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Teachers and learners constructing meaning
in the foreign language classrooms:
A study of multimodal communication
in Estonian and French classes

DISSERTATIONES LINGUISTICAE UNIVERSITATIS TARTUENSIS

31

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Teachers and learners constructing meaning
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A study of multimodal communication
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University of Tartu, Institute of Estonian and General Linguistics

Dissertation accepted for the commencement of the degree of Doctor of Philosophy on September 18th, 2018 by the Committee of the Institute of Estonian and General Linguistics, Faculty of Philosophy, University of Tartu

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Commencement: November 14th, 2018 at 16.15, Senat Hall in the University
                  main building, Ülikooli 18, Tartu

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The journey of doctoral studies
demands a 1-year-old child's daring and
a 4-year-old child's endless curiosity.

Author of the thesis

ACKNOWLEDGEMENTS

Humans make meaning in reaction to the world and in expressing their needs, thoughts and emotions. Kress says that "(…) [b]y understanding the conditions in which people make meaning we assert the dignity of the person who does semiotic work" (Lindstrand 2008: 68). My research into *meaning* has been a long journey through time and space. I have met many people and been enriched by new experiences. Several people turned out to be an especially important support during my doctoral studies.

First of all, I would like to thank all the teachers and learners who agreed to participate in the research and without whom I would have had no situations of communication to study – every one of their actions was worth noticing and added significance to my knowledge about human communication.

I am especially appreciative to my supervisor Prof. Birute Klaas-Lang, who believed that I could make my way to defending the doctoral degree and has helped with valuable advice in writing my texts for the thesis. I am equally grateful to my supervisor Prof. Kalevi Kull for the conversations that guided me to look at my texts with a fresh eye and to meditate about the meaning construction.

I owe thanks to several experts for helping me to prepare the articles. I am especially grateful to Prof. Urmas Sutrop who has provided important counsel about the structure and the use of terminology in one article and to Prof. Helle Metslang, whose reviewing of another article has helped to improve the constitution and wording of the text. I thank Piret Piiroja, David Ogren and Pille Põiklik for editing the language of my texts written for the thesis and/or conferences.

I am grateful to my preliminary reviewers – Prof. Kristiina Päivi Jokinen and Assoc. Prof. Helin Puksand – for their constructive comments on the introductory section of this thesis. I owe special thanks to Prof. Gunther Kress, who has unknowingly advised me as a distant author and who agreed to review my work and to discuss the thesis on the day of defense.

I express my special gratitude to Prof. Halliki Harro-Loit, who noticed my interest in multimodal communication and without whom I would not have had the opportunity to develop the special course at the University of Tartu. I am thankful to Silvi Tenjes and Ingrid Rummo, who have been my fellows in the Research Group of Multimodal Communication and supervised my doctoral

studies before they moved to positions in other institutions. I owe great thanks to Prof. Eva Maria Toulouze and to lecturer Anu Treikelder, the supervisors of my earlier studies. Eva Maria Toulouze encouraged me to continue with the research already after I received my BA degree.

While holding so many different positions, having various professions and interests, and living in diverse conditions around the world, my friends have always been there for me – I thank Triin, Helin-Mari, Andrea, Siiri, Ivika, Marge, Paul, Gale, Jana, and Brit.

My heart is the most grateful to my family.

My parents Nele and Sulev have been supportive in every possible manner – caring for my children, being friends and advisors during my doctoral studies – I am immeasurably grateful to them. I thank my sisters Hanna and Laura – they have always been close to me and ready to contemplate together even if we live at long distances from each other.

My husband Ivo – I am exceedingly grateful to him for being by my side and supporting me during all the university years and for his help in technical matters of my doctoral studies. Our dear sons – Remi and Timo – thanks to them I have striven to keep my belief in goodness and the possibility of miracles.

CONTENTS

LIST OF PUBLICATIONS

[P1] Ingerpuu-Rümmel, Eva (2012). Teadmise esiletulemine võõrkeeletunni multimodaalses suhtluses. [Displaying knowledge in the multimodal communication of a foreign language learning classroom]. *Eesti ja soome-ugri keeleteaduse ajakiri /Journal of Estonian and Finno-Ugric Linguistics* 3 (2): 9–30.

[P2] Ingerpuu-Rümmel, Eva (2015). Teachers and learners constructing meaning for vocabulary items in a foreign language classroom. *Proceedings of the 2nd European and the 5th Nordic Symposium on Multimodal Communication August 6–8, Tartu, Estonia*. Linköping: Linköping University Electronic Press, 33–41.

[P3] Ingerpuu-Rümmel, Eva (2018). Translation as meaning constructor for new words in the multimodal communication of foreign language classrooms. *Eesti Rakenduslingvistika Ühingu aastaraamat* 14: 59–76.

[P4] Ingerpuu-Rümmel, Eva (2018). Teachers' and learners' participation opportunities in meaning construction for new words in the foreign language classroom. *Trames – Journal of the Humanities and Social Sciences* 22 (1): 63–88.

[P5] Tenjes, Silvi, Triin Lõbus, Leila Kubinyi, Ingrid Rummo, Dmitri Kulakov, Eva Ingerpuu-Rümmel (2010). Multimodaalne suhtlus keeleõppe ja -kasutuse teenistuses. [Multimodal communication in language learning and language use services]. *Eesti ja soome-ugri keeleteaduse ajakiri /Journal of Estonian and Finno-Ugric Linguistics* 1 (1): 21–40.

1. INTRODUCTION

1.1. Objectives and research questions

The aim of the current study is to examine how the meaning construction for new vocabulary items takes place in the multimodal communication of the foreign language classroom. The thesis is based on audiovisual material that shows the communication of classroom *participants*, i.e. the teacher and learners. The participants use several resources[1] – verbal expression, vocal expression, gestures, movement in space and handling objects – while they communicate with each other. Accordingly, the communication is always multimodal in general. The resources are used to make signs which are related to each other and together constitute *potentially communicative actions*. These actions are potentially communicative because they become communicative only when they are interpreted (see Kress 2010: 159–160).

For the purpose of empirical research, four foreign language classes for university students – two Estonian and two French – were filmed. In all the classes, there were communicative episodes where meaning construction for words and expressions that were partially or totally unknown for learners took place.

The foreign language that was taught in the filmed classes is called the *target language* in the thesis. All the communication took place in the target language in the classes that were filmed. In every class, the learners speak different mother tongues. The learned language was a foreign language for all the learners. The thesis makes no distinction if the learned language was the second, third, or fourth language for the learners.

The research is strongly influenced by theories that support the idea that human communication is multimodal (e.g. Kress 2010, Kress and van Leeuwen 2001, van Leeuwen 2004). The current study uses precise transcriptions of audiovisual material to do the multimodal discourse analysis at micro level. Questionnaires about language skills, age, gender and origin of participants and the repeated observation of audiovisual material helped in understanding multimodal discourse in the studied classrooms.

There is a lack of studies on the meaning construction for Words[2] in classrooms. Only a few studies pay attention to teachers' expressions in meaning construction for new vocabulary items in foreign language learning (e.g. Lazaraton 2004, Taleghani-Nikazm 2008). The present thesis provides to the research field a study where different aspects of meaning construction for Words are studied:

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[1]   In the thesis and in the articles the terms *resources* and *semiotic resources* are used as synonyms.
[2]   In the thesis and in the articles the unknown words and expressions are marked by the capitalized word *Word*.

1) on the basis of transcription of all the participants' communicative actions, therefore, the ground is set for analysis of the teacher's and learners' collaboration in meaning construction;
2) by paying equal attention to all audiovisually perceivable signs;
3) on the basis of a large quantity of communicative episodes – 110+1 situations – selected from four classes of two different target languages, Estonian and French.

The thesis examines the material for the purpose of understanding: **How do participants in the foreign language classroom construct meaning?** This overarching research question is answered by the help of specific questions:

1. How can the learners display knowledge in the multimodal communication of a foreign language classroom?
2. How do the participants – the teacher and learners – in the class use resources to construct meaning for Words[3]?
3. How are gestures used to construct meaning for Words?
4. How is translation as verbal expression used to construct meaning for Words?
5. What kind of interaction models can be created with respect to the activity of different participants in the meaning construction process?
6. How can participation opportunities be classified with respect to the use of resources?

1.2. Structure of the thesis and overview of the publications

The thesis consists of two parts: the introductory part and the research part. The introductory part comprises two chapters. Chapter 1 defines the research area by introducing the main aim of the study, the research questions, the structure of the thesis and an overview of the publications. Chapter 2 introduces the theoretical foundations and the empirical studies. Chapter 2.1 presents the theoretical foundations of the multimodal approach. Chapter 2.2 presents important empirical studies on multimodal communication in classrooms. Chapter 2.3 gives a short overview of multimodality studies in Estonia. Chapter 2.4 presents research in the field of gestural expression. Chapter 2.5 describes empirical studies on interaction in the classroom. Chapter 2.6 gives an overview of two approaches in the modern foreign language classes: the communicative approach and multiliteracy.

The research part includes Chapters 3, 4 and 5 and five publications. Chapter 3 introduces the material and method. Chapter 4 presents two sections of analysis and results on the use of the resources and gestural signs in the class-rooms (subchapters 4.1 and 4.2), findings in the articles of the doctoral

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[3]   Idem.

thesis (4.3) and conclusions (4.4). Chapter 5 presents a summary in Estonian. The chapters are followed by five publications – [P1]–[P5][4].

An overview of the results in sections 4.1 and 4.2 and in the publications is presented in the following paragraphs.

The chapter "Teachers' and learners' use of resources for meaning construction for Words" (4.1) shows how teachers and the learners construct meaning for Words (new vocabulary items) with the help of various resources in the foreign language learning classrooms. The study is based on 110 communicative episodes selected from all four video-recorded classes. Three resources were found to be used in meaning construction for Words: verbal, vocal and gestural expression. Verbal expression is used in all of the communicative episodes, gestures are present in 65 episodes and vocal expression only in 14 episodes. The chapter demonstrates via examples of the analysis of transcription how each category is used for the purpose of meaning construction. The chapter places emphasis on the importance of noticing all the meaning constructive resources beside the verbal expression in the classrooms.

The chapter "Teachers using gestural signs to construct meaning for Words" (4.2) analyses only the teachers' gestural expression in the meaning constructing situations for the Words. The teachers were active meaning constructors in 105 episodes and they used gestures in 63 episodes. The study reveals that the used gestures were usually not culturally conventional (only the French teacher used this kind of gestures in three episodes). The teachers' gestures that were used for the purpose of meaning construction for Words had iconic and/or deictic features. The meaning of those gestures was constructed by the surrounding signs in the context or by explicit verbal naming. The chapter accentuates that in the larger meaning construction for the Words multiple small meaning constructions for the gestural signs take place.

The first article "Teadmise esiletulemine võõrkeeletunni multimodaalses suhtluses[5]" (in the thesis marked by [P1]) presents the first analysis of multimodal communication in an Estonian language learning class. The article opens the series of studies on meaning construction in multimodal communication by offering an extra study on an episode where the participants have to choose which resources to use. This episode constitutes part of the audiovisual material but is not about the meaning construction for Words. The article presents a communicative episode where learners wish to display knowledge but only one learner has the permission to reply to the teacher's question. Other learners still find ways to express their knowledge mainly by gestures (and also by whispering). The gestures of one learner also show a wish to express knowledge

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[4]   The author of the present thesis is the sole author of Articles [P1]–[P4]. Article [P5] is composed by six authors. Articles [P1] and [P5] are in Estonian and Articles [P2], [P3] and [P4] are in English. Annex 1 presents an English translation of Article [P1]. The English translation of Article [P5] is available for reading in the doctoral thesis of Rummo (2015).
[5]   The title of the first article is translated as „Displaying knowledge in the multimodal communication of a foreign language learning classroom".

and tensions caused by the interactional norm. The article accentuates that participants of the classroom choose resources to express their thoughts and feelings.

The second article "Teachers and learners constructing meaning for vocabulary items in a foreign language classroom" (in the thesis marked by [P2]) studies multimodal communication in Estonian and French learning classes. The article examines 51 communicative episodes where the participants – teachers and learners – use verbal and gestural expression for constructing meaning for new vocabulary items. Teachers and learners may use two semiotic resources – verbal expression and gestures – together. The results show how each semiotic resource has its specific functions and how pieces of information are organized into an explanation through engaging several semiotic resources. For example, gestures provide information that is not included in the verbal expression and vice versa. Sometimes, a gesture that reveals the meaning of the Word can occur right before a longer explanation by verbal expression and gestures takes place. The results show that meaning construction for Words is usually not a definition that is one clearly formulated sentence. The work involved in constructing meaning may be distributed between different semiotic resources.

The third article "Translation as meaning constructor for new words in the multimodal communication of foreign language classrooms" (in the thesis marked by [P3]) investigates the use of translation for constructing meaning for Words. The study shows that translation is used in 31 episodes of 110 analyzed episodes. Translation is mainly used in one French class (28 episodes). Translation emerges in two episodes of the other French class, only once in one Estonian and never in the other Estonian class. Translation is applied in communicative episodes in two ways – it is either the only resource that constructs meaning for a word or it presents itself in combination with other resources. Besides translation, target language and gestures are used to construct meaning for the new words. The article finds that the use of translation does not lead to the avoidance of the expression in the target language if the participants have the habit of speaking the target language during the class. The learners can more easily access the meaning construction if several resources are used.

The fourth article "Teachers' and learners' participation opportunities in meaning construction for new words in the foreign language classroom" (in the thesis marked by [P4]) examines 110 communicative episodes selected from Estonian and French classes and finds that the participants – the teacher and the learners – can be active or passive meaning constructors for a new word. The article shows that teachers' and learners' active participation in meaning construction can emerge in two ways: 1) multimodally and 2) monomodally (by using one resource only). Interaction models are created based on the results. Three models of situations are distinguished according to the identity of the active meaning constructor(s): 1) teacher alone, 2) teacher and learner/learners together, 3) learner/learners alone.

The fifth article "Multimodaalne suhtlus keeleõppe ja -kasutuse teenistuses[6]" (in the thesis marked by [P5]) introduces some research methods for studying multimodal communication and some important terms in the field – e.g. *discourse*, *context*, *communication*, *mode*, *modality*. The article also presents the research topics of doctoral students who belong to the Research Group of Multimodal Communication (MUSU) at the University of Tartu. I write about my aim to contribute to more effective language learning by studying the teacher's and learners' choice of communication strategies and multimodal expression, especially gestural. My idea of studying how the meaning of new vocabulary items is constructed with the help of the teacher in the foreign language classroom is presented in this article.

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[6]   The title of the fifth article is translated as "Multimodal communication in language learning and language use services".

2. THEORETICAL BACKGROUND AND EMPIRICAL STUDIES

2.1. Theoretical foundations of multimodal communication

The term *multimodality* covers both an interdisciplinary approach and a phenomenon that appears in human communication. Scholars of multimodal communication (e.g. in linguistics, in semiotics, in psychology, in anthropology) agree on the idea that humans use more than one means to express themselves (e.g. words and grammar, gestures, graphics, dressing, smell, taste). Humans' means for expression are studied by applying several methods and relying on several theories. In linguistics one means of expression is in the center of attention – language – and in the 20th century this view led to monomodal analysis of a multimodal world. In gesture studies bodily action can be the most important means of expression to analyze and in some studies the focus is balanced between language and gestures. The social semiotic theory tries to collect different means of expression under the same theoretical roof, including all the possible means (e.g. images, music, layout of written text, architecture). Kress (2015: 54) says that "it marks out a domain for social-semiotic action and interaction, of research and of application". This thesis is strongly influenced by knowledge of social semiotic theory and it tries to take into account the best of the findings about oral communication studies by linguists and gesticians.

Although scholars agree on the idea that humans use several means to express themselves, the similar means have several names. The present chapter introduces some terms (e.g. *modality*, *resource*, *mode*) that the scholars of multimodal communication approach apply widely in their books and articles.

Some scholars, for instance Allwood (2013), Allwood, Ahlsén (2015), Lemon et al. (2001) Merola, Poggi (2004) and some authors of Proceedings of the 4th European and 7th Nordic Symposium on Multimodal Communication published in 2017 (e.g. Navarretta 2017, Ousterhout 2017, Poggi, Ansani 2017), and also including researchers in the field of multimodal communication in Estonia (e.g. Ingerpuu-Rümmel 2012, Jokinen et al. 2013, Kulakov, Tenjes 2017, Mihkels 2013, Rummo, Tenjes 2011, Tenjes et al. 2010) use the term *modality* to indicate a means of expression.

Allwood distinguishes two types of modalities – sensory and production modalities. The sensory modalities are sight, hearing, touch, smell and taste. The production modalities are communicative body movements/gestures/ writing, voice and speech, touch, smell, and taste (Allwood 2012: 22–23).

The division between perception and production modalities paves the ground for interaction with technological realizations – with computers and robots that are provided with artificial intelligence (e.g. Allwood et al. 2007, Jokinen 2015, Lemon et al. 2001). Although technology develops very quickly, the attempt to make machines "think" and act as humans accentuates humans' unique

flexibility in thinking and ability to move. This is one justification for humans being together in the classroom and learning in multimodal communication.

The present thesis concerns teachers' and learners' multimodal communication, studying their visual and vocal expressions. Two senses, sight and hearing, are used to perceive the material, because the study is based mostly on audiovisual recordings and also on questionnaires. Sensory modalities define the opportunities for perception of oneself. The possibility to see permits one to perceive different kinds of static and dynamic images created by the discourse partner, e.g. by the use of their own body, drawing, or digital tools. Hearing permits one to receive several sounds – produced by the partner's body (e.g. vocal cords, hands) or by the help of some tool (e.g. hammer, violin).

Humans take the use of "actions, materials and artifacts" (van Leeuwen 2004: 385) – created by nature or by humans themselves – as resources for making meaning (e.g. the colour *red* may indicate prohibition, a certain music, e.g. three specific notes played on the piano, may indicate sadness, a coughing sound may indicate intention for turn-taking in conversation). Researchers in social semiotics, e.g. Bezemer and Mavers (2011), Kress and van Leeuwen (2001), O'Halloran (2010: 217–218), and Lim Fei (2011) use the term *resource* or *semiotic resource*. Van Leeuwen (2004: 385) explains *semiotic resource*: "Semiotic resources have a meaning potential, based on their past uses, and a set of affordances based on their possible uses, and these will be actualized in concrete social contexts where their use is subject to some form of semiotic regime". The concrete social context can be created anywhere people meet – e.g. in the shop, at school, at home, while hiking in the forest. The place where people meet is not enough to create the social context; for instance, the social background of people, their number, the actual communication purpose, the time of the day and duration of the communicative situation are important as well. There is a variety of conditions that define the selection and use of semiotic resources. Kress (2010: 79) explains one more term used in social semiotics – *mode* – which "(…) is a socially shaped and culturally given semiotic resource for making meaning". A semiotic resource can be more or less "socially shaped or culturally given" – e.g. languages and road signs seem to be very much predefined, but the status of gestures and colors, for instance, is not clear. When some semiotic resource is more or less "socially shaped or culturally given", its signs may be collected in some kind of dictionaries, encyclopedias or other similar mediums.

The author of the current study has used different notions in the articles. The articles that were written first (Ingerpuu-Rümmel 2012, Tenjes et al. 2010) – [P1] and [P5] – are in Estonian and apply the word *modaalsus* 'modality'. The tradition of using the word *modality* comes from the Research Group of Multimodal Communication at the University of Tartu where the pioneer researchers of multimodal communication started in Estonia. Inspired by works of Kress, van Leeuwen (2001), Kress et al. (2001), and Kress (2010), Article [P2] uses the term *semiotic resource* and Articles [P3] and [P4] just use the shortened version *resource*. The use of *resource* leaves the door open for the possibility

that in the audiovisual material collected for the purpose of research there may be signs that do not belong to the socially and culturally shaped mode, but are totally novel and understood only by their meaning potential (given of course by the previous knowledge collected while living in the society and culture or in nature). In Chapter 4.1 of the present thesis I categorize and define the most important resources identified in the audiovisual material.

The boundaries between resources are set by humans and sometimes those boundaries are crossable – for instance, if a person puts his/her palm on somebody's shoulder, is it a sign belonging to the category of gesture or touch, which are called production modalities by Allwood (2012), or both, or something else? The three categories used in the present thesis allow the transcription of audiovisual material and interpretation of signs belonging to different categories as completing each other as well as overlapping (see Chapter 4.1).

Resources are used to make signs and humans create signs to mean something. Signs can be pre-existent, as for instance the words and grammar in languages or culturally conventional gestures are, and other signs can be created during communication, for instance by using the movement of one's own body or objects in the environment. The signs are combined and acquire a particular meaning for the perceiver only if they are interpreted (Kress 2010: 159–160). Both ready-made signs and new signs have meaning potential that comes from our earlier experiences of the world (e.g. human physiological capability to perceive and to act, cultural conventions). For instance, a person can try to express meaning by picking up a colorful leaf, by smiling and turning it in front of the partner's face. All these signs together may indicate that he/she thinks that the leaf is beautiful, happiness about the beautiful time of year, happiness of being together with the partner and certainly many other things. Humans make meaning to react to the world, to express their thoughts and feelings and to express their needs.

Kress (2015: 57) finds that for the purpose of creating meaning, humans construct a sign-complex or multimodal ensemble. Sign-makers design the meaning construction. Designing means that "(…) [p]eople make use of the resources that are available at a given moment in a specific communicational environment to realize their interests as sign makers" (Jewitt 2008: 252). Humans use several resources alternately and simultaneously to construct the semantic relationship between signs. This is what gives every produced sign the potential to participate in the meaning construction process. Meaning construction activity alone is not communication even if a person uses signs with intention to express something. There is no communication without interpretation (Kress 2010: 35).

Communication can take place if there are at least two people – in a simple case, one person has to make signs and the other interprets the signs. There are many signs and usually the interpreter notices only some of them and perceives them in his/her unique way. The perceiving and the noticing depend on various factors – e.g. they can be culturally shaped, influenced by the physical and mental status of the interpreter. Communication has been defined as taking

"different kinds of information – and interpret[ing] them as *signs*" (Kress 2010: 160). Kress presents an example of how the person crossing the road gives meaning to the car speed even if the driver of the machine does not express anything intentionally by the speed. Therefore, the speed of the car becomes communicative for the person crossing the road (Kress 2010: 159–160).

Communication is often a "co-operative action". When the sign-maker acts, he/she may think about what, how and to whom he/she wants to express something. The perceiver who notices signs and decides to interpret some of them, doing so on the basis of previous experiences and knowledge of the world. Some of this knowledge is learned in the human community. Humans teach each other to "creat[e] new competent members" (Goodwin 2013: 19). People can help each other to express themselves, e.g. the needs of the partner can be elicited by questions or pointing at the object if the partner does not know its name. People can collaborate when they try to create new knowledge or meaning for something by completing each other's thoughts and actions.

The choice of resources is usually influenced by knowledge about several conditions – time, space, participants' qualities (number, age, competencies), opportunities to use the senses in the interaction, the purposes of participants and so on. "Discourses are socially constructed knowledges of (some aspect of) reality. (…) Any discourse may be realized in different ways" say Kress and van Leeuwen (2001: 4–5). For instance, discourse on the topic of children's healthcare can be realized differently at home, in a classroom, in a research article, in the supermarket, or in conversation with a hearing-impaired person.

Therefore, effective communication means that partners are able to choose firstly what kind of resources to use and then which signs to make. The ability to translate is one possibility for succeeding with communication. Kress (2010: 10) finds that "translation" can happen in the same mode (e.g. written text from Estonian into English) and across modes (e.g. from gestures into words in transcription). Kress (2010: 10) declares that any kind of translation is "always achieved with enormously difficult selection; at a considerable level of generality; and inevitably with significant changes in meaning". Knowledge about how to use the resources and signs and how to replace one with another is helpful in language learning for both teachers and learners. However, natural communication also lies in something unintentional, spontaneous and individual, and those qualities of creating meaning will be human and not a property of technology.

