The Importance of Knowing Linguistic Content in Speech Therapy

Tomaž Petek

Faculty of Education, University of Ljubljana

Slovenia

Abstract

Linguistics and speech therapy are two directly related areas whereby the first one, with appropriate development, should follow the latter as a support in a theoretical and practical sense. In a study carried out amongst Slovene speech therapy students, the researcher was interested in their views regarding the importance of linguistic content in their studies. The sample included all active students who were enrolled in the first-level and second-level study program of speech therapy at the Faculty of Education of the University of Ljubljana in the academic year 2018/19. In total, we received 43 appropriately completed questionnaires. All participants were female. A descriptive and causal-non-experimental method of pedagogical research was used. The study also offers a comparison of answers according to the study year (1st, 3rd and 5th) and results verifying the connection and dependence between different variables.

Key words: linguistics, linguistic competences, speech therapy, speech therapist education, student attitudes

Introduction

All-important European documents and organizations in the field of speech therapy classify linguistic competence as basic knowledge which indicates that the speech therapist, in their work, must be empowered with a wide range of such knowledge. Speech therapy is a science that studies speech - language communication; notes the presence of disorders, the causes and consequences of their emergence, as well as the methods of their prevention and rehabilitation, and a speech therapist is an expert with an appropriate level of education (see chapter Education of speech therapists in the Republic of Slovenia), which deals with the prevention and elimination of all kinds of speech - language communication disorders (Association, 2019; Vidmar, 2016; Levc, 2014; Omerza, 1984).

The International Clinical Phonetics and Linguistic Association (ICPLA, 2019) emphasizes that a speech therapist requires different types of knowledge, specifically, besides a knowledge in the fields of biology, physics, psychology, sociology, medicine and pedagogy, also expertise in the fields of communication science and linguistics (see also Smole, 2002). Bloothooft (1997), who deals with the recommendations regarding education and the work of speech therapists, summarize the views of the European Expert Commission of the Socrates / Erasmus program; the latter mentions the field of linguistics as one of the most important areas within this profession which must be a key element in the education of the speech therapist. The Standing Liaison Committee of Speech and Language Therapists / Logopedists in the European Union (CPLOL) have established the minimum standards of knowledge that should be mastered by speech therapists. They are published in the Revision of the Minimum Standards for Education (2007) and, in addition to a wide range of skills in the fields of social sciences and biomedical sciences, and the field of speech and linguistic disorders, also have a high regard for knowledge and expertise in the field of linguistic sciences, especially phonology, semantics, morphology, syntax, pragmatics and psycholinguistics, neurolinguistics and sociolinguistics as well as multilingualism.

Linking Speech Therapy and Linguistics

Stabej (2003) claims that speech therapy and linguistics, especially Slovene linguistics and Slovene didactics, have many common points. Both sciences deal with language, speech and communication - from the point of view of the individual and from the point of view of the linguistic or social community. Both are entwined with interdisciplinary; In addition to linguistic and communicative aspects, speech therapy also includes content from other areas, such as developmental, psychological, pedagogical, andragogical, sociological and medical content. The participation of linguists in speech therapy research and practice is indispensable, according to the author, and to this we can also add that the integration of speech therapy and linguistics is also necessary in the study of speech therapy and discussed topics. Stabej (2003) also claims that in order to understand the speech-linguistic problems well, and to identify them and eradicate them, and then it is necessary to know the common image of speech, language and, ultimately, the communicative habits of

speakers and the linguistic community. He also points out that the classical descriptive grammar of the literary language and the dictionary of the literary language are decisively insufficient for satisfactory linguistic knowledge. The same author (ibid.) is also critical of the current state of linguistics. He believes that linguistics will need to be organized not only in terms of tradition, but also in the context of more recent theoretical approaches to describe different parameters of the language and linguistic community in general, mentioning sociolinguistic, corporeal and psycholinguistic research for a more modern and detailed description. This is important in understanding the language in concrete circumstances and in respect of actual speakers.

In the field of speech therapy, in conjunction with language and linguistics, we are also faced with terminological problems; because the field of speech therapy is interdisciplinary, it is not only confronted by the integration of several areas, but the profession is also in contact with several foreign languages through which it develops and is updated. In our opinion, linguistics should play a key role here. Kalin, Goloband & Logar (2008, p. 663) notes that: "Editing the conceptual world of the profession with the formation of appropriate professional expressions is, according to the theory of literary language, and as developed by the Prague linguistic school in the 30s of the 20th century, one of the basic tasks of the linguistic culture as the theoretically supported development of the literary language." First of all, it's primarily linguists who should be aware of "the importance of proper monitoring and terminological planning since only in this way can they constructively monitor and classify conceptual innovations that are the result of the intensive development of society and the changed (newer) views on language and profession (cf. Jemec Tomazin, 2010). "Expert-scientific communication is even more important in a knowledge-based society," notes Jemec Tomazin (2010, p. 103). It is certainly one of the starting points for this design of modern terminology. In practice, according to Žagar Karer (2018), "it is often not easy to reach a terminological agreement between experts since there is a need to find a compromise between different opinions and views on individual concepts and at the same time the chosen term must also be appropriate from the language perspective. We use a terminological agreement when we want to choose the most appropriate one among several terms which can be used to designate the same concept, but also in the naming of a (usually new) concept. If we want a terminological agreement to be successful, it is necessary to set criteria for choosing the most appropriate term" (ibid., p. 237).

