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THE QUALITY OF ARGUMENTATION IN THE STUDENTS' STATE EXAM COMPOSITIONS IN 2006 FROM THE SOCIO-COGNITIVE POINT OF VIEW

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Abstract

Education is the system of human knowledge, skills, abilities, values and behavioural norms that enables one to develop, cope and fulfil himself as an individual and member of society. Argumentative skills have a crucial role in civil education and thus also critical thinking comes to be emphasised within mother tongue education.

The present article focuses on the quality of argumentation in the only compulsory state examination in the Estonian educational system – the composition. The article concentrates on the given topic based on the national compositions written in 2006, the sample included 500 compositions.

The article is laid by the socio-cognitive approach to critical discourse analysis, and also explains the applied methodology. The relations between language and language users are described from the point of view of geographical and social variation. The current article presents the results of the textual grammar and syntax. The coherence of argumentation and sentences are studied according to macrostructures set by T.A van Dijk and superstructures set by M.Hoey.

The discussion explains the specific features of argumentative composition from the point of view of ideology, and also the possibilities for improving the pupils' argumentative skills in mother tongue education. Critical and creative thinking are essential to the quality of education.

Key words: *mother tongue education, state examination, argumentation, critical and creative thinking.*

Introduction

Estonian as the mother tongue has a special role in Estonia. It is emphasized in the national curriculum as "mastering the Estonian language forms the foundation for the knowledge and appreciation of the Estonian culture" (Riigi Teataja, 2002). Since 1997, The Estonian Ministry of Education and Research and The National Examinations and Qualifications Centre have administered state examinations (Riigi Teataja, 2001) and it has been determined that all secondary school graduates need to take the state exam in the Estonian language. As a citizen an educated person has to be able to control his own life, influence the community life and contribute to decision-making processes, and thus argumentation skills have a crucial role also in the state exam compositions.

Language is a means of social control and power which is increasingly more often used in the society. Language carries an ideology. The relations between language usage and power,

especially ideology, came to be studied in 1970s (Foucault, Halliday, Fairclough, Fowler, Dijk). Language usage depends on the context. In the current article the students' argumentative skills come to be discussed from the socio-cognitive point of view of the critical discourse analysis (Dijk, 1980). An overview of the development of the given field has been presented by Mihkel Volt (1997) and Reet Kasik (2002). The formation of the cognitive approach in linguistics also dates back to the 1970s and today it has become perhaps the most widely discussed theoretical perspective. Cognition is a tool for giving a more detailed description of language and also for ensuring its better functioning. The cognitive approach is based on the understanding that meanings are dependent on the person's cognition and general conceptualisation ability (Tragel, Veismann & Õim, 2000, p. 260). In the article, discourse is described according to the principles of coherent conceptual structures.

The philosophical and methodical basis

The critical discourse analysis turns its attention to the ideology and the micro and macro level of the specific text. Similarly to other interdisciplinary subject areas such as sociolinguistics, speech ethnography and pragmatics, the aim of the discourse analysis is to give a systematic explanation to the complex structures and strategies of text and speech employed in social contexts (Dijk, 2005, p. 236). Context as the structured combination of the given characteristics of the social situation influences the creation, structures, interpretation and functions of the text (ibidem, p. 251). Viewed from the state examination perspective, the social practice of ideology is founded on the social situation: by using the context model they rely on the personal situation and the social situation of the group. The student combines the general and the specific. The context model enables discourse to reveal the common ground of the culture that is shared by the social group. In addition, it is also a particular type of a mental representation: it is shared by the members of the group, however, it is deeply rooted in the individual psyche (ibidem, p. 66), and thus we may say that ideology is both social and mental. The given common ground enables us to give a description of the cognitive basis of the discourse according to ideology.

