HOW TO TRANSFORM THE IDENTIFIED PROBLEM IN THE RESEARCH TOPIC?
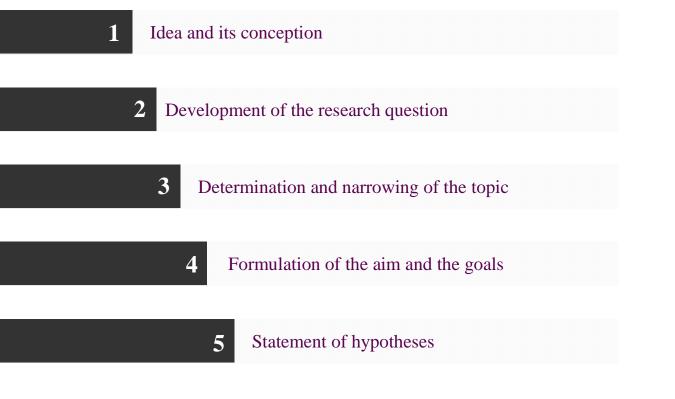
ANNEX 4.

GUIDELINES

2019

FUNCTION OF THE RESEARCH TOPIC

The quality of the potential research is highly dependent on a well-designed research topic. *The main function of the research topic of the study* is to inform interested persons about the research work, to describe its content. It is important to identify the terms used in the subject title. Consideration must be given to whether these concepts are accurate, whether every word is necessary and meaningful. The topic of the study is often revised, so in the beginning it can be provisional. The topic is finalized at the end of the study.

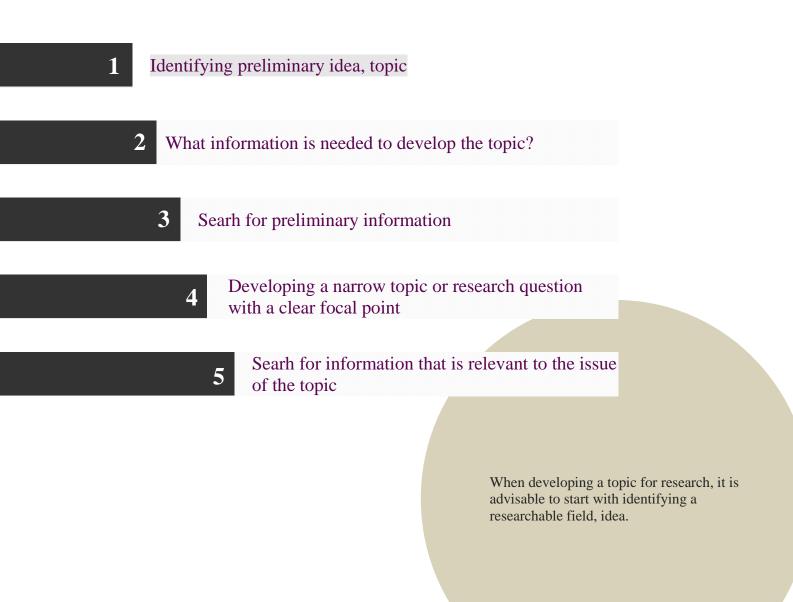The chosen topic has to comply with the following:

- It has to be interesting to the researcher (it is advisable to select the topic that is relevant, interesting and useful);
- It has to be relevant, important, present some novelty features;
- It has to raise issues;
- The researcher must have the required qualifications and possibility to develop the topic.

STAGES OF RESEARCH TOPIC DEVELOPMENT

1   Idea and its conception

2   Development of the research question

3   Determination and narrowing of the topic

4   Formulation of the aim and the goals

5   Statement of hypotheses

IDEA AND ITS CONCEPTION

1 Identifying preliminary idea, topic

2 What information is needed to develop the topic?

3 Searh for preliminary information

4 Developing a narrow topic or research question with a clear focal point

5 Searh for information that is relevant to the issue of the topic

When developing a topic for research, it is advisable to start with identifying a researchable field, idea.