The Foundations of Linguistics in Speech Therapy

Golden (2001) states that “linguistics is a science because it is a subject of study, it examines this subject with clearly described procedures that can be used by everyone, and because it offers theories on the subject of study” (pp. 24–25). We can look at linguistics in the narrower (micro-linguistics) or wider (macro linguistics) sense. The subject of the study of linguistics in its narrower sense is the linguistic system; its use and development, while linguistics in its broader sense form disciplines that connect knowledge about language with aspects of knowledge of other sciences. Some of the main categories

includes: psycholinguistics, neurolinguistics and sociolinguistics (ibid.) with the field of speech therapy where linguistics, as we have already mentioned, plays an important role. Let us first focus on the study of linguistics in its narrower sense, bearing in mind the language system and its use in concrete circumstances already mentioned by Stabej (2003). The language system is understood as a closed, orderly whole in which all the components are interconnected and have a function within the whole. Toporišič (2000), in Slovene Grammar, deals with the following areas in linguistics: the nature of language, phonology, vocabulary, word formation, morphology, syntax and communication.

Golden (2001) for example, emphasizes the language constructs of the four planes, i.e.: phonological, morphological, syntactic and semantic. This linguistic structure, which is mentioned all the time in connection with speech therapy, must be well-known to the speech therapist in theoretical and practical terms. The narrower view of language and linguistics as a science extends further of course when we enter the areas of other disciplines that are directly or indirectly related to linguistics and speech therapy, at the same time or are complementary. Psycholinguistics, for example, as Golden (2001) points out, combines linguistic abilities with other cognitive abilities that an individual possesses. Among the main areas of psycholinguistic research are questions regarding how a child acquires knowledge of their mother tongue and which mental processes are involved in the creation and understanding of the sentence in addition to language knowledge. Neurolinguistics examines the neurological basics of language and speech, and sociolinguistics examines what are the systematic elements in the use of language in the concrete processes of linguistic communication from the point of view of actual participants and social and cultural norms of the linguistic community.

Educating Speech Therapists in the Republic of Slovenia

In the Republic of Slovenia, the study of speech therapy takes place only at one educational institution, namely the Faculty of Education at the University of Ljubljana. The program is combined with the field of surdopedagogy and is called Undergraduate Studies of Speech Therapy and Surdopedagogy. In order to carry out the work of a speech therapist, the study must be continued in the Master's Study Program (Presentation Bulletin, 2018).

Speech therapy studies are undertaken within the Department of Special and Rehabilitation Pedagogy. Entry into the program is possible only every other year. 20 places are available. The study program is in line with the Bologna Reform and offers two levels. The first stage, i.e. the undergraduate program, lasts four years and offers 240 credits. The first-level university study program is concluded by a diploma project. The student receives the title of Graduate Professor Logopedist (specialist educator of the deaf and hearing impaired). To undertake independent work in the field of speech therapy, it is necessary to continue studying at a second level which lasts a year. This program offers 180 credits and upon successful completion the student is awarded a master's degree. The student acquires the title Professor, Master of Speech Therapy (with specialist education for the deaf and

hearing impaired). Thus, they can perform autonomous speech therapy activities (cf. Presentation Book, 2018). Linguistics is directly or indirectly present within the following subject areas: phonetics and phonology, linguistic sciences, phonological development of children and delayed phonological development, neurolinguistics and neuropsychology and working with multilingual people. In comparison with, e.g., Belgium and Portugal, Slovenia has the largest number of hours in the linguistic learning program associated with linguistics, namely 715. In Belgium they only receive 390 hours, and in Portugal 546 (Šumak, 2016).

Methodology

Purpose and Aim of the Research

Different research and reports on the education system in speech therapy) attach great importance to the knowledge of linguistics as a science which speech therapists should master in various situations in their work. The purpose and aim of the research was to examine the views of Slovene speech therapy students on the importance of the linguistic content in the course of their studies using a questionnaire. Regarding the categories observed, the goal was to form common factors within linguistic topics, to compare answers to various questions regarding the year of study and to check the (potential) connection and dependence between the various variables.

The questions to be answered in the research were: How important they believed the presence of linguistic content is in the study of speech therapy at Levels 1 and 2?; How they would generally assess their current knowledge of linguistic content that is important in speech therapy?; Which linguistic content in speech therapy they considered to be the most important to know?; How important it is to know specific linguistic content in order to work successfully in speech therapy?; How much additional knowledge they need in their own assessment in the given fields within linguistics?; How satisfied they are with the representation of linguistic content in the curricula of the speech therapy study program?; How useful they find the linguistic content provided during the study of speech therapy for work in speech therapy?; How often they thought about their competence in linguistic content that occurs in speech therapy?; How important they feel revision and improvement of their knowledge which one is expected to have in the field of linguistics within speech therapy? and In which subjects in the field of linguistics would they like to see additional education?

Research Methods and Research Sample

We utilzed a descriptive and causal-non-experimental method of pedagogical research (Sagadin, 1993; Mužič, 1994). For this purpose, we used an online questionnaire (it was accessed at https: // www.1ka.si/a/184432, namely from 3. 10. 2018 to 3. 12. 2018), which, besides the basic data (gender, age, year of study), asked respondents to answer ten substantive questions (closed and open type) that are in accordance with the purpose

presented and aims of the research. The comprehensiveness of the online questionnaire was verified and confirmed by five randomly selected "potential" respondents. The sample included all active students who were enrolled in the first-level and second-level study program of speech therapy at the Faculty of Education of the University of Ljubljana in the academic year 2018/19. Since the Faculty of Education of the University of Ljubljana is the only institution that educates future speech therapists in the territory of the Republic of Slovenia, and since, in principle, during the 1st year, new students enrol every second year, we had no influence on the quantity of the sample; in the year studied, in the program, speech therapy is taught to students in the 1st, 3rd and 5th years. In total, we received 43 appropriately completed questionnaires (1st year: 17, 3rd year: 13, 5th year: 13). All participants were female. These were also included in the analyses presented below or by data processing. Their average age was 21.1 years. The share of students in the 1st year was 39.54%, 3rd year 30.23% and 5th year 30.23%.

