Szent István University

Faculty of Economics and Social Sciences

Social Sciences and Teacher Training Institute

Methodological Guide of Bsc/Msc Thesis

Gödöllő

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Contents

I. Topic selection

The topics presented by the Social Sciences and Teacher Training Institute are available here: http://tti.gtk.szie.hu/hallgatoknak/szak-es-diplomadolgozat-temak-tti

Every thesis which was written on any courses of the **Social Sciences and Teacher Training Institute has to contain primer research (made by the student)**

You have to provide access to the research materials (filled questionnaires, interviews, audio and video recordings)

Some „good practices" for selecting your thesis topic:

- Think through the topics that you were interested in your studies or work! Why is this important to you? What are your aims/possibilities to continue the topis?
- Let's check if there is enough and relevant literature for this topic!
- Let"s check if you have enough available research methods for the topic!
- If you choose a topic related to a specific organization, ask whether the institution you have chosen is willing to support your endeavors and under what conditions! If encryption is required, the suggestion is the following: If there are confidential information tn the thesis like the name of the company or concrete numbers, instead of using them you should give a fictitious company name and use ratios (e.g.: financial area)

The consulant is going to give his best with his ideas, experiences to help in the successful preparation of the thesis. However, if the student does not follow the instructions, suggestions and deadlines, the consultant CANNOT be blamed!

II. The parts of the thesis

Contents

It has to be at the beginning of the thesis, after the title page,

- be maximum 1 page,
- the chapters / subchapters listed in the table of contents are literally the same as in the text,
- be applied with decimal numbering (up to three levels),
- contains the relevant page numbers beside the titles (it is recommended to use the Styles / Title line and the Content Editter)

Introduction

„Motto……”

(Author:……)

Scope of the introduction: 1.5-3 pages. It is a short description of the thesis which represent the topic, explain the logic and structure of the thesis. It is not mandatory, but it is possible to launch the introduction with a short, interesting motto (top right corner, eg in italics, with author designation), but this short quote should not be commonplace!

The student introduces the chosen theme in the introduction:

- topicality
- the importance of the topic
- the justification for the topic selection. Why did you choose this topic, why is this area "nice" for you (working in this field, encountering similar issues during your daily work, already did any research about it)?

Here are the objectives of the tests and analyzes: what are you curious about? You define the research issues.

The introduction should NOT contain a table of contents, references, bibliography, confused explanations, unnecessary phrases. The introduction should be dynamic, stylish, raise attention, reflect the candidate's enthusiasm, his "real" interest in the topic. If the introduction is based on a boring "nah let’s write something" principle, it contains commonplace and / or does not reveal what the student is focusing on, then the reader / jury may legitimately assume that the rest of the thesis will be the same…

So, it is very important to pay particular attention to writing the Introduction!

The theoretical background of the study, the processing of the literature

Proportion of the thesis: 50% literature background, 50% individual research. Closely topic related literature should be presented which, have to be brief, analytical presentation, summary, comparison and criticism of relevant literature. Important: only definitions can be included from college / university notes.

This part of the thesis should be prepared in accordance with the skills of the training's level (BA, MA):

http://tti.gtk.szie.hu/hallgatoknak/szak-es-diplomadolgozati-eloirasok

Correct reference means that the student clearly identifies which idea and text from which author's work is coming from.

Presentation of the research

The literature processing ends with the theoretical framework of the research. It means, it is necessary to define exactly which concepts and definitions the research will use. (Conceptualization).

1. Presentation of the hypotheses of the study

The thesis should contain at least 2 maximum 4 hypotheses. The hypothesis: a statement what based on a supposition about the variables and the assumed relationship between the variables that the student examines: "I suppose that ..." The hypothesis starts from the facts proved by others (literature). The hypothesis has to be define a new supposition which should be tested and examined. The relationship can not be trivial! For example, hypothesis can not be what we already know from the literature. The hypothesis must be examined and verifiable with the methods used by the student.

2. Presentation of the research sample

The research sample should be well-defined and well-described. The characteristics of the sample should be briefly described, but should be described precisely in terms of variables! (Eg: how many pieces per person, for people: gender, age, qualification, document: scope, qualitative characteristics, structure characteristics, organization: size, sector, ownership structure, activity characteristics, etc ...). Demonstrate the demographic composition of respondents (how many women / men, qualifications or other important factors for research purposes). How many people were interviewed, how many questionnaires actually processed.

