SWING

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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 Culinary sector

Erasmus+

Project Acronym:	SWING
Project Start Date:	2nd November 2017
Project Duration:	30-Months
Project End Date:	1st May 2020
Project number:	2017-1-IT01-KA202-006157
Coordinator:	FEDERSID (ITALY)
O1-A3 Culinary Report:	ILI
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Version:	1

Co-funded by the Erasmus+ Programme of the European Union

This project has been funded with support from the European Commission - application number 2017-1-IT01-KA202-006157.
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1. Introduction: From O1-A2 to O1-A3

In the first project step 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 culinary sector in three different restaurant types:

Country/Type	Germany	Italy	Spain	Hungary	Total number
Traditional Restaurant	5	1	1	1	8
Haute Cuisine Restaurant	2	-	1	-	3
Fast Food Restaurant	2	1	-	1	4
Total number	9	2	2	2	15

Figure 1: Number and distribution of the observations in culinary. Source: "Report about Observations in Cooking (O1-A2)", p. 3

These observations involved the systematic collection of all words that appeared explicitly or implicitly in the kitchens. A total of 2,867 different words and sentences were observed. After a few analysis steps, the amount of data could be reduced to a list of the 229 most important words in the field of culinary. Compared to the final list of 150 words, this still quite extensive compilation was to be presented to the hearing and hearing-impaired experts for review in the next stage of the project. These were the words in culinary:

List of culinary words to be tested in O1-A3 - (alphabetical order)

#	General Term	Additional subordinate terms	Word appeared how often?	Word appeared in how many different observations?	Word appeared in how many different countries?
1[1]	aluminium		4	3	2
2	amuse-gueule		5	1	1
3	anti-bacterial		4	1	1
4	apple	apples	5	5	2
5	assemble (verb)		3	2	1
6	bacon		6	4	2
7	beetroot		4	3	1
8	big		8	5	2
9	blanched		5	2	1
10	board	chopping board	7	6	3

[1] The first column contains a consecutive number. When the English list is translated into different languages, the alphabetical order of words will change, but each word in the English list will maintain its original number for identification in the other language versions as well. This ensures that each word can be clearly assigned in all language versions, even if its initial letter, and thus the alphabetical order, changes as a result of translation.

11	boil (verb)		10	9	4
12	bowl		7	7	1
13	box		7	3	1
14	braise (verb)	braised	8	3	2
15	bread		11	7	2
16	breading		4	3	2
17	break		6	4	2
18	breakfast		4	4	2
19	bring (verb)		7	6	1
20	bulgur		3	1	1
21	burger	burgers	9	3	2
22	burners		3	1	1
23	burnt		4	3	1
24	butcher		4	3	1
25	butter		10	5	1
26	cabbage		10	7	1
27	cake		4	5	2
28	can (verb)		44	7	2
29	carrot	carrots	6	6	2
30	cauliflower		5	2	1
31	caution		5	2	1
32	celery		5	5	2
33	cheese		6	6	2
34	cheese noodles		4	4	1
35	chef		46	9	4
36	chives		4	3	1
37	cinnamon		3	3	1
38	clean (verb)	synonym also for cleanse, wash	15	15	4
39	cling-film		8	6	2
40	cloth	rag	7	7	4
41	coffee		6	4	2
42	cold		8	8	3
43	come (verb)		9	9	2
44	cook (verb)		9	9	3
45	cool (verb)		9	5	2
46	courgettes		6	3	1
47	cream		10	10	2
48	croutons		4	3	1
49	crust		5	3	1
50	cucumber		8	8	3
51	cup		4	4	2
52	curry		4	4	1
53	cut (verb)	cut/chop … slices, cubes, thinner, thicker	22	14	4
54	days of the week	Monday, Tuesday, Wednesday, Thursday,			

		Friday, Saturday, Sunday - weekend			
55	deep-fryer		8	6	2
56	dessert		10	9	3
57	dining-room		5	1	1
58	dip		5	5	3
59	dish	dishes	10	4	3
60	dishwasher		14	7	4
61	done		12	7	2
62	drive shopping (verb)		4	2	2
63	dumpling	dumplings	10	5	1
64	egg	eggs	8	6	2
65	empty		4	4	2
66	enough		7	6	1
67	espresso		4	2	1
68	fat		7	7	3
69	fine		4	4	2
70	finished		4	3	1
71	first course		3	2	1
72	fish	salmon, tuna, carp	15	10	4
73	flour		11	6	3
74	foam		3	1	1
75	forgot		5	5	2
76	fork		4	4	3
77	freezer		11	6	4
78	fresh		6	6	3
79	fridge		5	4	2
80	fries		9	2	1
81	frozen		6	2	1
82	fruit	fruits	6	5	3
83	fry (verb)		13	13	3
84	garbage		6	6	2
85	garlic		4	3	1
86	get		20	10	2
87	ginger		6	4	2
88	give		3	3	1
89	glass	glasses	4	4	3
90	gloves		5	5	2
91	good		9	3	1
92	guest	guests	6	6	1
93	hello		4	4	1
94	help (verb)		12	5	3
95	herb	herbs	3	3	1
96	horseradish		6	4	1
97	hot		8	8	3
98	hot section		4	2	1
99	ice cubes		5	2	2

100	ice-cream		12	4	1
101	juice		15	5	2
102	ketchup		8	4	2
103	kitchen		9	6	4
104	kitchen hood		5	1	1
105	knead (verb)		4	4	3
106	knife	knives	13	9	4
107	ladle		8	7	3
108	lamb's lettuce		3	3	1
109	leaf	leaves	5	5	2
110	leek		6	3	1
111	lemon		7	7	1
112	lid		4	2	1
113	lime		8	1	1
114	litre	litres	3	2	1
115	little		9	8	2
116	liver		4	3	1
117	look (verb)		16	7	2
118	lungs		4	2	1
119	make (verb)		16	9	1
120	marinate (verb)		3	3	2
121	mayo		4	4	2
122	meat	lamb, calf, chicken, beef, pork, deer	19	10	3
123	menu		21	7	4
124	milk		10	8	3
125	minute	and minutes and hour / hours	6	6	2
126	missing		5	4	1
127	mushrooms		8	5	1
128	need (verb)		20	9	1
129	new		6	4	1
130	noodles		5	5	2
131	normal		3	2	1
132	now	later, previously	18	7	1
133	numbers	0, 1, 2, 3, 4,…20 - many, more, less			
134	nut	nuts	5	5	2
135	oil		20	14	4
136	okay		6	4	2
137	olives		5	3	1
138	onion	onions	22	11	3
139	order		17	8	3
140	oven		26	11	4
141	pan		9	9	4
142	paper kitchen towels		6	2	1
143	paprika		4	4	2

144	parsley		7	5	1
145	paste		4	4	1
146	peel (verb)		8	8	3
147	people		6	3	1
148	pepper		8	7	3
149	pickled cabbage		4	2	1
150	piece		7	6	3
151	pizza		4	2	1
152	plastic bag	bag	6	5	3
153	plate		10	10	3
154	please		19	7	2
155	portion	portions	11	7	3
156	pot		14	9	3
157	potato	potatoes	11	10	3
158	powdered-sugar		4	1	1
159	preparation		10	2	2
160	prepare (verb)		6	6	3
161	problem		5	2	2
162	put		15	9	2
163	ready		15	7	3
164	receipt		4	4	2
165	red cabbage	white cabbage	4	4	1
166	reservation		4	3	1
167	rice		4	4	2
168	roasted		3	3	2
169	rosemary		7	4	2
170	salad		21	12	4
171	salt		15	11	4
172	salt (verb)		3	1	1
173	sauce		18	12	4
174	sausage	sausages	5	5	1
175	savoy		6	3	1
176	scale		5	2	2
177	schnitzel		4	4	1
178	scouring-sponge		3	1	1
179	scraper		7	5	2
180	season to taste (verb)		8	8	4
181	second course		3	2	1
182	serve (verb)		5	1	1
183	service		11	4	2
184	serviette		4	3	2
185	shake (verb)		3	2	2
186	sharpen		4	4	1
187	shelf	shelves	6	2	2
188	shopping list		3	2	1
189	sieve		9	5	1
190	skim (verb)		3	2	1

191	skirt		4	4	1
192	smash (verb)	apples, potatoes	4	1	1
193	smell		4	4	3
194	soup		15	6	2
195	space		4	3	1
196	spin	salad	4	2	1
197	spinach		3	3	1
198	spoon	spoons	11	9	4
199	spring onion		3	2	1
200	starter		4	2	1
201	stir (verb)		5	5	1
202	store		5	5	2
203	stove		7	5	2
204	sugar		17	11	3
205	table	tables	12	9	4
206	take		21	10	2
207	taste (verb)		8	4	1
208	taste		6	4	1
209	temperature		8	7	4
210	thank you		5	5	2
211	times	today, tomorrow, yesterday			
212	tomato		7	7	2
213	trainee		4	2	2
214	tub		3	2	1
215	turn	turn on, turn off	8	8	2
216	use		3	2	1
217	vegan		24	6	1
218	vegetables		15	11	4
219	vegetarian		5	4	1
220	vinegar		8	8	3
221	wait		7	6	2
222	water		10	10	3
223	weigh		5	5	2
224	whey		4	1	1
225	whipped cream		3	2	1
226	whisk		8	8	2
227	wine		7	7	3
228	yes	add: no	51	8	3
229	yogurt		5	1	1

Figure 2: Culinary words to be tested in O1-A3 – sorted alphabetically. Source: "Report about Observations in Cooking (O1-A2)", p. 13 ff

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,
- 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 culinary sector, a total of 40 people were to be interviewed, including 20 hearing people and 20 people with hearing impairment. 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 impairment in the working environment of a restaurant kitchen. 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	Germany	Italy	Spain	Hungary	Total number
Interviews with hearing people	8	4	4	4	20
Interviews with hearing-impaired people	8	4	4	4	20
Total number	16	8	8	8	40

Figure 3: Foreseen number and distribution of Interviews in the culinary sector (O1-A3)

3. Interviews in Culinary (O1-A3)

The interviews were based on the previously developed **interview guidelines** (Annex 1: Interview Guidelines). The questions for **hearing people** were:

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 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?

Figure 4: Interview questions for hearing people

In contrast to the questions for hearing people, the questions were worded more simply for the **hearing-impaired** people and a bit different in part C and D:

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 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?

Figure 5: Interview questions for hearing-impaired people

The following sections 3.1-3.5….

1) describe the answers to the interview questions separately for the hearing and hearing impaired groups for each partner country involved.
2) present the quantitative results from the assessments of the word list. The relevance of the words was measured on a 4-level Likert scale. These leads to data at an ordinal scale level. An ordinal scale sorts variables with values between which there is a hierarchy. The data can thus be grouped according to their relevance and sorted by size.

In the country chapters (3.1.-3.4.) and in the cross-country chapter (3.5.) diagrams with the medians and ranges per word and for the group of hearing and hearing impaired people are presented. The charts are arranged according to the height of the median and the range of the relevance assessment. These diagrams are quite small for reasons of space, but allow an optical impression of the distribution. Each graph is briefly explained in a few sentences and supplemented with relevant information.

A more detailed presentation of the results is then given in chapter 3.5. Here, too, the diagrams for the hearing and hearing impaired are presented separately and summarized. In addition, a number of statistical tests with SPSS (Version 23) were carried out for independent samples with data at ordinal scale level (Kruskal-Wallis-Test for the comparison between the four countries, Mann-Whitney-Test for the comparison between the two groups of hearing and hearing impaired). The aim was to answer the question of whether the data of the groups involved are similar or significantly different in order to be able to finally choose words that were assessed as homogeneously as possible across the various groups, with a high median value and a low range. The results of these considerations are presented in chapter 3.5.3.

3.1. Samples and Results in Germany

In Germany, a total of 16 surveys were carried out for the field of cooking, 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 5 hearing men and 3 hearing women were interviewed in the field of cooking. They are between 27 and over 60 years old.