While discussing a specific topic, the student creates an image of himself and the surrounding conditions. The group where the writer forms his social beliefs and knowledge also reveals the ideology underlying the given beliefs and knowledge. According to Teun A. van Dijk the representations of the social cognition influence the development of the social dimension of the personal mental models in the episodic memory. The models are controlled by the beliefs of the group. The personal dimension of the mental models is affected by both the previous mental models of the individual (previous experiences) and the general representations (personal knowledge, I, personality). The 'empirical roots' of the ideology are in the personal model which is in keeping with the dominating experience model. The personal event model and experience model are expressed within the context model in discourses or enforced in other social practices (Dijk, 2005, p. 110). Thus it may be presumed that the ideology describes the general knowledge, the general principles behind argumentative and discursive skills promoted in the educational process (see Figure 1).
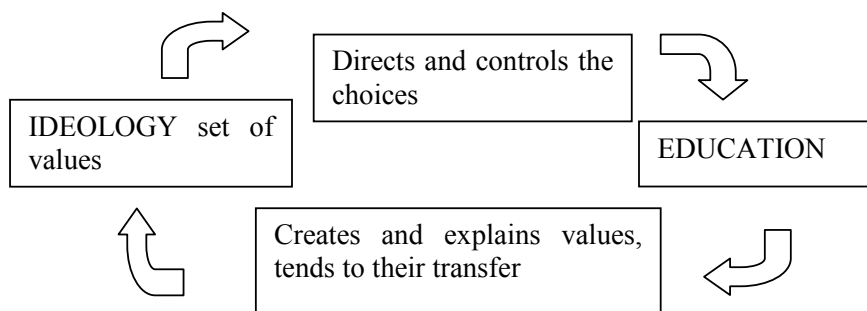
Figure 1.   The interplay between ideology, values and education.

In the discourse theory, macrostructures have an influential role in explaining the concept of coherence: the discussion is not coherent only on the micro level but also on the more general macro level. The text is analysed according to the macrostructure method for argumentative texts devised by T.A. van Dijk (1980). In practice it means that an overview is made either of the whole text or a section of the text – the main idea of the paragraph is formulated. On the first level of the microanalysis an overview is made of the minitext which usually forms a complete unit of text. The most important element in the section is the statement, which is sometimes put forward either by one or two dominating sentences – these convey the primary content of the section. According to Michel Hoey's approach (1983, 2000) it is called a situation that is followed by the hypothesis. The statement is supported by a specific argument, i.e. a solution is suggested which is followed by an evaluation, that is, a conclusion. For the second level the most important ideas of the third paragraph of the composition are selected: the connections of the micro level of the section are explained. If a text has a conventional schematic structure, it gives the reader a set of criteria by which he/she can determine what type the particular text represents and whether „a story or argument is correct or not" (Leppänen, 1993, p. 366). The macrostructures are theoretically relevant for the complex information: the state examination composition surpasses the storage and processing capacity of the short-term memory and due to its structural features requires further organisation and representation in the long-term memory. Sentences as the basic units of a coherent conceptual structure are anchored through the conceptual overlapping, the background will bring out the relation between the writer and the reader of the text. In the sequence of sentences an important role is played by the topic which unites the sentences into a unified whole. The application of the macrostructures by T.A. van Dijk and the problem solving by M. Hoey enables better understanding of the text creation: some sentence positions are more suitable for the presentation of the discourse than others. The base texts of cognitive linguistics suggest that cognition is the product of a developing human organism which is in interaction with the physical and social surroundings (Tragel et al, 2000). The connections of the micro and macro level are expressed in a different context and thus reveal the relation between culture, language and cognition.