Processing and Display of Data

The data obtained was then analysed which was carried out using SPSS 23.0 software. In addition to the basic descriptive statistics, processing of the collected data was also undertaken by: 1) factor analysis; 2) one-way analysis of variance and Tukey's HSD-test for individual comparisons; 3) the simple linear regression method. Factor analysis was performed using the ML method (Maximum Likelihood). When choosing a number of factors we used the combination of Kaiser's own vector and Screeplot criteria and the content interpretability of various factor solutions. Prior to the interpretation, the factors were rotated by oblique rotation, namely, Direct Oblimin, as it is reasonable to expect that the factors are correlated with each other. As a criterion for the preservation of an individual element, a minimum factor weight of 0.4 was applied to one factor and the absence of a weight of more than 0.4 to more than one factor. In comparing the various questions with respect to the study year, we used a one-way variance analysis (ANOVA), and for further individual comparisons (post-hoc) the Tukey HSD test. In the verification hypotheses, the characteristic level $\alpha = 0.05$ was used. The simple linear regression method was employed to check the correlation and dependence between different variables. In the verification hypotheses, the characteristic level $\alpha = 0.05$ was used. The results are presented both in text and in tabular form.

Results with Interpretation

Overview of the situation on the basis of the basic descriptive statistics

Most of the students covered by the survey (50%) consider the presence of linguistic content important in the study of speech therapy and 43% considered it very important; 7% regarded this area as of medium importance; no one considered this area as less important or irrelevant. Their current knowledge of linguistic content that is considered important in speech therapy was rated as good (using a 5-point scale) by the majority (50%) 27% rated it as very good and 22% as poor. Amongst the linguistic content they considered most important in speech therapy work, the most frequently mentioned were: phonetics and

phonology, communication and syntax. Respondents were given 14 linguistic areas, amongst which they had to assess how important they regarded them for successful work in speech therapy. The responses were classed as "important" or "very important" and were then added together as a percentage. The areas below are given in percentage terms ranking from the highest to the lowest: phonetics and orthoepy (98%), communication, speech (98%), neurolinguistics (95%), literacy, orthography (89%), psycholinguistics (88%), lexicology (87%), monolingualism, bilingualism, multilingualism (84%), word formation (80%), syntax (80%), sociolinguistics (73%), language varieties (71%), semantics (71%), morphology (68%), language development and history (43%). According to the above linguistic areas, the respondents assessed how much additional knowledge they would need in individual areas. The responses were classed as "more" or "much more" and were added together as a percentage, and we refer to those areas below where the total percentage of "more" and "much more" were deemed to be more than 50%: psycholinguistics (61%), neurolinguistics (58%). Asked how satisfied they were with the representation of linguistic content in the study program curricula of speech therapy, 49% answered that they were satisfied, 44% were moderately satisfied, 5% were very satisfied, and 2% were dissatisfied; No one said they were very dissatisfied. Asked how useful they considered the linguistic content in their speech therapy studies to be for work in speech therapy, 44% answered that it was useful, 40% answered that it was very useful and 16% that it was moderately useful; nobody deemed them to be unuseful or very unuseful. When asked how often they thought about their skills in respect of linguistic content present in speech therapy, 40% answered "often", 38% answered "sometimes", 14% "rarely", 5% replied with "very often" and 2% "never". Asked about the importance of revision and the improvement of knowledge of linguistics required in speech therapy, 47% answered that they considered it important, 44% considered it to be very important, 7 % moderately so and 2% less important; Nobody considered it unimportant. When asked which subjects in the field of linguistics they would want to study further, the most frequently mentioned were phonetics and phonology, communication and syntax, i.e. the same three areas that were mentioned as being amongst the most important for work in speech therapy.

Factor Analysis

In the factor analysis of the relevance of linguistic content, according to Kaiser's criterion, four factors would have to be eliminated; however on the basis of Screeplot we also verified the three-factor version. It turned out that it was precisely this that led to substantially more interpretive factors and we also eliminated only one element for this version because of the underweight. With three factors, we were able to explain 60.8% of the total variability of the importance of linguistic content. The final solution of the tri-factor version is shown in

Table 1 shows the factor weights of the individual elements on the corresponding factor. On the third factor, the largest weights are communication (communication, speech), phonetics and orthoepy. For the second factor, the greatest weights are word formation, lexicology, morphology and syntax. For the first factor, the greatest weights are language

development and history of language, psycholinguistics, neurolinguistics, sociolinguistics, literacy, orthography, monolingualism, bilingualism, multilingualism, bilinguism and semantics. Finally, we also checked the internal consistency of each individual factor against the Cronbach alpha, the values of which are shown in bold for each factor. All values exceed 0.7, so we can conclude that all factors show good internal consistency.

