

# Designing for transformations

*Designing an online learning experience on the evaluation  
method: Outcome Harvesting*

**Information Studies (Aalborg University), Master Thesis.**

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**Abstract:** This study takes a pragmatic approach towards designing a digital learning experience for the evaluation method of “Outcome Harvesting”; guided by design-based research, and through a combination of US-based and Northern European human-centered design approach towards data-collection and analysis. Activity theory in combination with expansive learning is implemented parallel with the design-based research process in order to aid the process of generating design-principles that guide the design of a prototype.

**Keywords:** Human-centered design; Interaction design; Activity theory; User-centered design; Participatory design; Design-based-research; Double-diamond model; Expansive learning. Information Studies.

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# Introduction

While the overall volume of humanitarian assistance has increased globally in recent years, there has also been an increasing pressure on UN agencies and NGOs to show documentable impacts of their efforts globally. As a result, UN agencies and NGOs have begun to develop and implement impact-based management systems, with the purpose of demonstrating impacts more clearly and often (Roberts et. al. 2014).

The learning-lab, is an independent unit working under the administration of danish-based NGO the Danish Church Aid. They specialize in developing, facilitating and researching digital learning experience. They facilitate the majority of these learning experiences through an online learning-management systems called “fabo”. Similar to other NGOs, the DCA, has felt the urgency and need for a more elaborate way of measuring the impact and effect of their learning experiences.

During my internship at the learning-lab in 2018, I had several conversations with the team-leader Simon Skårshøj, about the concept of Outcome Harvesting (OH) within the context of the learning-lab. We agreed that it could be interesting to design a digital learning experience which could teach partners and employees the concept of OH through an online learning experience based on HCI and Information Studies theories and methods; encouraging and informing about the concept of OH both internally and externally.

OH is a relatively new method for measuring impact in humanitarian capacity building situations, and is different from conventional impact-measuring methods, as it works backwards in order to find evidence for archived outcomes, as opposed to measuring progress towards predefined outcomes or goals (Wilson-Grau & Britt 2012).

In short, an outcome harvest is performed by researchers (harvesters), who gather evidence and data from country-officers (change-agents) in order to substantiate that data and deliver measured and archived outcomes of an innovation (Wilson-Grau & Britt 2012).

This study takes a pragmatic approach towards the concept of creating a user-centered learning experience revolving around the impact-measuring method; OH. The research is design-based, and collects and analyses data through an iterative process.

## Problem Statement

How to design for a digital learning experience on the evaluation method OH, which should be used in the NGO sector, based within a framework of activity theory with a focus on; combining elements from both US-based and Northern European human-centered approaches to design by implementation of interaction design, expansive learning, user-centered design and participatory design?

**RQ1:** What is OH and what is it used for within the field of programme and project evaluation?

**RQ2:** What are some of the tensions concerning the method of OH used in practice?

**RQ3:** What theory and methods from HCD and Information Studies can be implemented to help create a future digital Outcome Harvest learning experience?

**RQ4:** What are the design principles based on RQ2 and RQ3, which can guide the design of the digital OH learning experience?

## Significance and contribution

As the method of OH is fairly new, most of the learning and educational material on the subject comes directly in text form from the inventor of the method Wilson-Grau (Wilson-Grau 2015). During the course of this study, I participated in a workshop on OH with five different NGOs whom all had a great desire to understand and implement the evaluation method OH (Appendix 1).

At the co-creation workshop (Sanders & Stappers 2008), it quickly became evident that even if everybody had read the same source material regarding the method (Wilson-Grau 2012), the different NGOs ways of understanding and implementing this 6-step evaluation method was not in consensus with each other. One NGO would use only quantitative data to substantiate their findings; where another might insist on the exclusive use of qualitative interviews for substantiation.

# Research Approach & Paradigm

This study attempts to describe and present a possible design-solution for the digital learning experience on the evaluation method; OH. Guided by DBR (Coto 2010) and the double-diamond method (BDC 2019), the evaluation method OH is analysed through the use of third generation activity theory in combination with UCD, interaction design and expansive learning.

Data-collection was done through conventional qualitative information studies methods such as unstructured, semi-structured and expert interviewing (Bryman 2016). This data was then analysed through the use of activity theory in combination with interaction design and expansive learning. Findings are then presented, and also implemented in the design of a solution that can deliver an effective learning experience on the evaluation method OH.