Half of them work as chefs in a traditional kitchen, the other half work in system catering as housekeepers, coffee bar staff, bistro staff and cafeteria manager. 5 of them completed training as a cook, one interviewee as a confectionery saleswoman, one as a housekeeper and one as a partial draughtswoman. The hearing respondents have been employed between one week and 52 years in their current company. 7 of them were already employed in gastronomy before their current employment. One interviewee is actually a partial draughtswoman. The hearing interviewees have professional experience between 2.5 and 52 years. On average, this corresponds to 19 years.

All hearing respondents have had professional contact with hearing impaired people before. Only one person also states having a private contact. The following communication strategies with hearing-impaired people are used: direct eye contact, speaking slowly and clearly, speaking loudly, visually showing what to do, talking with hands and feet, translation by an interpreter, written communication and expressive gestures.

Only one of the 8 hearing respondents can speak some everyday sign language. 6 of the hearing impaired respondents indicate that their colleagues speak sign language. The other 2 state that their colleagues are currently learning sign language.

All hearing respondents can imagine to work with someone who has a hearing impairment. A respondent would immediately be willing to employ a hearing impaired employee. The respondents point out that it depends on the company (size), the person (must be diligent) and the preparation for it (e.g. hearing employees would have to do sign language courses). One interviewee states that it would be possible to use the hearing impaired in areas where baking/cooking can be done according to a recipe (e.g. baking cakes). Another interviewee points out that it would be possible to employ a hearing-impaired person for the additional work, but that areas such as the counter/sales area would not be feasible. A further note is that cooperation is developing step by step. The employee would make salads for the first six months of the year and only then come to the stove. One employee says that employing hearing impaired people can be a challenge and it is exciting to learn something new.

Problems in working with hearing impaired people are seen by hearing people in the fact that eye contact is necessary when speaking, time is short, one can never be sure whether what has been said has been understood, hearing impaired people have to concentrate very strongly, understanding for each other has to be there and integration is difficult.

7 of the hearing respondents do not know how to facilitate communication. One indicates speaking slowly. All 8 respondents believe that a video dictionary in sign language would be helpful for communication. They can imagine learning the most important words in sign language.

3 of the hearing respondents stated that they used already invented signs to communicate with each other in the workplace (e.g. "come here", telephone gesture, boss, bring cake/coffee). The remaining

respondents indicated that due to the small size of the kitchen it is not necessary to use signs. In larger kitchens, however, they could imagine that signs would be useful. Respondents also said that when noise levels are high, people speak louder and that their hands are always busy at work.

The hearing respondents missed the following words on the list:

- to 'send' (= to prepare food)
- to garnish
- tea
- cocoa
- buns
- pretzels
- muffins
- donuts.

Furthermore, one interviewee noted that all types of food should be communicable. Another respondent said that vegetables and fruit should not necessarily be included in the dictionary, as it is visually easy to distinguish. One respondent stated that it would be important to know the name of the employee, i.e. the name sign. One respondent stated that it is difficult to list some ingredients universally for all kitchens because 'bulgur', for example, is not used everywhere. Another note is that many words are everyday language and all important terms are included in the list. One of the hearing respondents said he wanted to go over the words again before producing the app.

2. Results from the Interviews with Hearing-Impaired People

The interviews with hearing impaired people took place at the Berufsbildungswerk für Hör- und Sprachgeschädigte in Nuremberg. A total of 4 men and 4 women were interviewed in the culinary sector. Among the hearing impaired were 2 cochlear implant recipients, 3 were deaf persons and 3 had a slight hearing impairment. They age ranges between 19 and 37 years.

One of the hearing-impaired persons had completed training as a florist before, which he can no longer do due to an allergy. So currently all hearing-impaired people are undergoing vocational training: 4 as specialists in the hospitality industry, 2 as kitchen specialists and 2 as housekeepers. They are between the first and third year of their training.

With the exception of one respondent, all hearing impaired people have already worked with hearing people. They indicated the following communication strategies when they came into contact with hearing people: Lip-reading, listening carefully, giving hints to speak slowly and clearly, interpreting as help, optical pointing and sign language. All interviewed hearing impaired people can lip-read.

For the hearing-impaired respondents, the question of what opportunities they see in working with hearing people is very difficult to answer and the replies are reflecting that: you can learn from them, they have more experiences, they do not have to look at each other and can stand further away from each other to say something. 5 Hearing-impaired people say that it is harder for them to get an education or a job. 3 say that there is no difference.

Hearing impaired people see the problems in working with hearing people in resulting misunderstandings, fast or quiet speech of hearing people, loud background noises and the difficulty of communicating with hearing impaired people in a large group. Communication could be facilitated by repetitions, speaking slowly and clearly, lip-reading, sign language, eye contact, interpreting, written communication, facial expressions, mouth image and pointing to things.

All hearing impaired people think a video dictionary with the most important gestures would be helpful for working with hearing people. They believe that their hearing colleagues would learn the most important words in sign language. 2 hearing impaired people said their colleagues are already learning sign language.

The hearing impaired people went through the list of words very carefully and (if another hearing impaired respondent was present) discussed the words together. They did not know some words that had to be explained during the interview.

Words they missed are:

- table
- chair.

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

The word list from the culinary sector with its 229 words was presented to the respondents at the end of the interview. Respondents went through the list word by word and considered its relevance on a 4-point Likert scale. 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. Respondents with hearing impairment were also asked to indicate signs for the most important words. However, this task turned out to be too exhausting and time-consuming for them, so that often only a few gestures were shown and then the survey came to an end. The survey results were analysed separately for hearing and hearing impaired persons and are presented below.

Explanation of the diagrams:
On the X-axis the words from the culinary 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:

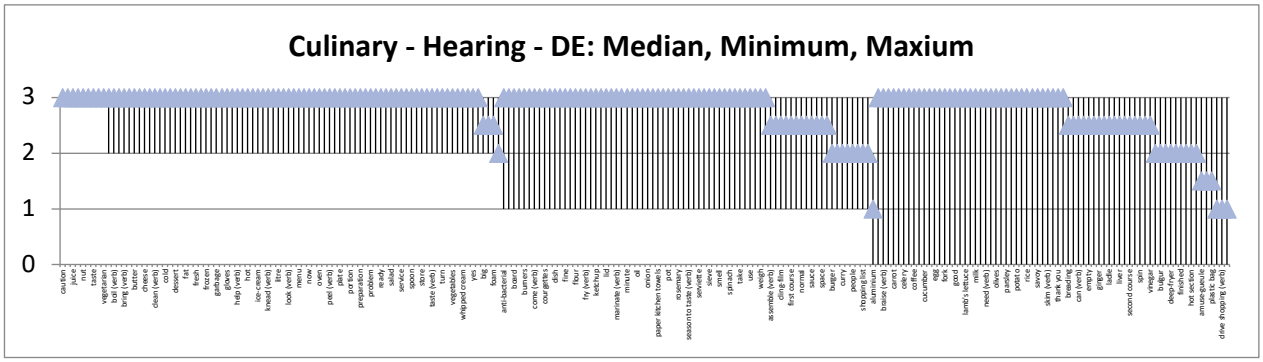

Figure 6: Relevance assessment of the culinary words: Hearing people, Germany

In the group of hearing people in Germany, 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:

- cut (verb)
- juice
- numbers (1, 2, 3, …)
- groove
- salt
- key
- times (of day)
- vegetarian

A further 77 words have a median of 3 with a range of 1, plus 12 words with a median of 2.5 and a range of 2, and 52 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:

- amuse-gueule
- lungs
- plastic bag
- aluminium
- butcher
- drive shopping (verb)
- whey

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

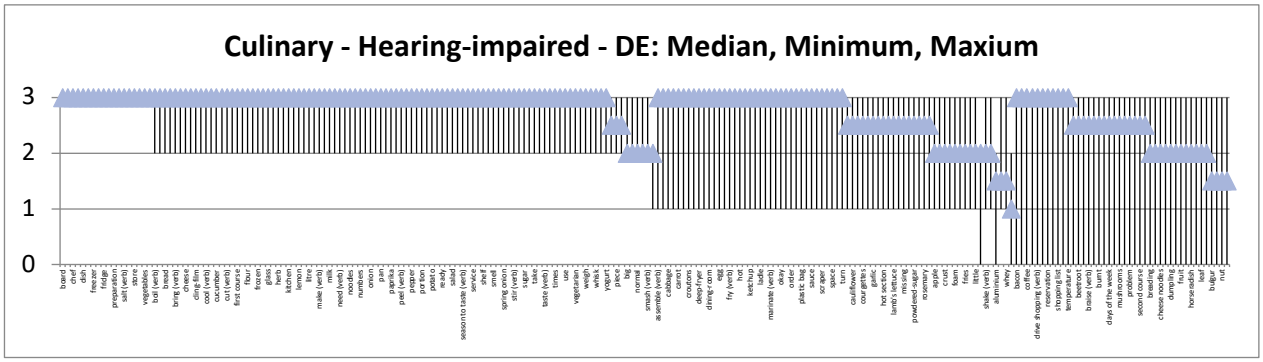

Figure 7: Relevance assessment of the culinary words: Hearing-impaired people, Germany

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

- board
- caution
- chef
- clean (verb)
- dish
- dishwasher
- freezer
- fresh
- fridge
- help (verb)
- preparation
- prepare (verb)
- salt (verb)
- scale
- store
- trainee
- vegetables
- water

A further 89 words have a median of 3 with a range of 1, 12 words with a median of 2.5 and a range of 1, 37 words with a median of 3 and a range of 2 and 15 words with a median of 2.5 and a rage of 2.

It is noticeable that only 8 words were evaluated with an average relevance of less than 2 and no word with an importance of 0. Those **least important words** are:

- aluminium
- bulgur
- lime
- liver
- nut
- sausage
- whey
- amuse-gueule

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

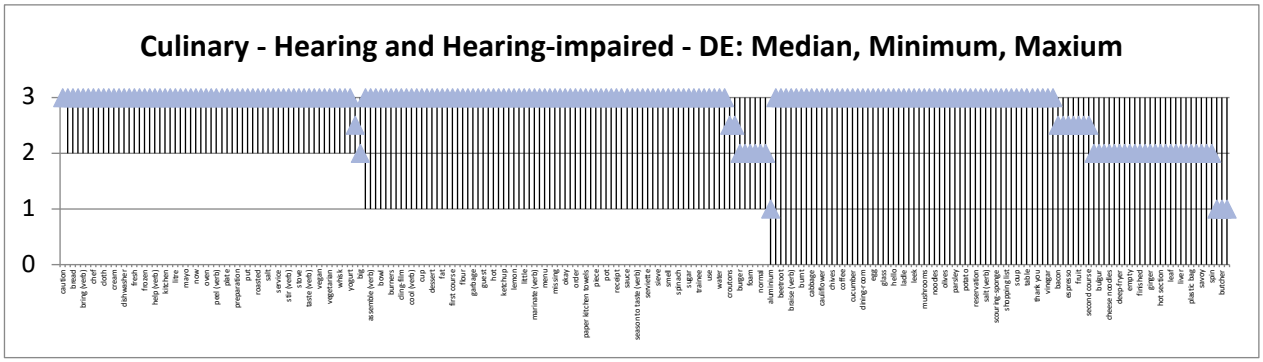

Figure 8: Relevance assessment of the culinary words: Hearing and hearing-impaired people, Germany

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

- caution.

A further 56 words have a median of 3 with a range of 1, 1 word with a median of 2.5 and a range of 1, and 71 words with a median of 3 and a range of 2.

It is noticeable that only 3 words were evaluated with an average relevance of less than 2 and no word with an importance of 0. Those **least relevant words** are:

- aluminium
- amuse-gueule
- butcher
- whey.

3.2. Samples and Results in Italy

In Italy, a total of 8 surveys were carried out for the field of cooking, 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 hearing respondents, 3 hearing men and 1 hearing woman, were interviewed in the field of cooking. They range in age from 33 to 38 years.