EXAMPLE:

Starting idea: cyberbullying

What things would you need to find out in order to write about this topic? What people (high school, middle school, or college students?), places (Europe, Lithuania, College or a comparison between places?) and related concepts (internet trolls, state and federal laws, college policies, social media platforms, statistics, such as number of people who experience or see it?) are connected to this idea?

Background readings: Encyclopedia entry, Articles, Gov't site etc.

Ideas for narrowing the topic (freeform brainstorm - look at aspects of the topic from above that appeal to you - put into the form of questions): Cyberbullying and personal development? Cyberbullying and post-traumatic stress? Is there a connection between those who troll on the internet and those who engage in cyberbullying? What policies have been put in place in Lithuania

The starting point for any research work is a certain theoretical or practical problem, or a question that science has not yet answered. Just as any other question, the research question is built on two types of information:
a) Information that is already known, and
b) Unrevealed, and therefore issue-raising, information.

Therefore, the research question (problem) of any research work is the following:
• What is not clear at that stage of the research?
• What creates scientific ambiguity?
• What has not been systematically researched in scientific literature?
• Data that questions the existing knowledge of one or another phenomenon.

Usually the research question begins with what, how, what, why and so on.

An appropriate development of a research question (problem) consists of two stages:
a) What has already been known about the research question (problem)?
b) b) How is the research question (problem) relevant, significant and credible?

1. Identify the parts and how they interrelate. Use systems thinking.
   a. What are the parts of your topic and how do they relate to one another?
   b. How is your topic part of a larger system?
2. Trace the history of the topic and its role in a larger history.
   a. How and why has your topic changed through time as something with its own history?
   b. How and why is your topic an episode in a larger history?
3. Identify its characteristics and the categories that include it.
   a. What kind of thing is your topic? What is its range of variation? How are instances of it similar to and different from one another?
   b. To what larger categories can your topic be assigned? How does that help us understand it?
4. Determine its value.
   a. What values does your topic reflect? What values does it support? Contradict?
   b. How good or bad is your topic? Is it useful?

To find out what is known about the research question that has been developed, it is recommended to ask the questions above. It will helps to find out what you do not know about a topic. Record the questions, but do not stop for answers.

This makes it possible to narrow the focus of the topic, and helps clearly understand what theoretical material should be searched for, what questions should be answered.

- Consider what drew you to your topic.
- What about it excites you and matters to you?
- Listen to yourself and start formulating the question by following your own interests in the topic.
- You have already done a lot of research and writing on the topic to get help focus it for this effort.
- A good research questions should be evocative, relevant, clear, and researchable.
- Base your research questions on your Review of related literature because existing published works help you get good background knowledge of the research problem and help you gauge the people's current understanding about the topic.
- Formulate research questions that can arouse your curiosity and surprise you with your discoveries and findings.
- A definite or clear expression (statement) about an area of concern, a condition to be improved upon, or a difficulty to be eliminated.
- State your research questions in such a way that they include all dependent and independent variables referred to by the theories, principles, or concepts underlying your research work.
- Write a lot of questions down over a couple of days. Let the set of research questions be preceded by one questions expressing the main problem of the research.
- Avoid asking research questions that are answerable with "YES" or "NO" and use "HOW" questions only in a quantitative research.
- Be guided by the acronym SMART (specific, measurable, attainable, realistic, time-bound) in formulating the research questions.
- The research problem enables you to generate a set of research questions. However, your ability to identify your research problem and to formulate the questions depends on the background knowledge you have about the topic.
- A statement that identifies the phenomenon to be studied.

EXAMPLE:

Research problem: Renovation of the covered pathway between two buildings in the college.

Problematic questions:

• What materials are needed for the renovation of the covered pathway between two buildings in the college?

• What roofing material is appropriate for the covered path?

• In what way can the covered pathway link all buildings in the college?

• What is the width and height of the covered path?

• How can the covered path realize green architecture?

A successfully developed research question (problem) reveals the essence of the research work and together with the purpose and goals of the work presuppose a qualitative research.