In the classrooms, interaction can take place between the teacher and learners, but often there is more than one interaction taking place: the teacher can explain a new vocabulary item to all learners while handing a copied paper to one learner, a learner can demonstrate listening to the teacher while writing a letter to a neighbor, etc. Norris studied multiparty interactions by using multimodal discourse analysis and argues that verbal expression is not always the most used resource (Norris 2006). The questions of which resources are used and with which purpose help to better understand how learning takes place in the multimodal communication of a classroom.

2.2. Studies on multimodal communication in the classroom

Multimodality is studied in different communicative situations – in films, in online newspapers, in shops, on the street, during surgeries. Multimodality has been found in different texts created by humans – written texts, oral communication and in media (TV, Internet, film) where written and oral communication are integrated into each other. The present thesis is interested in multimodal communication of the participants – teachers and learners – in a language learning classroom.

A classroom is not an isolated place where communication happens between the same people by always using the same means of communication; people come together for the class and they bring with them different knowledge, experiences and objects from other environments. Researchers in social semiotics are aware of a multiplicity of aspects that can influence meaning construction in the classroom (e.g. Kress et al. 2001, Kress et al. 2005, Lim Fei 2011).

Kress et al. took interest in multimodal communication in science classrooms and collected material in four secondary schools by video recording of 19 lessons in England (2001: 30–31). Observation, focus groups of students and written texts were used in the lessons to supplement the audiovisual material. Kress et al. pay attention to different kinds of resources used by teachers and students, classifying resources as actional, visual and linguistic. Kress et al. (2001: 1) show with their study that "(…) [m]eaning is made in all modes separately, and at the same time, that meaning is an effect of all the modes acting jointly". This extensive study confirms that social semiotic theory suits with communication in a school classroom.

Another study on secondary school lessons in England examined English learning (Kress et al. 2005). The research included several methods – 3 teachers were observed during 7–8 weeks, 3–6 lessons with each teacher were video-recorded, teachers and students were interviewed. Kress et al. (2005: 1) are interested in understanding "[h]ow English is *made*" in the classroom – they analyze different modes used in the lessons and they pay attention to the macro-level influences on the lessons (e.g. government politics). Kress et al. find that English is not made only by language in speech and writing, but also by other modes that "constantly inform and infuse what English is" (Kress et al. 2005: 168).

English classroom communication was studied also in the thesis of Lim Fei (2011), who analyzed two English lessons of two teachers in a college in Singapore. His extensive study pays attention to the level of the Ministry of Education's policy and curriculum and different resources used by teachers in the classroom. He is developing the Systemic-Functional Multimodal Discourse Analysis approach methodology and theory. He shows by detailed and systemic analyses of the logogenesis of the lesson, use of gestures, language, space and movement how deeply meaning-making can be studied and how complex it is.

The studies using a multimodal approach do not just accentuate that multiple resources are used in the communication; some of them also show that people's verbal expression is not always the response to all the questions about human behavior. For instance, Sigrid Norris (2013) studied multimodal interaction in an art school. Her analysis is based on situations chosen from video material collected over a four-month period. She pays attention to the tacit practices (e.g. gestures, gaze, movements in the space) of students and finds that those are crucial when one person wants to be part of the group, which is in turn important in the decision of continuing art studies.

Another study on silent participation (e.g. gaze, body posture and orientation, gesture) was carried out by Bezemer (2008), whose research is about one student's multimodal communication in an English learning classroom at a secondary school in England. Bezemer (2008: 177) says that "(…) debates about communicative competence largely ignored multimodality", but successful participation in education is more than the ability to use the language properly, learning in the group is multimodal. Multimodal communication can be better understood when the researcher has knowledge about resources used in face-to-face interaction.

2.3. Studies on multimodal communication in Estonia

Multimodal communication has been studied in Estonia as well. The Research Group of Multimodal Communication at the University of Tartu was created in 2009 and some scholars started to look at communication multimodally in different fields. The author of the thesis, as a member of the group, co-authored the article Tenjes et al. 2010. This article discusses each member's research on the role of multimodal communication, communicative competences and communication strategies in language learning and language use and introduces some analysis methods.

There are studies on the communication with a speech impaired person – a subject with mosaic of Patau syndrome (e.g. Tenjes et al. 2009, Rummo, Tenjes 2011, Jokinen et al. 2013, Rummo 2014). Rummo (2015: 35) accentuated that meaning is created in communicative situations via interaction. As the studied subject was speech impaired, gestures and body movements were an especially important means of communication. Rummo claims that the "lack of capability to speak does not automatically mean the lack of linguistic abilities" (Rummo 2015: 37).

There are also studies on how the people living in the villages near Lake Peipsi in Estonia communicate (e.g. Kulakov, Nurgamaa 2010; Kulakov, Tenjes 2017). Kulakov and Tenjes (2017: 203) found that "the integral meaning during depiction of a referent is created from a complex multimodal structure".

The participants of the project MINT (Multimodal INTeraction) collected Estonian first encounter dialogues and created an audiovisual database (Jokinen, Tenjes 2012). Särg and Jokinen (2015) used the database and showed how with

the help of the software ELAN the nodding of subjects can be analyzed in detail. During the project MINT the scholars "created a technical solution that visually identifies human body movements on video files and tags them with descriptive and quantitive information" (Vels, Jokinen 2015: 98).

Mental model enhancement via multimodal communication methods has been studied in the military field by Tenjes (2017). Tenjes (2017: 227) claims that when the self-directing student perceives and uses multimodal communication methods it improves both his/her mental models and his/her ability to direct him/herself.

The Estonian language learning environment has been studied in the doctoral thesis of Mihkels (2013) who has been interested in teacher-initiated repair sequences in elementary school classroom interaction. Mihkels (2013: 236) has found that while teachers' non-verbal communication is sufficient to initiate repair (8 cases), they mostly used a combination of verbal and nonverbal modalities in repair sequences (126 cases).

A multimodal approach to audiovisual material on classroom communication has been applied by Uibu et al. (2016: 256) who found that "teachers who used verbal communication more diversely and in a more flexible manner were also more active in non-verbal communication", but at the same time, when the teacher's communication skills were at a high level, it did not guarantee higher study results of the pupils.

Tenjes (2014) has written an article describing multimodal communication as a phenomenon, branch of study and analytical approach in connection with the research subjects of pedagogy and human sensory motor/cognitive abilities. Tenjes claims (2014: 121) that effective learning and teaching cannot be achieved only by the use of language, as teaching and learning happens multi-modally.

2.4. Studies on gestural expression

In the second half of the 20th century, many researchers in the field of gestures started to publish articles and books on the possibilities of description, use, and classification of gestures and inclusion in interactional models (e.g. Birdwhistell 1970, Condon, Ogston 1966, 1967, De Ruiter 2000, Efron 1941/1972, Ekman, Friesen 1972, Kendon 1972, 1980, 1988, McNeill 1992). Several scholars showed in their studies how speech and gestures are related (Kendon 1980, McNeill 1985, 1992, McNeill, Duncan 2000). McNeill pointed out the importance of gestures alongside verbal expression in interaction – he claims that gestures are phonologically, semantically and pragmatically in synchrony with speech (1992).

Kendon (2004) discusses the categorization of gestures by presenting classifications by several authors. He finds that many authors agree that gestures can be pointing, depictive, enactive and "displaying aspects of a logical structure of a speaker's discourse" (Kendon 2004: 107). A gesture can indicate

the referential phenomenon directly by pointing towards it if it is visible or by partial depiction of the phenomenon. The depiction can take place iconically or metaphorically (if it presents an abstract idea). Some gestures can also be called symbolic or emblematic because they are culturally conventional and some of them cannot be recognized by the people of other cultures because they do not have similarities with any phenomena in the real world. Some gestures seem to accompany speech by indicating e.g. rhythm or velocity. Relying on previous studies, Kendon (2004: 80–82) suggests that gestures may have two functions: they may support speech and thought but they can also be used as communicative devices to provide information.

The use of gestures has been widely studied in the domain of language learning from kindergarten to university level. Several researchers have found that gestures are important in conversation regulation (e.g. Käntä 2005, Sahlström 2002, Shepherd 2010) as well as in certain learning activities (e.g. Allen 2000, Cadierno 2008, Gullberg 2008, McCafferty, Stam 2008).

Stam (2006: 146) finds that studies on gestures used in the classroom help to understand how learners develop during language learning because the use of spontaneous gestures reveals learners' thinking during speaking. Learners expressing themselves in foreign language use gestures differently from those who speak the same language as their mother tongue. Differences are shown not only in culturally conventional gestures, but also in the timing of the use of gestures related to verbal expression (McCafferty, Stam 2008). However, some scholars have found that if the learners use gestures while speaking a foreign language, they may acquire language faster than others who avoid gestures (Gullberg 1998, Mori, Hayashi 2006, Olsher 2004) which supports the idea that language should be learned multimodally.

Gullberg's (1998) semi-experimental research is about how people use gestures while retelling the story of a cartoon both in their native language and in a foreign language (Swedish or French). Gullberg (1998) provides an overview of the use of different types of gestures in storytelling in different languages and notes that gestures may help overcome difficulties with verbal expression.

Some studies focus on the teacher's gestures only and show that teachers use gestures to achieve specific pedagogical goals to direct the attention of learners to their errors (e.g. Allen 2000, Muramoto 1999, Smotrova, Lantolf 2013, Tabensky 2008, Taleghani-Nikazm 2008). Those studies lead to the question of how much the teacher can influence language learning by consciously using gestures.

Some experimental works (e.g. Kelly et al. 2009, Tellier 2008) have found that the use of gesture with a specific novel word may facilitate the memorizing of the word. Tellier (2009) studied how French children (average age 5.5) learned English words. The teacher used images and gestures while explaining new words. Tellier found that the use of gestures is more effective than the use of images because gesture is visual and motor at the same time. Macedonia et al. (2011) studied the brain activation of 33 adults in an experimental situation

of learning artificial words with iconic and meaningless gestures. Macedonia et al. (2011) claim that the gesture has to be semantically related to the word in order to help memorize the word better.

The present thesis is interested in how gestures are used while the meaning construction for new vocabulary items takes place. There are still few studies on how gestures are used in the spontaneous construction of the meaning for new words. Lazaraton (2004) used microanalysis and focused on situations in which explaining words was not planned. In her article (Lazaraton 2004), she analysed 18 communicative episodes where the English teacher was the explainer of the meaning of new vocabulary items. The microanalysis confirms that gestures are an important way of expressing oneself, alongside verbal expression. She presents a table that shows that in 14 situations out of 18, the teacher used non-verbal means (hand gestures in 12 instances and the whole body in two) (Lazaraton 2004: 94).

Taleghani-Nikazm (2008) studied German and Persian language classes at an American university. She focused on the gestures of the teacher, finding (Taleghani-Nikazm 2008: 231) that the use of gestures by the teacher "facilitat[ed] comprehension of unknown vocabulary, elicit[ed] vocabulary from the learners, provid[ed] learners with visual cues to corrective feedback". She also found (Taleghani-Nikazm 2008: 237) that the gestures helped the teacher to complement the verbal expression and to be more comprehensive for the learners.

Lazaraton (2004) and Taleghani-Nikazm (2008) focus on the communicative actions of the teacher in the situation of meaning construction for a Word. In those studies the learner is rather passive, does not add meaning to the Word and gets information from the teacher. The present thesis aims to study meaning construction for new words by paying equal attention to the teachers' and learners' multimodal communication.

2.5. Studies on interaction in the classroom

Social activity in the use and learning of language became an important idea in the second part of the 20th century (e.g. Barnes 1992, Cazden 1988, Hall 1993, Lerner 1995, McHoul 1978, Kasper 1985, Sinclair, Coulthard 1975). Studies of interaction in the foreign language classroom spread in different cultures and often English learning classrooms were studied (e.g. Consolo (2000) in Brazil, Yasigi, Seedhouse (2005) in the United Arab Emirates, Sullivan (2000) in Vietnam). Other languages were looked at as well – for instance, Hall (1998) studied Spanish learning classrooms in United States and Mondada (1995) studied French and German learning in Switzerland. Hall claims (2003: 170) that teachers and learners create a discourse in the classroom where they "develop particular understandings of what constitute language and language learning".

Audio-recordings (e.g. Yazigi, Seedhouse 2005) and video-recordings and conversation analysis (CA) are important methods for researchers in interaction studies. Video-recording has created the opportunity to hear and to see the same interactions of the participants many times. The conversation analysis transcription system, elaborated by Sacks et al. in 1974, permitted the detailed analysis of verbal expression and prosody of teachers and learners. Although the CA transcription system did not include gestures and movement in the room systemically, scholars started to integrate description, images and graphics of gestures into the transcriptions. Some initial works using CA in a pure sense and studies that prefer multimodal approach and use CA may have different results regarding interaction in classrooms.

The need to evaluate the effectiveness of foreign language instruction drove researchers to search for patterns and models in classroom communication. Sinclair and Coulthard (1975) proposed the three-part sequential IRE exchange model to describe the main interaction unit in a classroom. The letters IRE signify the three parts of the model: the teacher as the expert gives information (I), the learners respond (R) and the teacher evaluates the answer (E). Hall (1995) confirmed the use of the model in foreign language learning. Nassaji and Wells (2000) pointed out a problem with the use of the interaction unit described by the model, claiming that the teacher's evaluation discourages students from finding their own solutions. Other researchers (e.g. Consolo 2000, Hall 1998, Sullivan 2000) have suggested a slightly different model – IRF – where instead of the evaluation the teacher gives feedback (F) by confirming, expanding the idea, repeating etc. to encourage discussion in all levels of education from kindergarten to university. Studies that have identified the use of these models in the classroom have also found that in such situations the teacher led the communicative situations in the classroom.

Some scholars (e.g. Adger 2001, Dalton-Puffer 2007) find that interactional norms/rules divide the roles and rights in conversation. The rules also regulate the choice of the means for expression. Shepherd (2010) studied in his doctoral thesis interaction in eight third-grade mathematics and language arts lessons in United States. He claims that with the hand-raising gesture the learner can ask for a turn and the teacher and learners share control of the right and obligation of turn-taking.

The teacher's plans have a significant influence on the learners' communicative actions. Lerner (1995) suggests that the type of learning activity determines how autonomous the learners are in their interactions in the language learning classroom and claims that project-based activities are better for encouraging participation than goal-based activities.

Mondada and Doehler (2004) studied French language acquisition of 10–12 year-old children in the French-speaking part of Switzerland and high school students in the German-speaking part of Switzerland. Mondada and Doehler (2004: 515) found that "(…) a task can be collectively interpreted and even transformed, (…) the resolution of a problem necessarily involves various

embedded linguistic, interactional, institutional competencies, (…)" and so the understanding of the meaning of learning can be affected.

The multimodality and importance of bodily behavior has become a part of interaction studies. For instance, Lauzon and Berger (2015) video-recorded multiparty interactions in classrooms where French was studied as a foreign language in the German-speaking part of Switzerland. The authors were interested in how turns are allocated and sequences organized and studied the video material by using CA and multimodal discourse analysis. Their study shows that "(…) the nomination of students is the result of a collaborative process involving all the participants" and that gaze is crucial in displaying availability (Lauzon, Berger 2015: 27).

The use of language as social activity was also shaped in strategies and taught in the language learning classrooms. The second half of the 20th century brought new approaches in language learning and teaching – the communicative approach, which supported more active oral communication in foreign language between people in and outside the classroom, and multiliteracy which accentuated the role of multimodality and use of technical tools in communication between humans.

2.6. From the communicative approach to multiliteracy

In the second half of the 20th century and the beginning of the 21st century, the contacts between people increased explosively due to the development of technology and travelling opportunities. Hereby, the competence in oral communication came to the foreground in foreign language learning. The development of competence in reading and writing was not sufficient anymore. Hymes (1972) introduced the new term *communicative competence*, meaning the use of language in coherence with the discourse. Soon other scholars started to support the theory of communicative competence – e.g. Canale and Swain (1980), Canale (1983), Roberts (1986), Savignon (1983).

Models of communicative competence were elaborated by several scholars. The most widespread is the model of Canale and Swain (1980) who divided communicative competence into three subcompetencies. Canale (1983) divided it later into four subcompetencies: grammatical, sociolinguistic, discursive and strategic competence. Grammatical competence lies in knowledge about the language system (e.g. syntax, vocabulary, pronunciation). Sociolinguistic competence consists of the cultural and social appropriateness of form and meaning. Discursive competence is defined as the use of appropriate form and meaning respectively with the genre of the text. Strategic competence gives the person the opportunity to compensate the deficit in other competencies that would otherwise obstruct the expression.

The communicative approach displaced some earlier developed methods in language teaching such as grammar-translation and the audiolingual method. The supporters of communicative competence (e.g. Canale, Swain 1980,

Roberts 1986, Savignon 1983) found that people need communicational skills in different social and cultural discourses and that firstly, it is important to learn strategies for how to express one's own thoughts and emotions in the target language even if the language skill is still at a basic level. This idea led to the need to instruct the teachers to change the activities in language learning classrooms and the study materials. This is the reason why new methods were developed that allow teachers to teach learners the expressions that help, for instance, to ask questions about the meaning of the word, to ask to repeat, to express incomprehension (Savignon 2002: 3).

These methods support mostly verbal expression in the target language and do not take into account that the communication is multimodal. For instance, oral verbal expression is produced together with prosodic and other vocal expressions (and with gestures in face-to-face interaction), written verbal expression is related to handwriting or font. During the nineties, when the communicative approach spread all over the world, the new approach of multi-literacy emerged, developed by the New London Group. The scholars who belonged to this group found that communication takes place by other resources in addition to words and grammar. Therefore, the meaning of the multimodal text is made by several resources and this should be noticed and considered by learners as well.

Kalantzis and Cope (2008: 203) emphasize that in language learning, the learners should analyse the functions and meaning of text. They (Cope, Kalantzis 2015: 3) also present the important idea of the multiliteracy approach that the critical analysis of multimodal texts is needed in the world where technical tools – for instance, mobile phones, computers, and TV – are used in everyday communication. The possibility of critical literacy in foreign language learning is analysed by Breidbach et al. (2014: 98–99), who find that in using critical literacy the learners' language proficiency has to be taken into consideration. Breidbach (2011: 107) finds that foreign language learning should include two sides of learning: the traditional view of language with rules, systems and meanings, and as the critical reflection and negotiation about "content, aim, structure, and mode of learning".

The multiliteracy approach has started to be included into actual language learning. Rajendram (2015) gives an overview of studies on the application of multiliteracies in English language learning. In general, she finds that studies reveal that learners are more engaged in the learning because they learn and practice authentic communication and thus they also become more collaborative. Rajendram (2015) also assumes that there is still a lack of assessment and feedback tools in multiliteracy pedagogy, and the teachers and learners might lack learning materials, technical means, and knowledge of how to put multiliteracies in practice.

3. DATA AND METHODS

3.1. Data

The analysis is mainly based on video recordings of four foreign language classes (marked C1–C4 in tables of this thesis) that took place at an Estonian university from 2009 to 2011. The recordings form part of a sub-corpus of interactive communicative situations in the database of multimodal communication of the University of Tartu. Two Estonian and two French classes with a total of three teachers and 31 learners participating were filmed for this study. Participants were informed before the classes began that the recordings would be used to study their communication and that the results would be presented anonymously. All participants gave their consent in writing and filled questionnaires about their mother tongue, gender, age etc. Participants' names are replaced by pseudonyms and letters of the alphabet in the transcription.

The classes, lasting 90 minutes each, were recorded with two cameras. The structure and content of the classes were decided by the teacher without any input from the researcher. Neither did the researcher interfere with the activities of the class.

The Estonian classes had different teachers (marked T1 and T2 in this chapter). Both French classes had the same teacher (marked T3 in this chapter). All teachers were female native speakers of the language they taught in the videotaped classes. T1 was 51 and T2 was 49 years old. T3 was 32 years old.

The language taught in the class was a foreign language for all learners but their native languages were different. The learners' skill in the foreign language was sufficient to participate in classes where all communication including task management, written exercises and texts as well as conversation took place in the target language. In the classes, the number of learners was between 5 and 10. In general, the learners' age was between 18 and 29 years (only one learner was over 30). In every class, there were female and male learners, male learners were the minority in every class (see Table 1).

A total of 110+1 episodes of communication were chosen for analysis from the video material. The duration of the episodes varies from 5 seconds to 4 minutes and 35 seconds. One episode is about how the participants choose resources in the conditions where the expression is limited by the interactional norm. 110 episodes chosen (see Table 1) were those where the meaning was constructed for a word or expression (Word) that turned out to be partially or totally unknown to one or more learners in the classroom.

The meaning of a Word was constructed 48 times in Estonian classes and 62 times in French classes (see Table 1). The materials and activities in the classes had an influence on the number of communicative episodes where the meaning was constructed for Words. For example, T1's class contained lists of words to pronounce on the blackboard, T2's class contained a variety of tasks – reading texts, grammar exercises and one word list. T3's first class (C3) included lots of conversation and T3's second class (C4) included many word lists together with

reading texts. Although the word lists were clearly one source of unknown words, Words appeared and needed meaning construction in different kinds of activities.

Table 1. Statistical overview of analyzed classes.

Class	Target language	Teachers	N° of learners	Learners' native languages	Learners' age	Learners' gender	N° of chosen episodes
C1	Estonian	T1	5	Russian (4), Finnish (1)	18–20 (2), 21–25 (2), 30–35 (1)	female (4), male (1)	20
C2	Estonian	T2	10	Russian (8), Hungarian (1), Ukrainian (1)	18–20 (7), 21–25 (2), 26–29 (1)	female (7), male (3)	28
C3	French	T3	8	Estonian (7), Russian (1)	18–20 (2), 21–25 (5), 26–29 (1)	female (6), male (2)	12
C4	French	T3	8	Estonian (5), Russian (1), Italian (1), Turkish (1)	18–20 (2), 21–25 (6)	female (6), male (2)	50

This chapter presents four figures. In all the figures the same coding system is used:
  Ca1 – camera 1
  Ca2 – camera 2
  R – researcher
  T – teacher
  A–J – learners
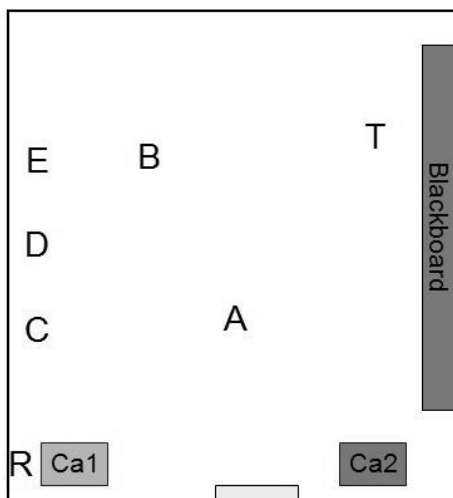
Figure 1. Class 1, Estonian, T1.
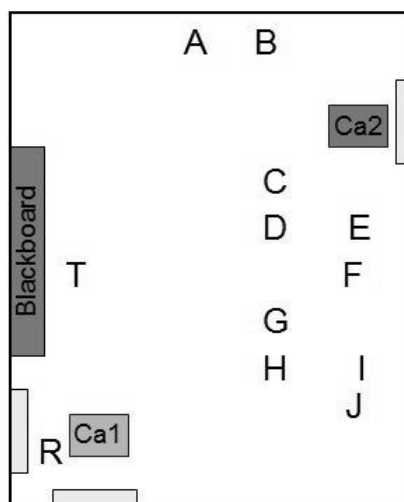
Figure 2. Class 2, Estonian, T2.
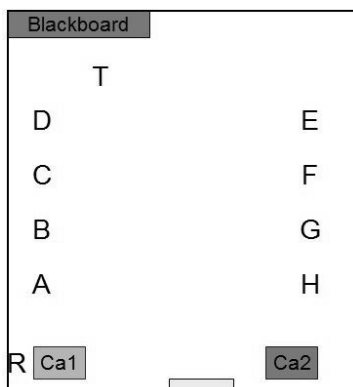
Figure 3. Class 3, French, T3. **Figure 4.** Class 4, French, T3.