The empirical study was based on a real situation in the present education: the compositions were written in 2006. The whole of the given material is stored in the archives of the National Examinations and Qualifications Centre. The aim of the state examination is to assess the achievement of the educational aims determined in the national curriculum, another important academic result is the creative and argumentative self-expression, and thus the ability to present and analyse the problem, to reason and come to a conclusion form an influential criterion. The sample of the study was based on the principle of random selection, however, at the request of the author of the study the IT-specialist of the National Examinations and Qualifications Centre did consider the aspects of the type and location of school, sex, grade and the topic of the composition in the selection process.
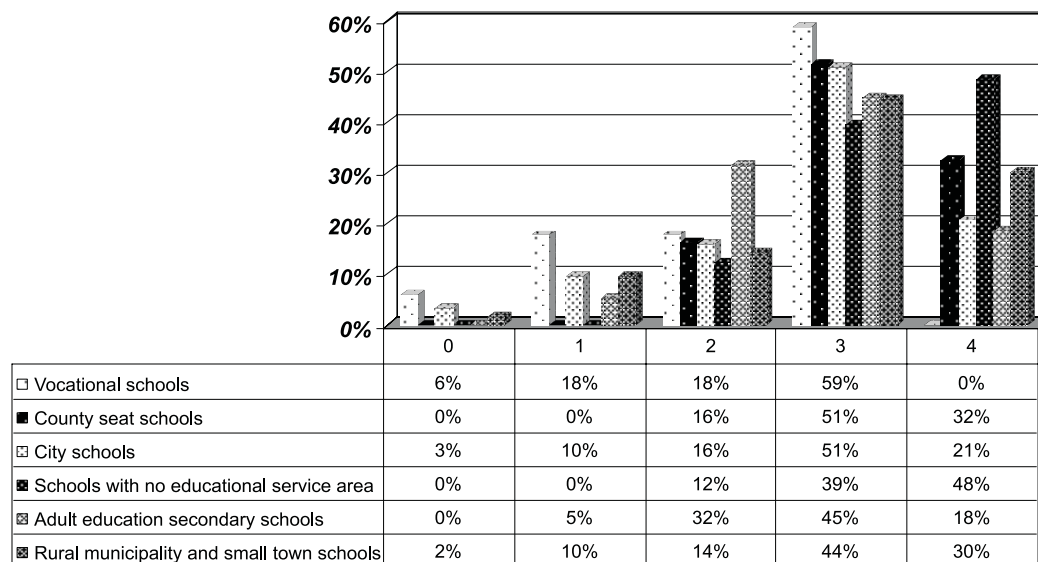
The study consisted of the following stages. At first the author studied the compositions according to the macro structural methods devised by T. van A. Dijk based on the grade scale: starting with the compositions marked 100-90 points and finishing with works marked 10-0 points. In the study of the macro structures, the whole of the third paragraph was extracted and analysed with regard to argumentation and the problem solving aspect devised by M. Hoey. Simultaneously the numeric values were recorded in the table as a system based on the total number of paragraphs in the specific composition, the argumentation in the third paragraph, the logic of composing the paragraph and the whole text, the transitional techniques between paragraphs, the development of the problem, and the arguments and counterarguments in the whole text. The third paragraph came to be chosen for the study of argumentation as in some compositions there are altogether no more than three paragraphs.

The methodical foundation of the study enables us to conduct a detailed and adequate investigation of the analysis based on conclusion, the appropriate facts and the comprehensive argumentation of the composition. The philosophical aspect of the article was linked to the results of the empirical study focusing primarily on the socio-cognitive aspect.

