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Multimodal communication in career coaching sessions: lexical and gestural corpus study

Abstract: In the paper we aim to describe multimodal communication in career coaching sessions using recorded natural, face-to-face interactions and corpus techniques. We look on how the specific context of communication influences the lexical and gestural behaviour of speakers in the dialogues between a professional career coach and a participant. Main topic of the conversation was participant's future career. Spoken corpus of career coaching sessions was compared with standard spoken Polish corpus, to reveal four main categories of keywords: cognition verbs, words describing uncertainty and words indicating an abstract referent. Also some types and functions of gestures in career coaching were analysed with the use of NEUROGES coding system.

Keywords: multimodal communication, spoken corpus, gestures, clean coaching, coaching, neuroges

1. Introduction

Recent decades have witnessed major technological and theoretical changes in the study of human communication. Firstly, new technologies allow modern researchers to record communicative interactions in all modalities and to store large amounts of data (hundreds of hours of audio-visual recordings, numerous participants, millions of words and gestures). Secondly, the theoretical shift in communication sciences (including linguistics, psychology, sociology, anthropology) has changed the researchers' focus: from verbal communication to the whole spectrum of multimodal interactions. These two changes constitute the current paradigm in natural human communication research.

Staying within the scope of this paradigm, in this paper we analyse how the specific context of communication influences the lexical and gestural behaviour

of speakers.¹ We aim to describe multimodal communication in career coaching sessions using recorded interactions and corpus techniques. We also adopt a broad view of communication: following Hymes (1974), we claim that who speaks to whom, about what and in what circumstances, influences lexical and gestural choices. Will speakers in career coaching sessions use specific words and gestures?

Multimodal communication is a broad term. Allwood, in his studies, paid attention to the ways in which various modalities influence each other. He also pointed out that studies of multimodal communication and pragmatics should be interconnected (Allwood, 1995). In a more recent study, Bonnachi & Karpiński (2014) claimed that “verbal language, gestures, facial expressions, voice and movements are regarded as mutually interdependent” and they “interplay in the rising of meaning”. The definition of multimodal communication we propose here follows this tradition in that it encompasses a broad view of multimodality. In our view, human face-to-face communication is a dynamic, interactive and multimodal process. Such communication is multimodal, as people use various means to communicate. So it is due to the limited scope of this paper, not our theoretical approach, that only two modalities will be analysed: lexical and gestural.

Analysis of multimodal communication will be presented here using the example of career coaching sessions. The International Coach Federation defines coaching as “partnering with clients in a thought-provoking and creative process that inspires them to maximize their personal and professional potential”.² Usually, the complete coaching process consists of 6 to 10 sessions, each lasting between 30 and 90 minutes. A coaching session can be considered as multimodal interaction, where the coach, using specific questions, repetitions and paraphrases, helps the client (also named *coachee*) to reflect on his or her professional or personal experience, plans and career. Coaching sessions share many qualities with everyday dialogues, as they are all direct, multimodal face-to-face interactions. What is distinct in coaching sessions is that they are support-oriented and engaging for both coachee and coach. Coaches are responsible for the session's structure, while clients focus on their reflections and results. Moreover, coaches are trained to maintain a rapport and give confidence to clients through nonverbal behaviour (for example, by mirroring and mimics).

1 The paper has been prepared within a research project funded by the Polish National Science Centre (decision DEC- 2011/03/D/HS6/05993). Authors would like to thank all team members and subjects of the study.

2 [@]: <http://www.coachfederation.org/need/landing.cfm?ItemNumber=978&navItemNumber=567> [date of access: 15.09.14]

2. Methods and materials: The Multimodal Career Coaching Sessions Corpus

The Multimodal Career Coaching Sessions Corpus (henceforth: MM or MULTIMET) used in this paper is a corpus of recorded dialogues between a professional career coach and a participant. The participants were 45 volunteers, aged 25–35 years (15 males and 30 females) – graduate and doctoral students and alumni from various schools in Poznań. Each participant took part in a minimum of two career-coaching sessions (one participant took part in 6 sessions). In total, 96 clean coaching sessions were recorded between April and July 2013, with cameras and microphones in the studio organized at Adam Mickiewicz University in Poznań. The average session length was 40 minutes. Data was stored and prepared for further stages of analysis: gesture annotation and transcription, and a multimodal corpus was created.