3.2. Methods

A multimodal approach in combination with micro-ethnography was used in studying the meaning construction for Words in the foreign language learning classroom communication. The following methods were used to study the multimodal discourse between participants:

1) **Analysis of data presented in the questionnaires.** The questionnaires consisted of several questions about participants' – both teachers' and learners' – mother tongue and other language skills, education, age and gender. Only the data that was useful for the analysis of the audiovisual material was collected in the table (see Table 1).

2) **Repeated observation of the entire audiovisual material** for the purpose of selecting the communicative episodes to transcribe and collecting data about the multimodal environment in the room (e.g. position of participants, place-ment and use of objects in the room).
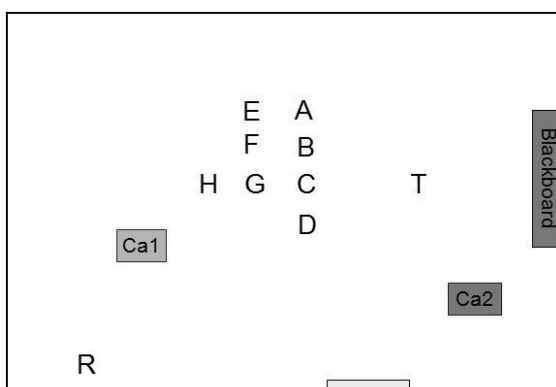
From the video material, all the episodes have been selected where a primary word, compound word or expression – a Word – appears to be unknown for some or all of the learners (judging from their verbal, vocal and gestural expressions) and meaning construction for a Word takes place. Episodes have been chosen that contain specific features: the episode starts when the Word is proposed for meaning construction by the learner or the teacher (e.g. a learner raises the question, the teacher says that she is now explaining the meaning), continues with multimodal communication where construction of the meaning for the Word takes place, and ends with the start of a new activity (e.g. a grammar exercise, a pronunciation of new words). The results of this study are presented in Articles [P2], [P3] and [P4] and in Chapters 4.1 and 4.2.

One extra episode was chosen for the research presented in Article [P1]. The article studies how the participants make a choice of what resources to use.

3) **Transcription of the communicative episodes.** The video material was transcribed using the method of conversation analysis and Jefferson's (2004)

transcription system. While some adaptations and modifications to the transcription system were necessary in order to present the episodes more clearly, it is otherwise very suitable for the purpose of this study since it has a sufficient number of signs for different aspects of vocal expression. In addition, descriptive expressions to represent gestures and their characteristics such as speed, reach, repetitiveness etc. can be used on a separate line between doubled parentheses.

The author of the thesis has modified or adapted Jefferson's (2004) transcription system by following the principle that prohibits the exclusion of any participant or any audibly or visually perceivable sign in the transcription. All potentially communicative actions (hereafter *actions*) that were audibly and visually perceivable, of all the participants, were transcribed. In the selected episodes the main actions were 1) verbal expression, 2) vocal expressions, 3) gestures and 4) use of space and objects. Verbal expression includes all words and grammar used orally and written on the blackboard. The transcription is presented like the flow of communication where all the potentially communicative actions of all the participants are presented in synchrony. The line numbers mark where the actions of participants continue. Every participant is marked by a letter of the alphabet and a colon, which is followed by the verbal and vocal expressions. The second line, referring to the same actor, presents in italics the translation of the verbal expression. The third line is in doubled parentheses and presents the use of gestures, space and objects. When there is no change in the participant's actions, they are described only on the line where they first appear. If the person's name is mentioned verbally by another participant, it is replaced by the pseudonym in the transcription.

4) **Microanalysis of the communicative episodes.** The meaning of every sign was defined considering surrounding signs, the meaning of every action was defined considering surrounding actions, the meaning of the situations was defined considering all knowledge collected from the questionnaires, from the repeated observation of the audiovisual material and from the earlier knowledge about the educational institution and curricula. The episodes were categorized and the tables were created for the purpose of answering the research questions.

For the purpose of research on how the meaning is constructed for Words, the actions of the participants are divided into two categories: actions that construct meaning for the Word (underlined in the transcription) and actions that serve other functions such as feedback, questions, self-adaptation etc. (not underlined).

3.3. The advantages and disadvantages of the methods

Technological development plays an important role in human-human interaction research. Audiovisual recording has become inevitable for the researchers who are interested in how people communicate by using verbal or vocal expression, by using of space and gestures. The audible or visual sign is recorded and it is

possible to perceive it over and over again. The present research uses audio-visual recording of multimodal communication in classes.

Micro-level multimodal discourse analysis helps to see the motivation for the meaning-making and hopefully can also find the reasons for one action or another. Sometimes, in the analysis "the door is left open" for several inter-pretations or expressed meanings. As a researcher in the field of multimodal approaches, I know that the filming person and the cameras that stand in the room are certainly factors that influence the participants in the classroom. I also know that there are other factors influencing the participants and that reactions will always be human – and the present thesis is interested in studying human communication.

The audiovisual recording is media, it displays only partially the signs pro-duced in the room. The use of two cameras was helpful when I, the researcher, had to re-watch or re-listen to some sequence. When watching the video recording, I could perceive the body movements and positions only from the angles at which the cameras were standing and I was aware that the verbal and vocal expression may sound different on the videotape. Sometimes, I had to give up – I could not perceive some sign – those situations (mainly audible) were rare and are marked by x-s in the transcription. It helped with transcription that I was also the person who filmed the classes – therefore, I had seen with my own eyes and heard with my own ears the multimodal activity in the classrooms. Some signs are not perceivable on the video-recording because they are perceivable by modalities other than audition and vision – smell, taste, and partially touch (e.g. I can never know if the handshaking is warm or not if I do not touch the hands of the shakers or they do not comment on it). The cameras could not film every person in every moment for several reasons. For instance, because one person started to look for something in the bag under the table. Studying the meaning construction for new vocabulary items was easier since the participants used for this purpose mainly resources that could be perceived by several participants in the classroom and they used those resources in a way that was at least audible and visible for the teacher (even if it had to be repeated sometimes).

The audiovisual material has been transcribed by the use of verbal expres-sion and sometimes with helpful photos of gestures. It is certainly the work of translation (Kress 2010: 10) and it is difficult to describe gestures most of all. Still, I find that it is possible to describe motion by verbal expression and with help of images if it is needed.

Although there are scholars working on creation of digital tools for multi-modal analysis of human communication, conversation analysis (CA) tran-scription is still used. It allows the researcher to translate all the used signs and to present the research results in articles and books that are widespread in the world of research. It also has another good quality: the translation with the help of CA allows one to create distance from the participants whose multimodal communication is studied, i.e. the created text is separated from the actual person who created it. The video recording itself is not published. Only the text created by participants is published. Still, their identity is hidden by pseudonyms and

coding. Sometimes, the participants' movements are presented by static images – photos – with the face or eyes hidden.

The studies on multimodal communication need the engagement of several people. I presented my material and results to supervisors and also at conferences – I had useful feedback from my colleagues originating from different cultures. The collaboration of scholars allows one to see the material from different sides and is also time saving. The combination of observation of the material and the analysis of transcription were sufficient to answer my research questions. I did not use special programs and software for the analysis of collected audiovisual material. The future of communication studies will certainly require modern digital research tools. Several institutes and laboratories working next to the universities in different countries all over the world have started to develop technological tools for the annotation and analysis of audiovisual recordings. For instance, the Max Planck Institute for Psycho-linguistics has created ELAN[7] in the Netherlands, and Michael Kipp has developed ANVIL[8] in Germany. In the National University of Singapore the long-term work on creating digital tools for multimodal analysis started in the Laboratory for Research in Semiotics[9]. Kay O'Halloran and Kevin Judd developed Systemics 1.0 software. Then the Multimodal Analysis Company was founded and work continued by creating *Multimodal Analysis Image* and *Multimodal Analysis Video* software applications.

Detailed annotation by using the software ELAN or ANVIL has been recently demonstrated by authors related to Estonia: Särg and Jokinen (2015), Saatmann and Jokinen (2015). I also tested and considered some annotation tools like ELAN and ANVIL and I found that the microscopic annotation cannot give answers to my research questions. I needed to transcribe and analyse all the signs of all the participants in an interwoven way – I modified the transcription system of Jefferson (2004) to reach that goal[10].

Kay O'Halloran admits that "digital analysis of course must always occur in tandem with more traditional ways of working, and will draw upon those for its materials and methods (…)" (O'Halloran et al. 2009: 25). My own working style was highly multimodal and executed in combination of human and technological abilities. I had the audiovisual material of two cameras, plus two computers, paper and pen, and headphones while transcribing. The "naked eye and ear" were accompanied by reproduction of some signs kinesthetically (e.g. gestures) and vocally (e.g. orally produced words) when analyzing the audio-visual material. The reproduction of signs helped me to better describe and interpret them.

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[7] https://tla.mpi.nl/tools/tla-tools/elan/
[8] http://michaelkipp.de/index_en.html
[9] http://www.fas.nus.edu.sg/rg/html/ell/koindex.html
[10] I created another transcription system for the purpose of analysing the multimodal communication in a TV show with the students in a special university course
(see http://samm.ut.ee/multimodaalse-diskursuse-analyys).

4. RESULTS

4.1. Teachers' and learners' use of resources
for meaning construction for Words

Meaning construction for new vocabulary items (Words) is a usual part of a foreign language class. The meaning is constructed in oral communication by the teacher alone, by the teacher and learners together or by learners alone (see [P4]). The people who are constructing meaning actively for Words are called *active meaning constructors*, or AMC. The results show that on the basis of use two types of resources can be distinguished: the resources that construct meaning for Words and resources that are used for other purposes (e.g. change of sitting position to feel more comfortable, gazing at the partner to indicate listening, giving feedback by affirmative verbal expression or vocalizations). The resources are used to create signs and signs are interwoven and produced as communicative actions. The meaning-constructing communicative actions are underlined in the transcriptions of the present chapter. The categorization of resources in this chapter is influenced by the definition presented by van Leeuwen (2004: 385): "Semiotic resources have a meaning potential, based on their past uses, and a set of affordances based on their possible uses, and these will be actualized in concrete social contexts where their use is subject to some form of semiotic regime".

The research goals in this chapter are:
1) to categorize the resources used for a purpose of constructing meaning for Words,
2) to determine the frequency of each category of resources,
3) to study the co-occurrence of resources.

The boundaries of each category of resource were set during the transcription where the decision had to be made on which line the sign should be described and what kind of transcription symbols should be used. Therefore, it was possible to define each category after the transcription was done. Finally, the created categories are (see also Table 2):

- VERBAL EXPRESSION indicates words and grammar expressed orally and in writing (e.g. words on blackboard);
- VOCAL EXPRESSION indicates changes in the pitch, articulation, speed, loudness, rhythm of the voice, changes in prosodic expression (quantity, accentuation, melody of speech), vocalizations (e.g. laughing, coughing), absence of voice (pauses, silence);
- GESTURE or GESTURAL EXPRESSION indicates gaze, face, head, limb and torso movements and static positions and orientation; some gestures involve the use of objects (e.g. a pen or a paper).

Table 2. Resources used as meaning constructors for Words.

Class	Target language	Teachers	Number of learners	Number of episodes in which the meaning of a Word was constructed	Number of episodes where gestures are meaning constructors (with verbal expression)	Number of episodes where vocal expressions are meaning constructors (with verbal and gestural expression)
C1	Estonian	T1	5	20	15	4
C2	Estonian	T2	10	28	17	1
C3	French	T3	8	12	6	2
C4	French	T3	8	50	27	7
4	–	3	31	110	65	14

The results show that verbal expression was used in every situation where the meaning construction for Words took place (in all 110 episodes). Verbal expression was used alone on 45 occasions. Verbal expression and gestures were used by learners and teachers in 65 episodes. In 14 episodes verbal expression and gestures were accompanied by vocal expressions to construct meaning for Words (see Table 2).

The present chapter demonstrates how teachers and learners use each category of resources to construct meaning for the Word (see Table 3). The examples were chosen based on: 1) how well they highlight the use of every single resource and 2) how clearly they demonstrate how the use of different resources is interwoven. Example A1 shows how verbal expression can be used alone to construct meaning for the Word. As the verbal expression has been meaning constructive in every case, the other three examples (A2–A4) show how this resource is used in combination with other resources. Multimodal meaning construction can take place in a situation where, for instance, one participant uses the verbal resource and the other uses the vocal resource (see Example A2). Example A2 also demonstrates that vocal expression can be an independent meaning constructive resource even if it is not very often used (it is used only in 14 of 110 communicative episodes). Multimodal meaning construction can be used by one person alone (see Examples A3 and A4). Example A3 shows the importance of gesture in meaning construction alongside verbal expression. Although the formation of the Word is explained by verbal expression, the iconic gesture includes the terminative case in itself. Example A4 demonstrates how the three resources – verbal, vocal and gestural – can be used by one person at the same time and in parallel, working towards creating a meaning for one Word.

Table 3. Examples of the episodes of the meaning construction for Words.

Example	Class	AMC	Resource	Word	Translation into English
A1	C4, French	teacher	verbal	*plaisanter*	to joke
A2	C1, Estonian	2 learners	verbal, vocal	*lonks*	gulp
A3	C2, Estonian	teacher	verbal, gestural	*rinnuni*	breast-deep
A4	C3, French	teacher	verbal, vocal, gestural	*vanter*	to praise

Example A1

This example originates from the French class C4 where the teacher uses only words to construct meaning for the Word *plaisanter* 'to joke'. The participants of the class do an exercise on the copied paper. Learners have to change the verbs into nouns. In this excerpt only the communicative actions of the teacher and learner E are presented. It is the turn of E to change the verb *plaisanter* into a noun. None of the other learners speak during the episode. They look at the paper in front of them, write, gaze at the teacher, smile and/or nod.

1. T: ensuite
      next
      ((looks at E))
2. E: eee plaisanter e plaisanterie
      eee to joke e joking
      ((looks at the paper on the table, raises gaze, smiles))
   T:
      ((gazes at the paper on the table, looks at E, nods))
3. T: oui (.) ↑vous connaissez aussi plaisanter↑
      yes (.) ↑do you know to joke also↑
      ((looks at the paper, then draws a horizontal line with the marker in her r
       handtowards learners))
4. T: ↑vous savez ce que c'est plaisanterie↑
      ↑you know what it is to joke↑
5. T: <u>c'est comme se moquer (.) un peu</u>
      it is like to laugh at (.) a bit
      ((l hand fingers touch lower lip))
   E:
      ((writes with her r hand))
6. T: <u>non</u> (.) kmk (…) <u>plaisant ou quoi jsais plus bah</u> (.)
      no   (.) kmk (…) jokes something like that i don't know pff (.)
                              ((scratches her head with her r hand))
7. T: <u>c'est rire ou quoi enfait</u>
      it means to laugh or something like that actually
      ((leans towards learners))

8. T: <u>ici d'un coup on plaisante on rit on blague on s'amuse</u>
        here suddenly they joke they laugh they joke they have fun
        ((nods quickly several times))   ((nods and lowers the
                                                               gaze))
    E:
        ((looks alternately at T and the paper, smiles))

The teacher invites learners to continue the exercise (line 1) and learner E immediately says the verb *plaisanter* and changes it into the noun *plaisanterie* (line 2). Then the teacher asks if the learners know the word *plaisanter* (line 3–4). She directs the question at everybody by drawing an imaginary line towards learners (line 3). Then she explains that the Word is similar to the verb *se moquer* 'to laugh at' and E already writes something (line 5). Then the teacher expresses hesitation regarding the proposed synonym (line 6) and finds other synonyms (lines 7–8) – *on rit on blague on s'amuse* 'they laugh they joke they have fun'.

    Three resources are used by the teacher in the communicative episode, but only the verbal expression constructs meaning by synonyms. Gestures and vocalizations are used for other purposes. For instance, the gestures and the vocalizations in this episode show that the teacher's intention is to explain the Word by verbal expression. Her fingers that touch the lower lip (line 5) or her head scratching (line 6) express thinking and difficulties in explaining. The vocalization *kmk* may indicate that the teacher has something in her throat that obstructs her voice or that she takes time for thinking (line 6). The vocalization *bah* expresses difficulties in finding a good explanation for the Word (line 6).

Example A2

This example presents an excerpt of a situation in the Estonian class C1 where a learner D intentionally uses vocalization to indicate the Word *lonks* 'gulp'. This situation is longer in initial transcription and during this situation verbal expression and gestures are also used to construct meaning for the Word. The teacher calls on the only young man – A – in the room (line 1). A sits in the front row alone. Learner D (her mother tongue is Russian) has an idea and wants to express it (line 4).

1. T: nüüd tüdrukud ee   teie seletate tüdrukutele mis on LONKS
        now girls ee   *you explain to the girls what is GULP*
        ((hits with the r hand towards B–E)) ((r palm indicates A and then B–E))
2. A: <u>lonks on see mida ma võtan näiteks pudelist võiii klaasist</u>
         gulp is that i take from a bottle ooor glass for example
3. T: ↑nõus↑
                            ↑*agreed*↑
        ((nods to A)) ((glances at B–E, r palm upwards indicates B–E))((quick nods))
4. D: <u>kõriga tekitatud hääl võib ka olla</u>
         it may also be a sound produced by the throat

5. T: ↑mi-millega↑
        ↑*by-by what*↑
        ((lower back against the window sill, leans forward and looks at D))
    A:
        ((turns his head to watch over the shoulder towards D))
6. D: <u>kõriga</u>
        by throat
7. T: ↑millega↑
        ↑*by what*↑
8. D: <u>(produces swallowing sound)</u>
         ((smiles))
    A:
                        ((smiles))
9. T: ah kõriga heh
        aa by throat eh
            ((stretches her back, glances at the ceiling, smiles while speaking))
    D: ↑ei ole või↑
                        ↑*isn't it*↑
        ((smiles))
    A:
        ((smiles, starts to write))

The teacher asks learner A to explain the Word *lonks* to the others and she uses the words *teie seletate tüdrukutele* 'you explain to the girls' by indicating that A is masculine and that the other learners are feminine (line 1). A says that a gulp can be taken from a bottle or from a glass (line 2). The teacher asks the other learners if they agree (line 3). D adds that the sound may also be produced by the throat (line 4). The teacher does not hear or understand D and asks to repeat the idea two times (lines 5–7). Then the teacher expresses confusion the second time (line 7), D demonstrates her idea by producing a swallowing sound (line 8). After that the teacher shows understanding by saying the word that D used before – *kõriga* 'by throat' and by using an affirmative *ah* 'aa', by smiling and making a laughing sound (line 9).

In this excerpt learners use two resources, verbal and vocal. A has a turn given by the teacher and uses the verbal resource to construct the meaning. Learner D has her own idea and proposes the swallowing sound as a synonym to the Word *lonks* 'gulp'. Other learners express listening by turning their heads and/or gaze towards the speaker and some of them also by nodding and smiling.

Example A3

The use of several gestures by the teacher and a learner is well shown in the example where they construct meaning for the Words *soo* 'swamp' and *raba* 'raised bog' in Article [P2]. In the same Estonian class (C2, in this chapter) the same teacher explains alone the Word *rinnuni* (breast-deep) and intentionally uses a gesture. The learners have finished reading a short story where the Word *rinnuni* is present.

1. T: nii siin on nüüd üks niisugune sõna on seal ep poiss oli sohu vajunud (.)
       so there is now such a word is there eb boy sunk into the swamp (.)
       ((goes to A and B and gives a paper to each))
2. T: mis see sõna on seal (.) kes tekstist leiab kiiresti
       what was the word there (.) who finds from the text quickly
3. T: (...) oli vajunud
       (...) had sunk
       ((gives D a paper))
4. A: sügavale
       deep
       ((holds a new paper with l hand and looks at the previous paper))
5. T: ↑sügavale↑ (.) aga seal oli
       ↑deep↑(.) but there was
6. A: rinnuni
       breast-deep
7. T: RINNUNI   (.) nii et see sõna on seal RINNUNI <u>see tuleb sõnast RIND</u> (.)
       breast-deep (.) so the word is there BREAST-DEEP it comes from the word
       BREAST (.)
       ((gives C a paper))
    A:
       ((looks at a new paper))
8. T: <u>e pluural RINNUNI</u>
       e plural BREAST-DEEP
9. T: <u>RINNUNI eks ole ta oli RINNUNI vajunud sohu</u>
       BREAST-DEEP well he was BREAST-DEEP sunk into the swamp
                       ((finishes handing papers, goes in front of the blackboard, <u>holds</u>
                       <u>a forearm horizontally in front of her chest</u>, see Photo 1))

Photo 1.

In the communicative episode, the teacher constructs meaning for the Word
rinnuni 'breast-deep'. The Word is in the terminative case inflected by *-ni*. The
root *rinnu-* comes from the word *rinnad* 'breasts' in plural. The singular of the
Word in the nominative case is *rind*.

   In the excerpt, the teacher moves in the classroom and hands papers to the
learners. At the same time, she asks the learners to find a Word in the text they
have just read (lines 1–3). A finds a word *sügavale* 'deep' (line 4). The teacher
expresses that there was another word in the same sentence they have to look
for (line 5). A finds the word *rinnuni* 'breast-deep' (line 6). The teacher agrees

that this was a word she was waiting for by repeating the word twice with a higher pitch (line 7). She also says in a laconic way that the word *rinnuni* originates from the word *rind* 'breast' in singular. Then she adds that the root of the word *rinnuni* comes from the plural of the word *rind* (line 8). Finally, she uses a gesture – holds a forearm horizontally in front of her chest (line 9). This gesture is an equivalent to the Word – it indicates the breast and the terminative case at the same time. As the breast-deep situation can be visually seen, the iconic gesture can function as a translation of Word.

The verbal expression is used to explain how the Word is formed. The singular and nominative form of the Word can explain the meaning of the Word in terminative case. The gesture explains the meaning of the Word somehow more directly than the verbal expression; one gestural sign presents the Word. The iconic gesture plays an important role by visually presenting the situation of being in the swamp breast-deep.

Example A4

This example demonstrates how the teacher uses vocal expression with verbal expression and gestures in French class C4 to construct meaning for the Word *vanter* 'to praise'. The transcription presents only the teacher's and the learner G's communicative actions. The other learners look at the paper or at the teacher, nod, smile and write.

1. T: ↑et le dernier↑
      ↑*and the last one*↑
      ((returns from the blackboard, sits in front of her table and looks at the paper on the table))
2. G: ↑vanter↑   (.) qu'est-ce que c'est
      ↑*to praise*↑   *(.) what's that*
      ((looks at the paper in front of her))((raises the eyes towards T))
   T: oui vanter
                                   yes to praise
                                      ((raises the eyes))
3. T: vanter jsais pas si je vous plais
      to praise i don't know if you like me
4. T: je suis la plus belle la plus intelligente (her voice is softer and a little nasal)
      i am the most pretty the most intelligent
      ((smiles looking at the learners and over the r shoulder, turns head to the sides, adjusts the shirt on the shoulder and waves her plait with her l hand, Photos 2–4))
5. T: rare (her voice is softer and a little nasal)
      rare
      ((the glance moves to the ceiling, waves the fingers of her l hand))
   G: aa
      aa
      ((lowers the eyes and starts to write with r hand))

6. T: °il y a plus rien°
   °so there is nothing else°
   ((the face becomes serious, the l hand's fingers touch the r cheek like sweeping
   the hair away))
7. T: ↑vous voyez↑ c'est un peu ↑vous comprenez↑
   ↑you see↑ it's a bit ↑you know↑
   ((looks at the learners, l hand's fingers wave))

Photo 2.   **Photo 3.**   **Photo 4.**

The teacher asks to pick the final word in the exercise (line 1). The learner G pronounces the word *vanter* 'to praise' and asks what it means (line 2). The teacher takes the responsibility of constructing meaning for the Word (lines 2–3). Then she acts a role play – she plays a person who praises and is proud of him/herself – she says *je suis la plus belle la plus intelligente rare* 'I am the most pretty and the most intelligent rare' (lines 4–5). She uses here a softer and more nasal voice than in the surrounding talk (lines 4–5). She also demonstrates pride by gestures – she smiles, turns her head to both sides, touches herself by adjusting the shirt on her shoulder and plays with her hair (line 4). G shows understanding by saying an affirmative *aa* and by starting to write (line 5). The teacher comes out of the role by becoming serious (line 6). Still, she expresses confusion if she had succeeded in constructing meaning for the Word (line 7). The reason for the confusion may be that some learners are not looking at her when she is acting, they are looking at their papers.