3. Presentation of research methods

The method should be suitable to prove hypothesis-based variables and the suspected relationships. If a student uses a methodology that has not been studied in the course, the guidelines of the consultant should also be presented. (Eg the interpretation of the use of psychological tests,). In addition to presenting the methods, the reasons for their use should be briefly presented as well. (The full methodology, such as the structure, structure of the questionnaire, aspects of the document analysis, or the guideline of the interview, should be included in the appendix in a clear and comprehensible).

4. Presentation of the circumstances and location of the research

Presentation of research conditions include the presentation of the method, the time and the location of the data collection. Concerning the circumstances of the investigation, attention must be drawn to the possibilities of distortion arising from the circumstances. (eg FB sharing, group questionnaire recording, individual interview at cafe, etc.)

Presentation of the results

The essence of the thesis, which has great importance in the evaluation. The purpose is to provide a logical, well-traceable, well-illustrated, clear description of the results of their work, using tables, graphs, diagrams.

The analysis should be based on the research questions / hypotheses, the concepts and models presented in the theoretical background part of the thesis (literary processing). It should be used consistently during the thesis. In the description of the discussed topic, the work should be objective and critically evaluated, but it should also show the student's personal position on the topic. It must reach at least 50 percent of the total thesis.

It is recommended to present the results according to the test method, as a separate subchapter per method.

Most of the test results are usually measurable, quantitative data such as questionnaire replies or quantified results of content analysis. These can be summarized, sorted, depicted, and analyzed using mathematical and statistical methods.

The research aim is to present the data, the results in a form that concisely and comprehensively expresses the subject of the research to justify the hypothesis. Let’s try to present the simplest, most comprehensible display, for the comparative presentation of important relationships. The source of qualitative information can be conversation, interview, or even a TV or radio program, newspaper or other printed document. Their processing needs to be done with an analytical approach, the mere description of the data is not enough.

For both types of data, it is important that the results are presented accurately and realistically, as this will only be credible and acceptable for the empirical research of the thesis. When representing the results, it is essential that the data is be analyzed and evaluated not just disclosured. When interpreting the results, it is important not to overlook the unclear findings that are unclear from the data (for example, do not take a general conclusion on men for a sample of 15), be aware of the study limits and the validity of the results and conclusions.

The data should be disclosed in their entirety, so they should not be selected on the basis of the personal bias of the researcher (eg omitting the hypothesis that does not justify the hypothesis), the correct presentation of the data is the ethical responsibility of the student.

Figures and tables:

The overview, interpretation of the results of the research can be greatly assisted by the various figures, pictures, diagrams and tables. The location of the figures (in text or in an attachment) is determined by the content of the subject and the figure. However, it is necessary to refer to the attached figure and table in the text. The tables and diagrams (drawings, photographs, graphs, diagrams) in the thesis must be followed by a sequential number, which must be indicated in the middle above the table and shown below in case of the figure.

The text section - with its serial number - should be referenced to each table or diagram. Each table and diagram should have a short, understandable title that expresses the what its shown, indicate the source, indicate the type of data (eg pieces, person, %) and, if relevant, the number of elements. (eg N = 15) In the case of self-made diagrams, graphs and tables, at the source, the "Own source" mark should be indicated below the left corner of the indicated image. Different types of graphs have different functions, which are to be taken into consideration when selecting it.

- Pie chart - data distribution and ratios
- Column diagram - comparing the size distribution, frequencies, showing correlations between variables, marking the time change
- Line Diagram - Relationship between two variables, trend representation

Various computer programs now offer countless opportunities for depicting data. However, regarding the quality of the thesis is best served if the figures are uniform. (for example, if a bar graph is used, then do not use a spatial column representation, cylinder, or pyramid to represent similar data later). It should be noted that the ratio of the figures and tables is not exaggerated either in size or in number. It is therefore recommended to present not only one, but two or more variables in a figure.