One of them work as delivery man for a restaurant, another works in system catering and the others works in traditional restaurants. Some of them completed a training as a cook. The hearing interviewees have professional experience between 2 and 20 years.

All hearing respondents have had professional and private contact with hearing impaired people. The following communication strategies with hearing-impaired people are used: direct eye con-tact, speaking slowly and clearly, speaking loudly, visually showing what to do, talking with hands and feet, translation by an interpreter, written communication and expressive gestures.

All hearing respondents can imagine working with someone who has a hearing impairment. The respondents point out that it depends on the company (size), the person (must be diligent) and the preparation for it (e.g. hearing employees would have to do sign language courses). One respondent states that it would be possible to use the hearing impaired in areas where baking/cooking can be done according to a recipe (e.g. baking cakes). One respondent thinks that it can be very challenging because the kitchen is a place of noises and sounds. A further note is that cooperation can be developed step by step. Three employees say that employing hearing impaired people can be a challenge and it is exciting to learn something new.

Problems in working with hearing impaired people are seen by hearing people in the fact that eye contact is necessary while speaking, time is short, it is never sure whether what has been said it has been understood, hearing impaired people have to concentrate very strongly, understanding for each other has to be there and integration is difficult.

All the respondents believe that a video dictionary in sign language would be helpful for communication. One of them even thinks that is useful for hearing people, too, because the non-verbal communication is important in the work place. They can imagine learning the most important words in sign language.
One of them suggests other useful words like:

- allergy
- kosher
- turn
- microwave
- name of tools (meat tenderizer, rolling pin)
- blast cabinet
- refrigerator.

2. Results from the Interviews with Hearing-Impaired People

The interviews with hearing impaired people took place in Palermo, Sicily. A total of 4 hearing people, 3 hearing-impaired men and 1 hearing-impaired woman, were inter-viewed in the culinary sector. All of them were cochlear implant recipients. They age ranges between 27 and 47 years.

All the respondent work in the culinary field, two of them are cooks and the other two are staff members of a restaurant.

All hearing-impaired people have already worked with hearing people. They indicated the following communication strategies when they came into contact with hearing people: Lip-reading, listening carefully, giving hints to speak slowly and clearly, interpreting as help, optical pointing and sign language. All interviewed hearing-impaired people can lip-read.

The hearing-impaired respondents see in working with hearing people the opportunity for the improvement of the communication, but it takes time and patience. All of the hearing-impaired people say that it is harder for them to get an education or a job.

Hearing impaired people see so many problems in working with hearing people. Communication could be facilitated by repetitions, speaking slowly and clearly, lip-reading, sign language, eye contact, interpreting, written communication, facial expressions, mouth image and pointing to things.

All hearing-impaired people think a video dictionary with the most important gestures would be helpful for working with hearing people. Three of them believe that their hearing colleagues would learn the most important words in sign language and the other one thinks that the col-leagues would not learn the 150 words.

All of the respondents suggest other useful words like:

- bottle,
- corkscrew,
- crepes,
- blender,
- tea-spoon,
- coffee cup,
- microwave,
- towel,
- to spread,
- beer,
- to set,
- to clear.

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

The word list from the culinary sector with its 229 words was presented to the respondents at the end of the interview. Respondents went through the list word by word and considered its relevance on a 4-point Likert scale. 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. Respondents with hearing impairment were also asked to indicate signs for the most important words. The survey results were analysed separately for hearing and hearing impaired persons and are presented below.

Explanation of the diagrams:
On the X-axis the words from the culinary 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:

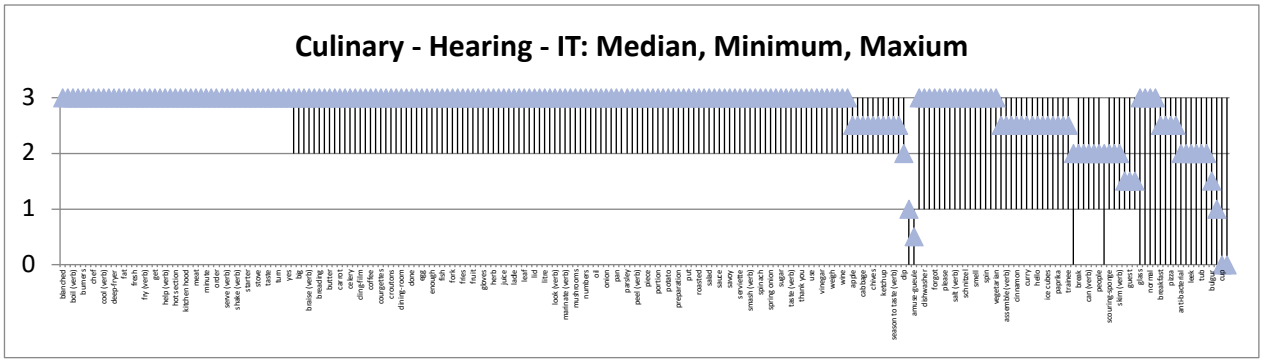

Figure 9: Relevance assessment of the culinary words: Hearing people, Italy

In the group of hearing people in Italy, the median of 45 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- blanched
- board
- boil (verb)
- bowl
- burners
- caution
- chef
- cook (verb)
- cool (verb)
- cut (verb)
- deep-fryer
- dessert
- fat
- finished
- fresh
- fridge
- fry (verb)

- garbage
- get
- give
- help (verb)
- hot
- hot section
- kitchen
- kitchen hood
- knead (verb)
- meat
- menu
- minute
- need (verb)
- order
- ready
- serve (verb)
- service
- shake (verb)
- sharpen
- starter
- store
- stove
- take
- taste
- times
- turn
- water
- yes

A further 109 words have a median of 3 with a range of 1, 10 words a median of 2.5 and a range of 1, and 16 words with a median of 3 and a range of 2.

It is noticeable that only 9 words were evaluated with an average relevance of less than 2 and no word with an importance of 0. Those **least relevant words** are:

- bulgur
- come (verb)
- guest
- receipt
- drive shopping (verb)
- lungs
- amuse-gueule
- cup
- skirt

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

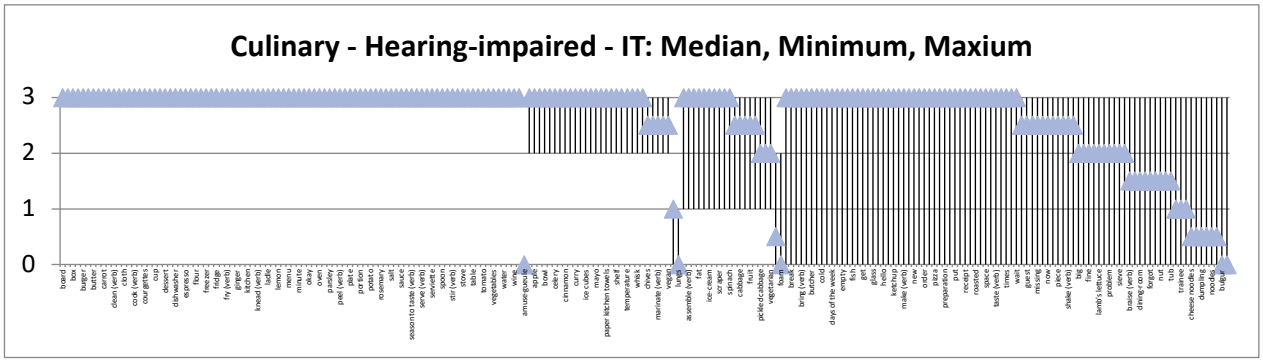

Figure 10: Relevance assessment of the culinary words: Hearing-impaired people, Italy

In the group of hearing-impaired people in Italy, the median of 90 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- board
- boil (verb)
- box
- bread
- burger
- burners
- butter
- cake
- carrot
- chef
- clean (verb)
- cling-film
- cloth
- coffee
- cook (verb)
- cool (verb)
- courgettes
- cream
- cup
- cut (verb)
- dessert
- dish
- dishwasher
- enough
- espresso
- first course
- flour
- fork
- freezer
- fresh
- fridge
- fries
- fry (verb)

- garlic
- ginger
- hot
- kitchen
- kitchen hood
- knead (verb)
- knife
- ladle
- leaf
- lemon
- lid
- menu
- milk
- minute
- oil
- okay
- onion
- oven
- pan
- parsley
- paste
- peel (verb)
- pepper
- plate
- please
- portion
- pot
- potato
- rice
- rosemary
- salad
- salt
- salt (verb)
- sauce
- scouring-sponge
- season to taste (verb)
- second course
- serve (verb)
- service
- serviette
- shopping list
- spoon
- starter
- stir (verb)
- store
- stove
- sugar
- table
- taste
- tomato

- turn
- vegetables
- vinegar
- water
- weigh
- wine
- yes

A further 23 words have a median of 3 with a range of 1, 5 words a median of 2.5 and a range of 2, and 10 words with a median of 3 and a range of 2.

It is noticeable that 25 words were evaluated with an average relevance of less than 2 and 5 words of them with an importance of 0. All these **least relevant words** are:

- braise (verb)
- crust
- dining-room
- drive shopping (verb)
- forgot
- lime
- nut
- skirt
- tub
- beetroot
- leek
- trainee
- whey
- cheese noodles
- dip
- dumpling
- liver
- noodles
- skim (verb)
- spin
- amuse-gueule
- bulgur
- foam
- horseradish
- lungs

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

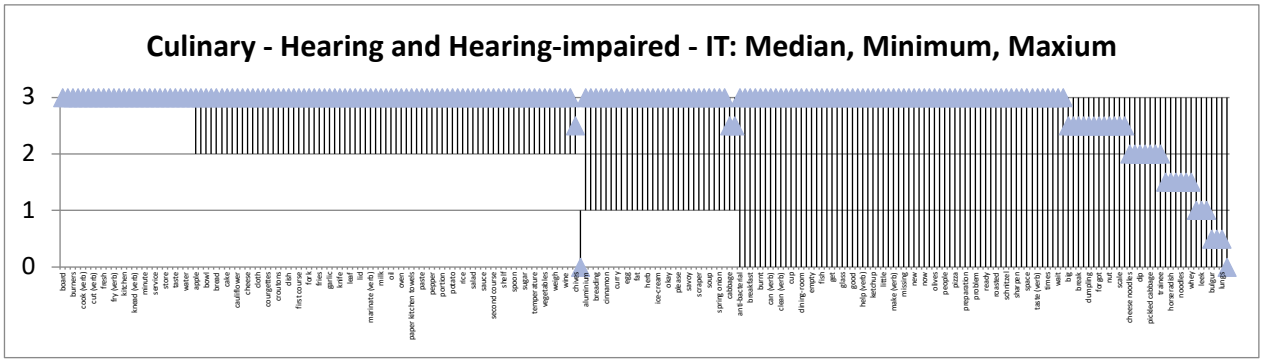

Figure 11: Relevance assessment of the culinary words: Hearing and hearing-impaired people, Italy

Across both groups of hearing and hearing-impaired people in Italy, the median of 26 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- board
- boil (verb)
- burners
- chef
- cook (verb)
- cool (verb)
- cut (verb)
- dessert
- fresh
- fridge
- fry (verb)
- hot
- kitchen
- kitchen hood
- knead (verb)
- menu
- minute
- serve (verb)
- service
- starter
- store
- stove
- taste
- turn
- water
- yes

A further 74 words have a median of 3 with a range of 1, 1 words a median of 2.5 and a range of 1, and 27 words with a median of 3 and a range of 2.

It is noticeable that only 14 words were evaluated with an average relevance of less than 2 and 2 words with an importance of 0. Those **least relevant words** are:

- beetroot
- horseradish

- liver
- noodles
- tub
- whey
- drive shopping (verb)
- leek
- skim (verb)
- bulgur
- foam
- lungs
- amuse-gueule
- skirt

3.3. Samples and Results in Spain

In Spain, a total of 8 surveys were carried out for the field of cooking, 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
In Spain, a total of 2 hearing men and 2 hearing women were interviewed in the field of cooking. They are between 25 and 37 years old.