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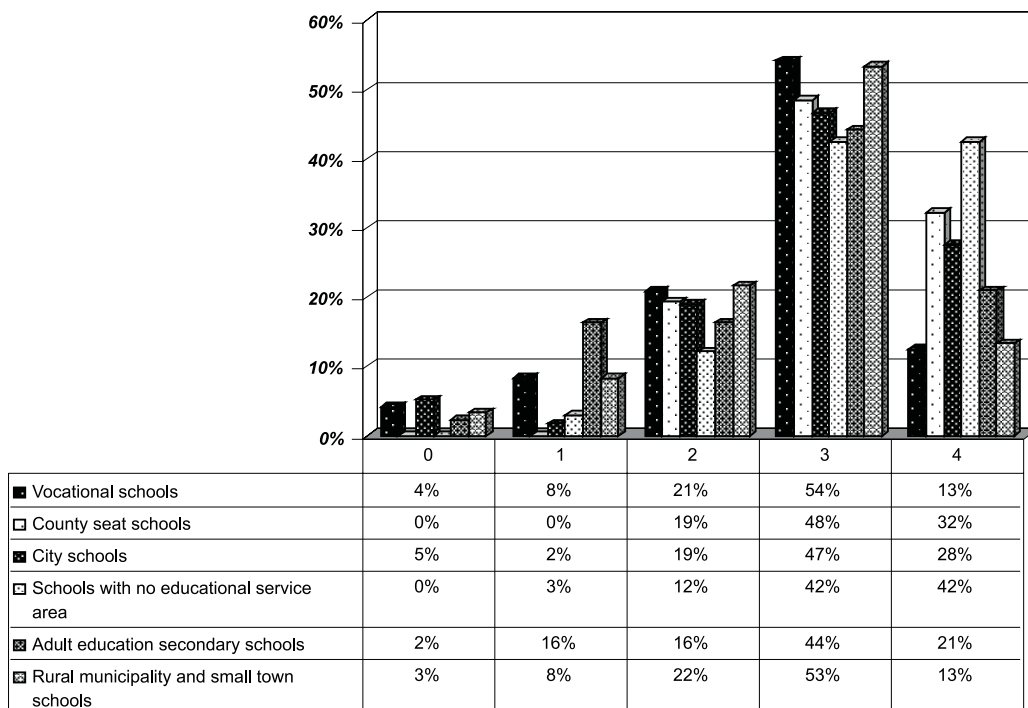## Argumentation based on the location of the school and sex of the students

The variationist discipline made known in the 1960s was founded by William Labov (1972) who claimed that language varies on two levels: in the first case the factors depend on the language user, in the second case on the situation. The social factors causing variability include age, sex, socio-economic status, level of education and the nature of the situation. Labov connected the variationist language system to descriptions (Nahkola, 1986).

The article considers the quality of argumentation skills according to the location of the school and the sex of the students. The argumentation skills were evaluated according to the argumentation in the whole text and also in the third paragraph. The determination of the argumentation was based on the problem solving technique suggested by M. Hoey (1983, 2000): situation, problem, solution, and evaluation. The given components together form a comprehensive argumentation. The sample of the 2006 analysis includes 500 state exam compositions. Logical argumentation was exhibited by 126 students in the third paragraph (373 could not), 18 students could argue in every section of the whole text, 312 in some paragraphs, 168 students could not comprehensively argue in any of the paragraphs.

	0	1	2	3	4
☐ Vocational schools	6%	18%	18%	59%	0%
■ County seat schools	0%	0%	16%	51%	32%
▨ City schools	3%	10%	16%	51%	21%
▨ Schools with no educational service area	0%	0%	12%	39%	48%
▨ Adult education secondary schools	0%	5%	32%	45%	18%
▨ Rural municipality and small town schools	2%	10%	14%	44%	30%

Figure 2.   The argumentation of female students in the third section of the composition.

Figure 2 refines the argumentation quality (0;1;2;3;4 show the number of problem solving aspects) of female students on the section level based on the location of the school: the best results are shown by schools with no specific service area, i.e. 48% of the students from these schools have skills in argumentation, 32% of the female students of county seat schools, 30% of the female students of rural municipality and small town schools, 21% of city school female students, 18% of female students in adult education institutions and 0% of vocational school students.