Through the use of this pragmatic theoretical foundation and the aforementioned methodology, activity theory is used in two ways:

1. In relation to expansive learning, activity theory is used to identify and describe who, why, what and why our end-users learn through the use of Engestrøms' expansive learning matrix (Engestrøm 2001). The five principles of Engestrøms (2001) activity theory is also used to identify and describe contradictions in relation to identified activity systems. These "OH"-contradictions was then presented to an expert with experience in the method. This was done in order to identify tension-points that can then be catered to in, and guide the final design; but it was also done in order to push the method of OH towards transformation in relation to expansive learning theory (Engestrøm 2001).
2. In relation to HCD, activity theory was used in combination with UCD and interaction design, in order to identify activities, actions and operations present in the interconnected activity systems identified. This was done in order to describe the hierarchical structure of activity in OH, and also to account for the pragmatic theoretical foundation of the final design, which challenges the cognitivist paradigm (Kaptelinin & Nardi 2006).

## Design-Based Research

In this study, DBR (DBR) will be used to guide the direction of this studies research, where the goal is to produce a set of design-principles for a prototype on OH. In combination with DBR,

the double-diamond model will be used as a design-framework; informed by DBR while producing a prototype for OH through an iterative UCD-process.

DBR is research where the design guides the research; meaning that new knowledge is generated through iterative processes, which at the same time also develops usability-tests and improves a design. DBR is primarily implemented in learning and didactical-designs, which makes it ideal for this study (Christensen et. al. 2012).

DBR was first conceptualized in the 90's, and has since seen an increase in use and importance to the scientific community (Coto 2010). In the early 00's, some educational journals have dedicated special issues to DBR, and a variety of books and journals have since been dedicated to the topic; illustrating case studies, adding to the theoretical foundation and generally contributing to the development of DBR (Coto 2010).

The approach of DBR is intervening in practice, meaning that it focuses on creating intervening designs that is tested in iterative circles in actual "real life" learning situations. At the core of the iterative processes of DBR, there are design-principles that are constantly reinvented and reflected upon. These principles guide the prototypes and final design, and are developed on the basis of insights gathered through data-collection and analysis (Christensen et. al. 2012).

Coto (2010) has proposed five characteristics of DBR; she suggests that these five characteristics cover what most researchers seem to agree on, regarding the principles of DBR (Coto 2010)

- Pragmatic
- Grounded
- Interactive, iterative and flexible
- Integrative
- Contextual.

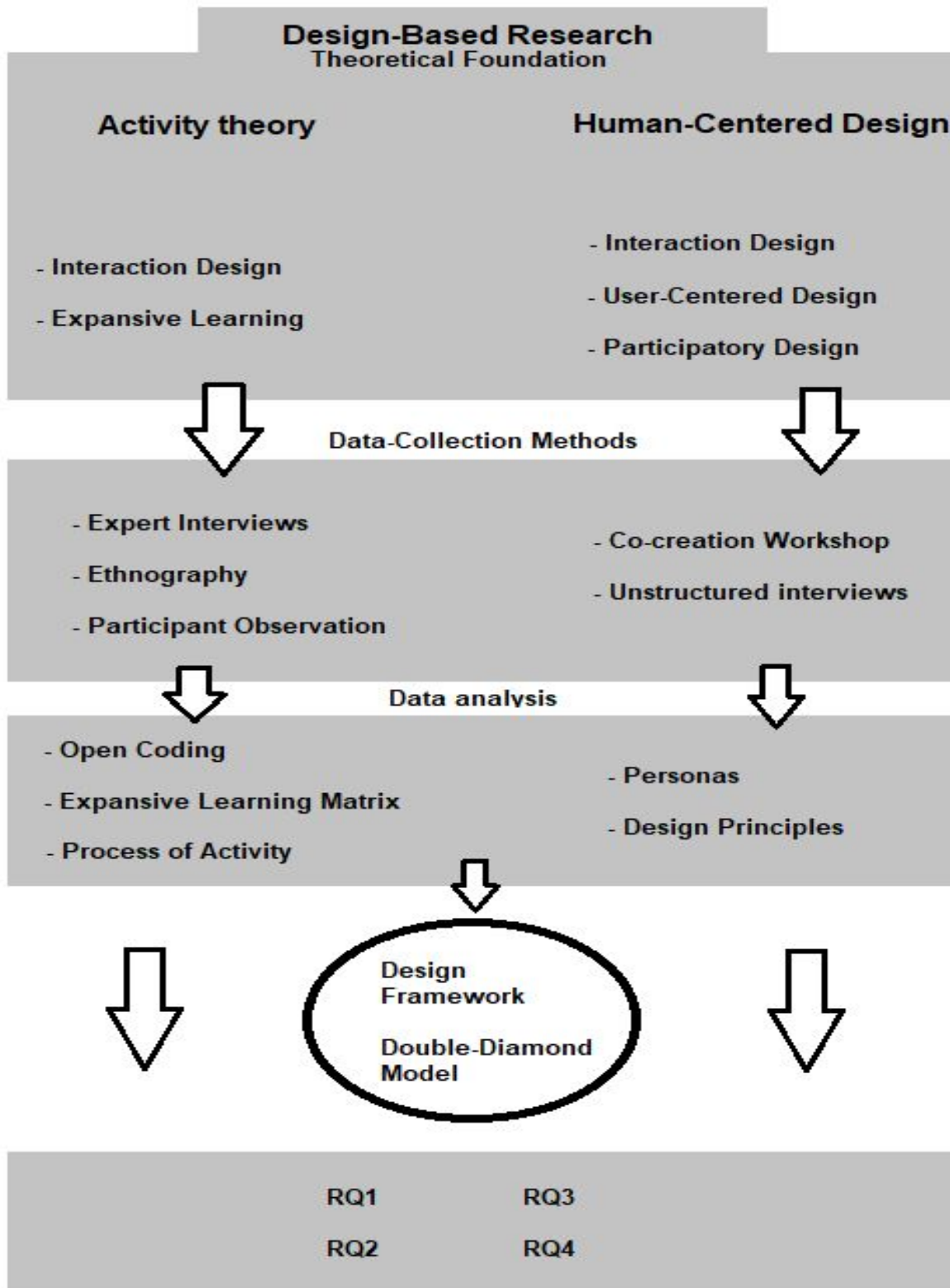
The main reasons for choosing DBR for this study was the following:

- DBR is systematic, but also a flexible methodology that lets the design guide the research (Coto 2010). The flexibility and pragmatic nature of DBR is a key factor in attempting to combine the method with the double-diamond model.
- DBR has proven useful when doing research and developing designs in real-world settings (Coto 2010). This relates heavily to our research as I am attempting to research and implement a design in a real-world setting.
- DBR produces contextually-sensitive design principles and theories (Coto 2010).



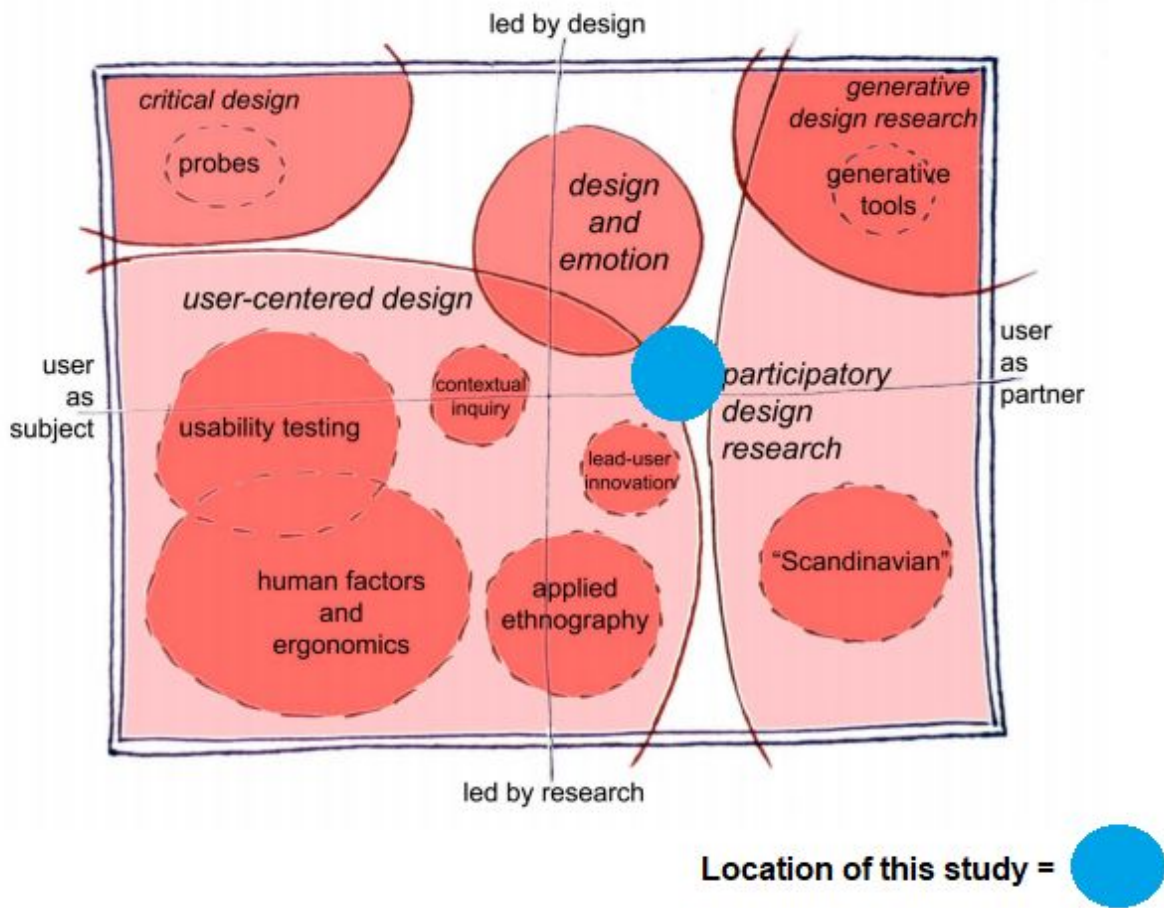
## Research Model

Through a qualitative DBR approach; and the implementation of both US-based and northern european activity theory, interaction design, HCD and expansive learning, this study will propose