The 4 interviewees have worked in traditional restaurants, half of them have studied something related with culinary field (VET courses) and the other half has worked in the sector without that background. Half of them are still working on culinary sector and the other half does not, moreover, one of the interviewees is currently unemployed. 1 of them is chef assist and another one is a chef. The hearing respondents have been employed between 1 year and a half and 7 years in their current company (not taking into account the unemployed one). 2 of them were already employed in gastronomy before their current employment. One interviewee is actually a tax advisor. The hearing interviewees have professional experience in culinary between 1 and 14 years. On average, this corresponds to 6.5 years.

Only one hearing respondents have had professional contact with hearing impaired people, but 2 state that they have contacts outside work. The following communication strategies with hearing-impaired people are used: written communication, lip reading or gestures.

No one of the 4 hearing respondents can speak sign language.

All hearing respondents can imagine to work with someone who has a hearing impairment. One respondent did not see any opportunity for people with hearing disabilities. Another interviewee saw it as a possibility to learn another form of communication, in addition to learning to be more tolerant of the defects of others. Another confirmed that she believed she could learn a lot from them, to seek personal improvement despite the problems that one may have. Finally, one interviewee believed that he could have an important personal growth working with a person of these characteristics

Regarding the problems and challenges encountered, one interviewee says that it is necessary to be aware that there is going to be more difficulty when it is required to speak with the person with a hearing disability and it could be necessary to stablish alternative means for doing. Another said that one challenge is to be more patient in a work place where you have to work quickly, and you have to be aware that problems will arise in your daily work with them for sure. The third saw communication as a difficulty when there was a problem, such as warning if there is a fire or if help is needed. Finally, it is noted that there would be a major challenge in communication, because in the kitchen a lot of work is done with the voice to achieve working as a team.

One of the hearing respondents do not know how to facilitate communication. Two of them suggest that the person with disability should have full visibility of the face and more specifically of the mouth. Finally, the last one suggested that sign language could be learned. All 4 respondents believe that a video dictionary in sign language would be helpful for communication. All of them can imagine learning the most important words in sign language. Finally, all of them stated that it would be useful to use sign language in the workplace even if they are not people with hearing problems there.

Some words were added by the interviewees to the list:

- time

- now
- urgent
- fast
- complaint
- attention.

2. Results from the Interviews with Hearing-Impaired People
A total of 3 women and 1 man were interviewed in the culinary sector with hearing problems. They age ranges between 20 and 51 years.

Two of them are kitchen assistant, one is helping in the kitchen and also, she is helping to the waiters and the final one is an apprentice. Two of them have VET background. They are between 1 and 7 years in their currently organisation.

No one of the 4 hearing respondents have worked with colleagues with hearing problems in culinary sector but one has worked in other sector that communication was done in sign language. No one have workmates who could speak in sign language. All of the respondents could make lip-reading.

For the hearing-problems respondents, the question of what opportunities they see for people with hearing problems, one of the respondents said that they can do any job, two of them said that they have few opportunities in the labour market, mainly because of ignorance of the employers and one of them said that it is for the convenience and the laziness of not knowing people with different abilities, finally another one determined that they have or at least they should have, the same opportunities at work than hearing people.

The interviewees said that it is a challenge for everyone to try to increase the number of people with disability in culinary 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.

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

The word list from the culinary sector with its 229 words was presented to the respondents at the end of the interview. Respondents went through the list word by word and considered its relevance on a 4-point Likert scale. 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. Respondents with hearing impairment were also asked to indicate signs for the most important words. The survey results were analysed separately for hearing and hearing impaired persons and are presented below.

Explanation of the diagrams:
On the X-axis the words from the culinary 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:

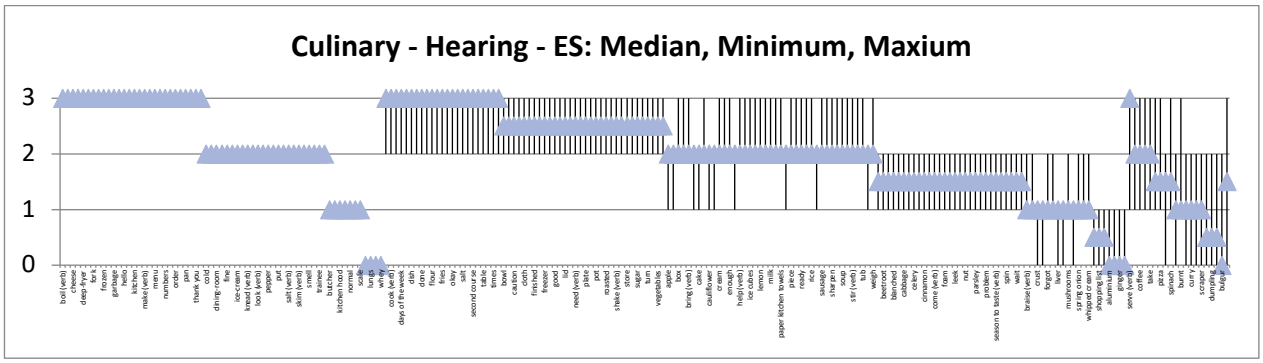

Figure 12: Relevance assessment of the culinary words: Hearing people, Spain

In the group of hearing people in Spain, the median of 28 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- boil (verb)
- bread
- cheese
- clean (verb)
- deep-fryer
- dip
- fork
- fridge
- frozen
- fry (verb)
- garbage
- glass
- hello
- hot
- kitchen
- knife
- make (verb)
- meat
- menu
- now

- numbers
- oil
- order
- oven
- pan
- peel (verb)
- thank you
- yes

A further 23 words have a median of 3 with a range of 1 and 32 words a median of 2.5 and a range of 1.

It is noticeable that 75 words were evaluated with an average relevance of less than 2 and 9 words with an importance of 0. Those **least relevant words** with medians 1.5, 1.0, 0.5 and 0 are:

- amuse-gueule
- beetroot
- big
- blanched
- break
- burners
- cabbage
- can (verb)
- celery
- chives
- cinnamon
- cling-film
- come (verb)
- cup
- foam
- leaf
- leek
- litre
- noodles
- nut
- olives
- parsley
- pizza
- preparation
- problem
- schnitzel
- season to taste (verb)
- service
- space
- spin
- spinach
- vegetarian
- wait
- yogurt
- anti-bacterial
- braise (verb)
- burnt

- butcher
- cheese noodles
- croutons
- crust
- curry
- espresso
- forgot
- give
- guest
- juice
- kitchen hood
- liver
- marinate (verb)
- missing
- mushrooms
- normal
- paprika
- pickled cabbage
- scale
- scraper
- spring onion
- vegan
- whipped cream
- breakfast
- dumpling
- lamb's lettuce
- powdered-sugar
- shopping list
- skirt
- aluminium
- bulgur
- drive shopping (verb)
- ginger
- horseradish
- lime
- lungs
- savoy
- whey

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

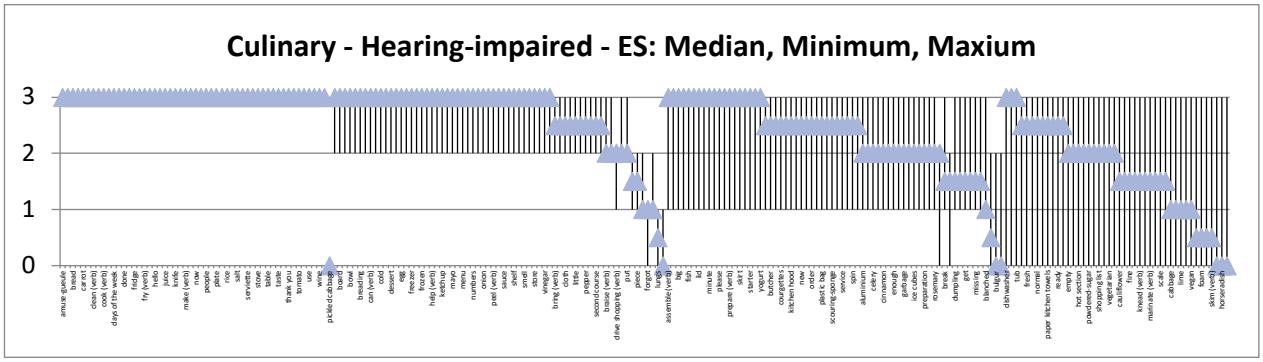

Figure 13: Relevance assessment of the culinary words: Hearing-impaired people, Spain

In the group of hearing-impaired people in Spain, the median of 52 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- amuse-gueule
- bacon
- bread
- breakfast
- carrot
- cheese
- clean (verb)
- coffee
- cook (verb)
- cream
- days of the week
- dish
- done
- fork
- fridge
- fruit
- fry (verb)
- glass
- hello
- hot
- juice
- kitchen
- knife
- lemon
- make (verb)
- milk
- now
- olives
- people
- pizza
- plate
- potato

- rice
- salad
- salt
- schnitzel
- serviette
- spoon
- stove
- sugar
- table
- take
- taste
- taste (verb)
- thank you
- times
- tomato
- turn
- use
- water
- wine
- yes

A further 43 words have a median of 3 with a range of 1, 10 words a median of 2.5 and a range of 1, and 19 words with a median of 3 and a range of 2.

It is noticeable that 42 words were evaluated with an average relevance of less than 2 and 7 word of them with an importance of 0. Those **least relevant words** with the medians of 1.5, 1.0, 0.5 and 0 are:

- anti-bacterial
- break
- burners
- cauliflower
- croutons
- dumpling
- fat
- fine
- get
- gloves
- guest
- knead (verb)
- leek
- marinate (verb)
- missing
- piece
- receipt
- scale
- spinach
- whipped cream
- blanched
- burnt
- cabbage
- chef

- forgot
- lime
- liver
- trainee
- vegan
- curry
- foam
- lamb's lettuce
- leaf
- lungs
- skim (verb)
- bulgur
- crust
- ginger
- horseradish
- pickled cabbage
- savoy
- whey

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

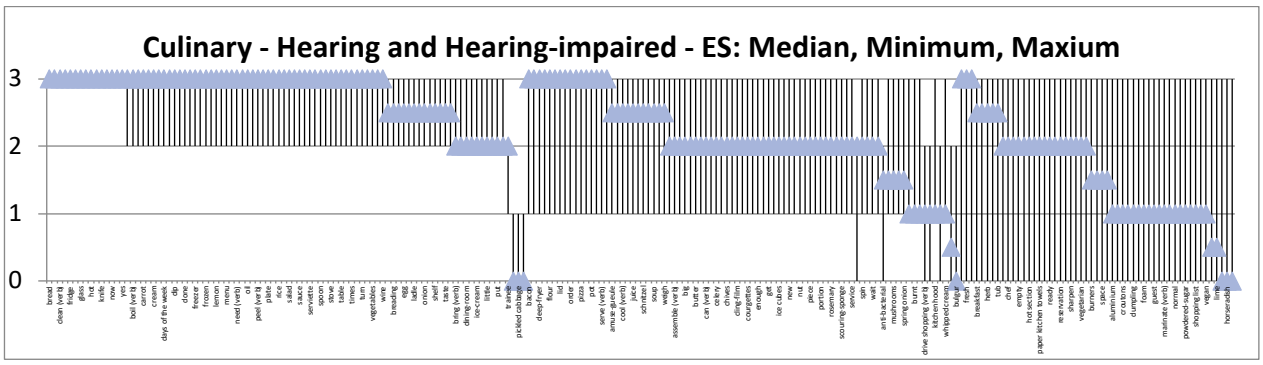

Figure 14: Relevance assessment of the culinary words: Hearing and hearing-impaired people, Spain

In both groups of hearing and hearing-impaired people in Spain, 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:

- bread
- cheese
- clean (verb)
- fork
- fridge
- fry (verb)
- glass
- hello
- hot
- kitchen
- knife
- make (verb)
- now
- thank you

- yes

A further 50 words have a median of 3 with a range of 1, 13 words a median of 2.5 and a range of 1, and 15 words with a median of 3 and a range of 2.