   In her role play, the teacher uses three resources together simultaneously to construct meaning for the Word. The change of voice shows that in that moment she is proud of herself and means that she is the prettiest and the most intelligent. The verbal expression indicates that she speaks about herself and what she likes about herself. The gestures indicate that she speaks about herself to the others and that she knows that the others are noticing her and that she is demonstrating herself physically to the others by showing clothes, hair, both sides of the face.

Conclusions and discussion

The present chapter (4.1) shows how the meaning construction for the Words takes place by the use of resources. The categorization of the resources relies on the definition of van Leeuwen (2004: 385) about the meaning potential of the resources. The teachers and the learners construct meaning for the Words intentionally. They utilise signs for that purpose in the foreign language class. The analysis of the meaning potential of every sign allows its transcription and categorization into the resources. Therefore, the participants themselves demonstrate the potentiality of the resources in the classroom.

The results show that the teachers and the learners, aiming to construct meaning for the Words, use three resources: verbal, vocal and gestural expression. The participants do not use signs that could be categorized for instance as colours, drawing, or music.

The resource that is always present in every situation is verbal expression. It can construct meaning for the Word alone and it can be used in collaboration with one or two other resources. Gestures were also often used in meaning construction for the Words (in 65 of 110 episodes). Vocal expression was rarely used, on only 14 occasions. All three categories are used by people originating from different cultures and by the teachers as well as the learners. In every class all three resources were used.

Example A1 demonstrates how the meaning is constructed for the Words with only the help of the verbal expression of the teacher. The signs of the other resources express thinking or self-adaptation and do not add anything directly to the meaning of the Word. Example A2 shows how vocal expression can exhibit itself by a sign which is produced by the throat of one learner separately from the words that she was using for the purpose of meaning construction for the Word. Example A3 demonstrates how the teacher uses, alongside the verbal expression, a gesture that can be produced as an autonomous sign that constructs meaning for the Word. In this example, the gestural sign becomes an equivalent to the Word. Example A4 presents a communicative episode where the teacher uses role-playing and all three resources together and in parallel to construct meaning for the Word.

The identification and categorization of the used resources helped to reveal their meaning potential for constructing meaning for Words. The research results confirm that at least three kinds of resources are used in classroom for meaning construction. Verbal expression is important in a situation where language learning is taking place, but the other resources are also helpful in meaning construction for the signs – Words – of the target language.

4.2. Teachers using gestural signs
to construct meaning for Words

The material consists of 110 communicative episodes where meaning is constructed for Words. The active meaning constructors (AMC) for Words can be both the teacher and the learners (see [P4]). In this chapter, the teachers' communicative actions are selected for analysis. They are the active meaning constructors for Words in most of the cases, on 105 occasions. In those situations, the teachers construct meaning alone or together with the learners. In total, learners are AMC on 54 occasions. There are three teachers in the focus of this study – two Estonians in one class each and one French teacher in two classes.

The present chapter focuses on the communicative episodes where the teachers construct meaning for Words with the help of gestures alongside verbal expression. The learners' and the teachers' use of gestures has been analyzed in Articles [P2], [P3], [P4] and only learner gestures are studied in Article [P1].

Meaning is constructed consciously and intentionally for new vocabulary items in the selected episodes because the teacher or a learner expresses the need for meaning construction (e.g. by a question) in the beginning of the episode. The teachers and the learners are convinced that the Words for which they are constructing meaning exist because there are several actions that allude to it: 1) the Word is immediately translated into other languages than the target language (see examples in [P3]), 2) more than one synonym is presented for the Word (see Example A1 in Chapter 4.1), 3) exclusion of some synonym (decision that one synonym suits and the other does not) presented by the other participant (see [P4], Example 4), 4) use of a dictionary to find the Word in it (see [P3]), 5) recognition of the written form of the Word and representation on the blackboard (see [P4], Example 4).

Therefore, the teachers use existing verbal signs that have conventional meanings and translations fixed in dictionaries. The teachers speak their mother tongue, so, they correct themselves when a mistake (of pronunciation, for instance) happens. The learners express more hesitation, searching, making mistakes and asking for help in finding words.

In both taught cultures, there also exist dictionaries of gestures (e.g. Calbris, Montredon 1986, about French gestures; Ingerpuu 2009, about Estonian and French gestures) containing a number of culturally conventional gestures. These dictionaries introduce gestures that have one or more meanings agreed by some culture or social group[11]. The use of such gestures by the teachers requires that the learners know these gestures, they are provided with the dictionaries, or the

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[11] The term *culturally conventional gestures* has similarities with the terms *emblems*, *emblematic gestures*, *symbolic gestures*, *autonomous gestures*, and *almost-linguistic gestures* (see overviews of definitions and classifications in Ingerpuu-Rümmel 2007, Kendon 2004). The term *culturally conventional gestures* is used in this study for the purpose of accentuating the cultural conventionality and because no other previously used term suits exactly to present the results.

gestures are explained in the classes. In addition, the teachers can use gestures that represent similar human experience of the world. This experience can be, for instance, kinesthetic, visual, auditory, or tactile. The second type of gestures can be potentially meaningful for learners. Still, the use of gestures seems less regulated than verbal expression (e.g. the mother tongue in oral and in written form is learned in the educational system for years in Estonia and in France) and more flexible in form (e.g. in speed of the movement, in extent). Therefore, the research goals in this chapter are:

1) to determine if the teacher uses culturally conventional gestures or creates gestures in the class,
2) to study how it is possible for the learner to understand what the teacher means by the gestures.

The results show that the teachers used gestures to construct meaning for Words in 63 communicative episodes. The French language teacher used the gestures in 31 communicative episodes of two classes and the Estonian language teachers used the gestures in 32 episodes (one teacher in 15 episodes in class C1 and the other teacher in 17 episodes in class C2).

In those episodes the teachers produced one or more gestures and some of those gestures were in the function of constructing meaning for Words (WMC gestures) and others were used for other purposes (e.g. for adjusting hair, for giving an affirmative answer to the learner). At least one gesture in an episode had to construct meaning for a Word to be chosen and to be included in the sample.

The results show that the meaning of the WMC (Word meaning constructing) gestures was usually not predefined by society or experienced through books (dictionaries, encyclopedias, travel guides) or the media (TV, journals, Internet). Only one teacher – the French teacher – used culturally conventional gestures in three different episodes during the same class. Example B1 shows the hesitation of the teacher in meaning construction for Words by performing a situation where the culturally conventional gestures are used. One reason for the hesitation may be that the teacher is conscious of the cultural differences in the use of gestures. Example B2 demonstrates how the teacher can point to physical and imaginary phenomena at the same time. All the other examples (Examples B3–B7) present the use of gestures for which the meaning can be guessed by their physical performance.

Consequently, most WMC gestures have iconic and/or deictic features. Those gestures present mostly the universal human experiences of the world in movement and image or directly indicate the object in the environment. Some Words present physical phenomena (perceivable e.g. visually, audibly, by touch, kinesthetically) and some Words present abstract phenomena (ideas, relationships). Words presenting abstract phenomena are also metaphorically explained by gestures having iconic features.

Table 4. Examples of the gestures constructing meaning for Words.

Example	Class	Word	Translation into English	Description of the WMC gesture	Photo of the WMC gesture	Origin of the meaning potential
B1	C4, French	*jurer*	to swear	1. Shows the palm towards learners 2. Touches the cover of the dictionary with the palm	Photo 5 Photo 6	Culturally conventional gesture
B2	C4, French	*bafouiller*	to stammer	3. Points to her lips with her index finger	Photo 7	Pointing to the object
B3	C2, Estonian	*tõstuk*	hoisting machine	4. Moves the hand up and down, palm towards the ceiling	Photo 8	Bodily movement
B4	C2, Estonian	*ladus*	fluent	5. Moves the palm in vertical position smoothly and horizontally away from the belly	Photo 9	Bodily movement
B5	C3, French	*remue-méninges*	brainstorming	6. Makes stirring motion 7. Draws circles with the hand and head 8. Draws circles with the hand	Photo 10 Photo 11 Photo 12	Bodily movement
B6	C1, Estonian	*mulks*	bubble	9. The palms are in the form of a curve and are facing each other, separating the fingertips	Photos 13–15	Visual change in the state of the phenomenon
B7	C1, Estonian	*obstruent, resonant, hiaatus*	obstruent, resonant, hiatus[12]	10. Raises the r hand over the l hand, palms directed downward, the hands make an opening and closing motion 11. Moves the r hand upward from r to l	Photo 16 Photo 17	Physical appearance and bodily movement

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[12] The notions *obstruent*, *resonant* and *hiatus* indicate sounds that differ in how the flow of air moves in the mouth when the sounds are formed. *Obstruent* – the flow of air from the lungs is obstructed to produce a single sound (consonants). *Resonant* – the sound is repetitive or echoing (nasals, semivowels, laterals). *Hiatus* indicates a break between adjacent vowels belonging to different syllables.

Example B1

This example presents a communicative episode from the French language class C4 where the teacher constructs meaning for the Word *jurer* 'to swear'. The Word originates from the list of words on the copied paper.

1. T: jurer (...)   ↑c'est swear↑ (.)
        swear (...)   *↑it is swear↑ (.)*
        ((r hand moves quickly like a hit from up to down, nods and smiles))
    B: (xxx)
                                                                ((raises the eyes))

2. T: non i swear   (...)
        no i swear   *(...)*
        ((raises the l hand in front of the belly))((shows l palm towards learners, Photo 5))
    B:
                                                ((nods and starts to write))

3. T: ↑c'est ça↑
        ↑isn't it↑
        ((lets l hand fingers drop downwards))

3. T: c'est aussi c'est jurer dire des des des merde tout ça
        it also means it means to swear to say those those those shit and something like that
        ((her index finger draws circles in front of her mouth))
    B:
        ((raises the eyes))

4. T: et c'est aussi c'est jurer   sur le bible ↑non↑ (.)
        and it means also to swear   on the bible doesn't ↑it↑ (.)
        ((l palm points towards the learners))((l palm touches the cover of the
                                                dictionary, Photo 6))
    B:
        ((starts to write))

5. T: ↑c'est les deux non↑ (.) ↑c'est les deux significations↑
        ↑both meanings don't they↑ (.) ↑both meanings are good↑
        ((raises her l hand index and middle finger))

Photo 5.   **Photo 6.**

The teacher says the next word in the list on the paper out loud and translates it immediately into English by using raised pitch that indicates a question of whether the learners understand the meaning (line 1). She also nods, hits with her hand and smiles (line 1); this may show that she thinks that the word is familiar to the learners. Learner B says something that is not audible on the video recording (line 1). The teacher does not agree, repeats the English translation and adds a gesture, turning a lifted palm towards the learners (line 2). This gesture is similar to the gesture used in some Western cultures when the heads of state give an oath of office. B nods already after the teacher has repeated the translation and starts to write (line 2). The teacher continues with the meaning construction. The other learners whose communicative actions are not present in this excerpt, but were transcribed initially, start to nod for the first time after the teacher has expressed that *jurer* also means saying dirty words (line 3). The teacher adds that *jurer* means to swear on the Bible by lifting her left palm towards the learners and by touching the cover of the dictionary (line 4). She expresses verbally and gesturally the same meaning that she already expressed in line 2. Finally, she says that the Word has two meanings by using higher pitch (line 5).

She uses translation, verbal expression in the target language and gestures to construct meaning for the Word. The teacher expresses hesitation during the entire communicative episode. She shows hesitation regarding whether the learners understand the translation by the higher pitch (line 1). She also expresses hesitation as to whether they know the lifted-palm-gesture by using words *c'est ça* (isn't it) with the higher pitch (line 3). And she also shows hesitation of whether they know the swearing by the lifted palm and the palm on the Bible because she uses simultaneously higher pitch and the word *non* 'no' (line 4). Those two gestures present only one meaning – giving an oath of office. The teacher's hesitation seems to indicate that she acknowledges that the gestures are culturally specific. The learners can understand the culturally conventional meaning of the gestures only if they have knowledge of some culture where the gestures are used in the same meaning (e.g. in Estonia it was used by Toomas Hendrik Ilves while he was giving the Oath of the President on the 9th of October 2006[13]). Without any context, for instance, the lifted-palm-gesture could by interpreted by the learners as another conventional gesture spread all over the world – greeting. The other meaning, saying dirty words, is expressed by verbal expression in the target language and the accompanying gesture – an index finger drawing circles in front of the mouth. This gesture shows how the inappropriate words "come out of the mouth and go back".

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[13] https://arhiiv.err.ee/vaata/riigikogu-ulekanded-vabariigi-presidendi-ametivanne-209157

Example B2

This example presents an excerpt of a longer communicative situation where meaning is constructed for the words *bafouiller* 'to stammer', *balbutier* 'to stutter' and *bégayer* 'to babble' (in French language class C4). These words originate from the word list on the copied paper. The excerpt presents only the communicative actions of the teacher who uses a pointing gesture while constructing the meaning for the Word *bafouiller*.

1. T: BAFOUILLER   (.) bafouiller c'est ça
        TO STAMMER   *(.) to stutter this is it*
        ((reads looking at the paper))((raises the gaze towards the learners))
2. T: b b b b b
        b b b b b
        ((raises the eyebrows and twitches her head to the sides))
3. T: quelqu'un qui va comme ça
        somebody who goes like that
        ((points at her lips with her l index finger, Photo 7))
4. T: vous connaissez les gens qui parlent comme ça
        you know the people who talk like that
        ((nods and points at her lips with her l index finger))

Photo 7.

First the teacher reads the word *bafouiller* on the paper (line 1). Then she repeats one phoneme – *b* – five times (line 2). After that she points at her lips with her left index finger while saying that some person may speak like this – *quelqu'un qui va comme ça* 'somebody who goes like that' (line 3). She repeats the same pointing gesture while expressing verbally that there are people who talk like she just acted (line 4). By the pointing gesture she indicates directly the lips that are pronouncing the sound, she also refers to the pronounced sound and to the imaginable person who may speak in a similar way. The pointing gesture points at the visual object in the room (to her own lips in this case), to the physically perceivable sign, i.e. the stuttering sound, and to the imaginable stuttering person somewhere outside the room.

All three resources are used by the teacher in this excerpt – verbal, vocal and gestural expression. The gesture – the left hand index finger pointing at the lips – can be understood with the help of the surrounding verbal and vocal signs. This communicative situation continues and lasts some minutes because the learners show confusion between three Words: *bafouiller* 'to stammer'*, balbutier* 'to stutter' and *bégayer* 'to babble'. The meaning construction for the Words takes place with the help of the three resources and the translations found in the French-Estonian dictionary.

Example B3

Example B3 presents an episode of Estonian class C2. The participants are doing a grammar exercise in the workbook. The learners have to put the words in the right case. The teacher constructs meaning for the Word *tõstuk* 'hoisting machine' that originates from the exercise.

1. T: ↑ja tõstuk↑   (.) tõstuki   (.) partitiiv on
        ↑*and hoisting machine*↑   *(.) hoisting machine (in genitive) (.) partitive is*
        ((holds the workbook with both hands and looks towards C))
2. C: ˚tõstukit˚
        ˚*hoisting machine (in partitive)*˚
                ((glances quickly at T))
3. T: tõstuKIT
        hoisting machine (accentuated case ending of partitive)
        ((nods looking at C))
    C:
        ((starts to write))
4. T: ja tõstuk on siis niisugune noh selline masinakene
        and then a hoisting machine is such little machine
        ((moves the l hand up and down, palm towards the ceiling, Photo 8))
5. T: millega siis saab midagi tõsta eksole (.)
        with what then we can lift something okay (.)
        ((moves the l hand up and down, palm towards the ceiling))

Photo 8.

The teacher says the nominative and genitive case of the word *tõstuk* ʻhoisting machine' and asks how the same word is in the partitive looking at C (line 1). C says the word in the partitive (line 2) and the teacher affirms that the form is correct by repeating the word and by nodding to C (line 3). Then the teacher constructs meaning for the Word by saying that it is a little machine used for the purpose of lifting (lines 4–5). She also uses an iconic gesture demonstrating the lifting act by the movement of her palm up and down (lines 4–5). The Word is derived from and explained with the verb *tõstma* ʻto lift'. When the verb is not familiar to some learner, the gestural equivalent of the verb may construct meaning for both the verb and the noun with the help of the word *masinakene* ʻlittle machine' whose root has similar translations in several languages and originates from Latin (machina) and Ancient Greek (mēchanḗ)[14].

   In this communicative episode verbal expression and gestures construct meaning for the Word. The hand gesture iconically shows the lifting of something and should be recognisable for the learners because they certainly have lifted something in their lives (for instance, a schoolbag).

Example B4

Example B4 presents a situation from the Estonian language class C2 where an iconic gesture partially constructs the meaning for an abstract Word – *ladus* ʻfluent'. The Word originates from a written grammar exercise. Example B4 presents an excerpt of the longer communicive situation.

1. T: ↑aga mis on mis on ladus↑
       ↑*but what means what means fluent*↑
       ((stands in front of the blackboard, holds the workbook with both hands and
        gazes at different learners))
   A: edukalt
       successfully
2. B: no üks asi teise järel
       just one thing after another
   T:
       ((glances at B))
3. D: see mis hästi käib läheb
       something that turns out goes well
4. T: näiteks kellelgi võib olla ladus jutt (.) eks ole
       for example somebody may have fluent speech (.) isn't it
       ((looks at A and B))
   A: et see on nagu omavahel seotud jooksev
                         it is like conneted flowing
                         ((his r hand makes a little vertical circle in front of the belly))

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14   http://www.eki.ee/dict/ety/index.cgi?Q=masin&F=M&C06=et

5. T: <u>just nagu voolab kogu aeg</u> eks ole
        it is like continuously flowing isn't it
        ((<u>her l palm makes a horizontal movement away from her body, her palm is in
        vertical position</u>, Photo 9))

Photo 9.

Learner J has chosen the right word in the exercise. The teacher asks how the
learners understand the Word *ladus* 'fluent' (line 1). The learners A, B and D
propose different explanations (lines 1–4). The teacher has an idea and says that
näiteks kellelgi võib olla ladus jutt 'for example somebody may have fluent
speech' (line 4) then D has finished his verbal expression. A starts to introduce
his idea already then the teacher is still speaking (line 4). The teacher continues
and says – *just nagu voolab kogu aeg eks ole* 'it is like continuously flowing
isn't it' and accompanies her verbal expression by a gesture that indicates
smooth continuous movement (line 5). The hand movement presents the non-
stop movement of speech with no obstructions. The meaning of the abstract
Word is constructed metaphorically by the gesture.

Example B5

Example B5 presents an excerpt of a communicative situation from the French
language class C3 where the teacher constructs meaning for the Word *remue-
méninges* 'brainstorming'. It is a compound word and the teacher tries to
construct meaning first for the second part of the Word – *méninge* – with the
help of the medical meaning in the French-French dictionary. The learners
express confusion. Example B5 begins when the teacher abandons the idea to
introduce the medical meaning of the word *méninge*. Only learner D is
presented in the transcription of Example B5. The teacher asks D (who has been
fingling her mobile phone during the entire communicative episode) a question
at the end of the excerpt (line 9) and D answers (line 10). The same com-
municative episode is partially presented in Articles [P2] and [P3].

1. T: <u>méninge juste méninge</u> (.) ee <u>une méninge on dit familièrement ooon</u> (.)
        meninx just meninx (.) ee a meninx we say commonly weee (.)
        ((looks at the book, shows lines in the book))

2.   T: <u>ça veut dire le cerveau l'esprit ou quoi</u>
         it means the brain the mind something like that
         ((turns the content of the book towards learners and looks towards E, F, points
         at the book, then waves the l hand around))
[…]
5.   T: <u>remuer remue on a déja vu ça</u>
         to move move we have already seen it
               ((looks towards E, F, G, H; points with the r index finger towards the
               blackboard))
6.   T: remuer (..)   j'sais pas je vous parle <u>quand vous avez</u>
                                          <u>une tasse de café</u>
         to move (..)   *i don't know i tell you if you have a cup of*
                                          coffee
               ((<u>the r hand stirs</u>, Photo 10))((waves the r hand around))
7.   T: <u>vous mettez du sucre</u>   et vous (..)   <u>on dit touiller avec une petite</u>
                                                           <u>cuiller remuer aussi</u>
         you put sugar   *and you (..)*   *we can say to stir with a little*
                                                           spoon to move also
         ((<u>the r hand puts in</u>))   ((<u>the r hand stirs</u>, then turns the gaze
                                          towards A, B, C, D))
8.   T: <u>comme ça</u> (.) <u>on remue plein d'idées</u>
         like that (.)   we move many ideas
         ((<u>shakes the head and adds the l hand to draw circles next to the cheek</u>, Photo 11))
9.   T: <u>donc on a remué plein d'idées cette année</u>
         so you moved many ideas this year
         ((preens hair with the l hand, turns gaze towards D, <u>adds the l hand to draw</u>
         <u>circles towards D</u>, Photo 12))
10. T:
         ((looks at D))
     D: non l'année dernière
         ((lifts the gaze and looks at T))

Photo 10.   **Photo 11.**   **Photo 12.**

The teacher says that *méninge* means in spoken language the brain or the mind –
le cerveau l'esprit (lines 1–2). Then the teacher starts to construct meaning for
the first part of the Word – *remue* (line 5). She alludes that she has discussed
this word already with the learners (line 5). After that, the teacher describes the
context where the word *remuer* can be used – sugar can be stirred in a cup of
coffee (lines 6–7). She also names a French synonym *touiller* for the word

remuer. The teacher demonstrates lifting and placing the sugar in the cup and stirring (lines 6–7). The iconic motion of stirring is also the equivalent to the word *remuer*. Then the teacher constructs meaning for the Word *remue-méninges* by repeating the words and by constructing a new gesture – head shaking (interpreted here as an effort to make circles) and drawing circles with her hand next to her cheek (line 8). That is how the gesture becomes almost an equivalent to the Word. After that she continues the interrupted conversation with learners and changes the gesture for the purpose of expressing a similar idea to learner D (line 9). She draws circles towards D and says *donc on a remué plein d'idées cette année* 'so you moved many ideas this year'. From the whole conversation it can be interpreted that the word *on* indicates Estonians (line 9). D – as a representative of Estonians in this situation – answers immediately that it was not that year but the year before (line 10).

In this excerpt, circles can be made by different body parts, the hand and the head. The circles can be drawn both horizontally and vertically. These circles represent the concrete and the abstract idea of moving – moving liquid and moving ideas. These body movements of drawing circles follow each other quickly and so they represent how the gesture is born, develops in meaning and in physical realization and how the gesture is inserted into interaction (the gesture is no longer just a metalevel constructor of meaning, it is used in actual conversation). Therefore, in this example the double meaning construction takes place in an explicit way – verbal expression and gestures construct meaning for the Word, but at the same time the used signs acquire meaning, especially the gestures.

Example B6

Example B6 presents an excerpt of a longer meaning construction situation in Estonian language learning class C1. The communicative episode starts with the only male learner's question about the meaning of the Word *mulks* 'bubble'. The teacher asks the female learners to explain what the Word means. The Word originates from the list of words for pronunciation on the blackboard.