Coaching sessions were conducted according to the Polish version of Clean Language (Pieśkiewicz & Kołodkiewicz, 2011). Clean Language is a method used worldwide in coaching and psychotherapy, the main assumption of which is that people will use metaphors and symbols as a way to describe difficult experiences and concepts, such as: the future, development and job-seeking (Sullivan & Rees, 2008). This technique consists of twelve questions designed to develop metaphors and symbols in dialogue. Questions are called *clean*, because the coach uses exact wording (not a paraphrase, but rather a *parrotphrase*) of a coachee's answer to the previous question. In the Clean Coaching scenario used in our study, the coach starts with a question about career and after that asks for a comparison. When the comparison of a concept is established, the coach asks about the details of the career metaphor, such as its size, shape and colour. In order to help the coachees organise their thoughts, the coach usually repeats parts of the coachee's utterances and relates them to specific questions. The short sample of a career Clean Coaching session presented in Table 1 shows the clean question, the answer and another clean question with repetitions in bold.

Table 1: Example of an opening question and questions with repetitions in a Clean Coaching session

Speaker	Utterance (and its English equivalent)	Comments
COACH	- <i>kiedy myślisz o swojej karierze to ta kariera jest jak co</i> [when you think about your career this career is like what]	opening question
COACHEE	- <i>fale</i> [waves]	answer

Speaker	Utterance (and its English equivalent)	Comments
COACH	- <i>jakie są te fale</i> [what are these waves]	question about attributes
COACHEE	- <i>wzburzone energiczne ale piękne takie pełne życia</i> <i>coś w tym stylu wolne przestrzeń właśnie wolna</i> <i>może jeszcze</i> [vigorous rough but beautiful full of life something like that free space yes free maybe in this way]	more detailed answer of coachee
COACH	- <i>te fale przestrzeń co jeszcze</i> [these free waves spaces what else can you say about that]	further question about attributes

The dialogues were transcribed in ELAN software. As a basic transcription unit, an intonation phrase was used (see Szczyszek, 2013 for details of this transcription method). No capital letters or punctuation were added to the transcription. Almost 24 hours of dialogues were transcribed, which corresponds to 40% of the total. For the current analysis, only participants' utterances from the corpus were used, thus leaving a corpus of a size of 99 251 words. The utterances of the coach – mainly questions and comments – were removed, as they were predetermined by the Clean Coaching scenario. The transcribed corpus consists of the speech of 23 participants, 18 female and 5 male. Each participant contributed between 1 000 and 12 000 tokens to the corpus.

The annotation of gestures was done using the NEUROGES coding system (Lausberg, 2013) with the aid of ELAN software (Lausberg & Sloetjes, 2009). The NEUROGES coding system was developed by Hedda Lausberg's team, originally to identify features of hand movements related to neurological diseases. The assumption behind the NEUROGES coding system is that hand movements are related not only to language processes or linguistic units and rules, but also to general cognitive, emotional and interactive processes. The annotation scheme used in our project is based on the NEUROGES manual, with some minor changes. Four NEUROGES categories of hand movements were used: Structure, Focus, Function and Type. Only those hand movements that have a stroke phase are considered gestures. These include: hand movements that are phasic and repetitive (in terms of their Structure), and hand movements performed in space or on objects (in terms of their Focus). In the first stage of gesture annotations, trained annotators worked on recordings of sessions with muted sound, so they relied only on kinesic features of hand movements. Sessions were annotated on four layers: both hands separately for the coach and coachee. In the next stage, interpretation of hand movements was conducted together with categorisation in terms of Functions and Types.

3. Results

3.1 Lexical characteristics of coaching sessions

To reveal the specific words used during coaching sessions, the Multimodal Career Coaching Session Corpus (MM) was compared with a sample from the PELCRA spoken corpus and a keyword list was generated.