Table 1: Factor analysis of the importance of linguistic content

	Factor weight / Cronbach alpha
Factor 1	**0.784**
Language development and language history	0.804
Psycholinguistics	0.803
Neurolinguistics	0.748
Sociolinguistics	0.613
Literacy, orthography	0.560
Multilingualism, bilingualism, multilingualism, bilinguism	0.505
Semantics	0.493
Factor 2	**0.797**
Word formation	0.872
Lexicology	0.833
Morphology	0.814
Syntax	0.507
Factor 3	**0.785**
Communication - communication, speech	0.877
Phonetics and orthoepy	0.875

In the factorial analysis of the need for additional knowledge, three factors would have to be eliminated according to Kaiser's criterion, but on the basis of Screeplot we also verified the version using two factors. It turned out that it was precisely this that led to substantially more interpretive factors and we also only eliminated two elements for this version due to the underweight. With two factors, we explained 64.8% of the total variability of the need for additional knowledge of linguistic content. The final solution of the two-factor version is shown in Table 2 below and shows the weight factors of the individual elements on the corresponding factor. In the end, we also checked the internal consistency of each individual factor against the Cronbach alpha, the values of which are shown in bold for each factor. All values exceed 0.7, so we can conclude that both factors exhibit good internal consistency.

Table 2: **Factor analysis of the needs for additional knowledge of linguistic content**

	Factor weight / Cronbach alpha
Factor 1	**0.904**
Morphology	0.914
Word formation	0.866
Syntax	0.824
Lexicology	0.799
Variety of the Slovenian language	0.736
Semantics	0.667
Phonetics and orthoepy	0.663
Communication - communication, speech	0.630
Factor 2	**0.824**
Neurolinguistics	0.979
Psycholinguistics	0.931
Sociolinguistics	0.608
Literacy, orthography	0.567

Comparison of different questions according to year of study - one-way variance analysis, Tukey's HSD-test

Hypothesis 1:
Students of different years differ in their assessment of the importance of linguistic content present in the study of speech therapy at levels 1 and 2.

From Table 3 it is clear that students differ in their average assessment of the importance of linguistic content present in the study of speech therapy at level 1 according to their year of study, which was also confirmed by the typical ANOVE score ($p = 0.035$). Furthermore, individual comparisons have shown that the average grade of the 5th year is statistically significantly higher than the average grade for the 3rd year, while the average grade for the 1st year is statistically not significantly different from any of them. We confirm hypothesis 1.

Table 3: **The importance of the presence of linguistic content**

How important do you consider the presence of linguistic content in the study of speech therapy at Levels 1 and 2 is?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
Third	13	4.08[a]	0.641	0.035
First	17	4.53[ab]	0.514	
Fifth	13	4.62[b]	0.506	

* Statistically values differ significantly if they do not contain the same letter. Values containing the same letter do not differ significantly from each other statistically.
Note * applies to all tables containing *.

Hypothesis 2:
Students of different years differ in their assessment of their current knowledge of linguistic content that are important in speech therapy.

From Table 4 below, it is clear that students differ in their average assessment of their current knowledge of linguistic content which they regard as relevant to speech therapy according to their year of study, which was also confirmed by the typical ANOVE score (p = 0.008). Furthermore, individual comparisons have shown that the average grade of the 5th year is statistically significantly higher than the average grade for the 1st year, while the average grade for the 3rd year is statistically not significantly different from any of them. We confirm hypothesis 2.

Table 4: Assessment of current own knowledge of linguistic content

How would you generally assess your current knowledge of linguistic content being relevant to speech therapy?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
First	17	2.71[a]	0.772	0.008
Third	13	3.08[ab]	0.494	
Fifth	13	3.46[b]	0.519	

Hypothesis 3:
Students of different years differ in their assessment of the importance of knowing neurolinguistics for successful work in speech therapy.

From Table 5 below, it is clear that students differ in the average estimate of the importance of knowing neurolinguistics for successful work in speech therapy according to their year of study, which was also confirmed by the typical ANOVE score (p = 0.027). Furthermore, individual comparisons have shown that the average grade of the 5th year is statistically significantly higher than the average grade for the 1st and 3rd year, while the average grades of the 1st and 3rd year are not significantly different from each other statistically. We confirm hypothesis 3.

Table 5: **The importance of knowing neurolinguistics**

How important do you feel neurolinguistics is for successful work in speech therapy?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
First	17	4.29[a]	0.588	0.027
Third	13	4.31[a]	0.630	
Fifth	13	4.83[b]	0.389	

Hypothesis 4:
Students of different years differ in their assessment of the importance of knowledge of monolingualism, bilingualism, multilingualism and bilinguism for successful work in speech therapy.

From Table 6 below, it is clear that students differ in the average estimate of the importance of knowing monolingualism, bilingualism, multilingualism and bilinguism for successful work in speech therapy according to their year of study, which was also confirmed by the typical ANOVE score (p = 0.001). Furthermore, individual comparisons have shown that the average grade of the 1st year is statistically significantly lower than the average grade for the 3rd and 5th year, while the average grades of the 3rd and 5th year are not significantly different from each other statistically. We confirm hypothesis 4.

Table 6: Importance of knowledge of monolingualism, bilingualism, multilingualism and bilinguism

How important do you think knowledge of monolingualism, bilingualism, multilingualism and bilinguism is for successful speech therapy work?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
First	17	3.88[a]	1.054	0.001
Fifth	12	4.67[b]	0.492	
Third	13	4.92[b]	0.277	

Hypothesis 5:
Students of different years differ in their assessment of the need for additional knowledge in the field of the variety of the Slovene language.