1. C: <u>näiteks mingi pada</u> (.)
        for example some kind of pot (.)
                        ((her arms leaning on the table, <u>her palms separate starting from the fingertips</u>))
2. C: <u>noh selline nagu</u> (.)
        well some kind of (.)
                        ((<u>her crooked fingers moving up and down</u>, glances towards C))
    T:
        ((starts to put the papers and the pen in her r hand on the table, but interrupts the action))
3. C: <u>no (xxx) võib olla</u>
        well (xxx) may be

4. C:
    ((glances at C))
  D: <u>keev supp</u>
    boiling soup
          ((turns r palm upwards))
  T:
    ((puts the papers and pen on the table, puts her fingers together in front of her
    belly))
[…]
16. T: <u>siis tõesti kui keeb</u>
    then yes when boiling
    ((points with her r hand index finger towards B and C))
17. T: <u>(.) aitäh</u>
    (.) thanks
    ((turns towards the blackboard))
18. T: <u>mullid keevad üle</u>
    the bubbles boil over
    ((turns towards the learners, <u>her palms are in the form of a curve and are facing
    each other, the fingertips separate 9x</u>, Photos 13–15))
19. T: <u>pada keeb seal on siis need mullid lähevad lõhki pealt</u>
    the pot is boiling there are those bubbles bursting on the upper side
20. T: <u>on selline mulksuv heli</u>
    it is this bubbling sound
21. T: <u>jah üldiselt veega või</u> (.)   <u>vedelikuga</u> (.)
    yes generally with water or (.) with liquid (.)
                ((turns her palm up and down))

Photo 13.   **Photo 14.**   **Photo 15.**

C starts the meaning construction by indicating that the phenomenon *mulks*
happens related to some kind of pot (line 1). She also uses gestures without
explanation of their meaning: 1) her palms separate starting from the fingertips
like showing the bursting of some round object (line 1), 2) she also moves her
crooked fingers up and down to demonstrate the movement of some small
round objects (line 2). Then she says something that is not recognisable on the
video-recording (line 3) and glances at her neighbor sitting beside her – D
(line 4). D completes C's expression by saying *keev supp* ʻboiling soupʼ (line 4).
At the same time, the teacher frees her hands from the papers and pen (line 4)
which may mean that she prepared herself for multimodal meaning construction

with the help of the gestural resource. Next is an excerpt that is not presented in this chapter (lines 5–15) where the learners and the teacher construct meaning for the Word multimodally by signs other than those used in lines 1–4 and by adding other meanings (e.g. pouring from a bottle). The teacher returns to the first meaning proposed by C and D (lines 1–4) by affirming that boiling also produces *mulks* (line 16). She shows that she had listened to C and D by pointing at them and thanking them (lines 16–17). She says that *mullid keevad üle* 'the bubbles boil over' and demonstrates the gesture by separating her palms starting from the fingertips (line 18). This gesture is similar to C's gesture on line 1. She repeats the same movement nine times. She explains the hand movement by saying that the bubbles burst on the top (line 19). Then she adds that the bursting produces the bubbling sound (line 20) and that it happens usually with water or liquid (line 21).

In this excerpt, the teacher respects and agrees with the meaning constructed by learner C. Still, the teacher may think that C's and D's meaning construction was not explicit enough to be understood by other learners. She explains C's gestures verbally by saying that the boiling produces the bubbles and that the bubbles burst and that it all happens with the liquid and in the pot (she even uses the same word as C – an old word *pada* that the Estonians do not use in everyday language anymore). The gestures help C to construct meaning visually for the Word. The teacher uses the same gesture and constructs meaning for the gesture by verbal expression. A small explicit meaning construction, for the gesture, happens within the larger meaning construction for the Word.

Example B7

The example originates from the Estonian language class C1. The teacher constructs meaning for three Words in the same episode. These abstract Words are *obstruendid* 'obstruents', *resonandid* 'resonants' and *hiaatused* 'hiatuses'.

1. T: meil olid hästi koledad sõnad nagu obstruent ja (.) ja resonant-id
   we had really terrible words like obstruent and (.) and resonant-s
   ((holds glasses in the r hand and a paper in the l hand, looks at the learners))
2. T: ja
   and
   ((a little nod towards the learners in the 2nd or the 3rd row))
3. T: et et mis   SELLE MÕTE OLI
   and and what   WAS THE IDEA OF IT
   ((raises the l hand, shows the palm to A, spreads out the fingers))
4. T: <u>kui meil on kogu aeg marker</u>
   if we always have the marker
   ((puts the glasses and the paper on the table))

5. T: <u>et on kahte pidi eks mis liigub mille POOLE</u> (.)
   that there are there are two sides ok which moves TOWARDS WHAT (.)
   ((holds a chalk between the fingers of the r hand, <u>the r hand rises over the l</u>
   <u>hand, palms directed downward, the hands make an opening and closing</u>
   <u>movement</u>, Photo 16))
6. T: <u>ja see on meil siin PAIGAS siis et kas velum palatinum</u> (.)
   and we have it here SET then so if velum palatinum (.)
   ((<u>jerks the r hand forwards and backwards over the l hand</u>))
7. T: <u>ja keel liigub</u> (.)
   and the tongue moves (.)
   ((<u>the l hand moves up and down</u>))
[…]
10. T: <u>mõte oli et õhuvool tuleb</u> (..) <u>läbi</u> (.)
    the idea was that the flow of air comes (..) through (.)
    ((<u>the r hand moves upward from r to l</u>, Photo 17))
11. T: <u>SEE SIIN KÕIK ON</u>
    ALL THIS IS HERE
    ((<u>hands make an opening and a closing movement</u>))
12. T: <u>aga kui mina olen õhuvool siis ma tulen siit läbi</u>
    but if i am the flow of air then i come through here
    ((<u>the r hand moves upward from r to l, up to the l hand</u>))
13. T: <u>ja kust ma siis saan läbi kust ma ei saa</u>
    and where i can go through and where i can't
    ((<u>the hands make an opening and closing movement</u>))
14. T: <u>selle järgi ongi need obstruendid</u>
    according to this these are obstruents
    ((puts the chalk into the r hand, <u>the l hand makes a pushing movement</u>))

Photo 16.   **Photo 17.**

The teacher constructs meaning for three Words – *obstruendid*, *resonandid* and *hiaatused*. The teacher alludes that they have already spoken about those Words in some previous class (line 1). Then she starts the meaning construction by saying that the idea was about movement and demonstrated how two hands move in relation to each other (line 5). Then she gives names to her gestures – the right hand depicts the form of the *velum palatinum* and the left hand depicts the form of the tongue – and moves the hand about which she is speaking (line 6–7). The teacher mentions in the omitted lines (8–9) that her meaning construction also includes the Word *hiaatused*. Then the teacher explains that

the three sounds are produced by the movement of the flow of air through the mouth (lines 11–14). She names the right hand movement as flow of air and shows how the right hand moves up to the left hand (line 12). And then she repeats with both hands the same movement that she has already used twice (lines 5 and 11) to indicate the obstructions on the way of the flow of air (line 13). Her movements are accompanied by the words that also explain that there can be obstructions on the way of the flow of air (line 13). Finally, she concludes by repeating that she constructed meaning for the Word *obstruendid*.

In this communicative episode, the teacher constructs meaning with the help of verbal expression and gestures. The gestures demonstrate the physical appearence of the parts of the mouth where the production of the sounds – *obstruents, resonants, hiatuses* – takes place. The gestures also demonstrate two kinds of movement – the movement of the tongue and the *velum palatinum* in relation to each other and the movement of the flow of air. The teacher creates a model of anatomical sound production with her own hands. Still, the gestures need names to be understood, which is why the explicit meaning construction for the gestures takes place inside the larger meaning construction for the Words.

Conclusions and discussion

The present chapter (4.2) studies how teachers use gestural signs to construct meaning for new vocabulary items. Two Estonian language teachers (one filmed class each) and one French teacher (two filmed classes) participated in this study. The teachers are active meaning constructors for the Words on 105 occasions of 110 communicative episodes. They use gestures in 63 episodes.

In general, the teachers do not use culturally conventional gestures. Only one teacher uses this kind of gestures in three episodes in one class. The example B1 shows her hesitation in constructing meaning for the Words during one of these three episodes. This hesitation includes the hesitation about using the culturally conventional gestures.

In all the other episodes – on 60 occasions – the gestures used had iconic and/or deictic features. They presented the universal human experience of the world or pointed directly to the object in the environment. The current chapter presents five examples (examples B3–B7) of how some physical feature, a movement or appearance, can be presented by a gesture. Example B2 shows how a gesture can point to a visual object (to one's own lips in this case), to perceivable sound and to an imaginary person with pronounciation problems at the same time. Examples B3 and B6 are about the phenomena for which the movements can be visually perceived. Examples B4, B5 and B7 present how the meaning of the abstract Words is constructed by gestures with iconic features.

The meaning potential of WMC gestures emerges mostly in iconicity or deicticality. Still, their meaning needs to be made more specific. The teachers

use a more or less explicit way of constructing meaning for gestures – from a verbalized definition to meaning construction by other gestural, verbal or vocal signs in context.

Kress and van Leeuwen (2001: 10) find that humans ""import" signs from other [cultural, social] contexts" and use them in the new context. Gestures that have specific meaning in some society or culture are not used in the studied classes. Only the French teacher uses cultural gestures on three occasions. The gestures that the teachers use are born mainly from experience of the world. This experience can be visual, auditory, tactile, or kinesthetic, and tends to be universal for most humans. That is the reason why gestures such as these fit better with the idea of "experiential meaning potential" of the signifier in Kress and van Leeuwen (2001: 10).

The research question of how gestures are used in meaning construction for Words can be partially answered as follows: gestures acquire physical form and meaning in the meaning construction process, while the larger meaning construction – meaning construction for Words – consists of multiple small meaning constructions for particular signs.

4.3. Findings as presented in the articles of the doctoral thesis

The results of the present study are based on four video-recorded classes at a university. In two classes Estonian and in two other French was learned as a foreign language. Two Estonian and one French teacher and 31 learners participated in the study. Article [P1] presents research on how knowledge can be displayed in a situation where limits are set to expression. Articles [P2], [P3] and [P4] and Chapters 1 and 2 analyze meaning construction situations for new vocabulary items, i.e. Words, from different angles. Article [P5] is written collaboratively and my contribution to it presents the initial reason for beginning the doctoral thesis and for the use of the multimodal approach in my study. The research questions 1–6 are answered by summarizing the results of Articles [P1], [P2], [P3], and [P4] in this chapter.

Displaying knowledge in the multimodal communication of a foreign language learning classroom [P1][15]

Interaction between the learners and the teacher in a foreign language learning classroom takes place in set conditions – for instance, the class has an exact time for beginning and ending, some general goals to reach, and some rules or norms that regulate the interaction. In these conditions, the participants – the

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[15] The original title of the article is "Teadmise esiletulemine võõrkeeletunni multi-modaalses suhtluses".

teacher and the learners – communicate multimodally: they use several resources in expressing their feelings and thoughts. A case study of a communicative episode in an Estonian learning classroom [P1] presents an example of a situation where the interactional norm is set in an explicit way – by the teacher's verbal expression – and how the learners (one learner in particular) use the resources (here, the word *resource* is used instead of the word *modaalsus* 'modality' of Article [P1]) to display knowledge during the episode.

The teacher asks one learner H, by naming her, to complete the sentence in the exercise in the workbook. The learner who was addressed is looking for a suitable answer with the help of the teacher and the learner who is sitting next to her. Meanwhile, learner A shows by different signs that she wants to display the answer. She whispers the potentially appropriate word and she raises her hand in three modes expressing the wish to answer and the consciousness about the set rule. Learner A also expresses tensions caused by inhibition: she waves her fingers quickly and then bends the fingers of the raised hand, and finally hides her mouth behind the scarf around her neck. The wish to display knowledge and the tensions caused by the interactional norm are expressed mainly by gestures. Verbal expression is allowed only for one learner, and therefore the other learners have to keep quiet. The use of prosodic expression, i.e. whispering in saying the correct answer, shows that she is aware of the set rule. Two learners, A and D, loudly express the potentially suitable words for the sentence when the teacher has given permission to speak to all learners.

H, who is supposed to answer, is sitting in the front row and A sits in the second row, in front of the teacher. Therefore, they are both quite close to the teacher. It is probable that the teacher sees both learners' communicative actions all the time – H is expressing confusion and does not give a suitable answer, A is expressing tensions and a wish to give some answer. The teacher is directing the communication in this situation. The learners' gestural expressions may provide important information for what steps to take in the course of the learning activity. The teacher manages the situation by giving an opportunity to H such that she can try to propose the suitable word and when the teacher sees that H is not able to give the right answer, she gives word to all learners who may also display their knowledge.

Hativa (2000) finds that the teacher has to ensure equal possibilities for all learners to learn and therefore has to create active participation opportunities for every learner. The Estonian language teacher seems to follow this idea when she waits for an answer from learner H. She also seems to notice the use of the gestural resource by the learners to be attentive when they become impatient. Noticing participants' gestures becomes important when there is more than one learner in the classroom, as all learners cannot speak at the same time (if they are not repeating the same text at the same time). The learners themselves can look for the possibility of escaping tensions. The learners can express their knowledge, for instance, by raising a hand (e.g. Sahlström 2002, Shepherd 2010).

The case study in Article [P1] demonstrates that the selection of the resource depends on the interactional rules set in the foreign language learning class-

room. It also accentuates that the teacher needs to notice the use of resources other than verbal expression in multimodal communication between participants of the class. The article supports the idea of studying verbal expression, vocal expression (e.g. the change in the loudness of the voice) and gestures as equal partners in multimodal meaning construction.

Teachers and learners constructing meaning for vocabulary items in a foreign language classroom [P2]

Language learning classes are composed of several activities, e.g. text reading, pronunciation exercises, conversation, and written tasks. The new words and expressions – the Words – that are partially or totally unknown for the learners emerge during these activities. Article [P2] (as well as [P3] and [P4]) studies how meaning is constructed for Words by the resources of the teacher and/or the learners in the multimodal communication of the classroom. This communication can be considered as mostly oral.

The research presented in [P2] is based on 51 communicative episodes (27 episodes in Estonian classes and 24 episodes in French classes) where meaning is constructed for Words through verbal expression and gestures. [P2] includes one example originating from a French class and the other originating from an Estonian class. The first example presents how the meaning is constructed for the Word only by the French teacher. The second example demonstrates how the Estonian teacher and one learner collaborate in meaning construction for the Word.

Article [P2] demonstrates how the meaning construction for the Words may not be a one- or two-sentence definition, it is the semiotic work of the participants using different resources. The results show that gestures and verbal expression can complement each other by providing different information and by displaying different aspects of the phenomenon indicated by the Word. For instance, verbal expression creates the context where the phenomenon indicated by the Word may appear, while gestures display the visible aspects of the same phenomenon.

Both examples also include a gesture that constructs meaning for the Word right before the verbal expression starts in combination with the gestures. The timing of presenting the gesture may indicate difficulties in verbal expression, but also recognition by the users of the gesture as a meaning-making tool. Article [P2] claims that alongside verbal expression, gestures play an important role while the learners and the teachers are constructing meaning for new vocabulary items.

Lazaraton (2004) has published an article on how one teacher explains new words to learners. She finds that gestures are important tools for the teacher, used in addition to verbal expression. Article [P2] shows how the teacher alone and a learner in collaboration with the teacher can construct meaning for Words. In both kinds of situations gestures are used as meaning constructing tools for

Words together with verbal expression. Gestures are made by the teacher as well as the learner.

Human beings rely on their experiences of the world and create signs to mean something. Goodwin (1995: 23) proves how a speech impaired person uses "the full expressive powers of his body" when communicating. Learners may also have difficulties in finding the right words while constructing meaning and then they may use gestures as compensatory tools (e.g. Gullberg 1998), the same can happen to the teacher. Difficulties in verbal expression are not in the focus of Article [P2], the article accentuates the power of the human wish to construct meaning, a goal which humans use several resources to achieve.

Translation as meaning constructor for new words in the multimodal communication of foreign language classrooms [P3]

The fast development of technology and the fast growth of the number of contacts between people from different cultures have demanded changes in foreign language teaching. The communicative approach has spread to many countries all over the world. One of the ideas of this approach is to start to speak in the target language already in the beginning of the studies. This idea also leads to the minimization of the use of translation in the classes. There are scholars (e.g. Cook 2010, Fernández Guerra 2014, Laviosa 2014) who find that the use of translation aids in language learning by activating mental processes in other ways than the expression in the target language allows. Hall and Cook (2012) point out that translation is still used in many classrooms all over the world.

The same audiovisual material that was used in Articles [P2] and [P4] is the basis of the analysis of the use of translation in two Estonian and two French classes. In these classes, the communication between participants took place in the target languages. Article [P3] studies whether there are translation instances among the 110 communicative episodes where meaning is constructed for new vocabulary items and if there are other resources used together with translation. The article also finds some reasons for using translation in the classroom. The results are presented with the help of three examples of analysis of transcriptions. Two examples originate from a French class and one from an Estonian class.

The findings of the research show that translation occurs 30 times in French classes and only once in an Estonian class. In one French class translation is used only on two occasions and in the other on 28 occasions. Translation was employed by the teacher as well as the learners. The French teacher uses long lists of words in the second class and many words are new for the learners. That may be the reason why translation is often used in this class compared to the other three analyzed classes. Only in one episode translation is used in the first Estonian class – the teacher asks the learners what the meaning of the Word is in Russian and a learner answers with a Russian word. The second Estonian class does not include any examples of translation.

The results show that translation can be used in two ways: it can be the only resource that constructs meaning for the Word or it can combine with the target language and gestures. Target language and gestures are also the main meaning constructors for Words in other communicative episodes where translation is not present.

The teachers taught their mother tongues in the classes. Every teacher had also learned several foreign languages. The learners had no common mother tongue in any classroom. In French classes, the teacher and some learners used dictionaries. In the first French class, translation is used on two occasions. On both occasions translation is done into English, which was not the mother tongue of any learner, and is followed by meaning construction with the help of the target language and gestures.

In the second French class, translation occurs on 28 occasions. The languages used for translation were Estonian (the mother tongue of some learners) and English (which was not the mother tongue of any learner). Besides translation, target language is used on 16 occasions and gestures on 12 occasions.

In the first Estonian class, the teacher asks learners to translate the Word into Russian and one learner immediately translates it. However, the meaning construction for the Word does not end; the teacher and the same learner use expression in the target language and gestures.

In the second Estonian class, translation is not used, although the teacher has learned several languages. Meaning construction for Words takes place by the use of verbal, vocal and gestural expression.

The results presented by the examples accentuate three reasons for the use of translation:
1) learners who have a common mother tongue use translation,
2) the teacher asks to translate if most of the learners have a common mother tongue,
3) the teacher translates into the foreign language common for most of the learners.

The article also shows by the examples that time limitations can be the reason for using translation. The use of the resources is influenced by the learners' feedback; if some learner expresses lack of comprehension, the meaning construction may continue and the teacher and some learners may introduce new resources to achieve the goal of meaning construction.

Article [P3] shows that the communicative approach and the use of translation do not conflict when the target language is the habitual way of communicating in the classroom. The results accentuate that the multimodal way of meaning construction may provide to the learners several keys to access the constructed meaning for the Word.

Teachers' and learners' participation opportunities in meaning construction for new words in the foreign language classroom [P4]

The participants of the language learning class may participate in different ways in multimodal communication; for instance, they may be more or less active in creating meaning during some learning activity, and also, their use of the resources may vary. Article [P4] identifies the participation opportunities of the learners as well as the teachers in the situations of meaning construction for Words. For that purpose use of the resources was studied, which also enabled the creation of interaction models.

Article [P4] is based on 110 communicative episodes where meaning construction for Words takes place. Therefore, in this study all four foreign language learning classes – two Estonian and two French classes – are presented. Five examples of communicative episodes were selected to present the results of the study in the article.

The results show that there are three types of interaction models in the meaning construction for the Words:
1) the teacher can construct meaning alone, as the only active meaning constructor (AMC),
2) the teacher and the learners can collaborate, i.e. the active meaning constructors are the teacher and one or more learners,
3) one or more learners can construct meaning and the teacher just provides feedback.

The teachers' active role in meaning construction for Words becomes visible by the statistics. The teacher was the only meaning constructor in 56 episodes. The teacher and a learner or learners constructed meaning actively in 49 episodes. The learner or learners were the exclusive active meaning constructors in only 5 episodes and only in French language classes.

The teachers are AMC in most cases. They construct meaning alone when no learner expresses a wish to do it. The teacher's job requires her to know most of the Words. The collaboration of the teacher and the learner(s) seems to be good exercise for practicing oral expression and finding acquired words in the memory. The teacher repeats, rephrases, explains or completes the learners' expression in most of the situations.

In Article [P4] the transcriptions and their analysis demonstrate the results of the research. Two examples show how the teacher constructs meaning alone in an Estonian and in a French class. Two other examples present situations where the teacher and two learners are AMCs. One of these situations is from an Estonian and the other from a French class. The fifth example demonstrates how the learners can construct meaning alone without the help of the teacher in a French language learning classroom.

The results also reveal that meaning construction for the Word can happen in two ways: multimodally and monomodally. The article agrees with Kress et al. (2001) in that in general the communication between participants is multimodal; the participants create signs by using, for instance, verbal expression with

prosodic phenomena and gestures. The article demonstrates by the same analyzed examples how the teacher and the learners can both construct meaning for the Words multimodally by the use of verbal expression and gestures. The article also emphasizes that a person may participate in the meaning construction for Words monomodally. [P4] presents monomodal meaning construction for Words by learners who use only verbal expression or only gestures for that purpose. The article also claims that there are communicative situations throughout the material where the teacher constructs meaning monomodally. One of these situations where the teacher uses monomodal meaning construction is presented in Chapter 4.1. by Example A1.

Some previous studies (e.g. Lazaraton (2004) and Taleghani-Nikazm (2008)) focus on how the teacher explains the meaning of new vocabulary items. [P4] contributes to this field by showing how the learners can also be active meaning constructors for Words, often together with the teacher and rarely alone. The analysis of a large number of meaning constructive episodes – 110 in total – of foreign language classrooms of two different languages makes it possible to create interactional models. These models can be useful for the teachers when they analyze their own multimodal communication and/or plan how to activate the learners in the classroom.

Multimodal communication in language learning and language use services [P5][16]

The need for studying multimodal communication in foreign language learning classrooms is highlighted by my contribution in Article [P5] (pages 34–35). Modern language learning includes cultural features in addition to accurate use and understanding of words and grammar, as well as intonation. New knowledge and skills are created in the classroom where every teacher and every learner comes with earlier cultural and linguistic experiences that influence the choice of the means and strategies for communication.

Gestures are an important part of human expression, but the teacher and the learners may not use them as consciously as they use verbal expression, which is studied for years in educational institutions. In the article, the question is raised of whether the learners and the teachers understand each other's gestural expression while communicating in the classrooms, especially if this expression is culturally shaped. For instance, understanding the meaning of the words in the target language is essential, and if the teachers feel that verbal expression is not sufficient, they turn to bodily movements.

The methods for studying multimodal communication were described in collaboration by the authors of the article and can also be applied to study teachers' and learners' communication in the classroom. Working knowledge of

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[16] The original title of the article is "Multimodaalne suhtlus keeleõppe ja -kasutuse teenistuses".

discourse analysis and the terms related to interpersonal communication and multimodality are useful for the work that had already been started by the Research Group of Multimodal Communication at the University of Tartu when the article was published.

Article [P5] also points out that theoreticians have started to emphasize the multimodality in human communication. The multimodal approach in language learning research was already studied by gesticians (e.g. Allen 1999, Gullberg 1998, McCafferty, Ahmed 2000, Stam 1999), and the first software for annotation was developed (e.g. ANVIL by Michael Kipp, MUMIN (see Allwood et al. 2007)) by the time the article was published.

My idea of studying how the meaning of new vocabulary items is understood with the help of the teacher in the foreign language classroom has been followed by the collection of audiovisual material and analysis of the communicative episodes of meaning construction for Words. The subsequent studies presented in Articles [P2], [P3], [P4] and chapters of the thesis shed light on the learners' active participation opportunities in meaning construction and the possible ways in which teachers and learners can use resources (verbal, vocal and gestural) in specific conditions in foreign language learning classes.