PELCRA spoken is a publicly available corpus of Polish spoken data (Peżik, 2012). From the PELCRA corpus, a 2 million sub-corpus of conversational data was extracted (leaving aside transcripts of mass media communication and parliamentary sessions). From this 2 million corpus, a 100 000 token sample was created to match the size of the MM corpus. The sample was taken with a systematic method: the corpus was divided into 200 parts and every 20th part was taken, creating the PELCRA Sample corpus (PS).

The MM corpus was compared with the PELCRA Sample corpus (PS). A keyword list was generated with the use of AntConc software (Laurence, 2009). Three main categories of keywords were identified: cognition verbs, words describing uncertainty and words indicating an abstract referent. These categories show the difference between career coaching sessions (MM corpus) and standard spoken Polish (PELCRA sample).

The first category consists of cognition verbs, that is verbs describing mental states, desires or feelings. Frequency of those verbs is different in various genres of Polish language (Kokorniak&Fabiszak, 2014). The career coaching corpus indicated frequent use of four of them: *wiem* [I know], *myślę* [I think], *chcę* [I want], *czuję* [I feel]. All verbs were uttered in first person singular present tense, hence referring to the speaker's own mental states, as experienced at the moment of speaking³. Figure 1 below presents differences in the frequency of those four verbs in the career coaching sessions corpus (MM) compared to the sample of standard spoken Polish (PS). Next, Table 2 presents Log Likelihood values, which show statistically significant differences between the frequency of use of cognition verbs (99.99th percentile; 0.01% level; $p < 0.0001$; critical value = 15.13). To ensure higher validity, results were re-calculated with the complete 2M PELCRA conversational corpus, confirming statistically significant differences. This means that words describing mental states are overused in career coaching sessions in comparison to standard spoken Polish.

3 Polish is an inflectional language, where an overt subject is not required since person and number are indicated in the suffix: *wiedzieć* (INF)-*wiem* (1SG), *myśleć* (INF)-*myślę* (1SG), *chcieć* (INF)-*chcę* (1SG), *czuć* (INF)-*czuję* (1SG). Specifics of Polish corpus linguistics were described by Lewandowska-Tomaszczyk (2005).

Figure 1. Frequency of word tokens from the category of cognition verbs in the career coaching sessions corpus (MM) and the 100 000 token PELCRA Sample corpus (PS).

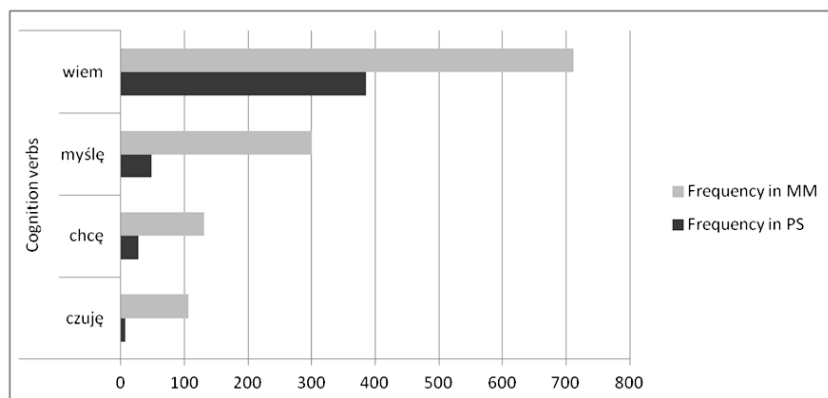


Table 2: Keywords from the category of cognition verbs and their English equivalents with the frequency in the career coaching sessions corpus (MM) and the 100 000 token PELCRA Sample corpus (PS). The Log Likelihood value shows statistically significant overuse of those words in the career coaching sessions corpus

Word (Polish)	English equivalent	Frequency in MM	Frequency in PS	LL value
wiem	I know	712	386	91.979
myślę	I think	300	48	198.295
chcę	I want	131	27	72.507
czuję	I feel	106	7	102.223

Cognition verbs are used in coaching sessions in various contexts. They can provide information about lack of knowledge (example 1) or needs and feelings (examples 2, 3 and 4):

- 1) *no **nie wiem** brakuje takiego takiej chęci może **nie wiem** ryzyka*
[I **don't know** what is missing—some some willingness of I **don't know** risk] (66-S1)⁴.
- 2) *myślę że chciałabym żeby rzeczy szły do przodu szybciej*
[I **think** that I would like things to go faster] (90-S2).