From Table 7 below it can be seen that students differ in the average assessment of the need for additional knowledge in the field of the variety of Slovenian language according to their year of study which was also confirmed by the typical ANOVE score (p = 0,013). Furthermore, individual comparisons have shown that the average grade of the 1st year is statistically significantly higher than the average grade for the 3rd year, while the average grade for the 5th year is not significantly different from either of them statistically. We confirm hypothesis 5.

Table 7: The need for additional knowledge in the field of language variety

How much additional knowledge do you think you need in the field of the variety of the Slovene language?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
Third	13	2.23[a]	0.725	0.013
Fifth	13	2.77[ab]	0.832	
First	17	3.18[b]	0.883	

Hypothesis 6:
Students of different years differ in their assessment of the need for additional knowledge in the field of lexicology.

From Table 8 below it can be seen that students differ in the average assessment of the need for additional knowledge in the field of lexicology according to their year of study which was also confirmed by the typical ANOVE score (p = 0,015). Furthermore, individual comparisons have shown that the average grade of the 1st year is statistically significantly higher than the average grade for the 5th year, while the average grade for the 3rd year is not significantly different from either of them statistically. We confirm hypothesis 6.

Table 8: The need for additional knowledge in the field of lexicology

How much additional knowledge do you think you need in the field of lexicology?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
Fifth	13	2.31[a]	0.751	0.015
Third	13	2.92[ab]	0.641	
First	17	3.12[b]	0.781	

Hypothesis 7:
Students of different years differ in their assessment of the need for additional knowledge in the field of communication (communication, speech).

From Table 9 below it can be seen that students differ in the average assessment of the need for additional knowledge in the field of lexicology according to their year of study which was also confirmed by the typical ANOVE score (p = 0,040). Furthermore, individual comparisons have shown that the average grade of the 1st year is statistically significantly higher than the average grade for the 5th year, while the average grade for the 3rd year is not significantly different from either of them statistically. We confirm hypothesis 7.

Table 9: The need for additional knowledge in the field of communication (communication, speech)

How much additional knowledge do you think you need in communication (communication, speech)?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
Fifth	13	2.77[a]	0.927	0.040
Third	13	2.92[ab]	0.954	
First	17	3.59[b]	0.870	

Hypothesis 8:
Students of different years differ in their assessment of the need for additional knowledge in the field of sociolinguistics.

From Table 10 below it can be seen that students differ in the average assessment of the need for additional knowledge in the field of sociolinguistics according to their year of study, which was also confirmed by the typical ANOVE score (p = 0,019). Furthermore, individual comparisons have shown that the average grade of the 1st year is statistically significantly higher than the average grade for the 3rd year, while the average grade for the 5th year is not significantly different from either of them statistically. We confirm hypothesis 8.

Table 10: The need for additional knowledge in the field of sociolinguistics

How much additional knowledge do you think you need in the field of sociolinguistics?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
Third	13	2.85[a]	0.801	0.019
Fifth	13	3.15[ab]	0.987	
First	17	3.76[b]	0.831	

Hypothesis 9:
Students of different years differ in their assessment of the need for additional knowledge in the field of psycholinguistics.

From Table 11 below it can be seen that students differ in the average assessment of the need for additional knowledge in the field of psycholinguistics according to their year of study, which was also confirmed by the typical ANOVE score (p = 0,003). Furthermore, individual comparisons have shown that the average grade of the 1st year is statistically significantly higher than the average grade for the 5th year, while the average grade for the 3rd year is not significantly different from either of them statistically. We confirm hypothesis 9.

Table 11: The need for additional knowledge in the field of psycholinguistics

How much additional knowledge do you think you need in the field of psycholinguistics?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
Fifth	13	3.08[a]	0.954	0.003
Third	13	3.38[ab]	0.768	
First	17	4.12[b]	0.697	

Hypothesis 10:
Students of different years differ in their assessment of the need for additional knowledge in the field of neurolinguistics.

From Table 12 below it can be seen that students differ in the average assessment of the need for additional knowledge in the field of neurolinguistics according to their year of study, which was also confirmed by the typical ANOVE score (p = 0,000). Furthermore, individual comparisons have shown that the average grade of the 1st year is statistically significantly higher than the average grade for the 3rd and 5th year, while the average grades of the 3rd and 5th year are not significantly different from each other statistically. We confirm hypothesis 10.

Table 12: The need for additional knowledge in neurolinguistics

How much additional knowledge do you think you need in the field of neurolinguistics?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
Fifth	13	3.00[a]	0.816	0.000
Third	13	3.46[a]	0.776	
First	17	4.24[b]	0.664	

Hypothesis 11:
Students of different years differ in their assessment of the need for additional knowledge in the field of semantics.

From Table 13 below it can be seen that students differ in the average assessment of the need for additional knowledge in the field of semantics according to their year of study, which was also confirmed by the typical ANOVE score (p = 0,030). Furthermore, individual comparisons have shown that the average grade of the 1st year is statistically significantly higher than the average grade for the 5th year, while the average grade for the 3rd year is not significantly different from either of them statistically. We confirm hypothesis 11.

Table 13: The need for additional knowledge in the field of semantics

How much additional knowledge do you think you need in the field of semantics?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
Fifth	13	2.54[a]	0.877	0.030
Third	13	2,62[ab]	0.768	
First	17	3.29[b]	0.849	

Hypothesis 12:
Students of different years differ in their assessment of the need for additional knowledge in the field of language development and language history.

