



Guidelines for Final graduation project

MSc Educational Science and Technology

- University of Twente,

for external organisations

Ref: GW-OSC-5112
Date: April 2017

Preface

This manual provides guidelines for organisations that intend to offer an EST master student the opportunity to conduct his/her final graduation project within, or in cooperation with, a company or institution.

After presenting a brief overview of the Educational Science and Technology (EST) master's degree programme, this guide mainly focuses on the procedures and guidelines with regard to the EST final graduation project.

We expect this document to provide clarity on what can be expected of both the student and the organisation, throughout the project. And we hope that it may lead to a collaboration that is beneficial to all parties.

On behalf of the EST-staff,

Jan Nelissen & Yvonne Luyten-de Thouars,
Programme coordinators

Table of contents

Preface	2
1. Overview of the EST master's programme	4
1.1 EST's characteristics	4
1.2 EST programme outline.....	5
2. The EST Final Project	6
2.1 Research Proposal EST	6
2.2 Outlines of the Final Project EST	6
2.3 What is a suitable final project?.....	7
2.4 Determining the conditions	7
2.5 Arrangements between student, supervisor and external organisation	8
3. Writing the thesis	9
3.1 Content of thesis	9
3.2 Publication and confidentiality of thesis	9
3.3 Other matters of attention	9
4. Final colloquium.....	10
5. Assessment and Grading of the Final Project.....	11
APPENDIX A: Final Project contract	15

1. Overview of the EST master's programme

1.1 *EST's characteristics*

The main focus of the master's degree programme Educational Science and Technology (EST) is on the design and evaluation of learning scenarios in schools and organisations. This could address young children in primary school, secondary and vocational education, or adult employees such as nurses, civil servants, managers or teachers in schools, receiving in-service training or training on the job. In the EST programme students acquire knowledge about theories of learning and assessment, learning technologies (e.g., serious games), effective training approaches, and learning interventions. They also learn how to design and evaluate different learning scenarios and move from there into recommendations and solutions for practical problems.

The EST programme has two focal areas:

- Educational Design and Effectiveness (EDE): Focus on learning and instruction in formal and informal settings, and school effectiveness.
- Human Resource Development (HRD): Focus on learning scenarios in organisations.

Systematic, design-oriented and evaluation-based approach:

EST graduates are scientific educational professionals: experts who connect scientific research and educational design with practice. Their expertise is based on finding effective solutions for learning problems taken from practical contexts (in both schools and organisations) by using a systematic approach often incorporating technology. The result of this approach is a design (or a set of designs), which is tested in the context of the problem to see if the solution contributes to improvement or innovation.

This systematic, technological, and design- and evaluation-based orientation characterises the EST programme and distinguishes our programme at the University of Twente from other education-related degree programmes in the Netherlands.

Typical EST features:

- *In-depth domain orientation*
- *Applied character*
- *Ample attention to academic training*
- *International character*
- *Attention to the use of technology*
- *Design-oriented and problem-solving approach*

2. The EST Final Project

At the culmination of the master's programme Educational Science and Technology (EST), each student must carry out a research project that relates to a real-life problem. Rather than being a separate project, the Final Project will involve synthesising the preparatory work done in the framework of the previous courses and projects, and continuing it through a cycle of design or research activities.

2.1 *Research Proposal EST*

Both prior to (as well as partly in parallel with) their Final Project, all students will take a course called '**Research Proposal EST**'.

This course prepares for the M-EST programme's Final Project. The following aspects will be addressed (amongst other things by means of exemplary research proposals, illustrative articles and cases, and examples of best practice):

- Defining the *purpose* and the *key concepts* of the research, constructing and discussing a *conceptual model*, and formulating scientifically relevant *research questions* based on a review of the literature.
- Choosing and justifying an adequate *method of data gathering* and *data analysis* based on the purpose of the research and the research questions through separate structured assignments
- *Writing* the several sections of a research proposal (introduction, conceptual framework, method, etc.) through separate structured assignments
- Reviewing and evaluating the *scientific quality* of the several sections and the *consistency* of the written research proposal by means of assessment rubrics and formative feedback

In other words: those factors which determine the quality of the design of a research project and research proposal, such as: information skills, ethics, publication skills, will be dealt with.