a set of design principles and the first iteration of a prototype for a digital learning experience on the evaluation method OH. Below is a visual representation of this studies research-model (model 1).



Model 1: Research model.

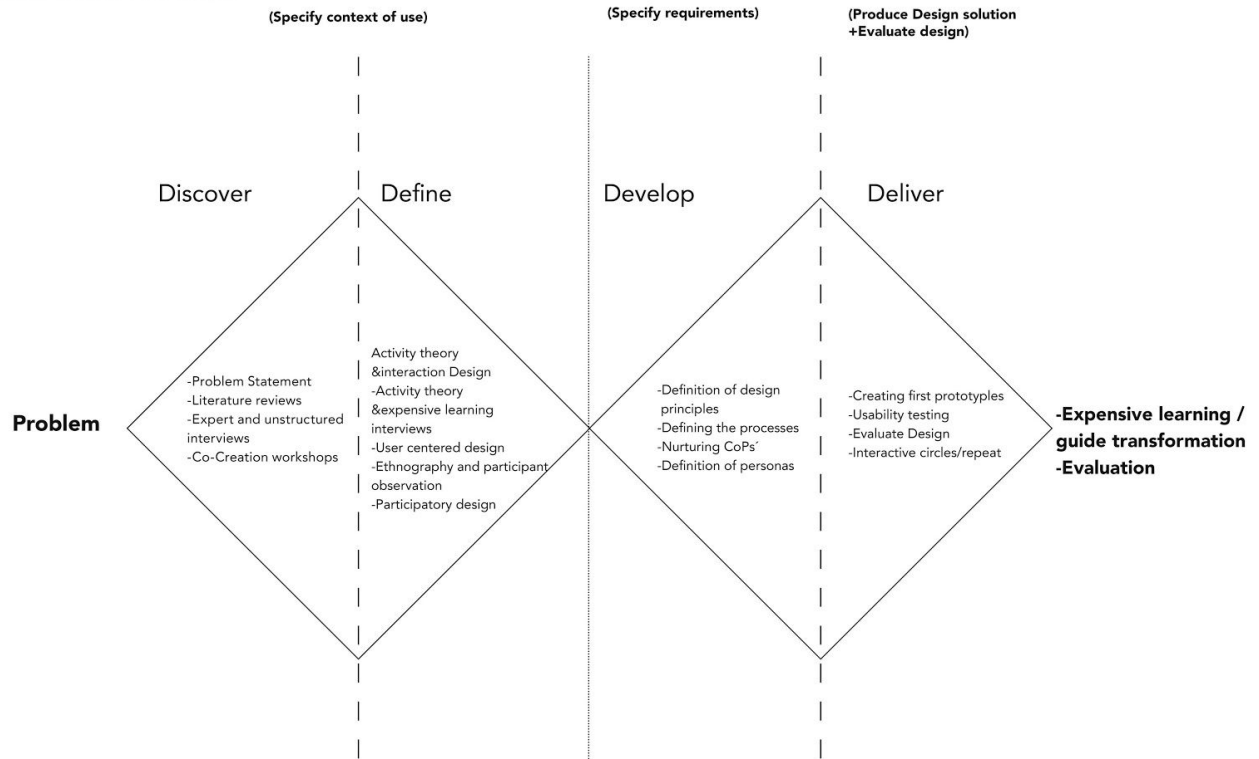
Co-creation was used in order to gather data with future users, or as this participatory design method would label these; design-partners (Sanders & Stappers 2008). By looking at Sanders model of the current landscape in HCD research (Sanders & Stappers 2008), I've attempted to place this study in the area just between the primarily US-driven phenomenon UCD (I.E. user is viewed as "subject") (Norman 2013) and the Northern European approach of participatory design research (Sanders and Stappers 2008).



