	7
7	Switch_on				yes		Switch_on	7
7	Take_measures				yes		Take_measures	7
7	Wood				yes		Wood	7
6	Adjustments		yes		yes		Adjustments	6
6	Board				yes		Board	6
6	Carry				yes		Carry	6
6	Colour		yes		yes		Colour	6
6	Drawings		yes		yes		Drawings	6
6	Material		yes		yes		Material	6
6	Numbers_(1,_2,_3		yes		yes		Numbers_(1,_2,_3	6
6	Order	yes	yes		yes		Order	6
6	Pencil				yes		Pencil	6
6	Punctuality				yes		Punctuality	6
6	Ready				yes		Ready	6
6	Screw				yes		Screw	6
6	Screwdriver				yes		Screwdriver	6
6	Smooth				yes		Smooth	6
6	Switch_off	yes			yes		Switch_off	6
6	Tool				yes		Tool	6

6	Width		yes		yes		Width	6
5	Beech				yes		Beech	5
5	Computer				yes		Computer	5
5	Cut				yes		Cut	5
5	Door				yes		Door	5
5	Drawer				yes		Drawer	5
5	Dry				yes		Dry	5
5	Dust				yes		Dust	5
5	Edge		yes		yes		Edge	5
5	Frame	yes	yes		yes		Frame	5
5	Good				yes		Good	5
5	Invoice		yes		yes		Invoice	5
5	May_I_help_you				yes		May_I_help_you	5
5	Nails				yes		Nails	5
5	Parts		yes		yes		Parts	5
5	Ruler		yes		yes		Ruler	5
5	Sample				yes		Sample	5
5	Sandpaper		yes		yes		Sandpaper	5
5	Shelves				yes		Shelves	5
5	Solvent				yes		Solvent	5
5	Spike				yes		Spike	5
5	Task		yes		yes		Task	5
5	Team		yes				Team	5
5	Trim				yes		Trim	5
5	Varnish		yes		yes		Varnish	5
5	Veneer				yes		Veneer	5
5	Warehouse				yes		Warehouse	5
5	Workshop				yes		Workshop	5
4	Accessories	yes	yes		yes		Accessories	4
4	Angle	yes	yes		yes		Angle	4
4	Base		yes		yes		Base	4
4	Black				yes		Black	4
4	Box				yes		Box	4
4	Brown						Brown	4
4	Coating		yes		yes		Coating	4
4	Contact				yes		Contact	4
4	Detail	yes	yes		yes		Detail	4
4	Drying_time				yes		Drying_time	4
4	Fact	yes	yes				Fact	4
4	Finishing	yes	yes		yes		Finishing	4
4	Gloves		yes		yes		Gloves	4
4	Hardwood		yes		yes		Hardwood	4
4	Instructions_of_the_boss	yes	yes		yes		Instructions_of_the_boss	4
4	Light		yes		yes		Light	4

4	Line		yes		yes		Line	4
4	Long		yes		yes		Long	4
4	Milling_machine		yes		yes		Milling_machine	4
4	Model	yes	yes		yes		Model	4
4	Oak		yes		yes	yes	Oak	4
4	Packaging		yes		yes		Packaging	4
4	Pallet		yes		yes		Pallet	4
4	Paper	yes	yes				Paper	4
4	Perform				yes		Perform	4
4	Pine				yes		Pine	4
4	Plan				yes		Plan	4
4	Planer	yes	yes		yes		Planer	4
4	Project	yes	yes		yes		Project	4
4	Protective	yes	yes				Protective	4
4	Put_away		yes		yes		Put_away	4
4	Right				yes		Right	4
4	Roll		yes		yes		Roll	4
4	Sand/Sanding		yes				Sand/Sanding	4
4	Saw				yes		Saw	4
4	Sliding_table_saw				yes	yes	Sliding_table_saw	4
4	Squares	yes	yes		yes		Squares	4
4	Template				yes		Template	4
4	Thickness		yes		yes		Thickness	4
4	Units	yes	yes				Units	4
4	Vacuum_cleaner				yes		Vacuum_cleaner	4
4	Water		yes		yes		Water	4
4	White		yes		yes		White	4
4	Worktop	yes	yes		yes		Worktop	4
4	Wrong						Wrong	4
3	Ash		yes				Ash	3
3	Bandsaw		yes		yes		Bandsaw	3
3	Bed	yes	yes		yes		Bed	3
3	Blue				yes		Blue	3
3	Circular_saw				yes		Circular_saw	3
3	Clamping				yes		Clamping	3
3	Clean				yes		Clean	3
3	Container	yes	yes				Container	3
3	Dowel		yes		yes		Dowel	3
3	Edge_banding_machine	yes	yes		yes		Edge_banding_machine	3
3	Flat				yes		Flat	3
3	Foam				yes		Foam	3
3	Forklift		yes				Forklift	3
3	Front				yes		Front	3
3	Girth	yes	yes		yes	yes	Girth	3