4.4. Summary of the results

The study is based on 110 communicative episodes plus 1 extra episode of audiovisual material and questionnaires filled out by the participants before the classes began. In two video-recorded classes Estonian was learned as a foreign language and in two others French was learned.

The results show that the communication is multimodal in all episodes. The learners as well as the teacher use the resources for expression following set conditions. In this thesis the conditions that emerge in the classes are for instance, the interactional norms, the methods of foreign language teaching used, and the need for construction of the meaning for the Word. A set condition, e.g. the interactional norm, can limit the use of some resource, e.g. verbal expression. In that case, other resources are used to display knowledge and feelings (e.g. gestures and vocal expression).

The complexity of the use of resources is shown in this thesis by several studies on meaning construction for new vocabulary items. Meaning construction for Words can be considered a frequently occurring situation in the classroom. The resources that the teachers and learners use for the purpose of meaning construction for Words are verbal expression (110 episodes), gestures (65 episodes) and vocal expression (14 episodes).

The participants use resources to make signs. The signs of one participant originating from different resources compose potentially communicative actions. By interpreting the communicative actions, it is possible to identify the actions that construct meaning for Words. Those meaning constructing actions help to determine that the teachers and the learners can participate in the

meaning construction actively (by adding something to the meaning of the Word) or passively. Meaning for Words can be constructed by the teacher alone (on 56 occasions), by the teacher and the learners in collaboration (on 49 occasions) and by the learner or learners alone (on 5 occasions).

The teachers and the learners both use all three kinds of resources. The signs that the participants make are interwoven as one meaning-constructing text for the Word. The contribution of every participant and the use of the resources can vary. Meaning construction often takes place by the use of several resources and using more than one sign. The teacher and the learner can participate in the meaning construction for Words multimodally or monomodally (e.g. he/she can use only one resource, for instance, a word, a gesture, or a vocalization, to add meaning). The participation by one sign also confirms that in addition to verbal expression, gestural and vocal expression can also be meaning constructive.

The teachers and the learners communicate mainly in the target language during all the classes. Verbal expression is used as a meaning constructive tool in every situation where meaning is constructed for the Words. On 31 occasions, translation (into Estonian, English or Russian) is used. Translation emerges only once in an Estonian class. The other occasions originate from the French classes. On some occasions translation can be the only meaning constructing tool for the Word, but often collaboration between translation, target language and gestures takes place. The use of translation of some Words does not lead to continuing the communication in languages other than the target language.

The teachers and learners both use gestures for meaning construction. The present thesis studies more in detail the teachers' gestures in meaning construction for the Words and finds that the gestures that are used have mainly iconic and deictic features. The potential meaning is created mostly with the help of universal human experience of the world. Only the French teacher uses culturally conventional gestures in three episodes. Gestures as signs also appear to need meaning construction for them while they themselves are constructing meaning for the Words. Meaning for the gestures can be constructed implicitly by the surrounding signs or their meaning can be said out loud explicitly.

Verbal and gestural expression are sometimes accompanied by vocal expression as a meaning constructing tool for the Words. Vocal expression is some kind of change in using vocal sound that adds meaning to the words (higher pitch, faster talk, whispering), the absence of vocal sound (a pause between words, a silence), vocalizations (laugh, coughing). Vocal expression can be analyzed as an independent meaning constructing tool in 14 episodes.

In the present thesis, three resources appeared to be meaning constructive for Words: verbal, gestural and vocal expression. In addition to the resources used in the analyzed classes, other resources can be applied, e.g. graphics, images, or music. When the teacher has knowledge about the available resources for meaning construction and the opportunities for activating learners, she can plan foreign language learning classes and be flexible in changing activities in the classroom for the purpose of helping every learner in developing his/her skills in the optimal way.

The present thesis aims to make a contribution to deeper analysis of multi-modal communication in foreign language classrooms. Meaning construction for new words, expressions, and terms takes place in classes from kindergarten to university. The results may provide an impetus for studying similar phenomena in the instruction of other subjects – for instance, other languages, science, art, physical education. The future work can develop, forge, question and/or reveal new classifications, terms and ideas about multimodal communication in the classroom. The role of the rapid development of technology and of globalization needs to be studied hand in hand with the face-to-face communication of human beings.

TRANSCRIPTION SYMBOLS

T	letter indicates the teacher
A, B, C, D, E, F, G, H, I, J	each letter indicates different learners
<u>word</u>	underline indicates meaning construction for the Word
(())	doubled parentheses contain gestures and use of space and objects
word	italics indicate the translation of a verbal expression into English
l	letter indicates the left side (e.g. l hand, a nod to the left)
r	letter indicates the right side
(.)	a dot in parentheses indicates a brief pause within a verbal expression
(…)	three dots in parentheses indicate a long pause within a verbal expression
↑	arrow indicates shift into especially high pitch
WORD	upper case indicates especially loud sounds relative to the surrounding talk
°word°	degree signs bracketing a verbal expression indicate that the sounds are softer than the surrounding talk
(xxx)	the letters xxx in parentheses indicate that the transcriber was unable to understand what was said, the number of the parenthesized letters reflects the length of the non-transcribed talk
()	parentheses contain description of vocal expression not covered by any specific transcription symbol

5. SUMMARY IN ESTONIAN

Õpetajad ja õpilased konstrueerivad tähendust võõrkeeleõppes: Uurimus multimodaalsest suhtlusest eesti ja prantsuse keele tundides

5.1. Sissejuhatus

Käesoleva doktoritöö eesmärgiks on uurida, kuidas õpetajad ja õpilased konstrueerivad tähendust uutele sõnadele ja väljenditele – *Sõnadele*[17] – võõrkeeletunni multimodaalses suhtluses. Uurimistöö aluseks olev audiovisuaalne materjal on filmitud kahes eesti ja kahes prantsuse keele tunnis ülikoolis. Tundidest on valitud suhtlusepisoodid, milles toimub tähenduse konstrueerimine Sõnale. Tunnis osalejate vaheline suhtlus toimub õpitavas keeles. Lisaks õpitavale keelele kasutavad osalejad suhtlemiseks ka muid ressursse – žestilist väljendust, häälelisi väljendusvõimalusi (nt hääle kiiruse, kõrguse muutmine, häälitsused, vaikus), ruumis liikumist ja esemete kasutamist.

Uurimistöö põhineb multimodaalsel lähenemisel. Meetoditena on kombineeritud audiovisuaalse materjali korduvat vaatamist, audiovisuaalse materjali transkriptsioonide mikroanalüüsi ja salvestatud tundide eel täidetud küsimustikke.

Mõned varasemad tööd (nt Lazaraton 2004, Taleghani-Nikazm 2008) on uurinud, kuidas õpetaja seletab uute sõnade tähendust õpilastele. Käesolev doktoritöö pöörab võrdset tähelepanu õpetajate ja õpilaste suhtlustegevustele Sõnale tähenduse konstrueerimisel. Transkriptsioonides on esitatud kõikide osalejate – nii õpetajate kui õpilaste – suhtlustegevused.

Doktoritöö peamiseks küsimuseks on: Kuidas võõrkeeletunnis osalejad konstrueerivad tähendust? Peamine küsimus saab vastuse täpsemate uurimisküsimuste abil:

1) Kuidas saavad õpilased näidata teadmist võõrkeeletunni multimodaalses suhtluses?
2) Kuidas kasutavad osalejad – õpetaja ja õpilased – ressursse tähenduse konstrueerimisel Sõnale?
3) Kuidas kasutatakse žeste Sõnale tähenduse konstrueerimisel?
4) Kuidas kasutatakse tõlget kui verbaalset väljendust Sõnale tähenduse konstrueerimisel?
5) Milliseid interaktsioonimudeleid on võimalik luua arvestades osalejate erinevat aktiivsust tähenduse konstrueerimise protsessis?
6) Kuidas saab klassifitseerida osalemisvõimalusi seoses ressursside kasutamisega?

Peatükk 4.1 uurib, millised ressursse kasutavad õpetajad ja õpilased Sõnale tähenduse konstrueerimisel ning esitab neli näidet, mis on valitud 110 suhtlus-

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episoodi seast. Peatükk 4.2 käsitleb üksnes õpetaja aktiivset osalemist Sõnale tähenduse konstrueerimisel (õpetaja oli aktiivne tähenduse konstrueerija 105 episoodis) ja täpsemalt žestide kasutamist (kokku 63 episoodis). Artikkel [P1] esitab suhtlusepisoodi, mida olen analüüsinud ja uurinud lisaks 110 suhtlus-episoodile. Artikkel [P1] käsitleb olukorda, kus õpetaja on seadnud kitsendused õpilaste verbaalsele väljendusele, ning uurib, kuidas õpilased oma teadmist väljendavad. Artikkel [P2] analüüsib, kuidas õpetaja üksinda ning õpetaja ja õpilane koostöös konstrueerivad tähendust ressursside kasutamise abil. Artikkel [P3] uurib, kui palju ja millisel viisil on kasutatud tõlkimist Sõnadele tähenduse konstrueerimisel. Artikkel [P4] toob esile õpilaste ja õpetajate osalemisvõima-lused Sõnadele tähenduse konstrueerimisel. [P4] tunneb huvi, kui aktiivsed on tunnis osalejad tähenduse konstrueerimisel ja milliseid ressursse nad kasutavad. Artikkel [P5] tutvustab võimalikke meetodeid multimodaalse suhtluse uuri-miseks ning Multimodaalse Suhtluse uurimisgrupi uurimistöid. Minu osa artiklis [P5] käsitleb minu doktoritöö ajendeid, milleks on huvi mitmete väljen-dusvahendite kasutamise vastu võõrkeele õppimisel, et õpetajad saaksid neid efektiivsemalt rakendada.

5.2. Teoreetiline taust ja empiirilised uurimused

Inimestevahelise suhtluse uurimisel multimodaalset lähenemist kasutavad tead-lased leiavad, et inimesed kasutavad tähenduse loomiseks mitut väljendus-vahendit (nt sõnalist väljendust, žeste, joonistamist, riietust). Multimodaalne lähenemine on levinud mitmel teadusalal, näiteks lingvistikas, semiootikas, psühholoogias, antropoloogias. Käesolev doktoritöö toetub varasematele uuri-mustele ja teooriatele, mis pärinevad sotsiaalsemiootikast ja ka žestiuurijatelt ning keeleteadlastelt.

Ma kasutan doktoritöös kahte sõna *väljendusvahendite* tähistamiseks. Doktoritöö ingliskeelne osa (katusartikkel ja [P2], [P3], [P4]) lähtub sotsiaal-semiootikast ja nii nimetan ma väljendusvahendit *semiotic resource* (semiooti-line ressurss) või lihtsalt *resource* (ressurss). Eestikeelsed artiklid lähtuvad mitme Põhjamaa autori (nt Allwood 2013, Jokinen jt 2013) mõistekasutusest – *suhtlusmodaalsus* ehk *modaalsus*.

Allwood (2012) eristab modaalsused väljendus- (*production modalities*) ja tajumodaalsusteks (*sensory modalities*). Selline jaotus aitab teadvustada inimese võimalusi tähenduse loomiseks ja informatsiooni vastuvõtmiseks. Allwoodi (2012) järgi on tajumodaalsused nägemine, kuulmine, puudutusaisting, haistmine ja maitsmine ning väljendusmodaalsused on kehaliigutused/žestid/ kirjutamine, hääl ja kõne, puudutus, lõhn, maitse.

Väljendusvahendite hulk muutub mitmekesisemaks ja piirid vabamaks, kui lähtuda sotsiaalsemiootikast ja semootilise ressursi definitsioonist. Van Leeuwen (2004: 385) seletab semiootilist ressurssi: "Semiootilistel ressurssidel on tähenduspotentsiaal, mis põhineb nende varasemal kasutusel ja kehtestatud kasutusvõimalustel, mida realiseeritakse konkreetses sotsiaalses kontekstis, kus

nende kasutus on mõne semiootilise režiimi vormi küsimus[18]." Sotsiaalselt ja kultuuriliselt kujundatud semiootilist ressurssi nimetab Kress (2010: 79) mooduseks – *mode.*

Käesolevas doktoritöös eelistan kasutada mõistet *ressurss* ehk *semiootiline ressurss*, mis ühelt poolt seob uurimistöö sotsiaalsemiootika teooriatega ning teiselt poolt jätab võimaluse, et *väljendusvahend* võib olla pidevalt muutuv ning sisaldada individuaalseid märke, mis ei ole varem kultuuri või ühiskonna poolt kujundatud. Doktoritöös tulevad esile kolm ressurssi: verbaalne (sõnad ja grammatika suuliselt ja kirjalikult), hääleline (hääle muutumise või hääle puudumise kasutamine) ja žestiline väljendus (erinevate kehaosadega sooritatud liigutused või asendid).

Ressursse kasutatakse märkide tegemiseks ja inimesed teevad märke, et tähendust luua. Märgid võivad olla kultuuris või ühiskonnas kokkuleppelised (nt erinevate keelte sõnad ja grammatika, kultuuriliselt kokkuleppelised žestid), kuid inimene võib luua ka uusi märke. Märgid saavad tähenduse vaid siis, kui keegi neid tõlgendab ja ilma tõlgendamiseta ei ole ka suhtlemist (Kress 2010).

Inimesed kasutavad samaaegselt või eraldi ressursse, et luua märkide vahele tähenduslik seos. Mitmete märkide kasutamisega konstrueerivad inimesed märgikompleksi (*sign-complex*) ehk multimodaalse kogumi (*multimodal ensemble*) (Kress 2015: 57). Ühe inimese loodud märgikompleksi nimetan oma doktoritöös potentsiaalseks suhtlustegevuseks (*potentially communicative action*), milles võivad osaleda korraga näiteks žestid ja verbaalne väljendus.

Suhtlemine tähendab koostööd (Goodwin 2013) – sageli märkide tegija arvestab, et tema tegevust tõlgendab teine inimene. Kokkulepped märkide tähendusest ja suhtlemisreeglitest on õpitavad. Kress ja van Leeuwen (2001: 4–5) leiavad, et inimesed konstrueerivad diskursused ehk sotsiaalsed teadmised mingisugusest tegelikkuse osast, kuid iga diskursust saab teostada erineval viisil, näiteks laste terviseküsimust teostatakse erinevalt kodus, koolitunnis, teadusartiklis, poes.

Suhtlemine võib toimuda kahe või enama inimese vahel. Mitme osapoolega interaktsioon (Norris 2006) võib tähendada seda, et üks inimene suhtleb mitme inimesega erinevatel teemadel samaaegselt. Klassiruumis on selline suhtlemine tavaline, näiteks võib õpetaja seletada mõnele õpilasele uut sõna ning samal ajal ulatada paljundatud lehe ühele õpilasele.

Uurijad on tundnud huvi multimodaalse suhtluse vastu mitmesuguste ainete tundides erinevatel õppeastmetel. Näiteks Kress jt (2001) uurisid loodusainete tunde, Kress jt (2005), Bezemer (2008) ja Lim Fei (2011) inglise keele tunde, Norris (2013) kunstikooli tunde. Kuigi materjal ja uurimismeetodid on erinevad, tuleb kõigi tööde puhul esile kuivõrd oluline on arvestada õppimise protsessiga kui multimodaalse nähtusega. Samuti näitavad need tööd, et verbaalne väljendus

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[18] Algne tsitaat on inglise keeles: "Semiotic resources have a meaning potential, based on their past uses, and a set of affordances based on their possible uses, and these will be actualized in concrete social contexts where their use is subject to some form of semiotic regime" (van Leeuwen 2004: 385).

on vaid üks paljude ressursside hulgas, mille abil õpetaja ja õpilased tunnis tähendusi loovad.

Eestis on mitmed multimodaalse suhtluse uurimused seotud keele õppimise ja kasutamisega erinevates sotsiaalsetes ja kultuurilistes tingimustes. Käesolev kokkuvõte toob mõned näited. Rummo (2015) on oma doktoritöös uurinud, kuidas suhtleb ekspressiivse kõnehäirega inimene. Mihkelsi (2013) doktoritöös ning Uibu jt (2016) artiklis tuleb esile õpetajate multimodaalne suhtlemine klassiruumis. Kulakov ja Tenjes (2017) on pööranud tähelepanu, kuidas suhtlevad Eestis Peipsi-äärsetes külades elavad inimesed. Tenjes (2017) tunneb huvi, millisel moel saab mentaalseid mudeleid avardada multimodaalses suhtluses ohvitseride ja allohvitseride tundides. Kõigis uurimustes tuleb esile žestide arvestamise vajadus multimodaalse suhtluse uurimisel.

Žestid on silmast silma vestluses oluline tähendust loov ressurss, mille tõid esile žestiuurijad 20. sajandi teisel poolel. Teadlased hakkasid avaldama artikleid ja teoseid žestide kirjeldamise, kasutamise, klassifitseerimise ja interaktsiooni mudelitesse kaasamise kohta (nt Birdwhistell 1970, Condon ja Ogston 1966, De Ruiter 2000, Efron 1941/1972, Ekman ja Friesen 1972, Kendon 1972, 1988, McNeill 1992).

Kendon toob välja mitmete autorite žestiklassifikatsioonid ja leiab, et paljud autorid on ühel nõul, et žestid võivad olla osutavad, kujutavad, kehtestavad ja "esitada kõneleja diskursuse loogilise struktuuri aspekte[19]" (2004: 107). McNeill rõhutab, et žestid on fonoloogiliselt, semantiliselt ja pragmaatiliselt kõnega sünkroonis (1992).

Žestide kasutamist keeleõppes on laialdaselt uuritud lasteaiarühmadest kuni ülikooli kursusteni. Mitmed teadlased leiavad, et žestid on olulised nii vestluse reguleerimisel (nt Kääntä 2005, Sahlström 2002, Shepherd 2010) kui ka õppetegevustes (nt Allen 2000, Gullberg 2008, McCafferty ja Stam 2008). Stam (2006: 146) leiab, et õpilaste spontaansete žestide kasutamise kaudu tuleb esile nende mõtlemine rääkimise ajal ja nii ka nende keeleline areng.

Paljude teadlaste tööd, mis on žestide kasutamist keeleõppes erinevate meetodite ja uurimiseesmärkide abil uurinud, toovad esile, et žestide kasutamine võib tulla kasuks keele õppimisel. Gullbergi (1998) pooleksperimentaalne uurimus näitab, kuidas žestid võivad aidata üle saada raskustest võõrkeeles väljendumisel. Tellier (2009) leiab, et žestid võivad toetada uute sõnade meelde jätmist. Macedonia jt (2011) leiavad, et žesti ja sõna vahel peab olema tähenduslik seos, et sõna oleks lihtsam meelde jätta. Tellier (2009) ning Macedonia jt (2011) tööd on ekperimentaalsed.

Žestide rolli uutele sõnadele tähenduse konstrueerimisel klassiruumi interaktsioonis on veel vähe uuritud. Lazaraton (2004) analüüsis, kuidas üks inglise keele õpetaja seletab sõnu ja leidis, et žestid on sealjuures sageli kasutusel. Taleghani-Nikazm (2008) analüüsis õpetaja žeste saksa ja pärsia keele tundides ning tõi välja, et žestid aitavad tundmatut sõnavara mõista, õpilaste sõnavara

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[19] Algne tsitaat on inglise keeles: "displaying aspects of a logical structure of a speaker's discourse" (Kendon 2004: 107).

esile tuua ning anda visuaalselt tagasisidet. Lazaratoni (2004) ja Taleghani-Nikazmi (2008) uurimused keskenduvad õpetajale. Käesolev doktoritöö pöörab tähelepanu nii õpetajate kui õpilaste žestide kasutamisele teiste ressursside seas.

Klassiruumi interaktsiooni on palju uuritud videosalvestiste vaatamise (ja ka audiosalvestiste kuulamise) ning vestlusanalüüsi abil. Sacks jt (1974) töötasid välja transkriptsioonisüsteemi, mis võimaldas lisaks sõnalisele väljendusele ülitäpselt kirjeldada ka prosoodiat, muude ressursside kirjeldamine toimus esialgu ebajärjekindlalt. Hiljem on mitmed teadlased kohandanud vestlus-analüüsimeetodit multimodaalse suhtluse analüüsi vajadustele ning lisanud fotosid, mistõttu võivad ka teadlaste tulemused klassiruumis toimuva inter-aktsiooni kohta erineda.

Vestluste transkribeerimine aitas leida interaktsioonimudeleid, millest kaks tuntumat on kolmeosalised *IRE* (informatsiooni andmine – õpilase vastus – õpetaja hinnang) ja *IRF* (informatsiooni andmine – õpilase vastus – õpetaja tagasiside). *IRE* mudeli pakkusid välja Sinclair ja Coulthard (1975). Mitmed autorid (nt Consolo 2000, Hall 1998, Sullivan 2000) eelistasid *IRF* mudelit, sest hinnangu asemel tagasiside andmine julgustas õpilasi rohkem ennast väljen-dama ja keelt arendama.

Klassiruumis toimuvat interaktsiooni on uuritud mitmel eesmärgil. Mõned autorid (nt Adger 2001, Dalton-Puffer 2007) leiavad, et klassiruumis on rollid ja õigused määratud interaktsiooninormidega. Shepherd (2010) toob esile kä-tõstmise, mis annab õpilasele õiguse ja kohustuse sõnavõtmiseks. Lerner (1995) rõhutab, et õpilaste aktiivsus tunnis osalemisel on mõjutatud õppetegevuse tüübist. Mondada ja Doehler (2004) leiavad, et koostöö ja keelelised ning suhtlemise oskused mõjutavad arusaamist sellest, mis on õppimine. Lauzon ja Berger (2015) rõhutavad, et õpilaste aktiivne sõnavõtt on enam kui verbaalne sõnajärje üleandmine – see on koostöö multimodaalses suhtluses, milles on oluline näiteks pilgu kasutamine.

Suhtlemise kui sotsiaalse tegevuse teadvustamine muutis ka keeleõppe-meetodeid. Hymes (1972) võttis kasutusele väljendi kommunikatiivne pädevus, mis tähendab keele kasutamist diskursusega sobival viisil. Mitmed kommunika-tiivset pädevust toetavad teadlased (nt Canale ja Swain 1980, Roberts 1986, Savignon 1983) leiavad, et inimesed vajavad suhtlusoskusi, mida kasutada erinevates sotsiaalsetes ja kultuurilistes diskursustes. Need teadlased toetavad ka mõtet, et õppija peab püüdma väljenduda õpitavas keeles juba väga algelise taseme korral. Savignon (2002) toob välja, kuidas õpetajaid tuleb juhendada, et nad saaksid õpilastele õpetada väljendeid sõna tähenduse küsimise, kordamise ja arusaamatuse väljendamise kohta.

1990ndatel, kui kommunikatiivne lähenemine levis üle maailma, ilmus keeleõppesse veel üks lähenemine – *multiliteracy* – multimodaalne suhtlus-pädevus. *Multiliteracy* arendajaks oli rühm teadlasi, kes kuulusid *New London Group*'i ning kes leidsid, et inimesed kasutavad suhtlemisel mitmeid ressursse. Kalantzis ja Cope (2008) rõhutavad, et õpilased peavad analüüsima teksti tähendust ja funktsioone, sest nad elavad maailmas, kus tekstid ilmuvad paljudes vormides nii suuliselt kui kirjalikult, nii raamatutes kui digitaalsete

vahendite kaudu. Breidbach (2011) toetab keeleõppes nii traditsioonilise õppimise (reeglid, süsteemid) kui kriitilise lähenemise (nt sisu ja eesmärgi analüüsimine) kasutamist.

5.3. Materjal ja meetodid

Uurimus põhineb peamiselt nelja võõrkeeletunni – kahe eesti ja kahe prantsuse keele tunni – videosalvestistel. Keeletunnid on salvestatud aastatel 2009–2011 Eesti ülikoolis. Salvestised on osa Tartu Ülikooli multimodaalse suhtluse andmebaasi interaktiivsete suhtlussituatsioonide allkorpusest. Uurimistöös osales kolm õpetajat ja 31 üliõpilast. Uurija teavitas kõiki osalejaid enne tunni algust, et videosalvestamise eesmärk on uurida nende suhtlemist ning et töö tulemused avaldatakse anonüümselt. Osalejad andsid kirjalikult informeeritud nõusoleku ja täitsid ankeedi (emakeele, soo, vanuse jne kohta).