4 The number indicates speaker number and coaching session number: 91-S1 means speaker 91, during their first coaching session.

- 3) *dobrze mi jest tak jak teraz idę i **chcę** utrzymać ten rytm **nie chcę nie chcę** już wracać*
 [I'm fine, walking just as I do now and **I want to** keep this rhythm **I don't want to not want to** go back](91-S2).
- 4) *ja mówię że to jest bardzo długa droga **czuję** to że to jest długa droga*
 [I'm saying that it is a very long road **I feel** it is a long road] (91-S1).

The second category of keywords includes those indicating the speaker's uncertainty. Words from this category may function as parentheses or hedges, indicating that the speaker is not ready to take full responsibility for what is going to be said. Keywords included in this category are: *właśnie* [exactly], *może* [maybe], *gdzieś* [somewhere], *jakby* [somewhat, somehow], *wyduje (mi się)* [it seems (to me)], *(w) sensie* [(in the) sense], *powiedzmy* [let's say]. Figure 2 below presents differences in the frequency of those words in the career coaching sessions corpus (MM) compared to the sample of standard spoken Polish (PS) and Table 3 presents Log Likelihood values, which show statistically significant differences.

Figure 2. Frequency of word tokens from the category of uncertainty words in the career coaching sessions corpus (MM) and the 100 000 token PELCRA Sample corpus (PS).

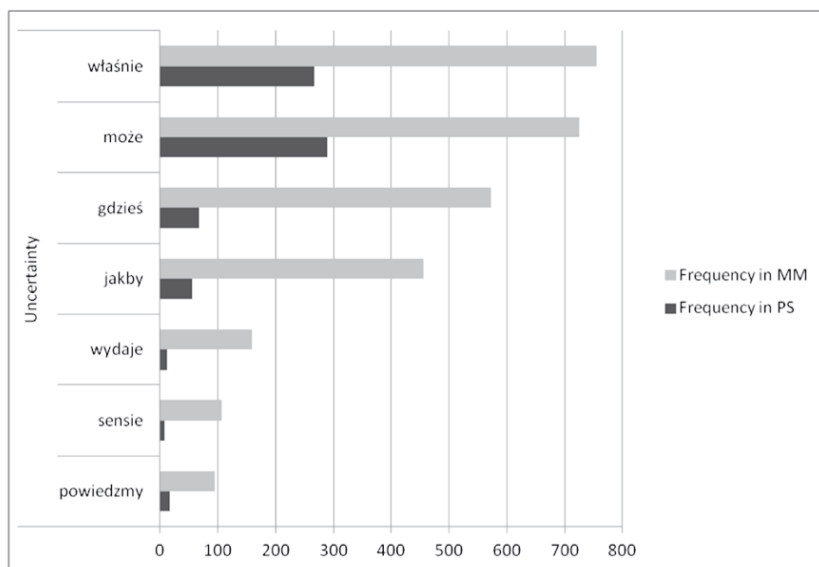


Table 3: Keywords from the category of uncertainty and their English equivalents with their frequency in the career coaching sessions corpus (MM) and the 100 000 token PEL-CRA Sample corpus (PS). The Log Likelihood value shows statistically significant overuse of those words in the career coaching sessions corpus

Word (Polish)	English equivalent	Frequency in MM	Frequency in PS	LL value
<i>właśnie</i>	exactly	755	267	233.325
<i>może</i>	maybe	725	289	185.272
<i>gdzieś</i>	somewhere	572	67	447.088
<i>jakby</i>	somehow	456	56	348.498
<i>wydaje</i>	it seems	159	12	147.291
<i>sensie</i>	sense	106	8	98.194
<i>powiedzmy</i>	let us say	94	16	59.730

Uncertainty words in the corpus of career coaching sessions (MM) are often used in the context of describing future jobs or possible career paths as presented in examples 5–11 below. Sometimes they are used repeatedly, one after another, especially when claims included in the utterance may be considered controversial or unpopular, just as in example 8.