3	Grain		yes		yes		Grain	3
3	Grinding		yes				Grinding	3
3	Hold						Hold	3
3	Horizontal						Horizontal	3
3	In_stock						In_stock	3
3	Instructions		yes				Instructions	3
3	Issues		yes		yes		Issues	3
3	Left						Left	3
3	Mark	yes	yes				Mark	3
3	Modern		yes				Modern	3
3	Moulding						Moulding	3
3	Numerical_control_computer	yes	yes		yes		Numerical_control_computer	3
3	Open				yes		Open	3
3	Paint		yes		yes		Paint	3
3	Pause						Pause	3
3	Perfect				yes		Perfect	3
3	Piece	yes	yes		yes		Piece	3
3	Planning	yes	yes		yes		Planning	3
3	Point	yes	yes				Point	3
3	Production_manager	yes	yes				Production_manager	3
3	Program		yes		yes		Program	3
3	Push						Push	3
3	Resin		yes		yes		Resin	3
3	Risk	yes	yes		yes	yes	Risk	3
3	Round				yes		Round	3
3	Scissor	yes	yes				Scissor	3

It is considered desirable to include those words in the final word list with a frequency of 4 to 8 in any case (108 words). For the words with a frequency of 3, the differences in the groups were taken into account in order to put those words on a "can" list, which may well appear in the final selection, but which may also be replaced by probably a (more) important word from the mock conversations.

The words on the "can"- list that could probably be exchanged are:

- Bed
- Container
- Edge Banding machine
- Girth
- Mark
- Numerical control computer
- Piece
- Planning
- Point
- Production Manager
- Risk

- Scissor
- Slat
- Spruce
- Supplier
- Thickness Planer
- Weight
- Yardstick

This means that 149 words after the statistical data evaluation should surely appear in the final selection, and that there is room for 1 more words and expressions from the suggestions of the interviews and mock conversations. This would complete the 150 words.

## 4. Mock Conversations in Furniture (O1-A3)

### 4.1. Samples and Results in Spain

Before the role-playing, participants need to be informed about what role-playing is and how it works. They are told, both in sign language and verbally, that role-playing is a small staging in which, in this case, they have to simulate that they are working. In couples, one will pretend to be an experienced worker and the other one will assume the role of an apprentice who is new in the company. The role-playing's aim is to encourage dialogue on the tasks that need to be carried out.

The role-play was done by someone with a hearing impairment and a person who does not have a hearing loss. In order to obtain significant results, different people who had experience in different fields of the furniture and upholstery sector took part in the role-playing, whereas the apprentice, who was the hearing impaired person, had no experience in the sector.

The subjects who have participated are:

Alfonso, 56 years old. He has been working in the furniture sector for almost 40 years. He is not hearing impaired.

Francisca, 60 years old. She has been working in the furniture sector for over 30 years. She is not hearing impaired.

María, 56 years old. She has been working in the upholstery sector for almost 40 years. She is not hearing impaired.

Tomás, 34 years old. He has been working in the upholstery sector for almost 16 years. He is not hearing impaired.

Ana, 41 years old. She has no experience in the furniture or upholstery sector. She is hearing impaired.

Starting with the furniture sector, Alfonso and Ana did a role-playing in which they were hypothetically asked to make a table. The vocabulary obtained from that role-playing is the following:

Raw material  
Sliding table saw  
Cut  
Measurement  
Edge banding machine  
Edges  
Solid wood  
Milling machine  
Moulding  
Legs  
Square  
Thickness  
Measurement  
Shape  
Round

Wood  
Cut  
Drying time  
Grinding  
Colour  
Base  
Lathe  
Shape  
Calliper  
Sanding  
Faces  
Sandpaper  
Long  
Drill  
Hole  
Assemble  
Fact  
Put together  
Glue  
Jack  
Glue gun

The second staging also happens in the furniture sector. Francisca and Ana needs to assemble a chair. They used these words:

Wood  
Select  
Assembly machine  
Template  
Cross bars  
Dowell  
Mortising machine  
Part  
Sanding machine  
Calliper  
Put together  
Stretcher  
Upholstery  
Grinding  
Colour  
Base  
Sandpaper  
Coating  
Screw  
Seat  
Packing  
Box  
Seal  
Cordless drill

The next two role-playings are set up within the upholstery sector.