Special expectations for each method

1. Results of the interviews

When describing the results of the interviews you should sum up for all the interviews by questions, which can be inferred from the interviewees' answers to the main trends and contexts. (If the thesis contains full, typed documentation of the interviews, it is possible to place it in the Attachment if it is justified) It is important that the answers of the interviewees can be identified, even if the responses were made anonymously. (for example: interviewee A did not respond to this question while "B" and "C" interviewee did)

We propose to set up question groups to present the relationship between questions. (eg: The answers from everyone for the question of the cause of unemployment was...). The specificity of this method is that the thoughts and expressions of the interviewees are recorded in writing or in audio, so that by introducing them as an example will make the thesis more colorful and credible. The thoughts and insights of the interviewees should be indicated literally, in quotation marks, in italics, indicating the source. (eg, "*I think there is no more important and inspirational thing in the world than learning,"* „B" interviewee said.)

2. Results of the questionnaires

It is necessary to review and summarize all the questions in the questionnaire, question by question or by question groups along the research questions / hypotheses.

If it is relevant, it is desirable to present the contexts between the questions. (eg the distribution of answers to the given question on the basis of gender or age of respondents). In addition to the mere description of the data, it is also necessary to make a textual analysis and interpretation. (eg the question of the cause of unemployment, half of respondents replied that ... and the other half ...).

When describing the results of the questionnaires, the number of figures in the figures and tables must be indicated. (eg N = 236 persons)

3. Results of the document analysis

Taking into account the preliminary considerations, we would like you to present the results by structuring themes, highlighting the keywords with bold font style.

Conclusions and suggestions

This chapter contains a description of the specific conclusions, proposals which based on the used literature and the results of the own research.

- an important point to connect with the training
- comparing your own results with literary data
- demonstrating the achievement of the set goals
- summarize the conclusions along the hypotheses, and then formulate concrete, tangible, feasible proposals
- the proposal can not be conditional: *eg, it would be nice if* ... - this is not a proposal
- the proposal can not be general, commonplace, evidences *eg communication should be improved* ...- not only conditional but too general: the team leader must improve his communication: in writing ..., verbally ... etc., so you have to draw up concrete suggestions.

Summary

It is important to focus on this part, this chapter indicates how well you understand the essence of your research and results, how much you are able to summarize and interpret the logical, understandable and usefulness of your main research ideas. The thesis is summarized in the „Summary" in the following order:

- the subject, the thesis aim (s), hypotheses, summary of the methods,
- summarizing and interpreting the results of the study from the hypothesis point of view
- justifying or rejecting hypotheses based on the results of your research, or demonstrating the achievement of the set goals with explanation,
- comparing your own results with the literature data,
- describe and justify your own suggestions, specific conclusions and the results of your own work
- suggestions for future studies, possibilities for further discussion (outlook). Important: the range is 1-6 pages.

Common terms used to write the Summary:

- This research affirmed / rebutted the hypothesis that ... (proof or denial of a hypothesis)
- Summary / Overall / Summarizing / Determining ...(summary)
- In summary, it can be emphasized that ... (summary)
- ... based on the result that ... (summary)
- ... on the basis of the examination, the following statement can be drawn / concluded ... (Conclusion)
- ... the results suggest that ... (conclusion)
- The results presented in the thesis show that ... (conclusion)
- The research results that are based on the thesis show that ....(conclusion)
- ... (s) can be useful in many ways ... (usability)
- The results of this study may contribute to ... (usability)
- It would be useful / useful to extend the investigation ... (outlook)
- Further investigations require the fact that ... (outlook)
    - ... ... on the one hand, ... on the other hand, ... additionally ... in addition ....

Bibliography - References

The bibliography is a list of books, studies, articles, and other sources of literature that the student refers to in the thesis. The bibliography must be compiled in alphabetical order according to the initials of the authors' names (by deleting the title of the aurhor eg: Dr.):

The bibliography only has to include the sources what were referred in the text, but each of them must be included here (The university, college note is not a book)

Separate the parts of the literature (book, study, journal, article), other literatures (laws, internal publications, web sites, databases) should be formidable, typographically uniform.

Annex

You can place here the questionnaires, interviews and other tables used in the research.