It is noticeable that 46 words were evaluated with an average relevance of less than 2 and 7 words of them with an importance of 0. Those **least relevant words** are:

- anti-bacterial
- break
- burners
- leek
- mushrooms
- preparation
- space
- spinach
- spring onion
- aluminium
- blanched
- burnt
- butcher
- cabbage
- croutons
- curry
- drive shopping (verb)
- dumpling
- espresso
- foam
- forgot
- give
- guest
- kitchen hood
- leaf
- liver
- marinate (verb)
- missing
- normal
- paprika
- powdered-sugar
- scale
- shopping list
- skirt
- vegan
- whipped cream
- crust
- lamb's lettuce
- lime
- bulgur
- ginger
- horseradish
- lungs

- pickled cabbage
- savoy
- whey

3.4. Samples and Results in Hungary

In Hungary, a total of 8 surveys were carried out for the field of cooking, 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
A total of two hearing men and two hearing women were interviewed in the field of cooking. Their age ranges between 35 and 55 years.

One of the two men works as a cook, while the other one is a waiter. Regarding the women, one of them is a scullery maid, while another does all work regarding the preparation of the cooking.

The cook has completed a training as a cook; the waiter did not complete any school as a professional waiter, he was just trained at his present workplace as a waiter. From the helping staff one person is a maintenance worker, while the other, who has a marketing degree, became a worker in the field of catering, after finding a job here, in this area.

The hearing respondents have been employed between 1 and 12 years at their present workplace. All of them have worked in the field of culinary before. In a total, they have 5 and 20 years of work experience.

No one of the hearing respondents had a contact with hearing impaired people before, neither at work nor in their private lives - so they did not have any idea about how to communicate with them. They have not heard of sign language, neither of the existence of sign language interpreters. So they did not have any idea about the possibility that writing down their thoughts or using stronger gestures could help during the communication with hearing impaired people. So, it is obvious that no one of the four interviewees was able to communicate by using sign language. So, because they did not make discussions about this issue with their colleagues before, they did not have any information whether anybody of their colleagues speaks sign language or not. And they were not aware if sign language was learned by hearing impaired people. They were not against using hearing aids, because they did not know what these devices were.

Regarding the question whether they would employ hearing impaired people, there were some kind of uncertainty in their responses; they rather made questions about which kind of position could allow the employment of hearing impaired people.

This way, neither the issue of the preparation, nor the issue of the performance has been addressed during the interview. Because it was the first time they ever have heard of this topic, it rather looked like a kind of sensitization in their lives; so, they probably will think of it if they meet a hearing impaired person in the future, that they heard of them and that they are able to work as well. But at the moment of the interview, they did not have a strategy, nor an imagination about what would happen in a situation like this.

2. Results from the Interviews with Hearing-Impaired People
During the interviews with hearing impaired people, we have learned that the practice of divided attention is such a difficulty for them, because deaf people speak mainly using their hands so they concentrate on the hands and not on the mouth of the other person.

Hard-of-hearing people concentrate on the mouth, so in their case, eye contact is very important.

Generally they are uncertain about what was said to them. A hearing impaired person under-stands the 30-40% of the spoken information via lip-reading. This needs a lot of concentration and it can be tiring for

hearing impaired people, and it can complicate the understanding. Sometimes they can hear the vowels but they mishear the consonants and as a result, they easily misunder-stand the things being said to them. So it is very important when communicating with a hearing impaired person, that we have to stand face to face with them when speaking. Their integration is complicated, it needs a lot of support/assistance.

To the question about what would they need for the effective communication, the four non-hearing interviewees gave us uncertain responses. They welcomed the idea of the preparation of a video dictionary, but because they did not have any experience with similar things before, their reaction to this idea rather was characterized by uncertainty. Nevertheless, they can imagine their learning process using the video dictionary.

In general it is true that there have already been signs in the field of cooking, so they did not feel important that hearing people learn the signs, because in their team a special, non-verbal com-munication, a kind of specific language has been already formed.

Regarding how important the words on the list are during their work, and whether is there any word that were not included, they responded that the majority of the words were appropriate; the words that they missed rather were expressions (for example

- "bring it in here..."
- "please, give it to me..."
- "serve the meal..."
- the communication regarding to the numbers of the tables
- "enjoy your meal..."

So they would include certain expressions that are used by a person when meeting with the guests.

We have experienced that in all of the four restaurants visited by us, there were different priori-ties but the work is done using evolved technologies, and allotted words. For example, a bell is used as a notification about the ready meals, the names of the ordered meals are written on a piece of paper and handed to the kitchen staff without saying a word, and they get them back the same way. At the kitchen, work is done very silently, roles are strictly assigned to each worker, and it changes only when somebody is missing. So in general, the algorithms that describe the given work are well-known. Thinking of the washing-up, the preparation of vegetables, of packing them, or of the cook's work, everything has the proper routine.

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

The word list from the culinary sector with its 229 words was presented to the respondents at the end of the interview. Respondents went through the list word by word and considered its relevance on a 4-point Likert scale. 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. Respondents with hearing impairment were also asked to indicate signs for the most important words. The survey results were analysed separately for hearing and hearing impaired persons and are presented below.

Explanation of the diagrams:
On the X-axis the words from the culinary 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:

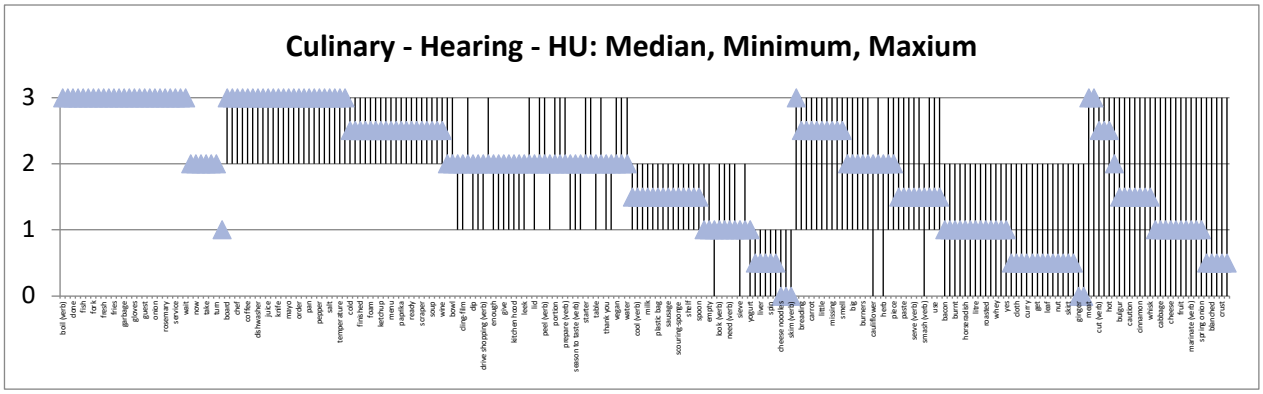

Figure 15: Relevance assessment of the culinary words: Hearing people, Hungary

In the group of hearing people in Hungary, the median of 25 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- boil (verb)
- bread
- done
- espresso
- fish
- flour
- fork
- freezer
- fresh
- fridge
- fries
- fry (verb)
- garbage
- glass
- gloves
- good

- guest
- hello
- onion
- plate
- rosemary
- salad
- service
- sugar
- wait

A further 24 words have a median of 3 with a range of 1, 19 words a median of 2.5 and a range of 1, and 1 word with a median of 3 and a range of 2.

It is noticeable that 92 words were evaluated with an average relevance of less than 2 and 5 words of them with an importance of 0. Those **least relevant words** are:

- anti-bacterial
- braise (verb)
- bulgur
- burger
- caution
- celery
- cinnamon
- cool (verb)
- dessert
- frozen
- milk
- parsley
- paste
- plastic bag
- please
- reservation
- sausage
- savoy
- scouring-sponge
- serve (verb)
- serviette
- shake (verb)
- shelf
- shopping list
- smash (verb)
- spoon
- stove
- use
- vegetables
- whisk
- aluminium
- bacon
- breakfast
- burnt
- cabbage

- cake
- cheese
- chives
- come (verb)
- courgettes
- empty
- forgot
- fruit
- horseradish
- lime
- litre
- look (verb)
- lungs
- marinate (verb)
- mushrooms
- need (verb)
- normal
- powdered-sugar
- rice
- roasted
- sauce
- sieve
- space
- spring onion
- tomato
- whey
- whipped cream
- yes
- yogurt
- apple
- beetroot
- blanched
- butcher
- cloth
- croutons
- crust
- curry
- dining-room
- dumpling
- get
- knead (verb)
- leaf
- liver
- noodles
- nut
- olives
- pizza
- put
- skirt
- spin

- trainee
- weigh
- cheese noodles
- ginger
- ice-cream
- scale
- skim (verb)

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

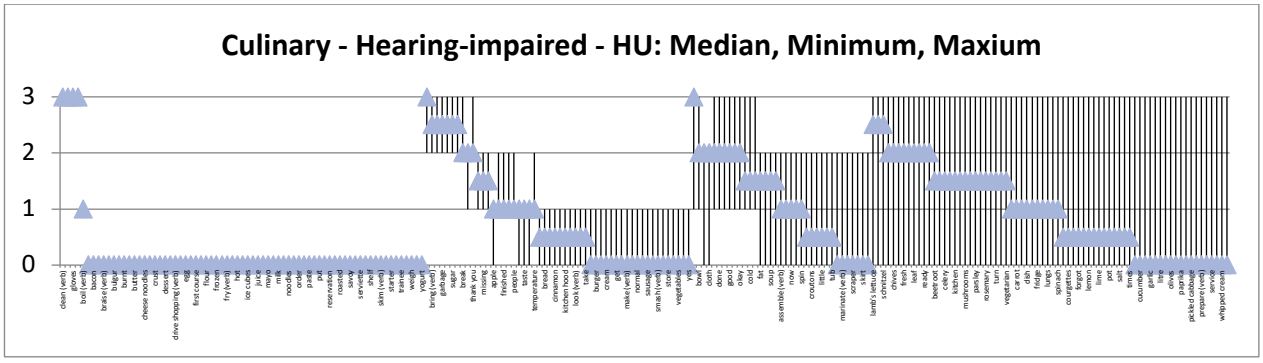

Figure 16: Relevance assessment of the culinary words: Hearing-impaired people, Hungary

In the group of hearing-impaired people in Hungary, 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:

- clean (verb)
- cup
- gloves
- wait

It is noticeable that 192 words were evaluated with an average relevance of less than 2 and 112 words of them with an importance of 0. Those **least relevant words** are:

- beetroot
- big
- cabbage
- celery
- cold
- come (verb)
- empty
- fat
- guest
- kitchen
- leek
- missing
- mushrooms
- onion
- paper kitchen towels
- parsley
- piece
- preparation

- rosemary
- soup
- spoon
- turn
- vegan
- vegetarian
- vinegar
- apple
- assemble (verb)
- boil (verb)
- box
- can (verb)
- carrot
- cut (verb)
- dish
- dishwasher
- finished
- fridge
- give
- help (verb)
- ladle
- lungs
- now
- people
- problem
- salt (verb)
- shopping list
- spin
- spinach
- taste
- taste (verb)
- temperature
- aluminium
- bread
- cauliflower
- cheese
- cinnamon
- cool (verb)
- courgettes
- croutons
- dip
- fine
- forgot
- freezer
- fries
- kitchen hood
- lemon
- lid
- lime
- little