The first role-play takes place between María and Ana during the preparation, gluing and sheathing phase.

The vocabulary obtained is:

Frame  
Wood  
Strap  
Spring  
Seat  
Back  
Cardboard  
Width  
Glued  
Glue  
Gum  
Model  
Fabric  
Shape  
Pillow covering  
Compress  
Foam rubber  
Fibre  
Fix  
Pillowcase  
Pack up  
Plastic  
Seal  
Glue gun  
Staple  
Foam rubber  
Shape  
Hand saw

The last scene is about the upholstery of a sofa. Tomás and Ana are the performers and the following vocabulary is obtained:

Workbench  
Scissors  
Punch  
Pliers  
Cutter  
Stapler  
Hammer  
Screwdriver  
Drill  
Compressor  
Frame  
Foam rubber  
Glued  
Pillowcase  
Fabric  
Covering  
Staple



Inner part  
Coated  
Avoid mistakes  
Sewing  
Adjust  
Edge  
Process  
Bottom part  
Close  
Nonwoven fabric  
Legs  
Top  
Label  
Packing  
Plastic

Each staging lasted between 10 and 15 minutes. They had to be interrupted several times since both the woman with the disability and the sign language interpreter could not understand some technical words. It should be noted that the activity was difficult to carry out, especially finding a hearing impaired person who wanted to participate since many of them were reluctant, but finally one accepted.

In spite of this, it was a very enriching experience. We had the opportunity to verify that we can overcome the limitations of communication by using a reduced number of words.

## 4.2. Conclusions

The results from mock conversations in Spain confirms that the words from the word lists are relevant and used in dialogues, it is clear with words like “Wood”, “Shape”, “Sandpaper”, “Packaging”, “Measurement”, “Glue”, “Frame”, “Cut”, “Colour” or “Base” which are appearing in more than one situation in the role-playing. Those words are in the 149 words selected. About the “can”- list which are candidates to cover the remaining place to the selection of 150 words, it is found that “Edge Banding Machine” and “Scissor” appearing in one situation but the rest was not used. On the other hand there are two words which are appearing in two situations and they are totally new, those words are “legs” and “staples”, for that, it is recommended that one of these words will be part of the final list, and the furniture experts of CETEM has selected “legs” because that word is used in all countries and every type of furniture, while “staples” is mainly used in upholstery. With this final selection, it is considered finished the selection.

#### 4. Selection of 150 Words, Expressions and Actions for Furniture (O1-A4)

The long road (observation, interviews, role-playing, analysis) to choose most useful furniture words is considered finished. 149 words from the word list with a median of 2.5 to 3 and a range of 0-2 and a frequency of 3 or higher are included in the final selection. In addition, a suggested word from the mock conversations are taken into account to complete the word list. When the list was nearly closed, furniture experts have decided to unify “Instructions” and “Instructions of the boss” in the same word because their similarity, and add “staples” as the last word. This leads to the following final list of 150 words:

Consecutive number	Word number on wordlist	Word	Origin
1	1	Accessories	Word list
2	2	Adjustments	Word list
3	3	Angle	Word list
4	6	Ash	Word list
5	11	Bandsaw	Word list
6	12	Base	Word list
7	14	Beech	Word list
8	17	Black	Word list
9	18	Blue	Word list
10	19	Board	Word list
11	20	Box	Word list
12	23	Brown	Word list
13	27	Carry	Word list
14	29	Centimetre	Word list
15	32	Circular_saw	Word list
16	33	Clamping	Word list
17	34	Clean	Word list
18	35	Coating	Word list
19	36	Colour	Word list
20	37	Computer	Word list
21	38	Contact	Word list
22	43	Coworker	Word list
23	45	Cut	Word list
24	47	Detail	Word list
25	48	Dimensions	Word list
26	50	Door	Word list
27	51	Dowel	Word list
28	52	Drawer	Word list
29	53	Drawings	Word list
30	54	Drill	Word list
31	55	Dry	Word list
32	56	Drying_time	Word list