- 5) *ale no to nie musi być coś **właśnie** związanego z zawodami medycznymi*
[But it does not have to be something related **exactly** to the medical profession] (02-S1).
- 6) ***może** być mocny impuls który wywoła mniejszą reakcję ale **może** być malutki impuls który wywoła ogromną reakcję*
[**Maybe** a large impulse will come and cause a small reaction but **maybe** a smaller impulse will cause a larger reaction] (66-S1).
- 7) *to mogą być właśnie takie **gdzieś tam** zadania które **gdzieś tam** wykonywaliśmy*
[There could be just tasks **somewhere** tasks we were completing **somewhere**] (75-S2)
- 8) *bo dla mnie jakieś **jakby** pewne konwenanse związane z pracą **jakby** miejsce czas są pewnym ograniczeniem i z tym **jakby** nie czuję się dobrze*
[Because for me some **somehow** certain conventions connected to work **somehow** time and space are a certain restriction and I don't **somehow** feel good about that] (02-S1).
- 9) *także myślę że to jest no nie wiem **wydaje mi się że** jestem teraz w takim momencie*
[So I think it is oh I don't know **it seems to me** that I'm in such a moment right now] (75-S1).

- 10) *znam takie osoby które w ogóle nie usłyszały dobrego słowa w sensie znaczy od rodziców*

[I know some people who never really heard a good word **in the sense** I mean from their parents] (54-S1)

- 11) *pracę która będzie dla mnie satysfakcjonująca ale też bezpieczna **powiedzmy** w pewien sposób*

[Work that will be satisfactory for me, but at the same time **let's say** safe in some way] (02-S1).

The third category encompasses words with an abstract referent. By abstract we understand here non-material or non-literal. This category includes: *czas* [time], *rzeczy* [things], *życie* [life], *możliwości* [possibilities], *praca* [work], *celu* [aim]. Figure 3 below presents differences in the frequency of those words in the career coaching sessions corpus (MM) compared to the sample of standard spoken Polish (PS) and Table 4 presents Log Likelihood values, which show statistically significant differences.

Figure 3. Frequency of word tokens from the category of words with an abstract referent in the career coaching sessions corpus (MM) and the 100 000 token PELCRA Sample corpus (PS).

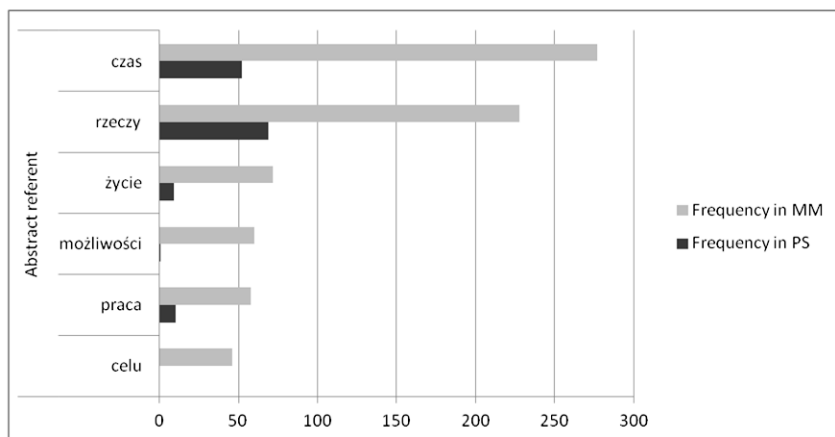


Table 4: Keywords from the category of words with an abstract referent and their English equivalents with their frequency in the career coaching sessions corpus (MM) and the 100 000 token PELCRA Sample corpus (PS). The Log Likelihood value shows statistically significant overuse of those words in the career coaching sessions corpus.