DETERMINING AND NARROWING THE RESEARCH SUBJECT

Having established a research question (problem), it is easier to narrow and to determine the subject of the research. The subject of the research is the theoretical and empirical research of a specific phenomenon related to the topic. To determine the subject of the research a question should be asked: *"What is being researched?"*

The subject of the research should be selected appropriately, as it determines the scope of future research work. If the suject is too broad, it may not be properly analyzed, and will result in the research work being superficial. If the subject of the study is too narrow, the research work may not meet the minimum requirements.

The subject of the research is too wide if:

• It deals with a complex issue studied over an entire century or more, e.g., "Evolution of Lithuanian construction sector from 1900 to 2000" instead of "Evolution of Lithuanian construction sector from 1990 to 2000"
• It deals with the complete works of a prolific author, e.g., "Analysis of Maironis' work" rather than „Analysis of romantic historical dramatic trilogy".
• It focuses on general rather than on specific problems, e.g., "Urban housing" instead of "Architecture of new suburbs of Vilnius city "
• It asks no question or presents no hypothesis, e.g., "Protection of wetlands in modern Lithuania" rather than "Does air pollution damage the flora and fauna of the present Lithuanian wetlands?

The Aim of the research is to find an attainable solution to the problematic issue (problem). Generally, one aim is set for one research work

After the aim of the research is determined, it is usually split into the research goals. These can also be formulated as certain research procedures that will allow the aim to be achieved. Therefore, the research goals help to develop the following aspects:

- Structure of the research;
- Stages of the research;
- Methodology of the research.

Each separate goal is formulated in the way so that the achieved result would be reflected in the conclusions of the research.

The aim is defined by verbs: to investigate, analyze, determine, identify, reveal, justify, describe, compose, etc.

The goals of the research are defined by verbs: determine, analyze, compare, compose, etc.

EXAMPLES:

Topic: development of educational zones at a school of general education
Aim: to design educational zones for various subjects (mathematics, chemistry, arts, physics etc.) which would encourage children's creativity and study motivation.
Goals:
1. To determine factors, that encourage children's creativity and study motivation.
2. To analyze premises of the secondary school.
3. To design educational zones for various subjects (mathematics, chemistry, arts, physics…).

Topic: Planning of a public space on a land plot in Agrastų str. in Vilnius
Aim: to adapting a land plot in Agrastų str. in Vilnius for the needs of local community by creating a public leisure time zone.
Goals:
1. To analyze applicability of a land plot in Agrastų str. in Vilnius for the needs of local community
2. To develop a public free time zone.

Topic: Improvement of traffic management of regulated intersections in Vilnius.
Aim: to propose solutions for improving traffic organization in ten most dangerous intersections in Vilnius
Goals:
1. To analyze road safety statistics presented by the European Commission.
2. To analyze ten most dangerous intersections in Vilnius.
3. To analyze the requirements set in the normative documents (KETs).
4. To formulate proposals for improvement of traffic organization.

STATEMENT OF HYPOTHESIS

There is no research that has been started in an empty space, since all researchers, at least initially, start by stating a hypothesis. Hypothesis is a tentative scientific statement regarding a research question. The hypothesis can state: in the light of all previously conducted research regarding this question, the answer to it is likely to be such and such.

However, it must be remembered that the fundamental task of a researcher with a certain hypothesis is not to prove that this is the case, but to check if this is the case. If the exact answer is already known, the problem is just a pseudo-problem, and if the aim is to prove that it is so, and not otherwise, the researcher ignores the most important ethical requirement of research – not to have a prior opinion, to be open to even the slightest feature of the object.
. There is no need to worry that the results of the study will rule the working hypothesis out, it is important that there is reason to say that one or another answer is likely to be.

Topic:
Determining the link between the student's attention span indicator and the success of his control task
Hypothesis:
The link between the student's attention span indicator and the success of his control task does not differ from zero.
Or
The link between the student's attention span indicator and the success of his control task is significantly different from zero