33	57	Dust	Word list
34	58	Edge	Word list
35	63	Fact	Word list
36	66	Finishing	Word list
37	69	Flat	Word list
38	71	Foam	Word list
39	73	Forklift	Word list
40	74	Frame	Word list
41	75	Front	Word list
42	76	Furniture	Word list
43	78	Gloves	Word list
44	79	Glue	Word list
45	80	Gluing	Word list
46	81	Good	Word list
47	82	Grain	Word list
48	83	Grinding	Word list
49	85	Hammer	Word list
50	86	Hardwood	Word list
51	90	Hold	Word list
52	91	Hole	Word list
53	92	Horizontal	Word list
54	95	In_stock	Word list
55	96 / 251	Instructions / Instructions of the boss	Word list
56	98	Invoice	Word list
57	99	Issues	Word list
58	103	Left	Word list
59	-	Legs	Mock conversation
60	104	Light	Word list
61	105	Line	Word list
62	106	Long	Word list
63	107	Machine	Word list
64	108	Manufacture	Word list
65	110	Material	Word list
66	252	May_I_help_you	Word list
67	111	Measurement	Word list
68	114	Millimetre	Word list
69	115	Milling_machine	Word list
70	117	Model	Word list
71	118	Modern	Word list
72	119	Moulding	Word list
73	120	Nails	Word list
74	122	Numbers_(1,_2,_3	Word list

<b>75</b>	125	Oak	Word list
<b>76</b>	126	Open	Word list
<b>77</b>	127	Order	Word list
<b>78</b>	128	Packaging	Word list
<b>79</b>	129	Paint	Word list
<b>80</b>	130	Pallet	Word list
<b>81</b>	132	Paper	Word list
<b>82</b>	133	Parts	Word list
<b>83</b>	135	Pause	Word list
<b>84</b>	136	Pencil	Word list
<b>85</b>	137	Perfect	Word list
<b>86</b>	138	Perform	Word list
<b>87</b>	142	Pine	Word list
<b>88</b>	143	Plan	Word list
<b>89</b>	144	Planer	Word list
<b>90</b>	150	Program	Word list
<b>91</b>	151	Project	Word list
<b>92</b>	152	Protective	Word list
<b>93</b>	153	Punctuality	Word list
<b>94</b>	154	Push	Word list
<b>95</b>	155	Put_away	Word list
<b>96</b>	156	Ready	Word list
<b>97</b>	159	Resin	Word list
<b>98</b>	160	Right	Word list
<b>99</b>	162	Roll	Word list
<b>100</b>	163	Round	Word list
<b>101</b>	164	Ruler	Word list
<b>102</b>	165	Sample	Word list
<b>103</b>	166	Sand/Sanding	Word list
<b>104</b>	168	Sandpaper	Word list
<b>105</b>	169	Saw	Word list
<b>106</b>	173	Screw	Word list
<b>107</b>	174	Screwdriver	Word list
<b>108</b>	179	Shape	Word list
<b>109</b>	180	Shelves	Word list
<b>110</b>	181	Shifts	Word list
<b>111</b>	183	Side	Word list
<b>112</b>	184	Silicone	Word list
<b>113</b>	185	Skills	Word list
<b>114</b>	187	Sliding_table_saw	Word list
<b>115</b>	188	Smooth	Word list
<b>116</b>	190	Solid_wood	Word list
<b>117</b>	191	Solvent	Word list
<b>118</b>	192	Spike	Word list

<b>119</b>	194	Splinters	Word list
<b>120</b>	195	Spray_gun	Word list
<b>121</b>	197	Squares	Word list
<b>122</b>	-	Staples	Mock conversation
<b>123</b>	201	Supervisor	Word list
<b>124</b>	203	Switch_off	Word list
<b>125</b>	204	Switch_on	Word list
<b>126</b>	253	Take_measures	Word list
<b>127</b>	206	Task	Word list
<b>128</b>	207	Team	Word list
<b>129</b>	209	Template	Word list
<b>130</b>	213	Thickness	Word list
<b>131</b>	215	Thin	Word list
<b>132</b>	216	Thread	Word list
<b>133</b>	220	Tool	Word list
<b>134</b>	221	Trim	Word list
<b>135</b>	225	Units	Word list
<b>136</b>	227	Vacuum_cleaner	Word list
<b>137</b>	228	Varnish	Word list
<b>138</b>	230	Veneer	Word list
<b>139</b>	231	Walnut	Word list
<b>140</b>	232	Warehouse	Word list
<b>141</b>	235	Water	Word list
<b>142</b>	238	White	Word list
<b>143</b>	239	Width	Word list
<b>144</b>	240	Window	Word list
<b>145</b>	241	Wood	Word list
<b>146</b>	242	Work	Word list
<b>147</b>	243	Work_table	Word list
<b>148</b>	244	Workshop	Word list
<b>149</b>	245	Worktop	Word list
<b>150</b>	247	Wrong	Word list

This is the selection which will be used in furniture video-dictionary.