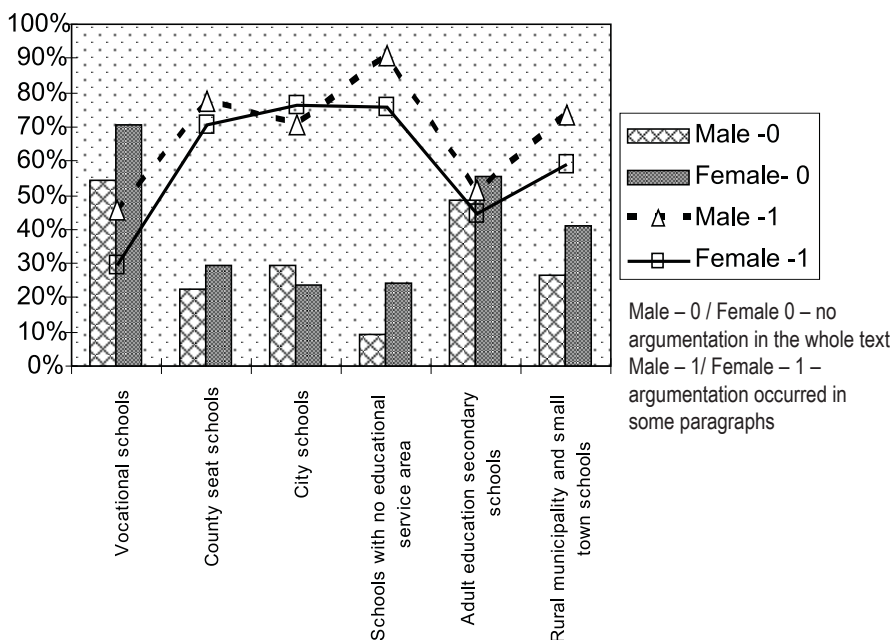|	0	1	2	3	4
■ Vocational schools	4%	8%	21%	54%	13%
□ County seat schools	0%	0%	19%	48%	32%
▨ City schools	5%	2%	19%	47%	28%
▢ Schools with no educational service area	0%	3%	12%	42%	42%
▩ Adult education secondary schools	2%	16%	16%	44%	21%
▨ Rural municipality and small town schools	3%	8%	22%	53%	13%

Figure 3.   The argumentation quality of male students in the third section of the composition.

Figure 3 describes the argumentation quality of male students on the section level based on the location of the school: 42% of the male students of schools with no specific service area can argue comprehensively on the section level, 32% of the county seat school students, 28% of city school students, 21% of male students of adult education institutions, and 13% in both vocational and rural municipality and small town schools.

While comparing the argumentation skills of male and female students based on the third section of the composition and school location, it may be concluded that in vocational schools male students (13%) have better skills than women (0%), the respective level among county seat school male (32%) and female (32%) students is equal, in city schools the argumentation skills of male students (28%) are better than those of women (21%), in case of schools with no service area the level of male students (42%) is lower than that of female students (48%), in adult education secondary schools male students (21%) surpass female students (18%), and in rural municipality and small town schools the female students (30%) clearly surpass male students (13%).

While comparing the argumentation skills based on the whole text it may be concluded that argumentation is understood differently on the section level and the whole situation is rather critical. The third paragraph was chosen for analysis as in the compositions of the sample there were 3 to 30 paragraphs. The given extremes show how differently students understand the composition of a unified whole. Already in compositions with 10-15 paragraphs we may witness serious text creation problems on the argumentative level. Nevertheless it may be concluded from the analysis of the numerical data that in the whole text there are more sections based on argumentation that could be initially presumed by the results of the analysis of the third section.

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Logic in the whole text, male – female

Figure 4.   The argumentation quality of male and female students in the whole text according to the school type.

As the sample included only 18 compositions that featured argumentation in all sections, the given number was added to the compositions that could exhibit argumentation in some of the sections of the whole text. The numerical data given in Figure 4 show the percentage share of the argumentative and non-argumentative texts according to the school type and sex. The columns reveal the share of non-argumentative texts, the line marks the share of argumentative texts. The argumentation skills of male students (91%) in schools with no service area are better than those of the female students (76%) in respective schools, the skills of male students (77%) are better than those of women (70%) in county seat schools, the level of argumentation of male students (71%) in city schools is lower than that of female students (76%), in adult education secondary schools the level of male students (51%) is better than that of female students (45%), in rural municipality and small town schools the quality of argumentation is better among male students (73%) compared to women (59%). While analysing the trends it may be concluded that the argumentation skills of men are better than those of women, and the students of schools with no service area can generally reason well, but similarly also the students of county seat schools, city schools and rural municipality and small town schools.

The next part will describe the argumentative text type, similarly a short overview is given of the discussion typology which is considered within the context of text grammar and syntax.