Model 2: Location of this study in relation to Sanders & Stappers' (2008) "Current landscape of HCD"

## Design framework

## (User-Centered Design)



Model 3. The Double-Diamond Model- Adapted to this study. (Appendix 11).

Paired with DBR; the double-diamond process has been used to guide data-collection, analysis and the final design-process. As this research attempts to deliver a design that meets the requirements of design-phases required to deliver a design that meets the requirements of UCD (IDF 2018). A visual representation of these phases, and how they fit with the double-diamond model, is presented in (model 3).

The double-diamond model is a model developed by the british design council in 2005 (British Design Council 2019). The model was developed by looking already existing design models, and combining their similarities into one model. *“Designers across disciplines share strikingly similar approaches to the creative process, which we’ve mapped out as “the Double Diamond”*” - British Design Council (2019).

The double-diamond model was chosen for this study, as it has many similarities to the process and steps of DBR. It was also chosen because it is inherently catering to the requirements of the

process of making UCD (model 2). The five phases of DBR (Coto 2010), have been described as the research-model in its relation to this design-approach, and the double-diamond model, below:

Phase 1: Analysis of practical problems by researchers and practitioners.

In this introductory phase, researchers and practitioners should work together towards identifying real-life educational issues (Coto 2010). In relation to our design-process and the double-diamond model, this phase is what we call the “discover” phase (model 2).

Phase 2: Development of solutions with a theoretical framework

In this phase, development of a theoretical solution begins, building on top of theories relevant to the research-project (Coto 2010), in our case, the theoretical foundation consists of:

- Activity Theory
- UCD
- Participatory Design
- Interaction Design
- Expansive Learning
- Co-creation Theory

The model is carefully developed to be useful in practice and to reflect the teachings of these implemented theories and learning theories (Coto 2010). This phase is equivalent to the “define” phase in our double-diamond design model.

Phase 3 Evaluation and testing of solutions practice

As a final prototype was only finished closely to this study, and to generating our design principles; the final prototype still needs to go through its first iteration of usability-testing. Instead, this study offers a guide and a set of design-principles for future testing of prototypes to the final solution. Recurring interviews, and especially workshops, with the primary future users of the solution would be optimal (Coto 2010).

In this phase, the chronological order that was following the double-diamond model takes its end; instead this phase is equivalent to the “deliver” phase in the double-diamond model, and phase 4 is instead taking the place as the equivalent to the “develop”-phase in the double-diamond model.

Phase 4: Documentation and reflection to produce design principles

The fourth phase, or in relation to our double-diamond model the third and the “develop”-phase. In this phase I introduce the prototype to the final solution, as well as the design-principles generated through the course of this research. Besides from guiding the final design, the design-principles generated in this phase can also help us place our findings in a broader context (Coto 2010).

Phase 5: Dissemination and adoption in broader context.

This phase covers the discussion surrounding scalability, sustainability and the broader context of our final solution (Coto 2010). This phase is represented as the chapter that comes after the “develop”phase; but since the learning experience is still in the “develop”-phase, this chapter will be covered by the discussion chapter of this research.

## Literature review

### Literature search

The focus of this literature search was to find literature that could help answer the problem statement and the research questions. Furthermore, the search had focus on collecting relevant and timely literature concerning the method of OH.