## Annex 1: Interview Guidelines

*Created by Evelyn Schlenk and Stefanie Allmendinger, ILLI*

### **1. Aim of the Interview Guidelines**

In order to promote the success of the SWING project, it is an essential goal of the project team to use the expertise, knowledge and interests of personnel from the areas of cooking, furniture and tourism. Interviews are conducted to ensure that the materials to be developed (i. e. the sign language dictionaries and the learning system surrounding them) are relevant and useful for the target groups of hearing and hearing impaired employees in concrete application practice.

### **2. How Interviews will Operate**

The interviews will be conducted in four European countries (Italy, Germany, Spain, Hungary) with a total of at least 120 people:

- Target will be **20 persons with hearing impairments in each of the 3 sectors** that equals a minimum of 60 persons with hearing impairment
- Target will be **20 persons without hearing impairments in each of the 3 sectors** that equals a minimum of 60 persons without hearing impairment

The respondents will be invited to take part in live meetings as well as possible virtual meeting using conference call.

The participants will be updated with Newsletters and group emails.

The target groups will be actively involved in all stages of the project in line with their professional and/ or personal interests and will later have a chance to test the dictionaries and learning system developed within the project and provide valuable feedback.

The amount of activity and involvement will be determined by the interviewees and will range from e-mail participation to testing of the materials and tools up to attendance at dissemination events.

### **3. FRAMEWORK of the Interview Situation**

#### **3.1. Structure of the Interview**

The interviews consist of four parts:

1. insertion part
2. interview
3. evaluation of the word list
4. definition of the most important terms in words (hearing people) or in sign language (hearing impaired people)

#### **3.2. Introductory part**

The introduction consists of the following sections:

- Informing respondents about the purpose of the interview as part of the project
- Information about the guarantee of data protection through anonymisation
- Obtaining consent to participate and to record data

#### **3.3 Interview Part**

The interview questions are listed in section 4. Interviewers should familiarize themselves with the interview protocol before the interview in order to keep the essentials in mind. Nevertheless, in the concrete interview situation, the interviewers should be able to detach themselves from the given structure of the interview protocol and to conduct a naturally flowing dialogue. During the interview, relevant information will probably be given by the participants in different sequences and depth. Then interviewers should be able to react flexibly and, for example, ask additional

questions or, in the event of too much digression, be able to trace the interview back to the core topic. For this purpose, the profile protocol supports the interview as an "interview guide".

### 3.3.1 How to Ask Questions

To the purpose of a targeted dialogue, open and closed questions should be applied.

- Open questions do not restrict the respondents in their answer on present alternatives. Open questions are especially suitable for the survey of experiences, opinions, attitudes, persuasions and values, if it is not likely that one can presume the answer. The respondents get the possibility to make free associations and to elucidate their personal perspective. Interviewers should predominantly ask open questions.
- Closed questions set the possible alternatives of response in advance. These kind of questions are especially suitable, if it is very likely that one alternative is the adequate answer. In addition, closed questions are very supportive to make sure that one has understood the respondent correctly or to focus the dialogue on a distinct aspect.

For the correct wording, the following recommendations are given:

Questions should...

- consist of simple words.
- be short.
- be neutral.
- be free of double negations.

### 3.3.2 Taking a professional attitude towards the respondent

The interviewer should take up a respectful and empathic attitude on the respondents and listen to them with attention and interest.

### 3.3.3 Data Recording

Records of the interviews are strongly recommended. Mainly there are two different ways of keeping records:

Recording on medium:

- Advantage: One can listen attentively and moderate the discussion.
- Disadvantage: Time-consuming post-processing

Taking notes:

- Advantage: Dialogue is more focused, written down information is more reduced, less time-consuming post-processing
- Disadvantage: Requires high level of concentration in dialogue and logging; lost information can only be reconstructed from memory

Recommendation:

- Combination of both methods  
(please ask permission for data recording in advance)

### 3.3.4 Some rules for the communication with hearing impaired people

*Translated from the booklet: BBW Nürnberg "Kleiner Ratgeber für die Kommunikation mit gehörlosen Menschen"*

Most deaf people are deaf before language development, i. e. they have never heard language. That is why they have difficulties with vocabulary, grammar or word order - rules that hearing children learn "automatically" by imitating their parents and teachers.