III. Description of the applied research methods

1. Intreview processing

The interview may be the most commonly used qualitative data collection technique, an interaction between the interviewer and the respondent interviewee, where we have access to the interviewee's special information/knowledge. While the questionnaire is a strictly structured, standardized questions, the interview allows a great deal of flexibility. In advance, let's focus on the purpose of the interview, what we want to know, and the specific questions that will help achieve this goal. The interview method allows us to adapt flexibly during the conversation process, but with our goals in mind. We follow the pace of the interviewee, and we can change the questions regarding the previously given answers. The main benefit of the interview is the personal contact with the interviewee in contrast with questionnaire. During the interview we are able to ask more comlpex questions giving the way to a more complex, deeper exploration of the phenomenon's relationships to greater understanding. The research can be effective if our interviews fits well with the research goals, it is capable for answering our questions and verify our hypotheses. It is important how we ask questions because if the question is not proper we will not get the right information. Accurate and precise terms can be used to avoid misinterpretable or misunderstood questions. We do not influence the interviewees in any direction, we remain neutral until the end. If the interviewee's answers are unclear, ask clarifying questions (eg: What do you mean specifically about this? Explain it in details etc.). These help to get clear and adequate answers. Make sure that we only formulate research questions / hypotheses that can be answered / justified by data collection. This is not only important for interviews, but also for other data collection procedures, such as questionnaires. Based on the aggregated information and analysis from the interviewees, we have to decide whether our hypotheses set in advance are true or not. So it matters what and how we ask! We have to think in advance how we will summarize the answers, what methods we will use to analyze the responses and what conclusions they might have.

It is very important to note everything carefully or to make a voice recording if it is possible. If we decide on the latter it is advisable to digitally "tag" the audio material (for example, to save the audio files in a clear file name) for later identification. This is especially necessary if we are doing more interviews because otherwise we will not know which interviewee belongs to the given voice. It may also be a good solution for the interviewer to say the information needed for the identification and processing before the conversation to the voice recorder. If you can only make a sketch during the interview (this is common since our attention is always on the interviewee), let's complete our outline notes as soon as possible after the interview. At this point, we can still recall the details.

Your interview sketch should contain 8-12 questions.

The thesis has to include:

- Short presentation of the interview method and justification for choosing: You should briefly describe the interview method and explain why this is the right way to examine the subject, collect information and collect data. For what reasons did you dismiss the other methods?
- Structure of the interview: What type of interview, what type of questions were used and what kind of considerations were used. What topics are covered by questions, how to group them, how you built the interviews.
- The process of questioning - providing data protection: What is the base population (the group to whom the conclusions are to be drawn), how, on what basis and where did you select the respondents/ interviewees (sampling method). Indication and justification of the exact number of the interviewedes (sample number). Why is this sample appropriate for examining the subject? How, under what circumstances, data collection and interviewing took place? What difficulties you had to cope with? How did you secure the anonymity of the interviewees?
- Presentation of the data analyzing process and the applied tools (eg softwares, excel).
- Presentation of the sample: Demonstrate the demographic composition of respondents (how many women / men, qualifications or other important factors for research purposes). How many people were interviewed and how many actually processed interviews.
- Processing replies: Processing responses should be done with an objective, analytical approach along hypotheses. The presentation of the results is logical, well-traced and properly illustrated, if it is necessary you can use tables, diagrams.

The analysis of the data is based on the consistent use of concepts and models presented in the processing of literature. It contains well-founded statements supported by the literature and the facts of the student's research. The student personal opinion also has to be presented. The analysis should explore the possible causes and interpret the expected consequences. Reveal the logical steps you have taken from the qualitative information to the received conclusions and suggestions. It demonstrates that the conclusions are based on systematically collected, relevant information and that it's coming from analytical process, not just the student's personal opinion from occasional available information.

Although the interview is primarily qualitative data collection technique, it is possible to process the data quantitatively as well. (for example, if the research goals justify it, it is worth to examining whether certain keywords, concepts or expressions are statistically justifiable more than once)

2. Questionnaire processing

During the questionnaire survey, we collect data to ask people about the variables to be measured. To do this, we will compile a questionnaire consisting of appropriate questions and ask the selected people. The questionnaire ensures that all respondents are asked in an uniform manner and we received the answers in an uniform manner as well. To really get answers for what we want. it is largely depends on the form of the questions and statements, so it is really important how we ask. We have to compile our questiannaire the way that our questions' meaning are the same for everyone, and also the meaning of the answers is the same regardless of the respondent. Accurate and precise terms can be used to avoid misinterpretable or misunderstood questions.