From Table 14 below it can be seen that students differ in the average assessment of the need for additional knowledge in the field of language development and language history according to their year of study, which was also confirmed by the typical ANOVE score (p = 0,002). Furthermore, individual comparisons have shown that the average grade of the 1st year is statistically significantly higher than the average grade for the 3rd and 5th year, while the average grades of the 3rd and 5th year are not significantly different from each other statistically. We confirm hypothesis 12.

Table 14: The need for additional knowledge in the field of language development and language history

How much additional knowledge do you think you need in the field of language development and language history?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
Third	13	2.46[a]	0.776	0.002
Fifth	13	2.54[a]	1.050	
First	17	3.59[b]	0.870	

Hypothesis 13:
Students of different years differ in their assessment of the usefulness of the linguistic content provided during their study of speech therapy for the purpose of working in the field of speech therapy.

From Table 15 below it is clear that students differ in the average evaluation of the usefulness of the linguistic content provided during the study of speech therapy for working in the field of speech therapy according to their year of study, which was also confirmed by the typical result of ANOVE (p = 0.007). Furthermore, individual comparisons have shown that the average grade of the 5th year is statistically significantly higher than the average grade for the 3rd year, while the average grade for the 1st year is not significantly different from either of them statistically. Hypothesis 13 is confirmed.

Table 15: Usefulness of linguistic content for working in the field of speech therapy

How useful do you consider the linguistic content provided during the study of speech therapy for working in the field of speech therapy?				
Year of study:	N	Average*	Standard deviation	ANOVA (p-value)
Third	13	3.77[a]	0.832	0.007
First	17	4.29[ab]	0.470	
Fifth	13	4.62[b]	0.650	

Checking the connection and dependence between different variables - regression analysis

Hypothesis 14:
The importance of the presence of linguistic content in the study of speech therapy at levels 1 and 2 has a positive influence on the usefulness of the linguistic content provided during the study of speech therapy for the working in the field of speech therapy.

From Table 16 below, it is evident that the regression coefficient is statistically significant, so the following equation of the regression line can be written:

*Usefulness = 0.929 + 0.748 * Presence*

If the assessment of the importance of the presence of linguistic content in the study of speech therapy at levels 1 and 2 increases by 1 unit, then the assessment of the usefulness of the linguistic content provided during the study of speech therapy for working in speech therapy will increase, on average, by 0,748 units. In addition, the determination coefficient (R^2) shows that 37.3% of the variability in the assessment of the usefulness of linguistic content can be explained by the influence of the assessment of the importance of the presence of linguistic content. Hypothesis 14 is confirmed.

Table 16: Value of the regression coefficient, dependent variable usefulness

	Coefficient	t	p	R	R^2
(constant)	0.929	1.377	0.176	0.611	0.373
Presence	0.748	4.939	<0.001		

Hypothesis 15:
The importance of the presence of linguistic content in the study of speech therapy at levels 1 and 2 has a positive impact on the satisfaction regarding the representation of linguistic content in the curricula of the speech therapy study program.

From Table 17 below, it is evident that the regression coefficient is statistically significant, so the following equation of the regression line can be written:

*Representation = 4.794 - 0.280 * Presence*

If the assessment of the importance of the presence of linguistic content in the study of speech therapy at levels 1 and 2 is increased by 1 unit, the assessment of satisfaction regarding the representation of linguistic content in the curricula of the speech therapy study program will be, on average, reduced by 0.280 units. In addition, the determination coefficient (R^2) shows that 6.8% of the variability in the assessment of the representation of linguistic content can be explained by the influence of the assessment of the importance regarding the presence of linguistic content. We confirm hypothesis 15.

Table 17: Value of the regression coefficient, dependent variable Representation

	Coefficient	t	p	R	R^2
(constant)	4.794	6.660	0.000	0.261	0.068
Presence	-0.280	-1.732	0.046		

Hypothesis 16:
The importance of the presence of linguistic content in the study of speech therapy at Levels 1 and 2 has a positive impact on the importance of revision and improvement of knowledge in the field of linguistics to be acquired in speech therapy.

From Table 18 below, it is evident that the regression coefficient is statistically significant, so the following equation of the regression line can be written:

*Revision = 1.228 + 0.701 * Presence*

If the assessment of the importance of the presence of linguistic content in the study of speech therapy at levels 1 and 2 increases by 1 unit, the assessment of the importance of the revision and improvement of knowledge to be gained in speech therapy in the field of linguistics, will increase, on average, by 0.701 units. In addition, the determination coefficient (R^2) shows that 33.1% of the variability in the assessment of the importance of revision and improvement of knowledge can be explained by the influence of the assessment of the importance of the presence of linguistic content. We confirm hypothesis 16.

Table 18: Value of regression coefficient, dependent variable Revision

	Coefficient	t	p	R	R^2
(constant)	1.228	1.773	0.084	0.576	0.331
Presence	0.701	4.509	<0.001		

Hypothesis 17:
The importance of the presence of linguistic content in the study of speech therapy at Levels 1 and 2 has a positive impact on the frequency of thinking about their competence in linguistic content which is present in speech therapy.

From Table 19 below, it is evident that the regression coefficient is statistically significant, so the following equation of the regression line can be written:

*Reflection = 0.272 + 0.690 * Presence*
If the assessment of the importance of the presence of linguistic content in the study of speech therapy at levels 1 and 2 increases by 1 unit, then the assessment of the frequency

of thinking about one's competence in linguistic content present in speech therapy will increase, on average, by 0.690 units. In addition, the determination coefficient (R^2) shows that 21.7% of the variability in the assessment of the frequency of thinking about their qualifications can be explained by the influence of the assessment of the importance of the presence of linguistic content. We confirm hypothesis 17.