#### Reading from the mouth

Reading from the mouth is also very difficult and can easily lead to mistakes. Every person has a different mouth pattern. To make reading easier for the deaf partner, you should observe the following rules:

- Face him or her fully. S/he cannot see anything from the side.
- Speak slowly, clearly and at normal volume. S/he cannot hear you when you speak very loudly, but your mouth is distorted too much.
- Pay attention to the light, the distance and your head movements. Avoid backlighting. Your face should not be in the dark, do not move your head heavily or turn away when speaking. The most favourable distance during the conversation is one to two meters.
- Since the deaf person has to guess a lot of things when reading, your facial expression should reflect the content of your words. Show him or her your real opinions and feelings: Joy, seriousness, dismay, praise, criticism, etc.
- The deaf person has to concentrate enormously when reading from the lips. Therefore, you should give him or her a break between short sentences, even between the individual words (e. g.: "Tomorrow - let's go - into the forest"), so that s/he can think about it and see the meaning. But don't speak too slowly, because then the form of the sentence will disintegrate.

The vocabulary of early deaf people is naturally smaller than that of normal hearing people. This should be taken into account when choosing words:

- Please do not use foreign words, trendy words or dialect terms. These groups of words are usually incomprehensible to deaf people.
- Deaf people also have difficulty understanding proverbs, jokes and witty phrases.
- Avoid ambiguous words. If you cannot define them, please use the most common meanings.

### **Communication in Sign Language**

Deaf people communicate with each other in Sign Language. Sign language does not know subordinate clauses and it differs in word order and grammar from spoken language. Therefore, a few rules should be followed when talking to hearing impaired persons:

- Make short sentences. Five words per sentence should be sufficient.
- Two or three short main clauses are better than one long sentence with subordinate clause.
  - Not: "After I'd been to the bank and withdrawn 500 euros, I bought a laptop."
  - Better: "I was on the bank. I have withdrawn 500 €. Then I bought a laptop."
- Avoid filling words (uh, yes, well, etc.) and conjunctions (and, as, though... but etc.). In this way, sentences are only extended unnecessarily.

When talking to a deaf person, you should structure your speech well.

- First name the topic of conversation (e. g. "I'm talking about football now.").
- Organize your content and keep to the logical order. Avoid jumps from one subject to another.
- Limit yourself to the most important aspects so that your partner is not overburdened by the combination and concentration.

## **4. INTERVIEW QUESTIONS FOR HEARING PEOPLE**

The note form aims to support an open and flexible way of asking questions.

### **A. Introductory Part**

#### **1. Welcoming words**

#### **2. Self-introduction of the interviewer and their institution**



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### 3. Introduction to the SWING project and the aims of the interview

### 4. Information about data protection and asking permission of keeping records (taking notes, video/audio)

---

## B. Some Information about the Interview Participant

5. What is your name?

6. What is your job title?

7. What training did you complete?

8. What is your position in the company?

9. How long have you been with this company?

10. Were you already employed in this profession elsewhere before?

11. What professional experience do you have? (number of years, job areas)?

12. Will you tell us your age?

---

## C. Previous knowledge and experience in relation to the target group

13. Have you already had contact with hearing-impaired people?

14. Was this contact private and/or professional?

15. If so, how did you manage to communicate with each other?

16. Do you already know sign language?

---

## D. Questions about cooperation (cooking, furniture) or business relations (tourism) with hearing-impaired people

17. Could you imagine working with someone with hearing impairments?

18. What opportunities do you see in this?

19. What challenges do you see?

20. Do you know how to facilitate communication?

21. Do you think it would be helpful for the communication to have a video dictionary available with signs for the most important words in your profession?

22. Could you imagine even learning the most important words in sign language?

23. Could you imagine that it could also be helpful at your workplace to communicate some words in sign language with hearing colleagues (for example, because of high volume or to bridge distances)?

---

## E. Common Reflection of the word list

24. During our field research, we have listened to you and your colleagues in your workplace activities. We have tried to identify the most important words, including both professional terms and frequently used everyday words.

We have created a list and would like to ask you now to look through this list. Please use a pen

- to mark the words that you feel are particularly important,
-

- to cross out those that you deem to be less important,
- to add important words to list that we have overlooked.

---

#### **F. Do you have any other comments?**

---

### **5. INTERVIEW QUESTIONS FOR HEARING Impaired People**

**In interviews with hearing impaired people, parts A and B are the same; from part C, the questions change.**

#### **A. Introductory Part**

1. Welcoming words
2. Self-introduction of the interviewer and their institution
3. Introduction to the SWING project and the aims of the interview
4. Information about data protection and asking permission of keeping records (taking notes, video/audio)

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#### **B. Some Information about the Interview Participant**

5. What is your name?
6. What is your job title?
7. What training did you complete?
8. What is your position in the company?
9. How long have you been with this company?
10. Were you already employed in this profession elsewhere before?
11. What professional experience do you have? (number of years, job areas)?
12. Will you tell us your age?