- liver
- look (verb)
- numbers
- portion
- pot
- powdered-sugar
- salt
- scouring-sponge
- sharpen
- take
- times
- tub
- amuse-gueule
- anti-bacterial
- bacon
- blanched
- braise (verb)
- breading
- breakfast
- bulgur
- burger
- burners
- burnt
- butcher
- butter
- cake
- cheese noodles
- coffee
- cook (verb)
- cream
- crust
- cucumber
- curry
- deep-fryer
- dessert
- dining-room
- drive shopping (verb)
- dumpling
- egg
- espresso
- first course
- fish
- flour
- foam
- fork
- frozen
- fruit
- fry (verb)
- garlic
- get

- ginger
- herb
- horseradish
- hot
- hot section
- ice cubes
- ice-cream
- juice
- ketchup
- knead (verb)
- litre
- make (verb)
- marinate (verb)
- mayo
- meat
- menu
- milk
- need (verb)
- new
- noodles
- normal
- nut
- oil
- olives
- order
- oven
- pan
- paprika
- paste
- pepper
- pickled cabbage
- pizza
- plastic bag
- potato
- prepare (verb)
- put
- receipt
- reservation
- rice
- roasted
- sauce
- sausage
- savoy
- scale
- scraper
- season to taste (verb)
- second course
- serve (verb)
- service
- serviette

- shake (verb)
- shelf
- sieve
- skim (verb)
- skirt
- smash (verb)
- smell
- space
- spring onion
- starter
- store
- stove
- table
- tomato
- trainee
- use
- vegetables
- water
- weigh
- whey
- whipped cream
- whisk
- yes
- yogurt

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

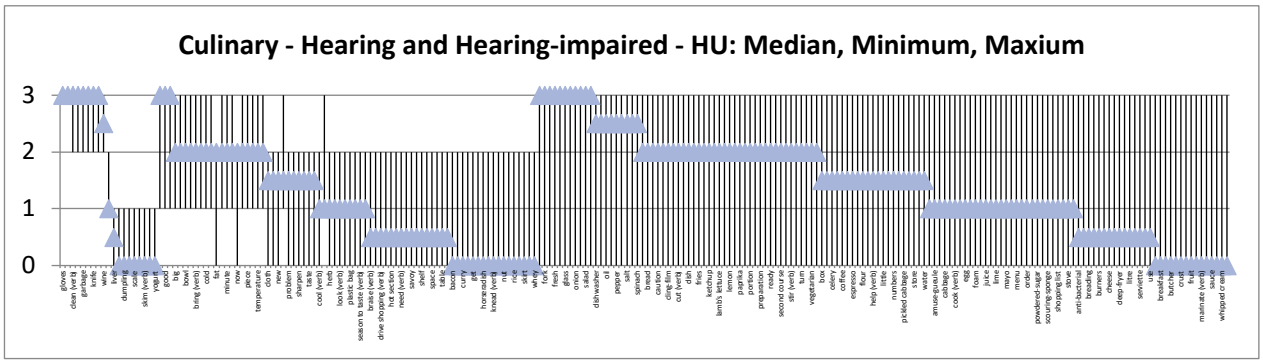

Figure 17: Relevance assessment of the culinary words: Hearing and hearing-impaired people, Hungary

In both groups of hearing and hearing-impaired people in Hungary combined, the median of only 2 words is at the maximum extent of 3 combined with a range of 0. Those words considered to be **most important** are:

- gloves
- wait

It is noticeable that 143 words were evaluated with an average relevance of less than 2 and 40 words of them with an importance of 0. Those **least relevant words** are:

- box
- cauliflower

- celery
- chives
- cloth
- coffee
- dip
- espresso
- fish
- flour
- fry (verb)
- give
- help (verb)
- lid
- little
- make (verb)
- new
- numbers
- parsley
- people
- pickled cabbage
- problem
- salt (verb)
- sharpen
- spoon
- store
- take
- taste
- taste (verb)
- tub
- water
- aluminium
- amuse-gueule
- apple
- cabbage
- cinnamon
- come (verb)
- cook (verb)
- cool (verb)
- cream
- egg
- empty
- first course
- foam
- forgot
- herb
- juice
- kitchen hood
- leaf
- lime
- look (verb)
- lungs

- mayo
- meat
- menu
- mushrooms
- normal
- order
- oven
- plastic bag
- powdered-sugar
- receipt
- sausage
- scouring-sponge
- season to taste (verb)
- serve (verb)
- shopping list
- starter
- stove
- tomato
- vegetables
- anti-bacterial
- beetroot
- braise (verb)
- breading
- burger
- burners
- butter
- cheese
- courgettes
- croutons
- deep-fryer
- drive shopping (verb)
- frozen
- hot section
- ice cubes
- litre
- liver
- milk
- need (verb)
- paste
- reservation
- savoy
- serviette
- shake (verb)
- shelf
- smash (verb)
- smell
- space
- spin
- table
- use

- yes
- bacon
- blanched
- breakfast
- bulgur
- burnt
- butcher
- cake
- cheese noodles
- crust
- curry
- dessert
- dining-room
- dumpling
- fruit
- get
- ginger
- horseradish
- hot
- ice-cream
- knead (verb)
- marinate (verb)
- noodles
- nut
- olives
- pizza
- put
- rice
- roasted
- sauce
- scale
- sieve
- skim (verb)
- skirt
- spring onion
- trainee
- weigh
- whey
- whipped cream
- whisk
- yogurt

It is particularly noticeable that the ratings for the relevance of words in the samples in Hungary were significantly lower than in the other countries. Perhaps this is related to the fact that the idea of cooperation between hearing and hearing-impaired people using sign language was described as new and unusual for both groups in the interviews.

3.5. Aggregated Results across All Participating Partner Countries

3.5.1. Collection of All Additional Words Suggested From Interviewees

All the additional words suggested in the interviews are collected here again (sorted alphabetically):

- "bring it in here..."
- "enjoy your meal..."
- "please, give it to me..."
- "serve the meal..."
- ‘send’ (verb) (= to prepare food)
- allergy
- attention
- blast cabinet
- bun
- chair
- cocoa
- complaint
- donut
- fast
- garnish (verb)
- kosher
- microwave
- muffin
- name of tools (meat tenderizer, rolling pin)
- now
- pretzel
- refrigerator
- table
- tea
- the communication regarding to the numbers of the tables
- time
- turn
- urgent

Some words were already part of the list (e.g. time, table, refrigerator / fridge, turn), but may have been overlooked or not remembered. Other words such as tea, cocoa, bun, donut, and pretzel were mentioned in the context of a café. Certainly, some of these words could be interesting for other contexts as well and therefore be selected.

3.5.2. 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 culinary 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:

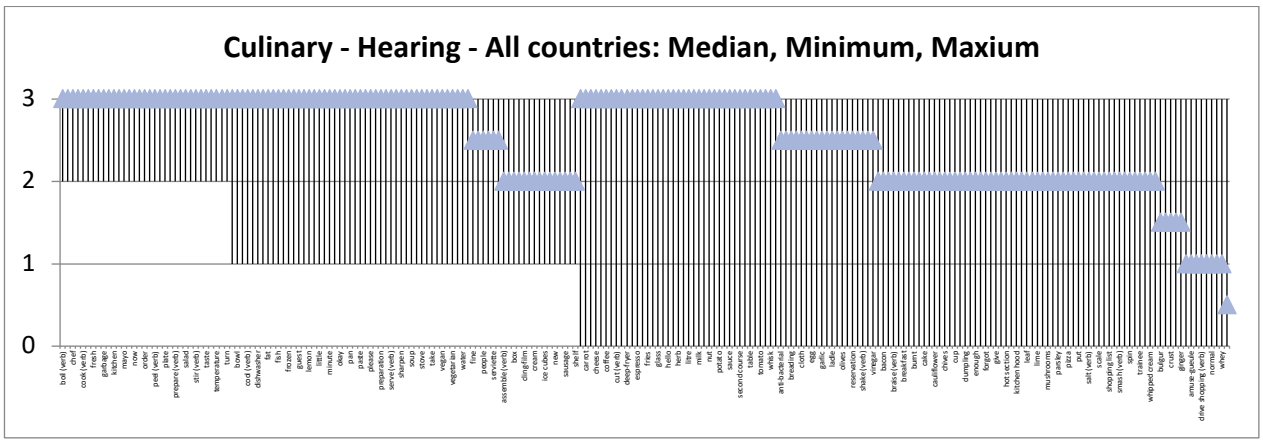

Figure 18: Relevance assessment of the culinary words: Hearing people, all countries

In the group of hearing people in all countries (DE, IT; ES; HU), the median of 33 words is at the maximum extent of 3 combined with a range of 1. Those words considered to be **most important** are:

- boil (verb)
- bread
- chef
- cold
- cook (verb)

- freezer
- fresh
- fridge
- garbage
- gloves
- kitchen
- knife
- mayo
- menu
- now
- numbers
- order
- oven
- peel (verb)
- pepper
- plate
- portion
- prepare (verb)
- ready
- salad
- salt
- stir (verb)
- store
- taste
- taste (verb)
- temperature
- times
- turn

A further 47 words have a median of 3 with a range of 2. There are even 39 more words with a medium of 3, but a range of 3.

It is noticeable that only 14 words were evaluated with an average relevance of less than 2 and no word with an importance of 0. Those **least relevant words** are:

- bulgur
- cheese noodles
- crust
- curry
- ginger
- aluminium
- amuse-gueule
- butcher
- drive shopping (verb)
- liver
- normal
- skirt
- whey
- lungs

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

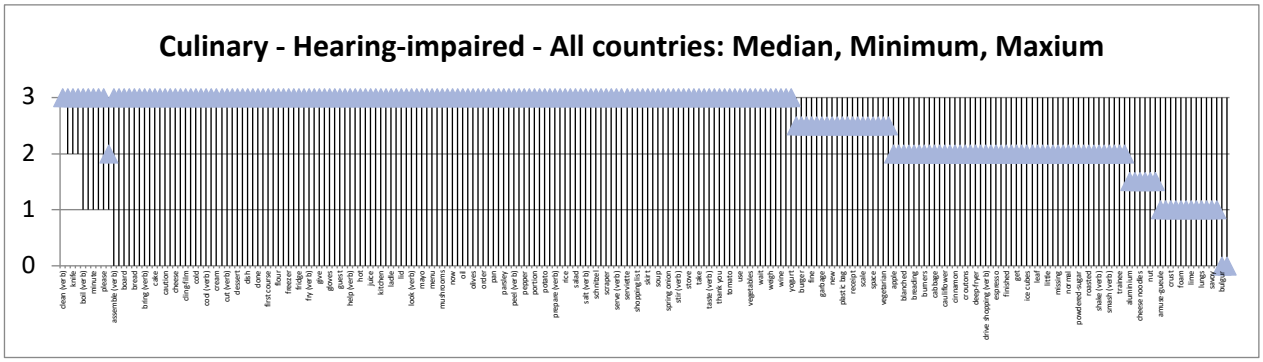

Figure 19: Relevance assessment of the culinary words: Hearing-impaired people, all countries

In the group of hearing-impaired people in all countries (DE, IT; ES, HU), the median of 1 words is at the maximum extent of 3 combined with a range of 0. 3 more words have a median of 3 but a range of 2. Those words considered to be **most important** are:

- clean (verb)
- cup
- knife
- sugar

A further 5 words have a median of 3 with a range of 2, 132 words a median of 3 and a range of 3.