Argumentative text type

Argumentative texts have specific structural features. At a cognitive linguistics conference in 1999 Ronald Langacker presented a viewpoint "Discourse in cognitive grammar" on how to describe discourse by the means of cognitive grammar (Tragel et al, 2000, p. 261).
The given approach was based on the principles of forming coherent conceptual structures. The sequence of topical sentences reveals the meaning of the structures. In a text there are certain recurring functional parts. The categories of M. Hoey's superstructures are the following: situ-

ation, problem, solution and evaluation. He names the smallest syntactic text unit featuring such characteristics a minitext. In an argumentative text the problem component is mandatory. Thus the following combinations are possible: 1) situation + problem; 2) situation + problem + solution; 3) problem + solution; 4) problem + solution + evaluation; 5) situation + problem + solution + evaluation.

As an example of a text with comprehensive argumentation we present the composition on the topic "People who are difficult to understand". According to T. A. van Dijk's macrostructures the third paragraph is given in three columns: in the middle there is the student's text and parallel to it on both sides there are the argumentative steps according to study material, F. van Eemerin's (1996) and M. Hoey's problem solving technique.

1. *What makes an individual difficult for others to understand?*

2. *The thoughts of ancient philosophers are so universal that many of these are valid also today.* (Based on Plato's myth of the cave serves).

Argumentation	The third paragraph in the whole text	Solution of the problem
Proposition	3.1. *Ancient philosophies have their supporters even today.* 3.2. *Some teachings have even become religions.*	Situation
Explanation	3.3. *However, it takes patient concentration and thought in order to understand it fully and it is precisely this that many people lack.*	Problem
Argument 1	3.4. *Buddha's teachings are increasingly more popular in the western world. However, there are only few ardent followers and its deeper meaning is seldom reached.* 3.5. *Dalai lama has dedicated his life to meditation and search for harmony in solitude.* 3.6. *He propagates his vision of peace and harmony that could be accomplished only by renouncing wants and desires and by accepting oneself.* 3.7. *Many find his views interesting but never reach the true meaning or understanding.*	Solution
Argument 2	3.8. *According to the English poet T. S. Eliot the redeeming force for the western world lies precisely in the culture of the eastern countries.* 3.9. *The proposition finds proof in the chapter "The Fire Sermon" of his poem "The Waste Land"* 3.10. *According to this the western world ravaged by wars should look for support in peace and Buddhism that help to understand the world.*	
Conclusion	3.11. *Unfortunately only few people can concentrate on, truly follow and properly interpret the teachings of Buddha and the dalai lama.*	Evaluation

4. 4. *Human soul can sometimes be so restless that there is no comfort either in religion or philosophy* (based on F. Dostoyevsky's novel 'Crime and Punishment')

5. 5. *Human mystery does not always need to manifest itself in inner struggles.* (Based on J. Kross's novel "The Czar's Madman" and quotation by R. Browning)

6. 6. *Instead of inability it is sometimes the wish not to see the truth that lies behind incomprehensibility.* (Based on A. Blok, the fate of A. Akhmatova and the quote by A. Alliksaar)

7. 7. *The inner world of man is often incomprehensible even to himself... Only few people dare to think differently and express innovative ideas. Therefore we should value the rare exceptions even more. Although they are often criticised, the people who we find hard to understand can sense the truth and improve the world.*

The combination situation + problem + solution + evaluation was encountered on the level of the whole text in only 18 works out of the sample of 500. It may be concluded from the results that the structuring of a paragraph should be considered in more depth in the education process. If the writer accepts the principles of the formation of coherent conceptual structures, the recipient will have a better understanding of the connection between sentences and what has been already construed. During the process also an access is given to what is being construed at the moment. The discussion typology of state exam compositions on the level of various minitexts has been presented, however, there are also thoroughly new types: additionally also problem + evaluation are joined. More serious problems occur in paragraphs with only one argumentative component, as in such cases argumentation is divided between several paragraphs which may often result in the disappearance of some parts of the argumentation. The most difficult aspect in argumentation is the wording of the conclusion. In case of complicated mixed composite sentences the students do not perceive the proposition correctly and will thus present several propositions on different levels, however, fail to give proof of the main statement. Another dangerous tendency is the proposition as a comprehensive sentence turning into a keyword. The use of the components of argumentation is shown in Figures 2 and 3. Cognition is a significant tool in analysing state exam compositions on the micro and macro level as it describes the functioning of language on the level of basic structural units i.e. sentences.