---

#### **C. Previous knowledge and experience with hearing colleagues**

13. Have you already worked with hearing colleagues?
14. If so, how did you manage to communicate with each other?
15. Do your colleagues already speak sign language?
16. Do you read lips?

---

#### **D. Questions about cooperation (cooking, furniture) or business relations (tourism) with hearing people**

17. What opportunities do you see in working with hearing people?
  18. What challenges/problems do you see?
  19. How hard is it to get a job as a hearing-impaired person? What are your experiences?
  20. Do you know how you can facilitate communication?
  21. Do you find it helpful to get a video dictionary? This contains gestures for the 150 most important words in the profession.
  22. Do you think your hearing colleagues would also learn these 150 most important words in sign language?
-

## 6. Evaluation of the Word List

As a result of the participating observation, a list with about 180-260 frequently observed words from the occupational field was compiled for each sector. The list of words is presented in the form of a questionnaire. Participants should **quickly** mark on a 4-step rating scale whether they consider it to be an essential word for the sector, because it is widely used, whether it is a word that is useful in this sector, because it is commonly used, whether it can be used occasionally, whether it does not occur or is useless for the sector.

Example of a list from the Tourism section:

		It is used a lot in the sector - Essential	It is useful in the sector. Commonly used	It can be used occasionally	It is not present or it is useless
1	Address				
2	Air-Conditioner				
3	Airport				
4	Amount				
5	Anything				
6	Aperitif				

For hearing impaired people, it is advisable to clarify the meaning of individual written words by means of an explanatory picture on request.

## 7. Definition of the most important words

### 7.1 Representations of the most important terms

After the common reflection of the word list, the interviewees should give a definition about the most important terms. The hearing interviewees could give an explanation or say a sentence about the respective term, the hearing-impaired interviewees could express the word in sign language. The terms are words with the highest rating "essential", which is why the number of words to be displayed may vary.

**This part of the interview shall be recorded on video when it is possible**

## 8. Analysis of the interview results

The participants create a report, which consists of the following parts:

1. Content of the interview as a summary report in English, based on the structure of the interview questions.
2. Conclusions on the state of research in the area observed and on the needs and expectations of the target group.
3. Recommendations for the development of sign language dictionaries and learning systems.

## Annex 2: Guideline of mock conversations interviews

Created by Tomás Puebla, CETEM

### 1. OBJECTIVE

The objective is to collect and systematize the different words, expression or actions that they are used in usual work environments in 3 different sectors (tourism, furniture and culinary), in order to select 150 most useful words to be integrated in a video-dictionary.

For that, besides observations and interviews, it will be done a third activity, mock conversations between people with hearing problems and people without hearing problems in a simulated context of work environment. It will be done 1 per partner, in total 5 and at least 1 per sector.

### FIRST STEPS

Find the right people for participating in the interview:

- Sign translator who will be the main mean of communication between the other two members of the conversation.
- People without hearing problems who has worked in the target sector (furniture, tourism or culinary)
- People with hearing problems who has worked in the target sector (the same one of the other member of the role-playing)

It is not necessary that they met previously, but it could be a good idea.

Prepare a video-cam or mobile to record the role-playing, it is not necessary a high-quality resolution, but it is important that the sound will be good.

### PREPARE THE MATERIAL

Depending on about which sector the role-playing will be done, you have to prepare the possible situations that it was considering during the observation and it has to be selected one of the possible areas inside the sector (for example: in culinary or Chef/cook or Catering system specialist)

Tourism

#### 1. Hotel Employers

#	Situation
1.1	Hosting the customer during the arrival
1.2	Assisting the customer during its stay
1.3	Managing the departures of the customer
1.4	Managing the information requests by the costumer
1.5	Assignment of the Rooms (in some case this task belong to the Room Division Manager)
1.6	Management of bookings.
1.7	Management of the cash and the change of currency
1.8	Fulfilment of costumer practices
1.9	Concierging services

## 2. Travel Escort (or tour leader)

#	Situation
2.1	Following and assisting a group of tourist/travellers (from the beginning to the end).
2.2	Managing the quality of the services (accomodation, food, local guides, transports).
2.3	Informing the travellers about the local culture (rituals, habits and local laws).
2.4	Dealing the border and custom issues
2.5	Leading of the group and melting of the people (if working as “incoming”)
2.6	Assisting the departure of the tourists (if working as “outcoming”)
2.7	Managing daily tour

## 3. Travel Entertainer

#	Situation
3.1	Planning of the free time activities (games, matches, parties, show, cabaret, etc..) according the context and the type of tourists (age, countries, multicultural groups, etc..)
3.2	Implementation of the free time activities
3.3	Generic entertainer
3.4	Problem solver (small fights or tension moments)

