How to write your semestral project (Report of your own psychological experiment)

The report structure mirrors the common structure of scientific paper. The main parts are
- Abstract
- Introduction
- Methods
- Results
- Discussion
- Limitations
- Conclusions

How to write each part

Abstract (Abstrakt)
This is a short summary of all other parts. Usually you start by writing the **preliminary** abstract because it helps you to think about your project. Then you move to other parts and when they are all finished, you go back to the abstract and revise it if necessary.

Introduction (Teoretická část)
In this part you should convince reader that your experiment is worthy of conducting. Usually, you bring arguments why the proposed question/hypothesis/causal relationship is important to study ("so what question") and that it has not been studied enough ("knowledge gap"). Elaborating these two things together will naturally bring forth "the problem" (there is something important and we do not know about it enough and that is a problem). Then, you should provide the solution for the problem (which is your study).

Example of how to write the introduction

University students often suffer from psychological stress (ref 1-5 showing the prevalence of psychological stress in university students worldwide/in Europe/in Czech Republic – convincing evidence). A high level of psychological stress has negative consequences for students' long-term health (ref 6-8 showing that stressed students have worse health that those who are not stressed – convincing evidence). Health of students is important because it influences their quality of life (ref 9-10 showing the health influences the quality of life), the probability and the rapidness of graduation and their entry on labor market (which is public concern). Therefore, we need to decrease the level of students' stress. Unfortunately, not much is known about the factors that influence the stress in students. It seems that having difficult (challenging) exams increase the stress level (ref 11-12 showing that students with more difficult exams reported higher stress level compared to students with easier exams and

students in exam period were more stressed than outside this period – suggestive evidence). While the total amount of knowledge that students are supposed to learn may not be changeable, the difficulty of exams could be modified by dividing the required knowledge into several smaller exams.

Our study aims to prove that……………………………………………………………………………………………………

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which is important because……………………………………………………………………………………………………….

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- In your report it is not necessary to provide true and valid arguments backed by academic literature. It would be too time consuming. However, try to respect the function of the introduction and at least clearly state the problem and your proposed solution (your study objectives). Your reader should know what you wanted to investigate and why.

Methods (Metody)
This is crucial part of the report, because it should show to reader the "technical" quality of your experiment. Whether design was appropriate, measurement was sound etc. There are more or less strict rules what you need to describe (depending on design and journal).

- In your report start with the **hypothesis** (Hypotézy) – the exact causal relationship you want to verify. Then describe the **design** (Design) – experiment or quasi-experiment, setting (lab or field experiment). Describe your **data collection (experimental) procedure** (Procedura/Postup sběru dat) and your **sample** (Výzkumný soubor) – recruitment, participants' flow, characteristics of final sample. Describe **measures** (Použité nástroje) – list your independent and dependent variables and also other variables that you will "control for" - possible confounds - and describe in detail how you measured each of them. Describe your planned **statistical analysis** – by what test(s) you plan to analyze your data. Note how many **missing values** you detected in your dataset and how you handle them.

Results (Výsledky)
At this point, your reader should already know what you have done. And they should be curious whether your presumptions (theoretical causal relationship) were right. Just show them collected data and result(s) of your test(s).

Before you start writing:
- Prepare your dataset - make "sanity checks" (and address missing values – facultative)
- Compute all variables (either in Excel or in Jamovi)

- Check statistical assumptions (distribution) in your variables, separately for experimental and control groups – Jamovi → Analyses → Exploration → Descriptives → Distribution + Normality (Split by Group-exp/con)
- Conduct the main analysis (usually Repeated measures ANOVA or ANOVA or t-test) – Jamovi → Analyses → T-Tests/ANOVA (parametric or non-parametric based on the normality of distribution) – include Post Hoc Tests, Marginal means plots and Marginal means tables (in case of ANOVA) and Descriptives and Descriptives plots (in case of T-Tests).

- Repeat the main hypothesis, state which analyses you conducted to test the hypothesis and with what results. If not sure, check the APA rules for reporting your type of analysis. Then add the tables and figures copied from Jamovi.
  For this report the one main analysis is enough.

Discussion (Diskuze)
The main purpose of discussion is to connect your results with theory presented in introduction. It should be clear whether your hypotheses were supported by your data. You should describe any surprising findings and try to explain them using previous findings, relevant theories etc.

- State whether your data supported your hypothesis or not.

Limitations
In this section you acknowledge all factors that weakens the impact (implications) of your research.

Before you start writing:
- Read Field, A., & Hole, G. (2002). How to design and report experiments. Sage, pages 58 – 63 (Thread to internal validity and threads to external validity) and decide which of these threads are relevant for your experiment.

- Write all threads you think they are relevant for your experiment. You may suggest how to overcome them in further research. These are the main limitations of your research.

References
Cite references according to APA-6th edition format. Optimally, use citation manager (e.g. Zotero).

The recommended length
1000 – 3000 words