Word (Polish)	English equivalent	Frequency in MM	Frequency in PS	LL value
<i>czas</i>	time	277	52	164.540
<i>rzeczy</i>	things	228	69	86.652
<i>życie</i>	life	72	9	54.552
<i>możliwości</i>	possibilities	60	1	73.208
<i>praca</i>	work	58	10	36.543
<i>celu</i>	aim	46	0	62.872

The presence of abstract referents was pre-determined by the topic of conversation and the method of Clean Coaching: career and life plans, possibilities and goals, things to do:

- 12) *że praca im daje takie poczucie właśnie że są potrzebni że ten **czas** który tutaj mają nie jest zmarnowany*
[That this work gives them the feeling that they are useful, that their **time** here is not wasted] (80-S2).
- 13) *tylko te **rzeczy** które mnie rozwijają które do czegoś mi są potrzebne staram się realizować*
[I'm trying to do only those **things** that can help me to develop those that I need] (54-S1).
- 14) *to się okaże to wszystko zależy od tego jak potoczy się moje **życie***
[We will see it all depends on how my **life** goes] (29-S2).
- 15) *pojawiają się nowe pomysły i nowe **możliwości***
[New ideas and new **possibilities** appear] (60-S3).
- 16) *w sensie żeby **praca** nie była całym życiem bo to nie bo to nie jest fajne*
[In the sense that your **work** is not your whole life because this is not this is not cool] (66-S2).
- 17) *szukam cały czas jakiegoś swojego konkretnego **celu** to co chciałabym robić tego co lubię*
[I am searching all the time for my own specific **aim** something that I would like to do something I like] (21-S2).

To sum up: words describing mental states, words indicating uncertainty and words with an abstract referent are more frequent in career coaching sessions than

in typical spoken Polish, and this difference is statistically significant. Therefore, the high frequency of the words analyzed above may be considered a distinct feature of career coaching sessions, setting them apart from standard spoken Polish.

The four categories identified among keywords in Study 2 are not clear-cut, as the words listed in them have more than one function. In the example 1) we can observe how the cognition verb “know” also serves as a softener, a marker of uncertainty. However, the presented categories seem to be sufficient to identify differences between standard conversations and career coaching sessions.

3.2 Types and functions of gestures in career coaching

Keywords in coaching sessions are accompanied by co-speech gestures. Below we present analysis just of four of them, related to the concepts of time, vision and career management. Examples are presented on screenshots from ELAN, transcription, translation and frames. Figure 4 below presents a screenshot from the ELAN software with the gesture description. The first and second tiers include a transcription of the coachee’s words. The first tier shows complete utterance, whereas the second shows the utterance segmented into words so temporal alignment with hand movement is visible. Labels used in description are taken from NEUROGES coding system. First label – *phasic in space* or *repetitive in space* refer to structure and focus step in annotation. Second label – *emotion-fist clenching* and others refer to function and type step in annotation.

The first example of gesture identified in a coaching session is a co-speech gesture: phasic in space—emotion-fist clenching.

18) *po tym czasie może być może już po tym egzaminie teraz ale po tym czasie obrony na pewno chcę właśnie żwawo ruszyć żeby ten mój największy cel osiągnąć*

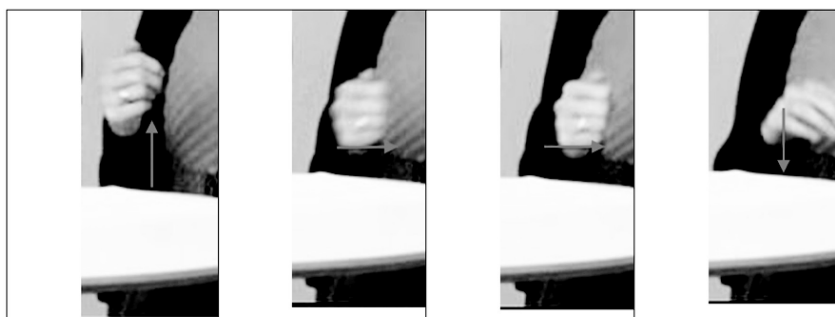
[After that **time** maybe after that exam now but after that time of the defence exam for sure I want to start quickly to achieve my biggest aim].

Figure 5 presents photos of this gesture. In Figure 1, Lines 3–5 describe the gesture. The coachee performs a kind of emblematic gesture with her right hand. This gesture starts just before the verb *chcę* (*I want*) and its stroke phase lasts until the word *żwawo* (*quick*). In NEUROGES terms it is *phasic in space*, because the movement of the hand is done in one trajectory. The movement in the stroke phase reflects the grasping of an imaginary object and is finished with *fist clenching*. This type of hand movement can be classified in NEUROGES function terms as an *emotion/attitude* function or a *motion quality presentation*.