<b>1. Upholstery</b>	
<b>#</b>	<b>Situation and Job Position</b>
1.1	Starting process
1.2	Cushions
1.3	Cut and Sew
1.4	Logistics
1.5	Ending process
1.6	Management and administration

<b>2. Joinery/Furniture</b>	
<b>#</b>	<b>Situation</b>
2.1	Wood transformation
2.2	Machine operators
2.3	Ending product

<b>3. Common</b>	
<b>#</b>	<b>Situation</b>
3.1	Logistics
3.2	Management, administration and others
3.3	Others

## Culinary

<b>1. Chef/Cook</b>	
<b>#</b>	<b>Situation</b>
1.1	Team meeting to get an overview of the day and allocate tasks to the kitchen brigade
1.2	Accepting ordered foodstuff and checking the completeness and quality
1.3	Preparing the workplace (cutting board, knife, ingredients...)
1.4	Preparing the food (washing, cutting, peeling...)
1.5	Cooking the food (frying, cooking, baking....)
1.6	Arranging ready meals for serving
1.7	Food distribution

1.8	Washing the dishes
1.9	Cleaning the kitchen
1.10	Putting food into the fridge
1.11	Checking stock in cold storage room
1.12	Ordering foodstuff
1.13	Disinfecting the kitchen

<b>2. Catering System Specialist</b>	
#	Situation
2.1	Comparing the orders placed the day before with the delivery received and the delivery note; if necessary reordering of missing products
2.2	Preparing meals (i.e. breadrolls for the branch office, cooking for lunch)
2.3	Helping with service (i.e. book the meals into the cash register, ensuring that coffee machines work, and have enough milk, sugar, cups available)
2.4	Supplying branch offices with food (i.e. putting warm food in heat containers, loading them into car and driving to branch office, uploading containers, distributing rolls into refrigerated counters; checking if the guest area is clean and tidy)
2.5	Filling up vending machines (i.e. stocking of confectionery and beverage vending machines, checking and changing of change)
2.6	Serving food in the headquarter (control of the cutlery boxes for the guests, arrangement of the serving cutlery, putting food on the plates, tidying up of the food serving area, closing of the cash register)
2.7	Processing invoices (in the office: invoice processing, ordering of required goods, event planning, answering guest enquiries)
2.8	Comparing the orders placed the day before with the delivery received and the delivery note; if necessary reordering of missing products
2.9	Preparing meals (i.e. breadrolls for the branch office, cooking for lunch...)
2.10	Helping with service (i.e. book the meals into the cash register, ensuring that coffee machines work, and have enough milk, sugar, cups available)
2.11	Supplying branch offices with food (i.e. putting warm food in heat containers, loading them into car and driving to branch office, uploading containers, distributing rolls into refrigerated counters; checking if the guest area is clean and tidy)
2.12	Filling up vending machines (i.e. stocking of confectionery and beverage vending machines, checking and changing of change)
2.13	Serving food in the headquarter (control of the cutlery boxes for the guests, arrangement of the serving cutlery, putting food on the plates, tidying up of the food serving area, closing of the cash register)

2.14	Processing invoices (in the office: invoice processing, ordering of required goods, event planning, answering guest enquiries)
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## **2. Structure of the role-playing**

Consist on four parts:

1. introductory part
2. mock conversation
3. finish the role-playing

### **2.1. Introductory part**

The introduction consists of the following sections:

- Informing respondents about the purpose of the interview as part of the project
- Information about the guarantee of data protection

Obtaining consent to participate and to record data

### **2.2. Mock conversation.**

Give to the participants the possibility of choosing the situation that they want to speak about, but it is necessary to make at least 3 of the list (the more, the better), for example in case of tourism – hotel employers they could chose (among other ones):

- Assignment of the Rooms
- Management of bookings
- Management of the cash and the change of currency

It is no necessary to give a lot of instructions to the participants (but it could be a good idea to spend some minutes to use some previous minutes, trying that the participants could imagine that they are inside the work environment), they have to try to focus on that situation but it will be needed a little patience by the participants because they have to wait until the sign translator has translated in both cases.

This conversation will be recorded in order to have the possibility of writing down the used words afterwards.

Both participants will play the role of workmates but in some cases, it could be necessary that a third person could play the role of customer, above all in tourism sector.





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The procedure to write down the words is the same than the one it was used in the observation of O1-A2

### **2.3 Finish the role-playing**

Recognize the effort of the participants and tell them that we will send the links to use the video-dictionaries