Iga tund kestis 90 minutit. Tunde filmiti kahe kaameraga. Uurija ei teinud ettepanekuid tundide sisu ja struktuuri osas. Uurija ei sekkunud tunnitegevustesse. Eesti keele tunde viisid läbi erinevad õpetajad. Prantsuse keele tunde viis läbi sama õpetaja. Kõik õpetajad on naissoost ja räägivad õpetatavat keelt emakeelena. Üheski tunnis ei olnud kõigile õpilastele ühist emakeelt. Tunnid toimusid õpitavas keeles.

Videomaterjalist on valitud 110+1 suhtlusepisoodi transkribeerimiseks. 110 episoodis toimub tähenduse konstrueerimine Sõnale. Eesti keele tundides esines 48 ja prantsuse keele tundides 62 olukorda, kus konstrueeriti Sõnale tähendust. Lisaks on artiklis [P1] esitatud ühe suhtlusolukorra analüüs, kus verbaalsele väljendusele on seatud piirangud.

Materjali analüüsimiseks on kasutatud multimodaalse lähenemise ning mikroetnograafia kombineerimist. Keeletunnis osalejate vahelist multimodaalset suhtlemist on uuritud mitmel meetodil:

1) Küsimustikes esitatud andmeid (osalejate emakeel ja teised keeled, haridus, vanus, sugu) on analüüsitud – andmed on üldistatud ja esitatud tabelites ning seostatud audiovisuaalse materjaliga.
2) Kogu audiovisuaalset materjali on korduvalt vaadatud, et valida suhtlusepisoodid transkribeerimiseks, need transkribeerida ja koguda andmeid multimodaalse ümbruse kohta tunnis.
3) Suhtlusepisoodid on transkribeeritud kohandatud vestlusanalüüsi transkriptsioonimeetodi ja Jefferson'i (2004) märgisüsteemi abil. Kõikide osalejate kõik auditiivselt ja/või visuaalselt tajutavad potentsiaalsed suhtlustegevused on transkribeeritud. Kogu suhtlusepisood on esitatud ühtse tekstina. Iga osaleja nime asemel on kasutatud üksikut suurtähte (lisaks on verbaalse väljenduse real kasutusel varjunimed). Verbaalne ja hääleline väljendus on esitatud suhtlustegevuse esimesel real ning žestiline väljendus topeltsulgudes kolmandal real. Transkriptsioonide avaldamiseks on sõnaline väljendus tõlgitud inglise keelde ja esitatud teisel real.

4) Suhtlusepisoode on uuritud mikroanalüüsi abil. Osalejate suhtlustegevused on transkriptsioonides jagatud kahte liiki – tegevused, mis konstrueerivad Sõnale tähendust (alla joonitud) ja tegevused, mida kasutatakse teistes funktsioonides näiteks tagasiside andmiseks, küsimuste esitamiseks, enesekohendamiseks jne (ilma allajoonimiseta).

5.4. Tulemused

Artiklid [P1], [P2], [P3] ja [P4] (peatükis 4.3) ning peatükid 4.1 ja 4.2 käsitlevad uurimistulemusi. Artikkel [P5] (peatükis 4.3) tutvustab võimalikke meetodeid multimodaalse suhtluse uurimiseks ning põhjendab keeleõppe uurimise vajadust.

Õpetajate ja õpilaste ressursside kasutamine Sõnadele tähenduse konstrueerimiseks

Peatükk 4.1 toob esile, kuidas audiovisuaalse materjali transkribeerimine võimaldas liigitada õpetajate ja õpilaste kasutatud ressursid. Sõnale tähenduse konstrueerimisel kasutasid osalejad:

1) verbaalset väljendust – sõnu ja grammatikat suulises ja kirjalikus tekstis;
2) häälelist väljendust – hääle kõrguse, artikulatsiooni, kiiruse, tugevuse, rütmi muutmist, prosoodilist väljendust (kvantiteet, rõhutamine, kõnemeloodia), häälitsusi (nt köhatus, naermine), hääle puudumist (kõnepaus, vaikus);
3) žestilist väljendust – pilgu, näo, pea, jäsemete ja keha liigutusi ning asendeid ja suunda, mõned žestid on seotud ka esemetega (nt paber ja pastakas).

Need kolm liiki on kasutusel nii eesti kui prantsuse keele tundides. Uurimistulemused näitavad, et kõigis valitud 110 suhtlusolukorras konstrueerib sõnaline väljendus Sõnadele tähendust. Ainult sõnalist väljendust kasutatakse tähenduse konstrueerimiseks 45 episoodis. Žestid ja hääleline väljendus esinevad seega alati olukordades, kus ka sõnalist väljendust kasutatakse. Õpetaja ja/või õpilased kasutavad žeste 65 episoodis ja häälelist väljendust 14 episoodis. Üks ja seesama inimene võib kasutada episoodi jooksul kõiki kolme ressurssi: sõnalist, häälelist ja žestilist väljendust. Üks inimene võib ka kasutada ainult ühte ressurssi ning mõni teine inimene teist ressurssi episoodi jooksul.

Õpetajate žestiliste märkide kasutamine Sõnale tähenduse konstrueerimiseks

Peatükk 4.2 pöörab põhitähelepanu sellele, kuidas õpetajad kasutavad žeste Sõnadele tähenduse konstrueerimisel. Nii õpetaja kui õpilased leiavad, et Sõnad, millele nad tähendust konstrueerivad on olemas, millele viitab näiteks Sõna kindla kirjaliku kuju esitamine tahvlil või sõnaraamatust sõna otsimine. Mõlemas kultuuris on olemas ka kokkuleppeliste žestide žestiraamatud (nt Calbris ja Montredon 1986, Ingerpuu 2009).

Õpetajad on aktiivsed Sõnale tähenduse konstrueerimisel 105 olukorras 110st episoodist. Õpilased seevastu on aktiivsed konstrueerijad 54 episoodis. Žeste kasutavad nii kaks eestlasest õpetajat kui ka prantslasest õpetaja. Žeste kasutavad õpetajad Sõnale tähenduse konstrueerimiseks 63 juhul (eesti keele õpetajad 32 episoodis ja prantsuse keele õpetaja 31 episoodis).

Tulemused näitavad, et õpetajad ei kasuta enamasti kultuuriliselt kokku-leppelisi žeste. Ainult prantsuse keele õpetaja kasutab kokkuleppelisi žeste kolmes episoodis. Teistel Sõnale tähendust konstrueerivatel žestidel on ikoonilised ja/või osutavad omadused. Mõnele Sõnaga tähistatud nähtusele on võimalik kohe osutada nt näpuga. Mõned Sõnad esitavad füüsilisi nähtusi, mida on võimalik meeltega tajuda ning mõned Sõnad esitavad abstraktseid nähtusi. Ka abstraktseid nähtusi seletavatel žestidel on ikoonilised omadused.

Ikoonilised ja osutavad žestid vajavad ise tähendust. Õpetajad konstrueeri-vad žestidele tähenduse implitsiitselt teiste märkide abil või lausa sõnaliselt – annavad konkreetsele žestile definitsiooni või nime. Žestid saavad vormi ja tähenduse Sõnale tähenduse konstrueerimise protsessis – n-ö suure tähenduse konstrueerimise sees toimub palju väikeseid tähenduse konstrueerimisi.

Teadmise esiletulemine võõrkeeletunni multimodaalses suhtluses

Võõrkeeletunnis osalejate suhtlemist mõjutavad seatud tingimused – näiteks tunni algus ja lõpp, üldised eesmärgid, vestlust reguleerivad normid ning reeglid. Artikkel [P1] tutvustab juhtumianalüüsi kaudu, kuidas suhtlusnorm võib mõjutada ressursside valikut. Õpetaja on sõnaliselt kehtestanud reegli – küsi-musele võib vastata ainult üks nimetatud õpilane. Teised õpilased väljendavad peamiselt žestide abil, et nad teavad vastust. Eriti palju kasutab žeste ja ühte häälelist väljendusvõimalust (sosistamist) üks õpilane. Tema žestid väljendavad ka normi piirangutest tulenevaid pingeid.

Artikkel [P1] näitab, kuidas õpetaja loob sõnalisele väljendusele piiranguid seades võrdsed võimalused vastamiseks kõigile õpilastele – nii neile, kes muidu sõna ei võtaks kui ka neile, kes soovivad sageli vastata. Õpilane, kes ei või sõna võtta, leiab teiste ressursside kasutamise kaudu võimaluse, kuidas oma tead-misest ja normist tulenevatest pingetest märku anda. Artikkel rõhutab, et õpetaja peab märkama õpilaste erinevate ressursside kasutamist, et otsustada, kuidas suhtlust reguleerida ning millist õppetegevust järgmisena teha.

Õpetajate ja õpilaste suhtlustegevused Sõnadele tähenduse konstrueerimise protsessis võõrkeeletunnis

Keele õppimise eesmärgil teevad osalejad tunnis mitmeid tegevusi – näiteks loevad tekste, harjutavad hääldust, vestlevad. Uutele ja osaliselt või täielikult tundmatutele sõnadele tähenduse konstrueerimine on üks olulisi ja sagedasti esinevaid tegevusi filmitud tundides. Selline tegevus toimub peamiselt osale-jatevahelises multimodaalses suhtluses.

Artikkel [P2] põhineb 51 suhtlusepisoodil (27 pärinevad eesti keele ning 24 prantsuse keele tundidest), kus tähendust konstrueeritakse verbaalse ja žestilise väljenduse abil. Tulemused näitavad, et enamasti ei ole Sõnadele tähenduse konstrueerimine ühe- või kahelauseline definitsiooni sõnastamine, vaid on pigem semiootiline töö, kus sõnaline ja žestiline väljendus täiendavad üksteist ning põimuvad tähenduse konstrueerimisel. Näiteks võib sõnaline väljendus luua konteksti, kus sõnaga tähistatud nähtus esineb ja žestid võivad esitada sama nähtuse visuaalseid omadusi. Žest võib alustada Sõnale tähenduse konstrueerimist enne sõnalise väljenduse ilmumist. Sõnadele võib tähendust konstrueerida õpetaja üksinda või koostöös õpilastega ning nii põimuvad ka osalejate esitatud märgid omavahel üheks Sõnale tähenduse konstrueerimiseks.

Tõlkimine kui Sõnadele tähendust konstrueeriv vahend võõrkeeletunni multimodaalses suhtluses

Maailmas laialt levinud kommunikatiivne lähenemine eelistab õpitavas keeles suhtlemist ning tõlkimise vältimist tunnis ka juba väga algelise keeleoskuse korral. Mõned autorid (nt Cook 2010, Fernández Guerra 2014, Laviosa 2014) leiavad, et tõlkimise kasutamine ergutab vaimseid protsesse muul viisil võrreldes õpitavas keeles väljendumisega.

Artikkel [P3] näitab, kuidas 110 suhtlusepisoodist kasutavad õpetajad Sõnale tähenduse konstrueerimisel vaid 31 episoodis tõlkimist. Ühes prantsuse keele tunnis kasutatakse tõlkimist 28 korral ja teises kahel korral. Nendes tundides kasutavad õpetaja ning mõned õpilased ka paberil või elektroonseid sõnaraamatuid. Vaid ühes eesti keele tunnis kasutatakse tõlkimist ühel korral. Video-materjali vaatamisel ei ole näha sõnaraamatute kasutamist eesti keele tundides.

Tõlkimist kasutavad nii õpilased kui õpetajad. Ühe prantsuse keele tunni suure hulga tõlkejuhtumite põhjuseks võib pidada asjaolu, et lugemistekste ja kirjalikke harjutusi täiendavad pikad sõnade nimekirjad, mis sõnahaaval koos läbi vaadatakse. Prantsuse keele tundides esineb tõlkimist õpilaste vahel, kelle ühiseks emakeeleks on eesti keel. Tundides kasutatakse tõlkimisel ka inglise keelt, mis on maailmas palju kasutusel ning mida oskavad teatud määral kõik osalejad. Eesti keele tunnis annab õpetaja ise loa tõlkimiseks vene keelde, mis on enamiku õpilaste emakeel.

Uurimistööst selgub, et suures osas olukordades täiendavad verbaalne väljendus õpitavas keeles, žestid ja tõlkimine üksteist Sõnale tähenduse konstrueerimise protsessis. Tõlkimine võib olla ka peamine ja peaaegu ainus tähendust konstrueeriv vahend. Selles eesti keele tunnis, kus tõlkimist ei kasutata, on Sõnale tähenduse konstrueerivateks vahenditeks peamiselt õpitav keel ja žestid. Uurimuse tulemused näitavad, et tõlkimise kasutamine ei vii tingimata õpitavas keeles väljendumise vältimiseni, kui õpitav keel on harjumuspärane väljendusvahend tunnis. Mitme ressursi kasutamine loob võimaluse, et iga õpilane saab enda jaoks Sõnale tähenduse konstrueerida.

Õpetajate ja õpilaste osalemisvõimalused Sõnale tähenduse konstrueerimisel võõrkeeletunnis

Artikkel [P4] uurib, millised on õpetajate ja õpilaste osalemisvõimalused Sõnale tähenduse konstrueerimisel. Transkribeerimisel selgus, et tunnis osalejad võivad konstrueerida tähendust Sõnale aktiivselt või passiivselt. Aktiivne tähenduse konstrueerija (ing *active meaning constructor* ehk *AMC*) võib kasutada ühte või mitut ressurssi Sõnale tähenduse konstrueerimiseks. Mõnes olukorras konstrueerib *AMC* tähenduse monomodaalselt – näiteks ainult mõne sõna või žesti abil, ja mõnikord multimodaalselt – kasutades erinevaid ressursse. Passiivne tähenduse konstrueerija (ing *passive meaning constructor* ehk *PMC*) ei lisa ühegi uurijale tajutava märgi abil Sõnale tähendust.

Uurimistulemused näitavad, et valitud suhtlusepisoodide põhjal saab luua kolm interaktsioonimudelit:
1) õpetaja on ainus *AMC* (56 episoodis),
2) õpetaja ja õpilased on koos *AMC*-d (49 episoodis),
3) õpilane või õpilased on ainsad *AMC*-d (5 episoodis).

Õpilased on aktiivsed tähenduse konstrueerijad õpetaja abita üksnes viies suhtlusolukorras. Õpetaja on aktiivne suures osas olukordadest, mille põhjuseks võib olla asjaolu, et õpetaja ongi tunni läbiviija ja õpitava keele kõige paremini valdaja. Loodud interaktsioonimudelite tundmine annab õpetajale võimaluse tundide planeerimisel otsustada ning läbiviimisel ära tunda, millal ja millisel viisil on õpilased õppetegevustesse ning vestlusesse kaasatud.

Multimodaalne suhtlus keeleõppe ja -kasutuse teenistuses

Minu panus artiklis [P5] puudutab eelkõige multimodaalse suhtluse uurimis-vajaduse esiletoomist võõrkeeletundides. Kaasaegne keeleõpe hõlmab nii sõna-vara ja grammatika kui ka kultuuriliste nähtuste tundmise. Õpetaja ja õpilased tulevad tundi varasemate kogemustega keelte ja kultuuri kohta, mis omakorda mõjutavad nende väljendusvahendite ning suhtlusstrateegiate valikut. Ma rõhutan, et žestid on olulised silmast silma suhtluses ja seetõttu on vaja neid uurida ka keeletundides. Keeletunnis osalejate suhtlustegevuste uurimine võib tuua esile uusi lahendusi tõhusamaks õppimiseks.

Artikli [P5] autorite koostöös valminud osa näitab, kuidas teadlaste huvi multimodaalse suhtluse uurimise vastu nõuab mitmesuguste teooriate, meeto-dite ning uute tehniliste lahenduste arendamist. Artiklis käsitletud diskursus-analüüsi ja multimodaalse suhtluse uurimise meetodid on rakendatavad ka keele õppimise ja kasutamise uuringutes. Artikkel tutvustab 2009. aastal loodud Tartu Ülikooli Multimodaalse suhtluse uurimisgrupi doktorantide uurimissuundi ja töid.

5.5. Kokkuvõte

Doktoritöö põhineb 110+1 suhtlusepisoodil, mis on valitud audiovisuaalsest materjalist. Videomaterjali täiendavad tunnis osalejate täidetud küsimustikud. Võimaluse mitme keele õppimise uurimiseks loovad kahe eesti keele ja kahe prantsuse keele tunni salvestised.

Artikkel [P1] esitab Eestis esmakordselt keeletunni multimodaalse analüüsi. Artikkel seletab õpetaja kehtestatud suhtlusnormi näitel, kuidas see õpilaste väljendusvahendite valikule mõju avaldab ja milliseid lahendusi nad leiavad.

Ka tähenduse konstrueerimist Sõnale ei ole Eestis varem uuritud ning maailmas on sellisel teemal avaldatud töid vähe (nt Lazaraton 2004, Taleghani-Nikazm 2008). Doktoritöö panustab valdkonda nii õpetajate kui õpilaste suhtlustegevuste seostatud analüüsimisega. Doktoritöö peatükid 4.1 ja 4.2 ning artiklid [P2], [P3] ja [P4] toovad välja peamised ressursside liigid, võimalused ja tingimused ressursside kasutamisel, mitmetasandilise tähenduse konstrueerimise märgile, interaktsioonimudelid.

Minu panus artiklis [P5] näitab, kust on alguse saanud mõte uurida võõrkeeletunnis osalejate vahelist suhtlust just multimodaalsena, ning rõhutab, et just žestide kasutamise uurimine võib aidata kaasa tõhusamale keeleõppele.

Uurimistöö kinnitab, et võõrkeeletunnis osalejate vaheline suhtlus on multimodaalne. Tähenduse konstrueerimine Sõnale hõlmab sageli mitme ressursi kasutamise, milleks analüüsitud näidetes on verbaalne, hääleline ja žestiline väljendus. Selles toimub mitmekordne tähenduse konstrueerimine – nt žestile konstrueeritakse tähendus Sõnale tähenduse konstrueerimise jooksul.

Doktoritöö toob esile, et ühegi ressursi välistamine keeleõppest ei saa olla eesmärk iseeneses (nt tõlkimise vältimine). Nii õpetaja kui õpilase ressursside valik ning hulk sõltub mitmetest seatud tingimustest, näiteks konkreetne ülesanne, väljendusoskused ja -vajadused, ajahetk tunni jooksul. Iga osaleja – õpetaja ja õpilaste – panus võib olla erinev – näiteks Sõnadele tähenduse konstrueerimisel saab aktiivsust näidata nii ühe ressursi (monomodaalselt) kui ka mitme ressursi kasutamise abil (multimodaalselt). Uuritud tundides on palju olukordi, kus õpetaja konstrueerib tähendust üksinda ning kus õpetaja ja õpilased teevad seda koostöös. Õpilased on väga harva üksi tähenduse konstrueerijad. Doktoritööst saadud teadmised võimaldavad õpetajatel tundide planeerimisel ning läbiviimisel pöörata rohkem tähelepanu, milliseid ressursse nad ise ja õpilased võiksid kasutada ning kes ja millal võiksid osaleda õppetegevustes aktiivsemalt.

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PUBLICATIONS

ANNEX 1

**English translation of the article
"Teadmise esiletulemine
võõrkeeletunni multimodaalses suhtluses"**

DISPLAYING KNOWLEDGE
IN THE MULTIMODAL COMMUNICATION
OF A FOREIGN LANGUAGE LEARNING CLASSROOM

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Abstract. Language learning discourse has a certain goal – to acquire new knowledge and skills in the language studied. There are usually more than two people involved in such a communicative situation. The teacher has as a central role in coordinating participants' activities in effective ways and soliciting feedback about learners' knowledge. In order to regulate turn-taking and enable cooperation between participants, interactional norms are applied. These norms condition the use of modalities – body movements, verbal, and prosodic communication. The paper examines an instance where learners wish to express their knowledge but are restricted by an interactional norm – only one learner is supposed to answer. The analysis is based on a video recording of a university lecture where Estonian is taught as a foreign language. The research combines discourse analysis and the micro-ethnographic approach. The results show that learners find a way to express their knowledge by using mainly body movements. One learner uses several body movements to express the tension caused by the interactional norm. The learners' behavior provides the teacher with important information on how to direct communication.

Keywords: discourse analysis, interactional norms, multimodal communication, foreign language learning

1. Introduction

In the Estonian educational system it is considered important to enable students to learn several foreign languages already in primary school and high school. After that, language learning is continued at a university or a language school. In both primary school and high school the usual form of study is co-construction of knowledge in a group, coordinated by the teacher. If learners want to achieve good communication skills in the target language, it is important to find out what kind of communication takes place in the classroom where such skills are acquired. Already in the 1970s researchers started to talk about studying communication as a whole in the context of language learning (Adger 2001: 503). While analyzing language learning discourse, the researcher must take into account several interconnected phenomena. Discourse is an action and interaction in society, says Teun van Dijk, researcher of discourse (1997: 13). Discourse analysis makes it possible to take into account different kinds of modalities such as words and grammar, prosodic phenomena and body movements (Tenjes et al 2010: 26). Therefore, classroom activities can be

analyzed as multimodal communication between the teacher and the learners.[1] Joan Kelly Hall has listed the structuring resources of verbal communication:

1) participants – all members of an interaction;
2) setting – spatial, temporal and physical conditions;
3) content – what is or is not talked about;
4) purposes – social and cognitive functions;
5) participation structures – turn-taking, roles and participants' rights;
6) act-sequence – chronological ordering; openings, transitions, closings; formulae (Hall 1993: 152, as cited in Dalton-Puffer 2007: 19).

Hall's list can also be used to characterize a foreign language learning class. The participants are usually a teacher and learners, the content is mainly phenomena related to the target language and culture, discussed while sitting at a desk in a classroom at a certain time of day (setting). The main purpose is to acquire knowledge and skills in a group during a limited period of time. Participation structures to be studied are for example turn-taking by learners and the effect of the teacher's role as coordinator of classroom activities. For example, greeting at the beginning of the class is the first act-sequence.

To study such a great number of simultaneous phenomena, researchers use video recordings and the micro-ethnographic approach. Microanalysis of the language learning environment helps to highlight possible problems that prevent learners from learning the language (Tannen 1993). Carolyn Temple Adger claims that micro-ethnographic analysis has helped us understand the influence of non-verbal behavior and timing in the classroom discourse on learners' success (Adger 2001: 508). Researchers therefore encourage teachers to analyze the discourse of their own classes as well (McCarthy 1991).

In Estonia, classroom activity has almost never been studied in terms of multimodal communication. The paper presents a micro-ethnographic analysis of a case, the analysis being part of the author's PhD research. The phenomenon examined is the discourse of a foreign language learning class in a university. The author of the article also agrees that analyzing the functions and connections between modalities used in the classroom improves our understanding of the interaction between the teacher and the learners as well as contributing to the development of language teaching methodologies.

The author hopes to help teachers meet the expectations formulated by Nira Hativa (2000: 213): "Thus, a teacher should pave a "golden path", teaching at a pace and level that fit most students in class, while taking care that the better students are not bored and that the lowest-level students are not too frustrated". The goal of this article is to show how learners behave in a situation where co-construction of knowledge is regulated by an interactional norm and the learners must wait to take turns.

The article focuses on one episode from all the videotaped university lectures. This particular episode was chosen because it was possible to draw

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[1] The term *multimodal communication* was first used in the context of interacting with robots (Lemon et al 2001).

conclusions about the factors influencing the co-construction of knowledge based on the modalities the participants used – words and grammar, prosodic phenomena and body movements. In the episode, the learners' ability to express their knowledge is restricted by an interactional norm. The episode reveals several ways how learners cope with the restrictions set by the interactional norm and how they indicate their knowledge mainly by body movements instead of words. One of the learners also expresses tension which manifests itself through the modality of movement. By presenting the analysis the author aims to emphasize the importance of noticing body movements which help the teacher decide how to guide interaction.