Table 19: Value of regression coefficient, dependent variable Reflection

	Coefficient	t	p	R	R^2
(constant)	0.272	0.295	0.770	0.466	0.217
Presence	0.690	3.328	0.001		

Hypothesis 18:
The usefulness of linguistic content provided during the study of speech therapy for working in the field of speech therapy has a negative impact on satisfaction regarding the representation of linguistic content in the curricula of the speech therapy study program.

From Table 20 below it is evident that the regression coefficient is not significant statistically, so the equation of the regression line cannot be written.

It cannot therefore be argued that the evaluation of the usefulness of linguistic content, provided during the study of speech therapy for working in speech therapy, has a statistically significant effect on the assessment of satisfaction regarding the representation of linguistic content in the curricula of the speech therapy study program. We reject the hypothesis 18.

Table 20: Value of the regression coefficient, dependent variable Representation

	Coefficient	t	p	R	R^2
(constant)	4.062	6.989	<0.001	0.136	0.019
Usefulness	-0.119	-0,879	0.192		

Hypothesis 19:
The usefulness of linguistic content envisaged during the study of speech therapy, to work in the field of speech therapy, has a positive impact on the importance of revising and perfecting the knowledge that must be acquired in order to work in speech therapy.

From Table 21 below, it is evident that the regression coefficient is statistically significant, so the following equation of the regression line can be written:

*Revision = 2.813 + 0.357 * Usefulness*

If the assessment of the usefulness of linguistic content provided during the study of speech therapy increases by 1 unit for working in speech therapy, the assessment of the importance of revising and perfecting the knowledge to be acquired in speech therapy will, on average, increase by 0.357 units in the field of linguistics. In addition, the determination coefficient (R^2) shows that 12.9% of the variability in the assessment of the importance of the revision and improvement of knowledge can be explained by the influence of the assessment of the importance of the presence of linguistic content. We confirm hypothesis 19.

Table 21: Value of regression coefficient, dependent variable Revision

	Coefficient	t	p	R	R^2
(constant)	2.813	4.522	<0.001	0.359	0.129
Usefulness	0.357	2.465	0.009		

Hypothesis 20:
Currently, the knowledge of linguistic content regarded as important in speech therapy has a negative impact on the frequency of thinking about one's competence in linguistic content which is present in speech therapy work.

From Table 22 below it is evident that the regression coefficient is statistically not significant, so the regression line equation cannot be written.
It cannot therefore be argued that the assessment of the current knowledge of linguistic content, relevant to speech therapy, has a statistically significant effect on the assessment of the frequency of thinking about one's competence regarding linguistic content which is present in speech therapy work. We reject hypothesis 20.

Table 22: Value of regression coefficient, dependent variable Reflection

	Coefficient	t	p	R	R^2
(constant)	3.952	6.276	<0.001	0.163	0.027
Knowledge	-0.209	-1.044	0.152		

Hypothesis 21:
Currently, the knowledge of linguistic content which is important in speech therapy has a negative impact on the importance of revising and perfecting the knowledge to be acquired in speech therapy in the field of linguistics.

From Table 23 below it is evident that the regression coefficient is statistically not significant, so the regression line equation cannot be written.
It cannot therefore be argued that the assessment of the current knowledge of linguistic content, which is important in speech therapy, has a statistically significant effect on the

assessment of the importance of revising and perfecting the knowledge to be acquired in speech therapy in the field of linguistics. We reject hypothesis 21.

Table 23: Value of regression coefficient, dependent variable Revision

	Coefficient	t	p	R	R^2
(constant)	4.884	9.808	<0.001	0.177	0.031
Knowledge	-0.183	-1.150	0.129		

Hypothesis 22:
The importance of restoring and perfecting the knowledge to be acquired in speech therapy in the field of linguistics has a positive impact on the frequency of thinking about one's skills in linguistic content which is present in speech therapy.

From Table 24 below, it is evident that the regression coefficient is statistically significant, so the following regression line equation can be written:

*Reflection = 0.644 + 0.619 * Revision*

If the assessment of the importance of updating and improving the knowledge to be acquired in speech therapy increases by 1 unit in the field of linguistics, the assessment of the frequency of thinking about one's competence in linguistic content which is present in speech therapy will increase, on average, by 0.619 units. In addition, the determination coefficient (R^2) shows that 25.9% of the variability in the assessment of the frequency of thinking about one's qualifications can be explained by the influence of the assessment of the importance of the presence of linguistic content. We confirm hypothesis 22.