The questions and the answers given out define the analyzes that can be made, and finally the conclusions that can be deduced from them. Make sure that we only formulate research questions / hypotheses that can be answered / justified by data collection. The questions of the questionnaire should be structured so that they can be used to verify the hypotheses (we measure the variables in the hypotheses to get information about them). In other words, based on aggregated information and analysis from the questionnaire data collection, we have to decide whether our hypotheses set up in advance are true or not.

Example: For example, if you have the following hypothesis about the willingness to save:

"People's education is related to their willingness to save, the higher educated people rather have savings than the less educated ones."

Then our questionnaire should include questions of education and the willingness to save. The latter can be measured, for example, by asking people how much they agree with statements such as:

- I am afraid of future regular spending.
- I have a financial plan for the future.
- I'm saving now to get ready for my old age / unexpected events.

It is useful to go around the topic by more statements (in our example, the willingness to save money) and agree or disagree with them, which can be expressed, for example, with the following answers (Likert scale):

Totally disagree – Rather disagree – Rather agree - Totally agree

The answers will be summed up according to the level of education and we expect that there will be more people with higher education who are totally and rahter agree with the above statements while in the lower education categories more they will rather disagree / totally disagree with them.

It is recommended that you create a table that shows which questions of the questionnaire are intended for which hypothesis. Keep in mind that with the help of a questionnaire we can primarily ask people's opinions, recognize their attitudes about something, but this is not necessarily the same as measuring the phenomenon itself.

The self-compiled questionnaire contains 15-20 questions. When compiling your own questionnaire, it is advisable to conduct a test question to test the answerability, relevance and clarity of each question. If a recognized or standardized questionnaire is used in professional circles, the test question can be disregarded, in this case the source of the questionnaire should be indicated.

The thesis should cover the following:

Short description of the questionnaire method and justification for choosing: The questionnaire method should be briefly explained and it should be explained why this is the appropriate method for examining the subject, gathering information and data. For what reasons did you dismiss the other methods?

Structure of the questionnaire: The questionnaire and its structure should be presented: what types of questions and scales were used and what kind of considerations were used. What topics are covered by questions, how to group them around, how the questionnaire is built up. The creation of the used indexes must be shown accurately.

- The process of questioning - providing data protection: What is the basic population (the group to whom conclusions are to be drawn), how, on what basis and where did you select the respondents (sampling method) to examine it. Indication and justification of the exact sample number. Why is this sample appropriate for examining the subject?
- How did data collection, questioning occur (eg in person and / or online questionnaires, etc.), why this mode was chosen? What difficulties you had to cope with when collecting data.
- How did you ensure the protection and anonymity of the interviewees.
- Describe the analyzing process of the data, the mathematical-statistical methods used, and the applied statistical processing programs (eg, Excel, SPSS).
- Processing replies: Processing responses should be done with an objective, analytical approach along hypotheses. The presentation of the results is logical, well-traced and properly illustrated by tables and graphs. The processing of data should be based on statistical methods (appropriate to the measurement level of the variables in the questionnaire). The information in the tables and diagrams should always be referred in the text and explained.

The analysis of the data is based on the consistent use of concepts and models presented in the processing of literature. It contains well-founded statements supported by the literature and the facts of the student’s research. The student personal opinion also has to be presented. The analysis should explore the possible causes and interpret the expected consequences. Reveal the logical steps you have taken from the qualitative information to the received conclusions and suggestions. It demonstrates that the conclusions are based on systematically collected, relevant information and coming from analytical process, not just the student's personal opinion from occasional available information.

3. Document Analysis

During the document analysis we study some fixed communication, written or pictorial documents, such as newspapers, periodicals, websites, laws, lyrics, political speeches, ads, organizations or business documents, protocols, or even television programs and posters. We can examine for example job advertisement in perspective of discrimination. In the content analysis, we disclose publications in some written or pictorial material according to our research objectives / hypotheses.

There are two methods for document analysis: quantitative document analysis that quantifies results (eg, the occurrence of a word, the frequency of occurrences of different competencies in job advertisements) and the qualitative analysis that is directed at the content (eg, the meaning of words and context). In addition to the questionnaire data collection, the results of the content analysis are also suitable for quantitative analysis, (after proper systematization and encoding) but often the qualitative processing is more appropriate.

For example, keeping in mind the above example, quantitative processing of job advertisements can be used to gather how often foreign language skills appear as a requirement. These contents can be sorted on some sort of ordinal scale (eg from basic knowledge of the language to the negotiating level, different code values would be matched).