Discussion

According to van Dijk, discourse is the network of propositions, macro propositions and macro structures (Dijk, 1980). The student writing the state exam composition forms a specific general semantic model (macrostructure) and connects the proportions into a text. Communication and transmission of meanings stand for the coding and decoding of information, the object of inspection is the formal structure of language (Kasik, 2002, p. 80). In the article, the object of the state exam composition analysis is the comprehension process of argumentative texts. The socio-cognitive aspects direct the attention to social practices forming the skills and knowledge. The results let us conclude that meanings in state exam compositions are similarly dependent on the individual's cognitive and general conceptualisation abilities.

The article describes the foundation of culture, i.e. studies the argumentation in state exam compositions according to school type. Juri Lotman has said that texts have two basic functions within the cultural system: adequately transmitting meanings and creating new meanings (1999, p. 283-286). The cognitive approach of critical discourse analysis aims at studying the cognitive processes that turn the thoughts into a logical text (Dijk, 1980). The textual approach aims at analysing the grammatical means joining the text into a unified whole (Dijk, 1972).

The specialist of The National Examinations and Qualifications Centre Märt Hennoste states in his article "The need for developing the state exam in the Estonian language: problems and solutions" (2005) that "20-30% of the students can develop the topic throughout the text and form a unified whole; 70-80% of the students can develop the text primarily on the paragraph level but lack the ability to form a whole; 40-50% of the students can discuss, analyse and argue". Based on the empirical study of the state exam compositions (sample of 500 texts) written in 2006 and relying on the theories by Eemeren, Dijk and Hoey, it may be presumed that only a small number of students can form a comprehensive whole of the text. According to the school type and sex, argumentative skills seem to be better among male students although better marks are usually achieved by female students. The quality of argumentation on the paragraph level in the whole text is higher among the students of schools with no specific service area, county seat schools, city schools and rural municipality and small town schools.

The context model specifies the characteristics of the social event and group by revealing them through the personal social situation. It explains how by way of the event model the ideology comes to influence what we say and how we say it. The understanding of the general social model of the group enables us to improve and change the educational processes.

The main feature of the argumentative text type is the presence of the problem, however,

the results based on the sample show paragraphs lacking the given aspect. Discussion can be complete only when the writer understands how to elucidate his train of thoughts, formulates the general views as statements and gives reasons for his convictions. According to the results of the study the main problem seems to be the fact that students do not understand the essence of the sentence and thus do not reach a conclusion. The process of making sense of the proposition is not facilitated due to the versatility of its functions. The writer should understand that the primary function of the proposition in a discursive composition is to be informative. The argument does not need to give proof but primarily present propositions that may be formulated based on the facts and examples. Weighing the argument is of utmost importance as the validity of the decision relies on the argument. The multitude of discussion typology according to M. Hoey's problem solving aspect opens up a range of possibilities for improving students' argumentative skills on the basis of coherent structure.

The aim of education is to socialise the new generation including the transmission of skills and knowledge and also the central values and norms of the society. In culture as a system of information, socially relevant knowledge and experience are passed on from one person to another and from one generation to another. The given values do not exist independently but group themselves within human and social action into systems, sets of ideals collectively referred to as ideology (Hirsijärvi & Huttunen, 2005, p. 63). According to van Dijk, ideology finds expression in social practices. In order to make sense of the world, one needs to sense, notice and understand the surrounding visual and aural stimuli. The processes of perception, memory, creation of concepts, language and symbols are the primary cognitive skills forming the sources of logical thinking, learning and problem solving (Fisher, 2005). The cognitive approach was developed out of the need to stress the role of the individual, his experiences and perception in the functioning of the language (Õim, 1990). Argumentation skills form a significant feature of the quality of the social environment of human society. Critical and creative thinking stimulate and develop the discursive abilities.

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