It is noticeable that only 20 words were evaluated with an average relevance of less than 2 and only 2 words with an importance of 0. Those **least relevant words** are:

- aluminium
- anti-bacterial
- cheese noodles
- ginger
- nut
- skim (verb)
- amuse-gueule
- burnt
- crust
- dumpling
- foam
- forgot
- lime
- liver
- lungs
- pickled cabbage
- savoy
- whey
- bulgur
- horseradish

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

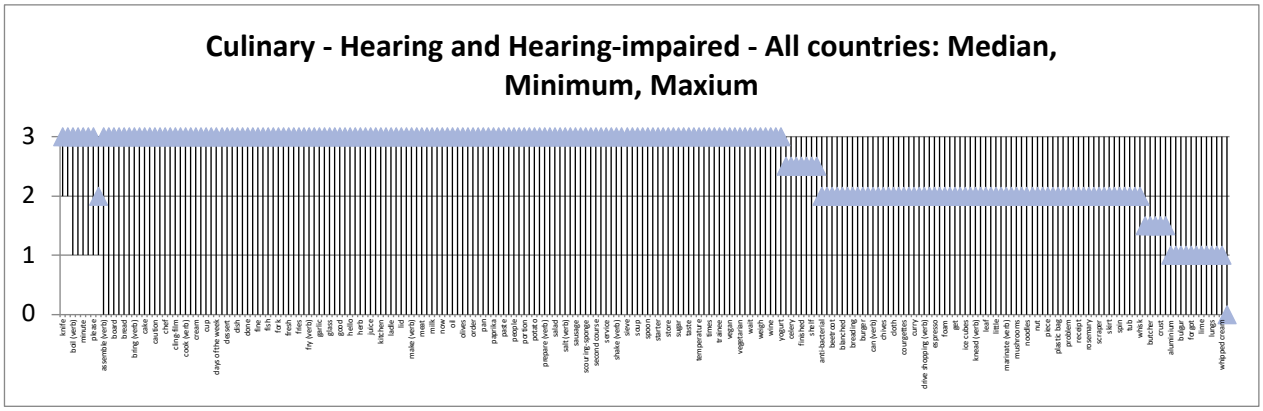

Figure 20: Relevance assessment of the culinary words: Hearing and hearing-impaired people, all countries

The final diagram summarizes the results of all countries (DE, IT, ES; HU) and both groups of hearing and hearing impaired people. Here the median of 7 words is at the maximum extent of 3 combined with a range of 1 or 2. Those words considered to be **most important** are:

- knife
- table
- boil (verb)
- bowl
- minute
- plate
- please

A further 133 words have a median of 3 with a range of 3.

It is noticeable that only 17 words were evaluated with an average relevance of less than 2 and only 1 word pf them with an importance of 0. Those **least relevant words** are:

- burnt
- butcher
- cheese noodles
- crust
- ginger
- aluminium
- amuse-gueule
- bulgur
- dumpling
- forgot
- horseradish
- lime
- liver
- lungs
- scale
- whipped cream
- reservation

3.5.3. 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 (DE, IT, ES, HU). Thus, for each of the 229 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 where used again and those words were specifically selected from them which had a very high median of 2.5 to 3.0 and an acceptable range of 0 to a maximum of 2. This procedure led to the following list of words:

Words with a median of 2.5-3 and a range of 0-2 across all groups and countries	Frequency
boil_verb	8
minute	8
plate	8
knife	8
sugar	8
first_course	7
clean_verb	7
cook_verb	7
fry_verb	7
kitchen	7
freezer	7
fridge	7
please	7
salad	7
flour	7
board	7
store	7
bread	7
menu	7
oven	7
bowl	7
salt	7
pot	7
pan	7
oil	7
temperature	6
vegetables	6
deep-fryer	6
dishwasher	6
peel_verb	6
cool_verb	6

make_verb	6
cut_verb	6
numbers	6
service	6
dessert	6
pepper	6
potato	6
frozen	6
cheese	6
onion	6
water	6
order	6
spoon	6
stove	6
times	6
juice	6
cloth	6
fresh	6
sauce	6
fish	6
dish	6
turn	6
wine	6
fork	6
mayo	6
chef	6
yes	6
lid	6
hot	6
season_to_taste_verb	5
paper_kitchen_towels	5
second_course	5
assemble_verb	5
prepare_verb	5
courgettes	5
cling-film	5
serve_verb	5
taste_verb	5
serviette	5
ice-cream	5
stir_verb	5
rosemary	5
vinegar	5
ketchup	5
scraper	5
starter	5
garbage	5

roasted	5
garlic	5
carrot	5
yogurt	5
gloves	5
lemon	5
weigh	5
table	5
taste	5
smell	5
sieve	5
fries	5
ladle	5
fruit	5
cream	5
meat	5
herb	5
done	5
soup	5
okay	5
wait	5
cake	5
box	5
use	5
now	5
days_of_the_week	4
powdered-sugar	4
marinate_verb	4
spring_onion	4
kitchen_hood	4
knead_verb	4
bring_verb	4
smash_verb	4
look_verb	4
help_verb	4
need_verb	4
thank_you	4
salt_verb	4
breading	4
cucumber	4
spinach	4
portion	4
parsley	4
burners	4
paprika	4
caution	4
little	4

butter	4
coffee	4
people	4
burger	4
tomato	4
paste	4
shelf	4
litre	4
whisk	4
vegan	4
glass	4
apple	4
hello	4
ready	4
take	4
cold	4
rice	4
milk	4
good	4
fine	4
cup	4
egg	4
big	4
fat	4

The same list illustrated by a word cloud results in the following picture:

Figure 21: Wordcloud of relevant words in culinary (Median 2.5-3, Range 0-2)

This list of a total of 149 words was finally related to the results of the Mann-Whitney-U test and the Kruskal-Wallis test (conducted with SPSS 23) to check the homogeneity/heterogeneity of expressions on the characteristics of relevance of a word in the groups. The following table presents the results in a simplified form for ease of understanding. The words with higher commonalities are marked by darker font color and bold, those with less commonality are marked in a lighter font color and non-bold. Fortunately, almost the entire set of selected words is suitable for meeting the needs of both hearing and hearing impaired people in partner countries.

frequency	word (with median of 2.5 or 3 and range between 0-2)	significant differences: country comparison (Kruskal-Wallis Test)		significant differences: hearing capacity comparison (Mann-Whitney-U Test)			word (with median of 2.5 or 3 and range between 0-2)	frequency
		different median	different distribution	different median	different range	different distribution		
8	**boil_verb**		yes		yes		**boil_verb**	8
8	**knife**				yes		**knife**	8
8	**minute**				yes		**minute**	8
8	**plate**				yes		**plate**	8
8	**sugar**				yes		**sugar**	8
7	**board**				yes		**board**	7
7	**bowl**				yes		**bowl**	7
7	**bread**		yes		yes		**bread**	7
7	**clean_verb**				yes		**clean_verb**	7
7	**cook_verb**		yes		yes		**cook_verb**	7
7	**first_course**		yes		yes		**first_course**	7
7	**flour**				yes		**flour**	7
7	**freezer**				yes		**freezer**	7
7	**fridge**		yes		yes		**fridge**	7
7	**fry_verb**		yes		yes		**fry_verb**	7
7	**kitchen**		yes		yes		**kitchen**	7
7	**menu**		yes		yes		**menu**	7
7	**oil**				yes		**oil**	7
7	**oven**		yes		yes		**oven**	7
7	**pan**				yes		**pan**	7
7	**please**		yes		yes		**please**	7
7	**pot**				yes		**pot**	7
7	**salad**				yes		**salad**	7
7	**salt**		yes		yes		**salt**	7
7	**store**		yes		yes		**store**	7
6	**cheese**		yes		yes		**cheese**	6
6	**chef**		yes		yes		**chef**	6
6	cloth	yes	yes				**cloth**	6

6	cool_verb		yes		yes		cool_verb	6
6	cut_verb		yes		yes		cut_verb	6
6	deep-fryer		yes		yes		deep-fryer	6
6	dessert		yes		yes		dessert	6
6	dish		yes		yes		dish	6
6	dishwasher				yes		dishwasher	6
6	fish				yes		fish	6
6	fork				yes		fork	6
6	fresh				yes		fresh	6
6	frozen		yes		yes		frozen	6
6	hot		yes		yes		hot	6
6	juice		yes		yes		juice	6
6	lid		yes		yes		lid	6
6	make_verb		yes		yes		make_verb	6
6	mayo				yes		mayo	6
6	numbers		yes		yes		numbers	6
6	onion				yes		onion	6
6	order		yes		yes		order	6
6	peel_verb		yes		yes		peel_verb	6
6	pepper		yes				pepper	6
6	potato				yes		potato	6
6	sauce		yes		yes		sauce	6
6	service		yes		yes		service	6
6	spoon		yes		yes		spoon	6
6	stove		yes		yes		stove	6
6	temperature				yes		temperature	6
6	times		yes		yes		times	6
6	turn		yes		yes		turn	6
6	vegetables		yes		yes		vegetables	6
6	water		yes		yes		water	6
6	wine				yes		wine	6
6	yes		yes		yes		yes	6
5	assemble_verb				yes		assemble_verb	5
5	box		yes		yes		box	5
5	cake		yes				cake	5
5	carrot				yes		carrot	5
5	cling-film		yes		yes		cling-film	5
5	courgettes		yes		yes		courgettes	5
5	cream	yes	yes		yes		cream	5
5	done				yes		done	5
5	fries				yes		fries	5
5	fruit		yes		yes		fruit	5
5	garbage				yes	yes	garbage	5
5	garlic				yes		garlic	5
5	gloves				yes		gloves	5

5	herb		yes		yes		herb	5
5	ice-cream	yes	yes		yes		ice-cream	5
5	ketchup				yes		ketchup	5
5	ladle				yes		ladle	5
5	lemon		yes		yes		lemon	5
5	meat				yes		meat	5
5	now		yes		yes		now	5
5	okay				yes		okay	5
5	paper_kitchen_towels				yes		paper_kitchen_towels	5
5	prepare_verb		yes		yes		prepare_verb	5
5	roasted	yes	yes		yes		roasted	5
5	rosemary				yes		rosemary	5
5	scraper		yes		yes		scraper	5
5	season_to_taste_verb		yes		yes		season_to_taste_verb	5
5	second_course		yes		yes		second_course	5
5	serve_verb		yes		yes		serve_verb	5
5	serviette		yes		yes		serviette	5
5	sieve		yes		yes		sieve	5
5	smell		yes		yes		smell	5
5	soup				yes		soup	5
5	starter		yes		yes		starter	5
5	stir_verb		yes		yes		stir_verb	5
5	table		yes		yes		table	5
5	taste		yes		yes		taste	5
5	taste_verb		yes		yes		taste_verb	5
5	use		yes		yes		use	5
5	vinegar				yes		vinegar	5
5	wait				yes		wait	5
5	weigh		yes		yes		weigh	5
5	yogurt	yes	yes		yes		yogurt	5
4	apple		yes				apple	4
4	big						big	4
4	breading				yes		breading	4
4	bring_verb				yes		bring_verb	4
4	burger		yes		yes		burger	4
4	burners		yes		yes		burners	4
4	butter		yes		yes		butter	4
4	caution		yes		yes		caution	4
4	coffee				yes		coffee	4
4	cold				yes		cold	4
4	cucumber		yes		yes		cucumber	4
4	cup			yes		yes	cup	4
4	days_of_the_week				yes		days_of_the_week	4
4	egg		yes		yes		egg	4

4	fat	yes	yes		yes		fat	4
4	fine	yes	yes		yes		fine	4
4	glass				yes		glass	4
4	good				yes		good	4
4	hello				yes		hello	4
4	help_verb		yes		yes		help_verb	4
4	kitchen_hood	yes	yes		yes		kitchen_hood	4
4	knead_verb	yes	yes		yes		knead_verb	4
4	litre		yes		yes		litre	4
4	little				yes		little	4
4	look_verb	yes	yes		yes		look_verb	4
4	marinate_verb		yes		yes		marinate_verb	4
4	milk		yes		yes		milk	4
4	need_verb		yes		yes		need_verb	4
4	paprika		yes		yes		paprika	4
4	parsley		yes		yes		parsley	4
4	paste		yes		yes		paste	4
4	people				yes		people	4
4	portion		yes		yes		portion	4
4	powdered-sugar	yes	yes		yes		powdered-sugar	4
4	ready				yes		ready	4
4	rice		yes		yes		rice	4
4	salt_verb		yes		yes		salt_verb	4
4	shelf	yes	yes		yes		shelf	4
4	smash_verb	yes	yes		yes		smash_verb	4
4	spinach				yes		spinach	4
4	spring_onion		yes		yes		spring_onion	4
4	take		yes		yes		take	4
4	thank_you		yes		yes		thank_you	4
4	tomato		yes		yes		tomato	4
4	vegan		yes		yes		vegan	4
4	whisk		yes		yes		whisk	4

It is considered desirable to include those words in the final word list with a frequency of 5 to 8 in any case. For the words with a frequency of 4, 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 (more) important words from the interviews and mock conversations.
The words on the “can”-list that could probably be exchanged are:

- fat
- fine
- kitchen_hood
- knead_verb
- look_verb
- powdered-sugar
- shelf
- smash_verb
- starter

This means that 140 words after the statistical data evaluation should surely appear in the final selection, and that there is room for 10 more words and expressions from the suggestions of the interviews and mock conversations. This would complete the 150 words.