Table 24: Value of regression coefficient, dependent variable Reflection

	Coefficient	t	p	R	R^2
(constant)	0.664	0.891	0.378	0.509	0.259
Revision	0.619	3.741	<0.001		

Conclusion

Different world associations, commissions and associations in the field of speech therapy (e.g. The International Clinical Phonetics and Linguistic Association - ICPLA; European Expert Commission for Socrates / Erasmus; European professional logopedic association - CPLOL) consider knowledge and the empowerment of speech therapists in the field of linguistics as one of its most important aspects. Linguistics and speech therapy are two directly related areas whereby the first one, with appropriate development, should follow the latter as a support in a theoretical and practical sense. In the Republic of Slovenia, the study of speech therapy can only be undertaken at one educational institution, namely the

Faculty of Education at the University of Ljubljana. In the academic year 2018/19, students of the 1st, 3rd and 5th years are enrolled in the 1st and 2nd stage of the speech therapy program, because enrolment in this particular study program is usually only offered every two years. The questionnaire was used to examine how important the presence of linguistic content in the study of speech therapy is for students and their views on their own knowledge of this content; the importance of knowledge regarding individual linguistic content to work successfully in speech therapy; which additional linguistic knowledge would still be needed; satisfaction regarding the representation of linguistic content in the curricula of the speech therapy study program; the usefulness of linguistic content for working in speech therapy; the frequency of thinking about their own competence with regard to the content present in speech therapy; the importance of revising and improving the knowledge to be acquired in the linguistic area of speech therapy and which subjects in the field of linguistics they would like to see additional education in. Most of the students surveyed (93%) - viewed comprehensively - consider the presence of linguistic content in the study of speech therapy as important or very important. 77% of students believe that their current knowledge of linguistic content is good or very good. Amongst the linguistic content that they consider most important in the work of speech therapy, the most frequently mentioned are: phonetics (phonetics and phonology), communication and syntax. Respondents were given 14 linguistic areas, among which they had to assess, how important they regard them for working successfully in speech therapy. The areas below are given in percentage terms ranging from the highest to the lowest: phonetics and orthoepy (98%), communication, speech (98%), neurolinguistics (95%), literacy, orthography (89%), psycholinguistics (88%), lexicology (87%), monolingualism, bilingualism, multilingualism, bilinguism (84%), word formation (80%), syntax (80%), sociolinguistics (73%), language varieties (71%), semantics (71%), morphology (68%), language development and history (43%). Almost half (49%) are satisfied with the representation of linguistic content in the curricula of the speech therapy study program; 44% of them answered that this content was useful. 40% of them often think about their qualifications in linguistic content, and 47% think it is important to revise and perfect linguistic skills in speech therapy. They also want to be further educated in the fields of phonetics and phonology, communication and syntax.

In the current study program, students directly or indirectly study linguistics with the following subjects: phonetics and phonology, linguistic sciences, the phonological development of children and delayed phonological development, neurolinguistics and neuropsychology, and working with multilingual people. To provide even more linguistic content, major changes in the study program would be required and best implemented when the speech therapy study program is next reviewed.

References

Bloothooft, G. (1997). *The Landscape of future Education in Speech Communication Sciences, Part 1: Analysis*. OTS Publications.

Društvo logopedov Slovenije. (2019, January). Retrieved from www.dlogs.si

European professional logopedic association (CPLOL). (2019, January). Retrieved from https://cplol.eu/

Golden, M. (2001). *On Language and Linguistics*. Ljubljana: Faculty of Philosophy.

Jemec Tomazin, M. (2010). Vloga terminologije pri uveljavljanju znanstvenega področja. In I. Novak Popov (Ed.), *Vloge središča – konvergenca regij in kultur* (p. 103–119). Ljubljana: Zveza društev Slavistično društvo Slovenije.

Kalin Golob, M., & Logar. N. (2008). Terminologija odnosov z javnostmi: od upoštevanja terminoloških načel do pridobivanja podatkov iz besedil. *Teorija in praksa, 45*(6), 663–677.

Levc, S. (2014). *Liba, laca lak: kako pomagamo otroku do boljšega govora*. Ljubljana: Self-published.

Mužić, V. (1994). Atributi kvalitativne in kvantitativne paradigme pedagoškega raziskovanja. *Sodobna pedagogika, 1–2,* 39–51.

Omerza. Z. (1984). *Govorne napake*. Ljubljana: Državna založba Slovenije. Presentation book. (2019, January). *First level university study program. Speech therapy and pedagogics of hearing impaired*. Retrieved from https://www.pef.uni-lj.si/fileadmin/Datoteke/Studijski_programi/Predstavitveni_zborniki/Zborniki_18-19/Predstavitveni_zbornik_-_Logopedija_in_surdopedagogika_-_2018-2019.pdf

Revision of the Minimum Standards for Education. (2007). Retrieved from https://cplol.eu/index.php?option=com_content&view=article&id=15&Itemid=305&lang=en

Sagadin, J. (1993). *Poglavja iz metodologije pedagoškega raziskovanja*. Ljubljana: Zavod Republike Slovenije za šolstvo.

Smole, F. (2002). Novi izzivi na področju logopedije. *Defektologika Slovenica, 2*, 41–51.

Stabej, M. (2003). 1st Slovenian Congress of logopeds with international participation. Logopedija za vsa življenjska obdobja. *Jezik in slovstvo, XLVIII*(2), 81–84.

Šumak, B. (2016). *Primerjava izobraževanja logopedov v Sloveniji. Belgiji in na Portugalskem*. Ljubljana: Faculty of Education.

The International Clinical Phonetics and Linguistic Association (ICPLA) (2019, January). Retrieved from https://www.icpla.info/

Toporišič, J. (2000). *Slovenska slovnica*. Maribor: Založba Obzorja.

Vidmar, A. (2016). *Vzgojiteljeva stališča o preventivnem logopedskem programu v vrtcu kot modelu spodbudnega okolja za razvoj jezikovne zmožnosti*. Ljubljana: Faculty of Education.

Žagar Karer, M. (2018). Upoštevanje terminoloških načel v terminografski praksi. *Slavistična revija*, *66*(2), 235–249.