Figure 4. ELAN software screenshot presenting a co-speech gesture description in the NEUROGES system for the gesture accompanying example 18.

obrony na pewno chce własnie zwawo ruszyc zeby ten mój największy cel osiągnąć							
obrony	na	pewno	chce	własnie	zwawo	ruszyc	zeby
		phasic in space					
		emotion/attitude					
		fist clenching - emotion/attitude					

Figure 5. The gesture accompanying example 18 – fist clenching. The arrows are used to show the direction of hand movement.



The second gesture is a *repetitive in space–spatial relation representation*. This co-speech gesture is performed as an accompaniment to the utterance:

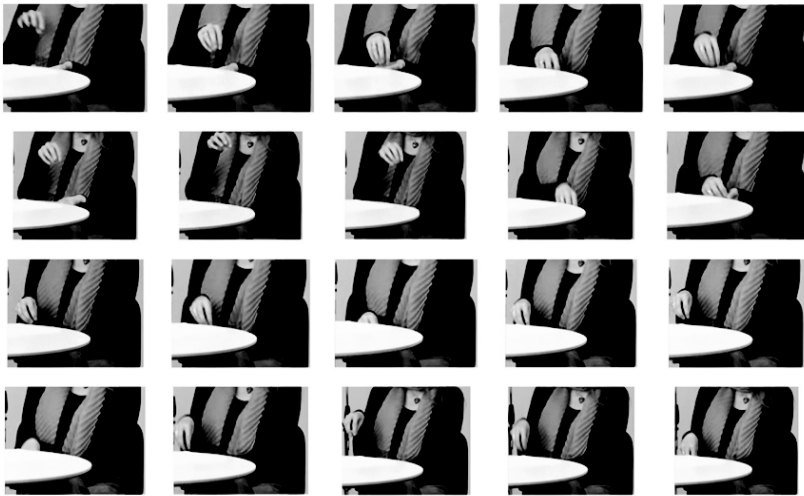
19) *muszę miarkować ten czas pomiędzy te zawodowe kwestie i jeszcze też wiadomo prywatne i te szkolne i w ogóle ten mój cel*

[I need to manage this **time** between professional issues and you know private and school-related and in general this my aim]

Figure 6 presents photos of the gesture. Through this utterance, the coachee performs an emblematic gesture with her right hand. Since the movement is repeated several times in a similar, vertical trajectory, it would be called *repetitive in space*, in NEUROGES terms. The right hand is poking the left hand, which is flat. The combination of fingers in the right hand is “1–5 touching”, which means that all fingers are joined together, pointing downwards (Bressemer 2013). Moreover, both hands move from the body-midline to the left side of the speaker. Every poke is indexing each item listed in the coachee’s utterance: professional issues, private and school-related issues and the aim. This gesture is a way of structuring the representation of the coachee’s domains of time management. Each domain has

its place in the centre of the gesture space (see McNeill, 1992 for gesture space definition). The coachee is pointing to each of the places and shows the spatial relations between them. This can be treated as a means of delimitation of those domains. In NEUROGES terms, on a function/type level, this gesture may be categorised as *spatial relation presentation-position*.

Figure 6. *The gesture accompanying example 19 – repetitive in space gesture-spatial relation representation. Frames are shown from left to right.*



The third example of a gesture is a *repetitive in space–motion quality presentation*. Figure 7 below presents a screenshot from the ELAN software with the gesture description. The first and second lines include a transcription of the coachee's words:

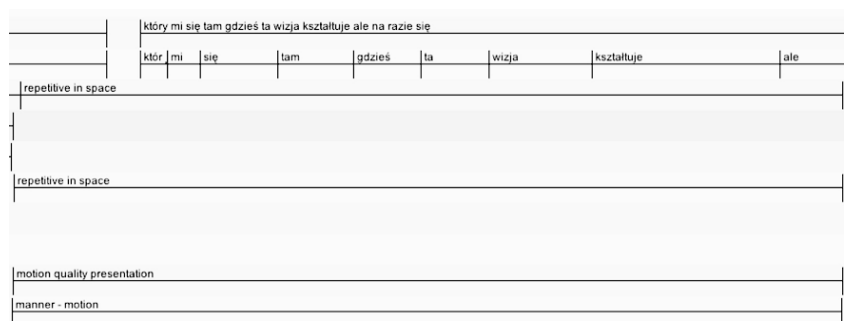
- 20) *który mi się tam gdzieś ta wizja kształtuje ale na razie się*
 'a **vision** of this is shaping for me somewhere but for now'

Figure 7. The gesture accompanying example 20 – repetitive in space-motion quality presentation. Frames are shown from left to right.