At the end of the course, students have knowledge on and insight into: how to formulate and design a research plan/project, and how to write a research proposal.

2.2 *Outlines of the Final Project EST*

- After the preparations during the first semester, the student will conduct the actual final project during his/her second* semester in the EST programme

(* *this applies to fulltime students, parttime students have a different time frame*).

- The final project is awarded with 25 European Credits. 1 EC represents 28 hours of work input, which implies that the final project requires 25 x 28 hours = 700 hours of work. This includes the time needed to write the actual thesis, feedback sessions with the UT supervisor, etc. Of course it depends on the number of hours a student actually works on the final project, but it should be possible to complete this final project trajectory within half a year.

2.3 *What is a suitable final project?*

The core of a Final Project implies a design or a research component (including empirical, evaluative and reflective aspects, grounded in a theoretical and scientific framework). In order to be able to determine the suitability of a Final Project, the following issues should be considered:

- What is the relevance of the project for the organisation and for the academic discipline Educational Science?
- Is the problem indicated a real problem? Are the formulated research questions embedded in relevant literature?
- Will there be sufficient opportunities to find out what causes the problem, or to collect the needed information?
- Will there be sufficient and qualitatively adequate guidance from the company/organisation?
- Is it possible to complete the project in the time given?

Discussions on these questions should result in the conclusion whether both the organisation and the student, as well as the EST graduation staff, all agree on the content and feasibility of the envisaged final project.

2.4 *Determining the conditions*

It is required to make clear arrangements and to determine conditions before the Final Project actually begins. The following issues should be addressed timely:

- Who will coach the student within the company/institute and to whom will the student report?
- Is there a workplace within the company/institute (including an own desk where the student can work undisturbed)?
- Is confidentiality an issue to consider?
- What facilities will be open to the student?
- What other conditions of employment are there (remuneration, insurance, holidays, working hours, etc.)?

Mainly if the project is a design project, some companies or institutions will automatically offer an official contract. Others will consider it as not necessary to draw up an official contract covering the above-mentioned elements.

Anyway, the student should make sure, whether there is sufficient communication and consultation between company/institute and university on these formal issues before the Final Project takes off. In this respect, the student is leading in the process, even if the supervisor holds final responsibility in this matter. We strongly advise not to start a Final Project before all of these points have been taken care of and before discussed with the supervisor.

Note: International students may need a work permit to execute a Final Project in a company or institute. This also may apply to Dutch students who plan to execute a

Final Project abroad.

In this regard, students should contact the Faculty's Office for International Affairs, Ravelijn 3284: Internationalstudentsupport-bms@utwente.nl

2.5 Arrangements between student, supervisor and external organisation

Once being allocated (by one of the graduation coordinators) to a supervisor, students need to make clear arrangements with him/her about what they may expect from each other, and which tasks and responsibilities both the student, his/her supervisor and the coach of the external organisation have. These arrangements have to be included in the *Final Project Contract* (see: Appendix A).

This contract is signed by the members of the *Graduation Committee*.

The Graduation Committee consists of:

- The 'daily' supervisor (i.e. 1st supervisor),
- The 2nd reader (i.e. 2nd supervisor), and,
- The – external - company/institutional coach.

This Final Project Contract obliges the University of Twente to guide the student and to assess the student's Final Project. It forces the student to complete the Final Project. The external coach commits to facilitating this Final Project in the organisation and giving guidance to the student throughout the project.

Note:

- The UT supervisor holds responsibility of the assessment and grading.
- The external supervisor/coach plays the role of advisor in the assessment of the Final Project, particularly related to the process-related issues.
- In case the University of Twente supervisor and the external supervisor do not know each other – the student is advised to check with his/her supervisors whether it is desired that they meet at the beginning of the Final Project. This will allow them (next to become acquainted) to discuss about roles and responsibilities.

