STUDY GUIDE

Final Project Bachelor
Psychology & Technology
0BEPP0
2023-2024

Contents

1. Introduction

A bachelor's thesis is an individual report on an individual research project conducted as an assessment of academic proficiency. In the thesis, you demonstrate that you are capable of analyzing – under guidance of a researcher as supervisor – a problem in the field of Psychology & Technology. You also show that you are able to present the gained insights in oral presentations and, most of all, in a written report. The level of the thesis reflects the goals of an academic bachelor degree in Innovation Sciences, Major Psychology & Technology. This study guide contains a description of the final project of the Bachelor of Psychology & Technology (PT).

If you have questions about the final project, you can contact the following people:
- In case you have questions about the general organization of the BEP, please contact the BEP coordinator IEIS.education.coordination@tue.nl
- In case you have questions about administrative issues (including questions about enrollment), please contact the Center of Student Administration IE&IS: IEIS.csa@tue.nl.
- In case you have questions about the content of a project, please contact the researcher responsible for the project.

2. The Final Project Bachelor P&T in the curriculum

The Final Project Bachelor Psychology & Technology is a third year course in which you individually investigate a problem or question in the field of Psychology and Technology. In your final project, you follow the complete scientific research cycle.

2.1 Day, time, and place

The final project starts twice a year: in the third year in quartiles 3-4 and alternatively in the fourth year quartiles 1-2. The final project has a study load of 10 ECTS, which means 280 hours in 20 weeks or 14 hours per week.

2.2 Relationship with other courses

The final project concludes your bachelor studies and aims at integrating insights and skills that you have acquired in the first five semesters. Among others, disciplinary theory development will be integrated with methods and techniques of data analysis (including the courses 0HV00 and 0HV50) and with the interpretation of results. The problem that you analyze fits into the technical domain of the Major P&T that you have chosen (ICT, robotics, living). In the interpretation of the results of the project, it is important to pay special attention to the implications for the design of technology, the use of technology, or for handling the consequences that technology has for individuals, their social relationships, or society.

2.3 Relevance for the field

In this final project, you go through the entire empirical cycle. You examine an empirical research question in a relatively independent way. Knowledge from various disciplines is integrated and you apply research methods and statistical tools that you have learned in the bachelor to a relevant problem or research question. It is important that you learn how to conduct good research and apply social psychological theories/findings to the domain of human-technology interaction.

3. Aims and learning goals Final Project Bachelor P&T

You perform a study that covers the whole empirical research cycle. Specifically, you critically examine a specific problem or research question and embed it in relevant theoretical literature, design a way to test this research question, collect data, and analyze the data. You then derive implications for the design of a technological product, for its use, or for handling the effects that technology has for humans, their social relationships, or society. You integrate knowledge from various disciplines and practice performing research on a technology-related problem. This will be linked to the technical specializations in the BSc and the master HTI: Robotics, Living, and ICT. Importantly, you show to have knowledge about both psychological and technical components that play a role in the relation between people and technology.

3.1. Learning goals

The final project Bachelor Psychology & Technology is a large project, individually and multidisciplinary. In the bachelor, you have been involved in a number of projects, but in the final project you have to work individually (often within a group of students who study similar research questions), in a larger project, and go through all the phases of the research cycle.

Several learning goals have been defined for the final projects. Under guidance of a supervisor, you are able to:
- formulate a well-specified scientific research question fitted to the problem and relevant scholarly literature
- conduct a literature search
- apply and modify relevant scientific theory in order to solve a technology related problem
- make an adequate research design for empirical research on the problem / research question
- apply relevant scientific methods and statistical techniques of empirical research to the research question
- relate interpretations of the data to theory and describe implications (e.g., advice for the design of technology and/or policy recommendations)
- individually write a scientific report
- reflect and think systematically

3.2 Prerequisites

A third year student is allowed to start with 0BEPP0 if the student
- Has obtained 120 ects at least one quarter before the actual start of the project
- Has passed either the course Behavioral Research Methods 2 (0HV50) **or** Advanced Research Methods & Research Ethics (0HV110) at the moment of enrollment

3.3 Description of assignments Final Project

You will investigate a scientific and/or practical problem with both a social-scientific and a technical component. The supervisor formulates a problem or (general) question

for a project. Each project fits with one of the technical packages of the Major PT: ICT, Robotics, or Living (which may be combined with for example Sports or Light). Some projects may contain elements of at least two technical packages. The projects are in line with research conducted by staff of the HTI group. An essential aspect for the project is that integration takes place between the technological domain and the (psychological) theoretical-empirical research performed in this project.