In the documents discussed in the documents, we can distinguish manifest (surface, looking) and latent (hidden) content. In the manifesto content of the messages, we mean their direct literal meaning (What is it?), while the latent meaning (What message?) you have to go beyond the literal meaning and read between the lines to undersand the real meaning. Coding and aggregating manifest contents can obviously be much simpler and clearer than latent content. In the latter case, it is tipical the subjective judgment, so rather the qualitative text analysis or the combination of the two methods that can help us. There are similarities between the document analysis and the analysis of an existing, semi-official or official statistics (eg KSH, EUROSTAT). These, aggregated data for different social processes, should be considered as an additional source of data and to analyze our findings in the light of the relevant statistics. Often with existing statistics we can create the conceptual / interpretation framework of our own research. Moreover, our main research data may also come from existing statistics (eg examining labor market processes), but make sure that they come from authentic sources.

The thesis should cover the following:

- Short presentation of the interview method and justification for choosing
- Briefly describe the method of document analysis and explain why this is the right method for analyzing the subject, gathering information and data. Presentation of processed documents, information, content, data collection process:
- What kind of documents and from where were used. What topics are covered and how to group them.
- What is the basic population (the phenomenon that you want to draw conclusions), how you chose, decided the data to process (method of sampling). Indication and justification of the exact number of processed communications (sample number). Why is this sample appropriate for examining the subject?
- How, under what circumstances, data collection took place? What difficulties you had to cope with?
- Presentation of the data analyzing process and the applied tools (eg softwares, excel).
- Presentation of the sample:

  The composition of the analyzed reports, relevant to the research goals and relevant factors. The total number of reports that have been examined, the number of actually processed ones.
- Processing of data/information:

  It should be done with an objective, analytical approach along hypotheses. The presentation of the results is logical, well-traced and properly illustrated by tables and graphs. The information in the tables and diagrams should always be referred in the text and explained.

The analysis of the documents are based on the consistent use of concepts and models presented in the processing of literature. It contains well-founded statements supported by the literature and the facts of the student's research. The student personal opinion also has to be presented. The analysis should explore the possible causes and interpret the expected consequences. Reveal the logical steps you have taken from the qualitative information to the received conclusions and suggestions. It demonstrates that the conclusions are based on systematically collected, relevant information and coming from analytical process, not just the student's personal opinion from occasional available information.

Although the documentum analysis is primarily qualitative data collection technique, it is possible to process the data quantitatively as well. (for example, if the research goals justify it, it is worth to examining whether certain keywords, concepts or expressions are statistically justifiable more than once).

IV. Appraisal of the thesis work

The thesis has 2 critics.

The head of the independent educational department and the responsible person of the training choose one professor from the independent educational department, who will be the internal critic. The Chairman of the Final Exam Committee (hereinafter referred to as FEC) - who is primarily responsible for the training or the specialization, other person may only be in exceptional cases – and the Institute Director designate the external critic, who is, as far as possible, the external member of FEC or the external lecturer of the faculty. *When we assign the judgements, we take care to ensure that one member of the FEC member - whether as a consultant or as a reviewer - knows the thesis.*

V. Process of the final exam

In accordance with the Code of the Faculty:

The assessed, qualified thesis must be protected before the Final Exam Committee, which is composed of external and internal experts.

The candidate has 15 minutes of defense, during it the student presents the main points and results of the thesis in the form of a free lecture and answering the critics' comments.

Suggested Content:

- 2-3 sentences to indtoduct your thesis topic,
- the aim of the research,
- the method of the research,
- details of the independent work, presentation of the results,
- conclusion

Do not include more than 10-12 slides. The student will only provide sketchy points for presenting the thesis. The results can be illustrated with figures and tables. The slides should be clearly legible, preferably dark background with light colored letters.

The Final Exam Committee then ask questions in connection with the defense of a thesis.

The grade (five-grade system) of the thesis shall be determined by the Committee. The Committee takes into consideration the proprosed grade of the official critics, the quality of the presentation and the given answers for their questions.

The thesis work, which is not accepted by the Final Exam Committee, is considered to be insufficient but only one time, already at the next closing exam period it can be presented. See the details in the Study and Examination Regulations of the Faculty (final exam chapter).