Figure 8 presents photos of the gesture. The hand movement performed while speaking about the shaping of the vision is bimanual (both hands are active), simultaneous and alternating (as one hand goes up, the other goes down and then vice versa) rotation of an imaginary object. In NEUROGES terms it is *repetitive in space* on a structure/focus level and *motion quality presentation-manner* on a function/type level.

Figure 8. ELAN software screenshot presenting the co-speech gesture description in the NEUROGES system for the gesture accompanying example 20.



The fourth example gesture is *phasic in space*–*egocentric deictic-external target*. Figure 9 below presents a screenshot from the ELAN software with the gesture description. The first and second lines include a transcription of the coachee's words:

21) *zostawiam ją po prostu aż uporządkuję sobie*
 [I'll leave that until I order (my things)]

Figure 10 presents photos of the gesture. The gesture is used while speaking about the future, and it is *phasic in space* on a structure/focus level and an *egocentric deictic-external target* on the function/type level. It is performed with two hands joined and moved forward, from the speaker's body-midline.

Figure 9. ELAN software screenshot presenting a co-speech gesture description in the NEUROGES system for the gesture accompanying example 21.

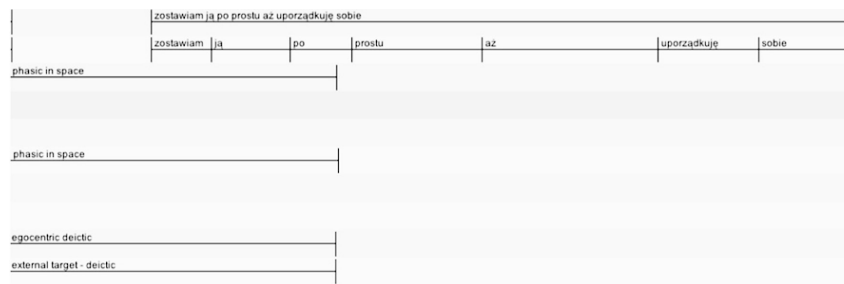


Figure 10. *The gesture accompanying example 21 – phasic in space – egocentric deictic-external target. Frames are shown from left to right.*



This short study on selected gestures from career coaching corpora serves as an example of spontaneous hand movements used to enrich interaction and embody the concepts behind the coachee's words. Although it is not easy to decide which word or concept is linked directly to a particular hand movement, we can see that these hand movements are not accidental. Moreover, in some cases, some gestures are repetitively used alongside utterances.

4. Discussion

Analysis of the multimodal communication corpus in career coaching sessions showed that speakers use specific gestures and words to talk about abstract concepts such as time, visions of the future, careers and life goals. Speakers, when talking about abstract referents, show a high level of uncertainty and use cognition verbs to refer to their own states. Their gestures and lexical choices are motivated and influenced by the context of the conversation. Speakers use both words and co-speech gestures to shape complex, career-related ideas.

Further investigation of the collected material is required, which will include other modalities and combine gestures and words in quantitative studies. Examples of gestures chosen for this paper are also used by various coachees in other sessions collected in MM corpus. We expect to find more instances of functions and types of hand movements and show temporal alignment of them with specific words used with them. Moreover, more detailed analyses of patterns in hand movements and word classes are planned. Such qualitative and quantitative analysis may show what kind of hand movements (in NEUROGES terms on Structure/Focus and Function/Type level) goes with specific words in many sessions with different coachees and coaches.

The specific context of career coaching sessions, abstract referents and the support-oriented structure, influence speaker's gestures and lexical choices. Words and gestures in natural, face-to-face communication are interdependent in the creation of meaning. However, research is needed to obtain more representative results. We hope to fulfil this need soon.

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