The multidisciplinary expertise in both the social sciences as well as the engineering domain might even bring unique solutions to mind that would not have been considered by people working from only one discipline.

3.4 Criteria

The learning goals imply that two important criteria for the final project:
1. The project is carried out individually
2. The project is not based on a set of predefined research activities; the student has to make and justify their choices.

The following criteria apply to the final assignments:
- For the Major PT the HTI group is responsible for the provision of the projects;
- You may also propose a project on your own. However, in this case you have to find an HTI researcher who is willing to supervise you. A supervisor must be found before (!) the start of the semester (the deadline will be the date on which all students submit their project preferences). Projects need to be in line with the research of the HTI researchers. Importantly, you may only approach HTI researchers with your own project if this project has been described in detail, including theoretical background and a well-defined research question / hypotheses.
- You may start as a small group within the same theme or domain (depending on the project), though each of you has to formulate an individual research question. The individual research question results in an individual manipulation and/or an individual measure in the experiments, which is (often statistically) evaluated and reported.

4. Organization

The final project is organized by the IE&IS department. The tasks have been distributed as follows:

- The Center for Student Administration (CSA) takes care of all administrative matters (including enrollment) of the final project and collects all reports.
- The coordinator is Peter Ruijten, assisted by Education coordination IEIS; they take care of linking students, supervisors, and projects. The coordinator is responsible for a balanced distribution of subjects over the students, taking their technical background into account.
- The group Human Technology Interaction (HTI) is responsible for the quality of the assignments, the supervision, and the grading of the projects.
- The supervisor(s) is/are responsible for the guidance of the student(s) and is/are the first contact(s) for the student(s) regarding the content of the project.

4.1 Set up of the course

The final project is an individual assignment (under supervision) in which you write an individual thesis and you are assessed individually. You go through the entire research cycle, starting with a well-defined research question and finishing with theoretical and practical implications of the project findings. In this way, you contribute to the body of scientific knowledge on a limited and specific problem.

Groups of two to five students who have chosen the same project can conduct one overarching project under the guidance of a supervisor (depending on the project). They can collect data as a group. However, each student needs to have their own specific question. Data analysis and reporting must be carried out individually. The supervisor (from the HTI group) evaluates the process of writing the final report and the final report itself. The supervisor also evaluates the interim report and the professional skills attached to the final projects (see section 5). A second assessor evaluates the final report. Both assessors are from the School of Innovation Sciences.

Responsibilities and supervision:

- The supervisor evaluates the quality of the interim and final report and the quality of the process leading to the final report. These process criteria include, for instance, the student autonomy, motivation, communication behavior (for details see section 6.5). The supervisor also assesses the professional skills attached to the final project (see section 5).
- The second assessor (reader) only evaluates the final report.
- The TIW Examination Committee regularly assesses the quality of a sample of the reports and their assessments.
- The reports will be archived in a digital library/repository.

4.3 Distribution of the study load

An even distribution of the workload over the semester is critical because you have never before been confronted with the (individual) completion of a full research project. To help you with this, you are asked to write in-between drafts. You receive

continuous feedback (comments of the supervisor) on these drafts, so that the drafts can be revised before they are placed into the final report.

While going through the research cycle you have to submit deliverables at the following moments:
1. Formulation of the well-specified question, a sketch of some of the hypotheses, and a preliminary design (week 2 of week 3).
2. Complete and detailed elaboration of the theory section: research question and all precise hypotheses.
3. Interim report with a detailed description of the research question and precise hypotheses, research design, and procedure/measurements (e.g., questionnaire, experimental design, etc.; end of the first quartile). So, the interim report contains almost the entire introduction and methods section.
4. Description of the results of data analyses and interpretation.

Additional drafts may be submitted and discussed in agreement with the supervisor.

5. Professional skills

Three professional skills are attached to the Final Project: planning, writing, and presenting. All skills will be graded unsatisfactory, satisfactory, or good.

At the end of the project, you reflect on the development of your professional skills during the project. You need to fill in the template 'Professional Skills Reflection BEP-PT' and add the filled-in template to the final BEP report as an appendix.