4. Mock Conversations in Culinary (O1-A3)

In the culinary sector, mock interviews were conducted in both Germany (by ILI) and Italy (by Federsid).

4.1. Samples and Results in Germany

The mock conversations in the culinary sector took place in the apprenticeship kitchen at the Berufsbildungswerk Nürnberg for hearing and speech impaired people who are trained as chefs. Two typical situations were played and recorded on video. Communication took place in German Sign Language. The video scenes were afterwards viewed and transcribed.

Situation 1: Arrange salad

The hearing **cook** trainer of the Berufsbildungswerk Nürnberg instructs a hearing-impaired **trainee** to **prepare salads**. Corn, **beetroot** and **cucumbers** are already on the **plates**. The trainer demonstrates how iceberg lettuce and **lamb's lettuce** should be **draped** on the existing ingredients.

Instructor: "You **saw** how I **draped** the **salad** and **how much I took** of it. First you **chop** the **lettuce**, then you put it on and **go on**."

*Instructor starts putting **lamb's lettuce** on the top.*

Instructor: "That's **enough**, **ok**? **Now** you **go on**!"

Trainee: "Got it."

*The **trainee** starts **to prepare** the **salads**.*

Situation 2: Cooking / serving food

Trainee: "When will the food be served? Are we **already doing** that?"

Instructor: "**No later**. **Come** with me."

Trainee: "**Ok**."

Instructor: "I'm **cutting** the meat **into slices now**."

Trainee: "Got it."

Instructor: "You... **wait** a **minute**..." *"Instructor takes a **scoop**." "**Scoop two spoons per portion**."

Trainee: "**Okay**, I will **do** that."

Instructor's comment: "**Trainee** understood everything directly, I don't have to talk to her **much**."

The following words from mock conversations match with words from the culinary wordlist:

#	Word	Synonym
5	assemble (verb)	drape sth.
7	beetroot	
35	chef	Cook trainer
43	come (verb)	
50	cucumber	
53	cut (verb) (cut/chop … slices, cubes, thinner, thicker)	chop up
66	enough	
107	ladle	
108	lamb´s lettuce	
117	look (verb)	see
119	make (verb)	
125	minute	
182	serve (verb)	food serving
132	now, later, previously	
133	numbers (0, 1, 2, 3, 4,…20 - many, more, less)	how much
136	okay	
153	plate	
155	portion	
170	salad	
190	skim	
198	spoon	
206	take	
213	trainee	
221	wait	
228	yes – no	

It turned out that the words used in the mock dialogues were exactly those already noted in the field studies and selected for the word lists.

4.2. Samples and Results in Italy

The mock conversations in the culinary sector took place in the service space of "Ethnic" Restaurant in Palermo, which one of the waiter and kitchen help is deaf. Three typical situations were played and recorded on video. Communication took place in Italian Sign Language (LIS, Lingua Italiana dei Segni). The video scenes were afterwards viewed and transcribed.

In three work situation, M (Miriam), the manager, is giving indications and tasks to her deaf employee, Alex.

Situation 1: Helping with service

M: Alex, may you check if the **coffee** machine does work?

A: I set the **coffee** machine before

M: **Ok**, so could you check if there is **sugar**?

A: Oh **yes**, I **forgot** it. I am going to **take** it.

M: Are the **cups clean**?

A: Yes, I **cleaned** them when I arrived.

Situation 2 Processing Invoice

M: Alex, make the bill for **table n°20** and add a **dessert** at **table n°15**

A: Ok first I **make** the bill, and then I will **bring** the **dessert**

Situation 3 1.6 – Arranging ready meals for serving

M: Alex, could **prepare** a **dish** with some **pizza**, and **bring** it to the **table** at the end of the room with 2 person? **Thanks**.

A: **Yes**, all right. I'm going to do that.

M: Alex, now if you can, you should help me to **prepare** pasta.

A: **Yes**, pasta is **ready**.

M: Oh, **ok**.

The following words from mock conversations match with words from the culinary wordlist:

#	Word	Synonym
41	bring	
56	clean	
59	coffee	
75	forgot	
119	dessert	
132	dish	
133	make (verb)	
136	now, later, previously	
151	numbers (0, 1, 2, 3, 4,…20 - many, more, less)	
160	okay	
163	pizza	
203	prepare	
204	ready	
205	sugar	
209	table	
227	take	
41	thanks	

It turned out that the words used in the mock dialogues were exactly those already noted in the field studies and selected for the word lists.

4.3. Conclusions

The results from mock conversations in Germany and Italy both show that the words from the word lists are relevant and used in dialogues. There were no additional words used.

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

The 140 words from the word list with a median of 2.5 to 3 and a range of 0-2 and a frequency of 4 or higher are included in the final selection. In addition, suggested words and sentences from the interviews and mock conversations are taken into account. This leads to the following final list of 150 words:

Consecutive number	Word number on wordlist	Word	Origin
1	4	apple	Word list
2	5	assemble_verb	Word list
3	8	big	Word list
4	10	board	Word list
5	11	boil_verb	Word list
6	12	bowl	Word list
7	13	box	Word list
8	15	bread	Word list
9	16	breading	Word list
10	19	bring_verb	Word list
11	-	bun	Interviews
12	21	burger	Word list
13	23	burners	Word list
14	25	butter	Word list
15	27	cake	Word list
16	29	carrot	Word list
17	31	caution	Word list
18	33	cheese	Word list
19	35	chef	Word list
20	38	clean_verb	Word list
21	39	cling-film	Word list
22	40	cloth	Word list
23	41	coffee	Word list
24	42	cold	Word list
25	44	cook_verb	Word list
26	45	cool_verb	Word list
27	46	courgettes	Word list
28	47	cream	Word list
29	50	cucumber	Word list
30	51	cup	Word list
31	53	cut_verb	Word list
32	54	days_of_the_week	Word list
33	55	deep-fryer	Word list
34	56	dessert	Word list
35	59	dish	Word list
36	60	dishwasher	Word list

37	61	done	Word list
38	64	egg	Word list
39	68	fat	Word list
40	71	first_course (starter)	Word list
41	72	fish	Word list
42	73	flour	Word list
43	76	fork	Word list
44	77	freezer	Word list
45	78	fresh	Word list
46	79	fridge	Word list
47	80	fries	Word list
48	81	frozen	Word list
49	82	fruit	Word list
50	83	fry_verb	Word list
51	84	garbage	Word list
52	85	garlic	Word list
53	89	glass	Word list
54	90	gloves	Word list
55	91	good	Word list
56	93	hello	Word list
57	94	help_verb	Word list
58	95	herb	Word list
59	97	hot	Word list
60	100	ice-cream	Word list
61	101	juice	Word list
62	102	ketchup	Word list
63	103	kitchen	Word list
64	106	knife	Word list
65	107	ladle	Word list
66	-	later	interviews, mock conversations
67	111	lemon	Word list
68	-	less	interviews, mock conversations
69	112	lid	Word list
70	114	litre	Word list
71	115	little	Word list
72	117	look_verb	Word list
73	119	make_verb	Word list
74	-	many	interviews, mock conversations
75	120	marinate_verb	Word list
76	121	mayo	Word list
77	122	meat	Word list
78	123	menu	Word list
79	124	milk	Word list

80	125	minute	Word list
81	128	need_verb	Word list
82	132	now	Word list
83	133	numbers	Word list
84	135	oil	Word list
85	136	okay	Word list
86	138	onion	Word list
87	139	order	Word list
88	140	oven	Word list
89	141	pan	Word list
90	142	paper_kitchen_towels	Word list
91	143	paprika	Word list
92	144	parsley	Word list
93	145	paste	Word list
94	146	peel_verb	Word list
95	147	people	Word list
96	148	pepper	Word list
97	153	plate	Word list
98	154	please	Word list
99	155	portion	Word list
100	156	pot	Word list
101	157	potato	Word list
102	159	prepare_verb	Word list
103	-	previously	Interviews, mock conversations
104	163	ready	Word list
105	167	rice	Word list
106	168	roasted	Word list
107	169	rosemary	Word list
108	170	salad	Word list
109	171	salt	Word list
110	172	salt_verb	Word list
111	173	sauce	Word list
112	179	scraper	Word list
113	180	season_to_taste_verb	Word list
114	181	second_course	Word list
115	182	serve_verb	Word list
116	183	service	Word list
117	184	serviette	Word list
118	187	shelf	Word list
119	189	sieve	Word list
120	193	smell	Word list
121	194	soup	Word list
122	197	spinach	Word list
123	198	spoon	Word list

124	199	spring_onion	Word list
125	201	stir_verb	Word list
126	202	store	Word list
127	203	stove	Word list
128	204	sugar	Word list
129	205	table	Word list
130	206	take	Word list
131	207	taste	Word list
132	208	taste_verb	Word list
133	-	tea	Interviews
134	209	temperature	Word list
135	210	thank_you	Word list
136	211	times	Word list
137	212	tomato	Word list
138	215	turn	Word list
139	-	urgent	Interviews
140	216	use	Word list
141	217	vegan	Word list
142	218	vegetables	Word list
143	220	vinegar	Word list
144	221	wait	Word list
145	222	water	Word list
146	223	weigh	Word list
147	226	whisk	Word list
148	227	wine	Word list
149	228	yes	Word list
150	229	yogurt	Word list

We hope that this selection will provide the target groups with a suitable dictionary!

Annex 1: Interview Guidelines

Created by Evelyn Schlenk and Stefanie Allmendinger, ILI

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 repondents 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 attidude 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 Ratgeberfür 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 cannnot 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
25. Welcoming words
26. Self-introduction of the interviewer and their institution
27. Introduction to the SWING project and the aims of the interview
28. Information about data protection and asking permission of keeping records (taking notes, video/audio)

B. Some Information about the Interview Participant
29. What is your name?
30. What is your job title?
31. What training did you complete?
32. What is your position in the company?
33. How long have you been with this company?
34. Were you already employed in this profession elsewhere before?
35. What professional experience do you have? (number of years, job areas)?
36. Will you tell us your age?

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

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

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

41. Could you imagine working with someone with hearing impairments?
42. What opportunities do you see in this?
43. What challenges do you see?
44. Do you know how to facilitate communication?
45. 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?
46. Could you imagine even learning the most important words in sign language?
47. 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

48. 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

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

B. Some Information about the Interview Participant

53. What is your name?
54. What is your job title?
55. What training did you complete?
56. What is your position in the company?
57. How long have you been with this company?
58. Were you already employed in this profession elsewhere before?
59. What professional experience do you have? (number of years, job areas)?
60. Will you tell us your age?

C. Previous knowledge and experience with hearing colleagues

61. Have you already worked with hearing colleagues?
62. If so, how did you manage to communicate with each other?

63. Do your colleagues already speak sign language?
64. Do you read lips?

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

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

6. Evaluation of the Word List

As a result of the participating observation, a list with about 180-250 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 name and explain the most important terms. The hearing interviewees should say a sentence about the respective term, the hearing-impaired interviewees should show the word in sign language and briefly explain it. 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.

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.

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Project Agreement Number
2017-1-IT01-KA202-006157