3. Writing the thesis

3.1 *Content of thesis*

Every Final Project usually includes (a) a design or evaluation component and (b) a research component. Both demonstrate the ability of the student to use and process scientific knowledge. In a design-focused or evaluation-focused project, the design or evaluation activities have a central place whereas the research activities are mainly supportive for understanding of the problem and for assessing the problem solving capacity of the design or evaluation result. In research-focused projects, the focus is on data collection, analysis and interpretation, based on theory and a well-designed research plan, and leading to grounded recommendations for practice. Therefore the thesis intends to inform about:

- The problem that led to the Final Project.
- The research that led to the definite problem statement and to the methods selected to solve this problem(s), including the methodology used.
- The design or evaluation and research methods used, and the results obtained. This may be done in the form of a description and evaluation of results (e.g. a product), and conclusions and recommendations about the design or evaluation and research process, in such a way that the thesis embodies a sufficient scientific level.

Note: there can be a very close link between the content of the research proposal and the final thesis.

3.2 *Publication and confidentiality of thesis*

According to standard procedures the student will upload the thesis for non-confidential publication after graduation. In case the organisation where the student conducts the final project insists on deviating from this public archiving of the thesis, the student must mark this on Appendix A and submit a request for changing this public status into “confidential” to the Examination Board.

3.3 *Other matters of attention*

Note: the thesis has to be written in English!¹

When writing a thesis, the following points are extremely important (not necessarily in this order):

- The thesis should be limited to 60 pages, excluding appendices, where the student has to realise that the main body of the text needs to be composed of the exploration

¹ In case a student would like to deviate from this rule, he/she has to submit a written request to the Examination Board

and definition of the (research) problem, the design/research approach, evaluation/discussion, and conclusions and recommendations.

“The art of writing is the art of knowing what to exclude!”

- During the writing process, the student has to have a broad but engaged and interested audience in mind. A student must also be able to explain to non-specialists what he/she means.
- With respect to the English language: the student has to use British (UK) spelling conventions.
- The layout needs to be clear and reader-friendly. The thesis should take the reader by the hand. It is recommended to provide a short summary at the beginning of each chapter.
- The master’s thesis needs to meet the requirements of the APA-style as formulated in the most recent edition of the “APA-manual” or the “Concise rules of APA-style”.

4. Final colloquium

The conclusion of the Final Project will be the colloquium (i.e. oral presentation). Upon approval of his/her supervisor (in consultation with all members of the *Graduation Committee*) the student will set a date that is appropriate for all members involved. So also the external coach is explicitly invited to be present at the colloquium, and his/her presence will be highly valued.

The final colloquium is a public event. A student may invite friends, colleagues, relatives, etc.

During the colloquium, the UT supervisor acts as host. He/she will introduce the student and the external coach of the hosting organisation. Then the student presents his/her Final Project (duration approx. 25 minutes). After that, there are 20 minutes available for discussion. The Graduation Committee will then retreat in order to formulate the result (i.e. to determine the grade) of the Final Project as a whole. The student will be told the result, including getting feedback, (either in a personal discussion of 15 minutes maximum, or in public).

The following guidelines are important for the colloquium:

- Since the colloquium is a public event, the student has to prepare his/her presentation in English!

Note: Dutch students may (after having consulted the Graduation Committee and upon their approval) switch to a presentation in Dutch in case there is no non-Dutch audience present.

5. Assessment and Grading of the Final Project

The following aspects are taken into account in the evaluation of the Final Project:

- the quality of the thesis
- the quality of the colloquium
- the student's professional attitude and skills

More specifically, the following assessment aspects apply (see also: Appendix C):

1. Problem statement and theoretical framework

Criteria in this regard:

- Various (core) concepts, theories, models and working methods of the discipline are appropriately chosen and used (in combination) and show a thorough understanding of the meaning and interrelationships as well as good knowledge of the domain and area of specialization.
- An extensive and in-depth literature review has been performed as a theoretical framework for the problem statement.
- The problem statement and/or the research question are explicit, carefully developed and formulated (including preconditions, limitations, sub-questions etc.), and researchable (providing direction to the research strategy).
- The problem statement is justified and embedded in a theoretical framework; the choices and suppositions made are clearly indicated and the scientific and social relevance of this research is clearly and adequately substantiated.
- In the case of an external (design) assignment: needs, wishes and demands of the client are adequately translated into a specific problem statement, a characteristic which is expressed in the description and the justification.