2. Discourse structure and interactional norms of language learning

The study of classroom discourse has focused on turn-taking, i.e. the order in which the participants of the interaction speak (e.g. McHoul 1978, Lörcher 1986, Markee 2000 and Dalton-Puffer 2007). Already American researchers Harvey Sacks, Emanuel Schegloff and Gail Jefferson studied turn-taking in human communication and developed the conversation analysis method in late 1960s and early 1970s. The conversation analysis method can be used to analyze communicative activity. Sacks et al (1974) used audio recordings to capture human interaction. The development and availability of video recording technology has widened the opportunities to study the visually perceived modalities of human communication. Already in 1970s – 1980s some authors found that body movements structure turn-taking in conversation (Duncan 1972, Sacks et al 1974, Duncan and Fiske 1985).

The analysis of teachers' and learners' body movements started to receive more and more attention in the end of the 20th century. Gene H. Lerner (1995), for example, used video recordings in his research which enabled him to also analyze the modalities that are only perceivable visually. Thus, researchers focusing on the microanalysis of classroom interaction have started to systematically include body movements in their analysis and discuss their functions in the flow of discourse in detail (e.g. Lazaraton 2004, Kääntä 2005, Lehtimaja and Merke 2005, Poveda 2005 and Hellermann 2006). Gene H. Lerner (1995) analyzed how the teacher in an elementary school class creates different participation opportunities for students when structuring her turn and the transcriptions reveal the students' active wish to participate which they express by raising their hands. However, Leila Kääntä (2005) in her study of a high school language lesson found that students can sometimes forgo the opportunity to speak. Both articles emphasize the importance of the teacher's task to coordinate interaction in the classroom.

Some researchers who have studied classroom interaction find that turn-taking is regulated by interactional norms (Adger 2001, Merola 2004 and Dalton-Puffer 2007), i.e. participants have roles and rights are distributed according to the roles. When discussing classroom discourse, it is often

mentioned that the teacher's role includes the right to speak at any time and allow others to speak (Dalton-Puffer 2007: 20). Therefore, interactional norms are decisions formed between participants about rights and obligations associated with interaction. The norms that play a role in classroom interaction manifest themselves through the use of certain modalities, such as naming a student to give her the right to speak or raising a hand to get permission to ask or answer a question. Hand raising has been studied by several researchers (McHoul 1978, Sahlström 2002 and Shepherd 2010). Shepherd (2010: xi) claims that the opportunity to raise a hand is used by teachers and students to share control over the right and obligation to speak.

In addition to movement – e.g. hand raising – the learner can use other modalities to indicate his or her knowledge, for example by calling out the answer. The expression of knowledge and correction of errors has been studied for example by Mondada (1995), He (2004), Paoletti and Fele (2004), Foster and Ohta (2005) and Dalton-Puffer (2007). These authors studied lessons for children and youngsters under the age of 18, except for Foster and Ohta (2005) who concentrated on adult learning. The main focus of these studies is on words, grammar and prosody. Body movements are not observed systematically or in detail. Christine Dalton-Puffer's comprehensive study (covering seven Austrian schools and 14 classes) gives a good overview of the different types of situations related to feedback and correction of errors that occur in the process of knowledge construction (Dalton-Puffer 2007). She analyzes these situations from the viewpoint of turn-taking. In her theoretical discussion she also emphasizes the importance of interactional norms in classroom discourse.

Some authors (Hall 1998, Paoletti and Fele 2004) point out that the teacher's direction can create tension in participants of the class. Hall (1998) studied the interaction between the teacher and elementary school students in a Spanish language learning class and found that if the teacher allowed some students to speak more than others it influenced how the latter felt and their belief in their ability to acquire the language. Paoletti and Fele (2004) claim that asymmetric division of rights in the classroom – the teacher directing classroom interaction – can be a source of tension. Paoletti and Fele (2004) believe that tensions occurring in the classroom when the order of discussion is controlled should be explored further.

Interactional norms are not the only source of tension in the classroom. Tensions rising in the course of co-construction of knowledge due to individual differences between learners (cultural origins, proficiency in the language used in the classroom) have been studied for example by Patricia A. Duff (2002). She studied different subject classes in high school and found that whether a student was an active or a passive speaker could depend for example on the student's language skill (ability to speak the language used in classroom interaction) but also on the perceived cultural differences in relation to other students (Duff 2002).

How students feel in the classroom may also depend on the teacher's general style of expression. Elena Buja (2009) used written feedback to study learners'

opinions on how the teacher's non-verbal behavior influenced their motivation. Buja found that the teacher could increase the learners' desire to actively participate in the class by taking into account the students' feedback and altering her non-verbal behavior.

This article analyzes the language learning event based on the modalities present in human interaction. By observing how the teacher and learners use the modalities, we can identify the existence of an interactional norm. We can also see how the norm influences co-construction of knowledge. It is shown, on the example of one communicative episode, how and through which modalities do the learners' desire to express their knowledge and their efforts to cope with norm-induced tension manifest. Throughout the episode both the learners and the teacher mainly use verbal and prosodic modalities and various body movements (e.g. facial expressions, hand movements). When the teacher has given one learner the right to speak the others mainly express themselves through the modalities of movement. The teacher's sensitivity and ability to interpret learners' verbal and non-verbal expression is very important (Hativa 2000: 14) which fact the author of the present article tries to emphasize with a communicative episode chosen from a number of cases that turned up in the analysis of a large corpus. Noticing and resolving of tensions created by following the interactional norms may help create a better environment in the classroom and increase the students' motivation to learn the language.

3. Method and material

The material for the study originates from the sub-corpus of interactive communicative situations in the database of multimodal communication of the University of Tartu. More specifically, the material consists of videotapes of language lessons held at an Estonian university from 2009 to 2011. The subjects are adults who consented to participate in the study. Privacy of the subjects is guaranteed.

Two video cameras were used to record the lessons of Estonian as a foreign language. The teachers participating in the study are native speakers of Estonian. In all the lessons the teacher and the learners communicated mainly in the target language. The researcher observing and recording the lesson did not interfere in classroom activities and the participants did not address the researcher during the recording.

Via detailed analysis, the study presents an important example of the use of multimodal interaction in the discourse of a foreign language learning class. The video recording analyzed in the article lasts 37 seconds. The video material was transcribed using Jefferson's (2004) transcription system, which was adapted and partly modified in order to present the particular communicative episode more clearly. In addition, participants' names were replaced by letters of the alphabet and the abbreviations *l* and *r* were used to denote left and right (see Appendix 1). The communicative episode contains all three main

modalities used for expression: words and grammar, prosody, and body movements. Qualitative analysis was used to observe the meaning construction process via the participants' modalities and to identify how the interactional norm influences the participants.

4. Analysis of the communicative episode

The participants of the communicative episode analyzed in the article are ten learners and a teacher. Eight learners are native speakers of Russian, one male learner's native language is Ukrainian and one female learner's native language is Hungarian. The transcription presents only the activity of the teacher and five learners since the rest of the learners were beyond the scope of both cameras (see Figure 1, cameras C1 and C2).

For better presentation of the communicative episode the transcription is complemented by a drawing and several photos. Figure 1 presents the location of the teacher and the learners in the classroom. Photos 1–7 are snapshots taken from the video to illustrate the transcription. The participants' faces on the photos are hidden in order to guarantee anonymity.

During the communicative episode the learners practice the forming and use of compound words. For this task, the learners have been given a written exercise, which the whole class is doing together verbally. At the time, the participants are looking for a compound word with the second part *-pärane* '-like' to fill a gap in a sentence.

The learners are sitting at two sides of the classroom. The teacher (indicated in Figure 1 by the letter T) moves in front of the blackboard during the episode. The researcher (letter R in Figure 1) is located near the two doors behind the camera (all three doors are marked with gray rectangles in Figure 1). The learners are marked with letters A to J. A, B, C, I, J are learners who are left out of the scope of the cameras. Learners D, E, F, G and H are within the scope of the cameras.
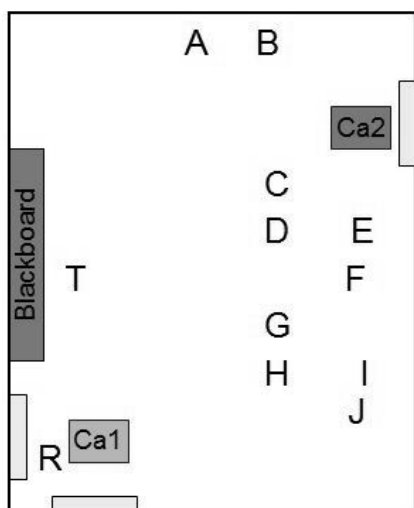
Figure 1. Layout of the classroom.

Photo 1. From left to right: learners D, G and H in the front row; learners E and F in the back.

The words, prosodic phenomena and movements occurring in the episode are transcribed by turns according to the sequence of activities (see transcription signs in Appendix 1). The numbers indicate turns. The temporal overlap of verbal, prosodic and motional modalities of two or more people during the same turn are presented in square brackets and double square brackets. The double square brackets are used to identify at what time do the modalities of which people overlap. The name used in the transcription has been changed. Learners A, B and D are male. The rest of the learners (C, E, F, G, H, I and J) and the teacher are female. The expression *hand cuts* used in the description of movements indicates the downward movement of the vertically positioned hand. The letter L is used to refer to all ten learners as a group.

1. T: Diana kuidas see järgmine lause on? olgugi?
   Diana how does this next sentence go? although?
   ((looks toward H and then at the workbook in her hands))
2. H: olgugi et see oli lihtsalt eee
   although it was just eee
3. T: [((raises her gaze and looks toward H))]
   E: [°suurepärane°
   [°excellent°
   ((looks toward H and T)) ((r hand waving in front of face back and forth, elbow
   on the desk))]
4. T: [noo mis sinna sobiks nendest sõnadest?]
   [so which of these words would fit there?]
   ((gaze stays on H))
   E: [((raises a hand which turns into a stretch and pulls the hand back))]
5. H: tööpakkumine
   job offer
   ((looks toward T))
6. T: [ei aga mis seal peaks nüüd] olema mingi [[selline sõna mille: mille: ee =
   [no but what should there now] be some [[such word whose: whose: ee =
   ((knocks into the open workbook with l hand fingers, gaze moves to other L in
   the room))]]
   G: [((points at something in H's workbook with a pen))]
   E: [[((starts to wave fingers fast))]]
   T: [[= teine sõnapool] liitsõna mis lõpeb sõnaga pärane]]
   [[= second part of the word] composite word that ends with the word pärane*]]*
   ((gaze moves to H, l *hand cuts* 4 times))
   G: [((again points at something in H's workbook with a pen))]
   E: [[((bends fingers one by one with a thumb and pulls lips inwards, then hides the
   thumb in a fist))]]
   D: [((looks toward H and then toward T))]
7. H: aa
   aa
8. T: [et see oli
   [so it was
   ((glances at the workbook))]
   H: [((looks into G's workbook and then into her own workbook))]
   F: [((rubs her nose with l hand))]
   E: [((grabs scarf with r hand, arranges it and hides chin and mouth with the
   scarf))]
9. E: ((raises r hand high and waves))
10. T: kes teab?
    who knows?
    ((gaze moves around, then indicates E with a nod))
11. E: suurepärane
    excellent

12. E: [((rubs and kneads l arm with r hand))]
    D: ootuspärane (…) [ootuspärane]
        expected (…)   [expected]
    T: [suurepärane] ootuspärane (.) jaa mõlemad siia sobivad
                               [excellent] expected (.) yes both fit here
                               ((nods and looks in the workbook))
    H: [((looks in G's workbook))]
13. D: omapärane
        peculiar
14. T: jah
                                          yes
        ((glances into the workbook))

The following photos depict some of learner E's activities. The corresponding turn in the transcription is noted below each photo.

Photo 2.
Learner E (turn 3).

Photo 3.
Learner E (turn 3).

Photo 4.
Learner E (turn 6).

Photo 5.
Learner E (turn 6).

Photo 6.
Learner E (turn 8).

Photo 7.
Learner E (turn 9).

During the communicative episode the participants are looking for suitable compound words to fill the gaps in an exercise in the workbook. The teacher gives one learner the right to answer by saying the learner's name and looking at her (turn 1). Learner H who is expected to reply starts reading the sentence but does not know how to finish it (turn 2). However, learner E who is sitting in the back row knows the answer. She whispers the word *suurepärane* 'excellent' and waves her hand in front of her face but does not raise it high (turn 3). The teacher does not respond to E's behavior. It is possible that she does not notice it or does not want to pay attention to her at that moment. Sitting a couple of meters away, E is in the teacher's line of sight but the teacher's micro-movements indicate that she is mainly focused on H: she is looking toward H (turns 1 and 3). The teacher continues to help out H and points out that she should choose one of the given words (turn 4). Learner H suggests the word *tööpakkumine* 'job offer' (turn 5) but the teacher insists that there should be a compound word with the second part being -*pärane* '-like' (turn 6). At the same time the teacher is observing the other learners because her gaze is moving around the room (turn 6). G, who is sitting next to H, shows H something in the workbook twice while the teacher is speaking (turn 6). After that, learner H says 'Aa', (turn 7). The teacher gives H one more chance (turn 8) by repeating part of the sentence where the missing word should be inserted. However, H does not reply. She just looks into G's workbook and then into her own workbook (turn 8). The teacher looks around the room at other learners while she asks 'Who knows?' (turn 10). Immediately before the teacher asks 'Who knows?' (turn 10) learner E raises her hand and waves (turn 9). The teacher nods at E to inform her that she may now answer the question (turn 10). E suggests the word *suurepärane* 'excellent' (turn 11). Right away, learner D also speaks, saying the word *ootuspärane* 'expected' twice (turn 12). Although both words are uttered in close succession, the teacher hears both and confirms that both fit into the sentence (turn 12). Next, learner D suggests another word *omapärane* 'peculiar' (turn 13) which the teacher also finds acceptable (turn 14). Learner H is silent and looks into the workbook of her neighbor G while others answer the question (turn 12).

The learners' main modalities of movement show that some of them would like to express their knowledge (whether the teacher considers the answer suitable or not) although they do not have the right to answer the question until the teacher's question 'Who knows?' (turn 10). Learner D looks alternately at H and the teacher (turn 6). D replies immediately (turn 12) after the teacher has given permission. Learner G tries to help her neighbor H and show her the right place or a particular word in the exercise by pointing at something in H's workbook twice (turn 6). The most active user of modalities is learner E who first tries to whisper the answer (turn 3). She uses her hand four times to indicate her desire to reply (turns 3, 4, 6 and 9). Every time the hand movement is different. The first time it is modest because her elbow is leaning on the desk and the hand is moving back and forth in front of her face (turn 3). The second time she raises her hand high but the movement coincides with the teacher's

expression: the direction of the teacher's gaze together with verbal expression indicates that learner H still has the right to reply (turn 4). E changes her movement into a stretch (turn 4). After that she keeps her elbow on the desk but waves her fingers fast (turn 6). Finally she raises her hand high again and waves (turn 9).

Learners D, G and F do not express themselves verbally while H has the right to speak and only make a few body movements. Learner F is looking into the workbook in front of her during the whole episode. She does not speak even after the teacher has given everyone the right to answer the question. Learner E on the other hand starts with whispering and makes a number of movements which are mostly hand movements, gaze and facial expressions. She tries to attract the teacher's attention by raising her hand twice (turns 3 and 4). She is not successful so she expresses her impatience by moving the fingers of her raised hand quickly (turn 6). After that, she starts bending her fingers one by one with her thumb and eventually hides her thumb in a fist. At the same time she also pulls her lips into her mouth (turn 6). She has a desire to express her knowledge but she must suppress it. She then grabs her scarf, adjusts it and hides her mouth and chin with the scarf (turn 8). The situation is uncomfortable for E because the interactional norm that restricts her right to speak causes tension for her. Considering that E has tried to indicate her knowledge several times, but has not had a chance to answer the question, hiding her chin and mouth with the scarf may indicate resignation. Nevertheless, in the next moment she raises her hand high and waves (turn 9). The teacher finally gives everyone the right to suggest suitable words into the sentence (turn 10). E suggests a word (turn 11) and then rubs and kneads her left upper arm with her right hand (turn 12). Since micro-analysis showed that for E a tense situation had just been resolved, this movement could mean both soothing and self-approval.

5. Discussion

In a language learning class there are often more than two participants. In Estonian universities there can sometimes be as many as 30–40 students in a beginners' language class. However, the usual number of students in a class is 10–20. In such a situation the students, guided by the teacher, attempt to learn to express themselves in the target language both verbally and in writing. In order for everyone to be able to participate in the co-construction of knowledge interactional norms must be established. Every learner must have an opportunity to speak every now and then to ask questions about the content of the lesson, to practice the word or grammatical phenomenon being learned or to express existing knowledge. The learners cannot all speak at once because the teacher would not hear everyone's reply or question. Therefore the teacher addresses the learners by name or by indicating someone with a nod or a hand movement. Meanwhile the others understand that they must wait for their turn to speak.

However, the learner may raise her hand and express her desire to reply, ask a question or practice (Merola 2004: 105). Hand raising is very common in primary school and high school, but adults also use it in university lectures with many participants or, for example, at academic conferences to express their desire to ask questions after a presentation.

There are ten learners and a teacher participating in the language learning class analyzed in this article. Only learner H has the right to speak because the teacher addresses her and calls her by name. Learner E raises her hand four times before she is allowed to speak. The teacher does not express whether she notices E's signals. Learner E is quite close to the teacher (a couple of meters away) and considering the body direction and scope of vision of the teacher, who is standing up, E's activities could be visible to her. It is therefore possible that the teacher has decided not to react to E because she expects H to reply. This structure of interaction in the class ensures more or less equal conditions for all participants to develop their language skills. However, such a situation creates tension in the learners who are not allowed to speak, even though they want to do it.

Language teachers generally address different learners one by one when doing a verbal exercise in class, but a learner whose turn it is may not want to speak or know the answer. Thus, a moment may occur in the classroom discourse when knowledge is not revealed. The learner who has the right to speak remains silent or gives an unsuitable answer. In the communicative episode analyzed here this happens with learner H who has the right to speak. Her answer is not accepted by the teacher and H does not suggest any other answers. The other learners in turn are not allowed to interfere. However, learner E's communicative activities on the video clearly show that she wants to express her knowledge and suggest a suitable answer. She attempts to draw attention by raising her hand and whispering the word. Learner E's body movements also express tension stemming from the restrictions set by the interactional norm and the suppressing of her desire. She waves her fingers quickly, bends her fingers, pulls her lips in and adjusts her scarf, hiding her chin and mouth with the scarf. The behavior of the other learners does not indicate tension. It is also impossible to determine whether or not learner H feels uncomfortable for not being able to find a suitable answer for the exercise. Considering that one of the teacher's tasks is to constantly observe the student's interest and understanding (Hativa 2000: 202, 337) the behavior of three learners (D, E and G) hints at their knowledge and the expressions of one learner (H) at her difficulties. Yet none of the other four learners recorded on the video besides E express that the teacher should allow others to speak sooner and that learners D, F, G and H, while waiting for a suitable answer, experience tensions which might influence their attitudes towards the particular class (as cautioned by MacIntyre and Gardner (1991)) or towards learning Estonian in general.

Tensions may occur in a situation of communication where there are many participants and where one needs to constantly observe the course of the

conversation and find the right moment to express oneself. When one learner is allowed to speak, the others can listen and wait patiently and speak when they have been given permission (as learner D does). They also have the option to help their classmates, like learner H's neighbor G, who points her pen at a place in the workbook where H should find the correct answer. The learners can also try to gain permission to speak by raising a hand. This is what learner E does. But she does something else as well – whispers a suitable answer. With this action she violates the interactional norm, even though the quietly whispered expression might not be audible to the teacher, or even to H. Compared to calling out the answer loudly, this action is a milder violation of the norm but still lets the learner express her knowledge.

The tensions that learners develop may be very short-term and stop as soon as they get a chance to speak and express their knowledge. Learner E's behavior at the end of the communicative episode (turn 12) as she rubs and kneads her left upper arm with her right hand after calling out the answer in a loud voice may indicate the expectation of calming down. However, such a situation requires great attentiveness from the teacher. She waits for one student to reply and may notice the behavior of the other students at the same time. In this episode as well, the teacher occasionally looks around the room while waiting for H to speak. Too much time (and that is perceived individually by each learner) spent on one learner may have a negative effect on the participants. In the episode analyzed here there is one learner who expresses tension – learner E. Thus, in this situation, the teacher's role is not only to instruct and assist in the language learning but also to guide the communicative activities and manage tensions. Therefore, the teacher gives everyone a chance to speak. She asks 'Who knows?' and nods at E who has already raised her hand high and waves it enthusiastically.

The episode analyzed here clearly shows that the interactional norm that gives one learner the right to speak is necessary in the classroom. The norm may give a learner who might otherwise rarely speak up an opportunity to express herself. This way, even the learners who usually do not like to speak or do not know the answer right away must participate actively. By allowing different learners to speak the teacher gets feedback. She gains information on which learners may have difficulties with the current topic and which learners feel bored (Hativa: 337). By looking around the classroom and observing the body movements of the silent learners the teacher can decide when it is time to include the other learners and ease the tension.

6. Conclusion

The analysis presented in the article shows that the norm that guides the language learning discourse does not just dictate that only one student may answer the teacher's question but also influences the modality (e.g. body movement or word) participants choose to express themselves. The analysis of

the communicative episode revealed that the learners find various ways to express their knowledge without significant violation of the norm. One learner points out a place in the workbook to her neighbor who must answer the teacher's question, another one whispers the answer and raises her hand repeatedly. They cannot express their knowledge loudly. Body movements are therefore the main modality with which to express their knowledge. When one learner whispers the answer to another she violates the interactional norm, although the violation is milder than if the answer had been called out loudly over the classroom. During the episode, only one learner uses whispering and only once, all other expression of knowledge happens via the modality of movements. Thus, the interactional norm existing in the language learning classroom may restrict learners' verbal expression.

It is the lack of the right to speak that may cause a tense situation for a learner. For one learner in the group to be able to develop her language skills the others must remain silent for a while. Tensions also manifest mainly through movements. It could be seen in the episode how one learner, in addition to raising a hand, waved her raised fingers quickly, bent them and pulled her lips in.

If the teacher must try to offer equal opportunities for all learners to develop their knowledge of the subject (Hativa 2000: 47) it is important to use interactional norms to regulate the order of speaking. It is equally important that the teacher observe whether the learners' behavior expresses desire to express their knowledge and tension caused by waiting for their turn. In the episode analyzed in this article the teacher observed the learners' behavior and eventually gave everyone the right to answer the question. Although one learner expressed tension while waiting to for the right to speak the teacher at the same time received feedback that at least one student had difficulties completing the exercise. The teacher also considered the student who felt tension and when allowing everyone to speak by asking 'Who knows?' she specifically indicated that student with a nod.

The tensions caused by not having the right to speak have not yet been extensively studied in the field of language learning via analysis of modalities. Examining a larger number of similar examples might provide the teacher with practical solutions for handling situations where one learner has the right to speak but cannot or does not want to answer the question and another learner wants to express her knowledge but does not have the right.

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Appendix 1. Transcription signs and abbreviations

[ ]	square brackets are used to present the temporal overlap of the verbal, prosodic and motional modalities of two or more people
[[ ]]	double square brackets are used to differentiate from single square brackets in the same turn when one person's verbal, prosodic and motional modalities overlap with the modalities of the person who started the turn, at a different moment in time compared to other overlaps
=	indicates that the turn continues without interruption
(.)	short pause
(...)	long pause
(( ))	double brackets are used to present movements (facial expressions, gaze, hand and body movements)
?	raising voice
° °	whispered words are placed between the characters
:	pronouncing one sound in a word longer than usual
T	teacher
D, E, F, G, H	learners
L	all learners participating in the class
r	right
l	left

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