5.1 Planning

Planning has the following learning goal: You are able to organize your own activities so that results can be achieved within a previously set time and with the resources available.

You make a Gantt chart that contains your planning, as practiced in previous courses. The planning should include the intermediate deadlines (milestones) for drafts and the deadlines for submitting the interim and final report. Furthermore, during the project, you will adjust the planning when necessary and inform the supervisor about the adjustments.

The planning chart needs to be discussed with the supervisor **in the first few weeks** (make an appointment for this; you are responsible for it!). Because adjusting the planning is also part of this skill, the planning skill will be evaluated at the end of the project.

Planning will be assessed with the following criteria:
- Drafting and implementing planning
- Setting priorities
- Adjusting planning

5.2 Writing

Writing has the following learning goal: You are able to convey a message to and receive a message from another person in (English) writing. A message can be an idea, an opinion, a standpoint and/or a process.

If you are not certain in which style you should write your report (i.e., the writing style of articles in your field as well as the lay-out of these articles, such as APA style), please ask your supervisor for a good example of an article that uses the style that is common in your field. The professional skill "writing" will be based on the final report.

Writing will be assessed with the following criteria:
- Quality of the message
- Structure
- Use of language/formulation
- Lay-out

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- Tailored to target group

5.3 Presenting

You also present your project at the end of the project. Presenting has the following learning goal: You are able to convey a message to and receive a message from another person verbally and visually. A message can be an idea, an opinion, a standpoint, and/or a process.

The presentation must be in English. We will inform you of the date of the presentations.

Presenting will be assessed with the following criteria:
- Quality of the message
- Structure
- Non-verbal communication
- Use of language
- Use of (visual) aids
- Target group

6. Evaluation

6.1 Type of examination

1. Individual written report of approximately 15-30 pages (in English!).
2. In-between written draft reports, as discussed with the supervisor. The interim report at the end of the first quartile (Q3 or Q1) will be graded by the supervisor.
3. The three professional skills.

6.2 Date of examinations

The deadline for submission of the **interim** report is always on Sunday before the exam period of the first of two quartiles (so either Q1 or Q3).

The deadline for submission of the **final** report is always on Sunday before the exam period of the second of two quartiles (so either Q2 or Q4).

The professional skills will also be assessed at the end of the course.

Final grade of the project is the weighted average of the grade of your interim report (20%) and the grade of the final report. You fail the project when your final grade is 5.5 or smaller (the final grade is rounded off on half integers, e.g. 6.5). In case you fail the project, you will be given the opportunity to revise the final report, taking into account the feedback you received from your supervisor. If possible, the same first and second assessor will assess the re-exam of the report. However, as the reexam sometimes falls in the middle of the summer holidays, it is possible that the reexam will be assessed by different assessors. Because you will have over an additional month as well as additional feedback to improve the report, it will be very hard to score more than a 6-7 for the re-exam.

The deadline for submission of the **retake** report is always several weeks after the course. Exact deadlines will be agreed upon with supervisors, depending on whether you aim to start your Master program or possible holidays of you and your supervisor.

6.3 Submission procedure of final report

You need to submit your final report on Canvas **and** send it in an email to your supervisor. The supervisor will assess the final report, using the rubric that will be available. The education administration checks whether all requirements have been met and then processes the final grade.

Note that you also need to upload the completed Code of Conduct form. This document is available on Canvas.

If there are personal reasons for delay (e.g. longer illness), you can request an extension for your BEP project through the examination committee using (Appendix A - Request for Extension BEP).

6.4 Feedback

Feedback is continuously provided, especially after submitting the interim report. After submission of the interim report, detailed feedback is important, so that the report can be revised.

6.5 Final grade of the report and of the project

The supervisor determines the grade of the interim and final report with several criteria. The specific grading criteria can be found in the attachment. The evaluation of the interim report is based on the same criteria, but only ones that apply to the interim report (so, not the criteria related to the results and discussion).

A second assessor assesses the quality of the final report. The grade of the final report is determined by a joint assessment of both evaluations. This final evaluation also takes into account the quality of the process that led to the report. For instance, the quality of in-between assignments and interim reports, student autonomy, motivation, communication behavior etc. will be taken into account. If the two assessors do not come to an agreement on the final grade of the report, the average of the two grades determines the grade of the final report.