2. Research plan and analysis

Criteria in this regard:

- A well-founded choice of research method(s) and instruments and/or design plan has been made, corresponding to the statement of the problem and partly based on the theoretical framework.
- The acquisition of the data has taken place in an adequate and transparent manner, making the data valid and reliable.
- The choice for the method of processing and the processing of the data has taken place in a comprehensible and transparent manner; the results are valid and reliable.
- The student has performed a correct, advanced analysis, which logically arose from the problem statement and results.
- In the case of an external (design) assignment: the design approach has been applied adequately, including the implementation and evaluation, and has resulted in a high-quality design of intervention(s) or instrument(s).

3. Conclusion, reflection, discussion

Criteria in this regard:

- In the conclusion, the initial problem statement / research question is answered.
- The student has managed to lift the conclusions to a higher level (abstraction, generalization) and an interpretation and consideration are given concerning the practical, social and/or scientific relevance of the research (related to the theoretical framework, recent research), while attention is paid to ethical aspects.
- The student has critically assessed and discussed the research and the results (reflection, good argument and argumentation, recognition of strong/weak point, putting the research into perspective). The student has reflected on the implications of strong/weak points of the research and on possible solutions.
- The thesis has contributed to the development of new knowledge and ideas and to the formation of theories, models and instruments (this could also be: valid replica with expansion of existing research).
- The student has made a proposal for follow-up research based on practical and theoretical considerations.

4. Written report

Criteria in this regard:

- A logical, consistent design and structure. A concise representation of the total research.
- Correct language use.
- Good readability, an academic style of writing (concise, according to the conventions for publications in the discipline).
- A correct presentation and lay-out of data in tables, figures etc. and correct references to literary sources, other information sources etc. (according to conventions, APA style).
- In the case of an external (design) assignment: audience-oriented justification of the design process and results for the client and other parties involved; solutions in the form of advice tailored to the client.

5. Process, functioning of the student

Criteria in this regard:

- A high level of independence; limited need for help and supervision.
- Dedication and initiative.
- The ability to reflect and deal with feedback (learning capacity).
- A project-based methodical and goal-oriented method of working.
- Completion within the scheduled time.
- Good contact, coordination and communication and a pleasant and fruitful collaboration with the parties involved, such as the internal supervisor(s) and, if applicable, the external client and other external involved parties.

- If ethical values played a role when acting within the framework of the assignment (professional ethics), the student has shown to know these values and to apply them adequately.

6. Oral Presentation and defence

Criteria in this regard:

- Good argument, good argumentation and justification.
- The presentation is concise, relevant and informative. Good distinction between major and minor issues.
- The presentation is appealing, has an appropriate and clear structure, is understandable and comprehensibly structured.
- Adequate use of media technology.
- Adequate answers to critical questions about research and to theoretically-oriented questions about the subject of the research.
- In the case of an external (design) assignment: a presentation about the design process and the results, tailored to the client and other parties involved; the solution is given in the form of clear and convincing advice.

With regard to these assessment factors above, the following weighing factors apply:

1-3	Assessment on content	50%
4:	Written report	20%
5.	Process, functioning of the student	20%
6.	Oral Presentation and defence	10%

APPENDIX A: Final Project contract

Family name: _____

Given name(s): _____

Student number: S _____

Title Final Project: _____

Short description: _____

(*what, why, where*) _____

External assignment (if applicable):

Name company/institution: _____

Address: _____

External supervisor: _____

Phone number (external): _____

Graduation Committee

1st Supervisor: _____

2nd Reader: _____

External supervisor (if applicable): _____

Period (If applicable, please mention the period when you will be abroad for Final Project work also)

Start (month – year): _____

Expected duration (in months): _____ (plannend) date of completion _____

Study plan (only if you still have to complete courses, please fill in this scheme)

Code	Course	Credits (EC's)	(Planned) date of completion

Note: According to standard procedure you will upload your thesis for non-confidential publication after graduation. In case the organisation where you conduct your final project insists on deviating from this public archiving of the thesis, you must submit a request for changing this public status into “confidential” to the Examination Board.

The thesis must be handled confidential:

No Yes, and I will submit a request to the Examination Board

Signatures

1st Supervisor: _____

Date: _____

2nd Supervisor: _____

Date: _____

Student: _____

Date: _____

Note: After signing the contract, the student has to submit the original copy of this contract to the Educational Affairs Office EST.
Keep a copy for yourself and supervisor.