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## Exposé = Brief description of the planned work <sup>1</sup>

### Working title = provisional title

Effects of virtual reality training environments for large scale emergency operations in comparison to real life training

An exposé provides information about

#### 1. the problem (Starting point, problem description)

(max. ½ page)

*Which theoretical, practical, social, etc. problem is the starting point of your thesis?*

*What do you think is the real cause of the problem?*

Nowadays, there is a rising number of natural disasters worldwide, caused by climate change and other factors. These can arise in the form of landslides, floodings, earthquakes, hail, and other extreme weather conditions. Emergency services need to be prepared to deal with these factors. Such scenarios are usually of large scale, and are luckily not that frequent in most areas of the world. Still, should such a situation arise, the local forces need to be prepared. Training can in this case often prove to be very expensive, as these large-scale conditions need to be simulated for a reasonable training experience. VR applications can be used to provide similar or even more conditions which otherwise could not be met in real life, outside of an actual emergency arising.

#### 2. state of research

*What is the state of research on this problem? What findings are available? What has not yet been (sufficiently) addressed, clarified or contradicted? How does your own work relate to the existing research?*

In recent years, the topic has become much more relevant and therefore there are more works and research papers about the topic. From previous research I have gathered that there are not many books about the specific use case this thesis intends to cover, as books are more general and might be used to explain the basics of the topic. Most of the valuable research that can contribute to the theoretical part of the paper is in form of peer reviewed articles and shorter research papers, which can mostly be found in online journals. These often go into detail about certain rather specific aspects of VR technology or training, and how those affects people in training, and combining these into a more generalist summary of the situation could be a goal for this thesis. Such research and best practice examples can be collected from specialists in their respective fields, as well as emergency responders themselves, as contact to them is already established through past projects.

#### 3. the question

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<sup>1</sup> Cf. Franck, Norbert/Stary, Joachim: Die Technik wissenschaftlichen Arbeitens. Eine praktische Anleitung. 11., völlig überarb. Aufl. Paderborn u.a. 2003, p. 173, more detailed by Franck, Norbert: Handbuch Wissenschaftliches Arbeiten. Frankfurt am Main 2004, p. 76–81. See also Kruse, Otto: Keine Angst vor dem leeren Blatt. Ohne Schreibblockade durchs Studium. 12., völlig neu bearb. Aufl. Frankfurt, New York 2007, p. 135-136.

name: Marc Steiner

Which question(s) should be answered in your master thesis? What is the main question?

What is the difference between real life and virtual emergency response training? Can virtual training completely replace real life scenarios?

#### **4. the hypothesis resp. the objective**

(max. ½ page)

*What do you want to prove, disprove or design, programme, ... in your Master's thesis?  
Target catalogue*

This masters thesis is supposed to show the possibilities of virtual training and how far it has come technologically. It is supposed to weigh pros and cons against each other to find out if virtual training is an adequate supplement or replacement for real life training, or if it can be in the foreseeable future.

#### **5. the reference to theory**

*Which explanatory approaches or theories are referred to?  
What is your point of view? What is your position?*

The problem at hand will be analysed from the perspective of a designer and 3D artist, who has already worked on projects closely related to the topic. The thesis will take a look at what can be done while creating such virtual environments to ensure that the immersion and training success is as high as possible. Furthermore, the effectiveness of past projects will be measured and referenced from other studies, which have already been conducted on said projects by external research facilities, which the designer worked in tandem with.

#### **6. the method**

*What is the methodological procedure (work steps, approach)? Which methods and instruments do you want to use in the project? What does a possible solution path or procedure methodology look like? How should the problem be solved, the question answered, how should the sources be analysed?*

The creation of such a training environment will be documented during the writing of this paper. Results of this and past projects will be analysed and interviews with relevant specialists both from the active emergency teams as well as involved researchers will be conducted. General literature and research will be used to back up claims and findings.

#### **7. the material**

*What material and sources are available on the topic?  
Which sources (data, videos, comparative material, ...) are available, which need to be identified, collected?*

The base line of knowledge will be drawn from past works and connected relevant research on those projects. Additionally, literary sources will be used to explain fundamentals involved in the creation

name: Marc Steiner

and analysis of such environments or applications. The main external source of knowledge will however be peer-reviewed journals and articles, as those are much more up to date and usually more specific, as they operate in their very specialised field.

#### **8. (preliminary) bibliography** in compliance with the rules of citation

-- see first exposé --

#### **9. (preliminary) structure**

Which aspects should be dealt with and in which order?

-- see first exposé --

#### **10. the timetable (project phases and duration)**

*How much time is needed for the most important work steps (research, data collection, data evaluation, creation of the work piece, writing the raw text, revision, layout, final correction)? –*

*Milestones*

*When should the work be finished?*

-- see first exposé --

*optional*

#### **11. Projectteam**

*Who are the project staff and which external cooperation partners are involved? Who are the contact persons of the clients and cooperation partners?*

The external partners in this case will be project and research partners of past and possibly future projects. This depends which project will actually be chosen for the paper and which projects don't allow collaboration.

#### **12. Financing**

*Costs - Time - Staff - Resources of other kind*

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#### **12. Risik factors**

*What risks are to be expected?*

It would be ideal if there was a new project exactly at the time of writing the thesis, but that is not guaranteed. That is not really a risk though, it would just be a missed opportunity and an old project or a project created just for the purpose of this thesis would have to be analysed instead.

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The feedback helped me clarify some details about my main problem, which I had skimmed over when first describing it. I received similar feedback when it comes to the state of research, with both reviewers asking for the possibility of insights into best practice examples / field data. I then added additional information, covering what I already knew and had access to, but didn't initially include in my exposé. The feedback for the reference to theory / the method was positive but a little unclear as to what is actually going to be done. It offered a few questions that I can take into account when working on my thesis, but this is a matter that has yet to be clarified during the first phase of the masters thesis, where I will be in direct contact with everyone mentioned.