FINAL GRADE: The final grade of the project is a weighted average of the grade of the interim report submitted at the end of at the end of the first quartile (20%) and the grade of the final report (80%).

In order to pass the final project, you must also pass the three professional skills, which are assessed by your supervisor and/or experts from ESA.

7. Anti-plagiarism

Plagiarism is forbidden and will be severely punished, see below for more details:

> When you submit your work under your own name you are asserting ownership of that work. When using ideas of another person, you must give that person appropriate credit through referencing. Referencing serves multiple purposes: (i) it allows readers to further explore sources you have consulted, (ii) it shows the depth of your own thinking and process of inquiry, (iii) it allows you and your readers to compare and contrast your position with other people's positions, agreeing with some, disagreeing with others, and (iv) it gives proper credit to the hard work that many people have done before you.[1]

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[1] IJsselsteijn, W.A. (2007), Studeerwijzer HTI Design Track A. TU/e, Faculteit Technologie Management.

8. Learning outcomes bachelor PT

Some learning outcomes apply to the whole bachelor program Psychology & Technology. The final project is linked to these learning outcomes to a great extent, as discussed below.

1. **Competent in scientific disciplines**

   e.g., knowledge of how the core concepts, theoretical frameworks and methodologies of psychology are applied to understand the complex bidirectional relationships between technology and users, and its relevance and implications to steer technology innovations

   The final project links technology and users of technology. Knowledge learned in previous courses is applied to a specific research question. Moreover, methodological and statistical skills learned in previous courses (0HV00, 0HV50), is applied. Having passed these courses is a prerequisite for enrollment.

2. **Competent in doing research:**

   e.g., ability to develop and execute a research plan (with supervision).

   Doing research is the core of the final project. Students go through the entire empirical cycle. Some competences related to doing research are also explicitly assessed as professional skills: planning, writing, and presenting.

3. **Competent in designing:**

   e.g., ability (with supervision) to integrate the technological and psychological domains, merging knowledge, methods and concepts.

   These competences will mainly be reflected in the discussion section of the report. Students will provide theoretical and practical implications of the results.

4. **A scientific approach:**

   e.g., ability to document systematically, and in adherence with typical structure and content specifications, the result of psychological or user requirement research for future use with the organization.

   Although not a strict deliverable, the scientific approach is an important condition of conducting the final project. Moreover, writing skills are assessed as part of the final report as well as specifically as a professional skill. The process of doing research is also part of the grading criteria of the interim and final report.

5. **Basic intellectual skills:**

   e.g., a critical mindset and the ability to ask constructive questions regarding the basic problems in the field.

These skills will be apparent in the introduction and discussion sections of the report. Moreover, writing, which is also part of this learning outcome, is assessed as a professional skill and as part of the interim and final report.

6. **Competent in co-operating and communicating:**

    e.g., capability of reporting and communicating the results of one's learning and decision making –including one's research outcomes --, both verbally and in writing, with academic peers, engineers in one's domain, and users.

    Next to writing, verbal communication is also assessed as professional skill ("presenting").

7. **Takes account of the temporal, technological and social context:**

    e.g., ability to reflect on the relation between the use of scientific knowledge and technology, the implicated social, normative and ethical issues, and the way in which knowledge and technology development is influenced by it social and historical context.

    This skill will mainly be reflected in the introduction and discussion section of the report.

Appendix A – Request for Extension BEP

EINDHOVEN UNIVERSITY OF TECHNOLOGY
REQUEST FOR EXTENSION BACHELOR END PROJECT
DEPARTMENT OF INDUSTRIAL ENGINEERING & INNOVATION SCIENCES

Personal Information

Name:	
Student Number:	
BSc Program:	☐ BSc Industrial Engineering ☐ BSc Psychology & Technology ☐ BSc Sustainable Innovation
Name of the Mentor / First Assessor:	

Start date Bachelor end project:	
Extending until:	
Reason extending:	
Motivation:	

ALL FORMS CAN BE DOWNLOADED ONLINE:
https://educationguide.tue.nl/programs/bachelor-college/majors/psychology-technology/forms

Signature Student   Date:

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To be completed by the Examinations Committee

Approval of extention: [▾]

Explanation:

On behalf of the Examinations Committee   Date

Submit the signed document by uploading the document at **EC IS request sharepoint**

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