Aside from the literature search, the main source of literature regarding information studies and how to approach the research was collected during the 7th to the 10th semester of Information Studies at Aalborg University. The sources from which literature was collected for this study was the following:

- AAU library
- Curriculum literature for Information Studies
- Google & Google scholar
- Online academic databases such as:
  - Ebscohost
  - ProQuest

## Literature Evaluation

To guide the literature evaluation, this study makes use of the traditional literature review (Cooper 1988). The purpose of the literature review was to conduct a general investigation into the method of OH, and theories connected to it. The main strengths and characteristics of this approach are the following:

- The researcher can summarize, critique and draw conclusions.
- Possibility of identifying uncovered gaps in research topics or body of knowledge / Provides insight into the relationship between the research topic and the wider subject area of this topic.
- Creating overview by defining and organizing the literature according to themes.
- Narrows down the literature into the most relevant for the research topic at focus.

Some weaknesses are also known to the traditional literature review, these are (Toledo 2019):

- Requires focused research questions
- Large number of studies can make it difficult to draw conclusions.
- Process is subject, and limited to, the researchers own topic of interest and research.

In order to satisfy Coopers (1988) standard requirements for a traditional literature review (Cooper 1988), the literature obtained in the search was evaluated using the PQRS-system, following these four steps (Cronin 2008):

- Preview: Reading the abstract and skimming the text.
- Question: Question the literature and the relevancy to this study; what are the main topics? Main findings?
- Read: Read the whole text while still considering phase two.
- Summarize: Make a short summary of the text and describe its relevance to the study. Note-form and/or informal language will suffice.

After the evaluation using the PQRS-system, the literature was divided into categories based on themes.

- OH.

General investigation and defining of the evaluation method and theories that it is connected with.

- Theory of Change

Discovered that Theory of Change is closely related to the evaluation method of OH. General investigation and defining of this theory.

- Communities of Practice

General investigation and defining of the learning theory surrounding Communities of Practice.

## Outcome Harvesting

Traditional monitoring and evaluations of humanitarian aid programmes, projects and interventions rely heavily on the concept of “planning” and the expectations of such plans. In traditional evaluation, evaluators will most often look at planned “outputs” and see if these outputs match the expected outcomes of a specific project or programme. In this situation, it can be extremely difficult to identify new or unexpected outcomes, as the evaluation relies heavily on approving or disapproving already existing assumptions about outcomes achieved by the produced outputs of a project or programme (Brauer 2017).

When trying to identify or clarify how our work-efforts on a project or programme, evaluators often follow this same logic; Did we complete the planned activities for the project? Did we produce the desired outputs? And how did our intervention contribute to change in the world?

Especially the last question, is where traditional evaluations usually fall short; as it is extremely difficult to articulate and identify changes in social actors by just looking at the context

and logic of the project or programme itself; the explanations of cause and effect will simply be too long or complex. The co-relation to factors external to the project or programme, also becomes too complex.

This is where the approach of OH shines; especially in relation to the question; How did our intervention, project or programme contribute to change?

In OH the focus is on the practice of exploring and collecting information about relevant changes that have occurred around and, in the topic, project or programme of interest. OH puts special emphasis on describing and identifying where the topic, project or programme of interest has contributed to change; both intended and unintended



change (Brauer 2017).

### What is OH?

OH is an evaluation approach where evaluators identify, formulate, verify, analyse and interpret “outcomes” in contexts where the relation of cause and effect are not fully understood or identified. OH is participatory in its nature, meaning that evaluators will have to engage with users, contributors and witnesses of specific interventions, to identify and describe potential outcomes of these interventions (Wilson-Grau 2015)

OH, as opposed to progressive methods of impact-measuring, is a regressive, utilisation-focused tool that can help organisations evaluate the impact of their interventions and/or projects in a crisis or humanitarian context.

As opposed to measuring progress towards predetermined outcomes; OH instead collects evidence for what has been achieved and works backwards to determine how and if a project/intervention contributed to the identified outcome/change (Scheers 2017).

*“Outcomes can be both positive or negative, intended or unintended and direct or indirect, but the connection between and intervention and the outcomes of the same intervention should always be plausible”* (Wilson-Grau 2015).

### Where does OH come from?

The evaluation approach of OH is inspired by Outcome Mapping and informed by the approach of conducting Utilization-Focused Evaluations. It was originally developed by Ricardo Wilson-Grau, who applied the approach to many different contexts and situations and have refined the method over many years of practice (Wilson-Grau 2012).

“Utilisation-focused” evaluations (UFEs), are based on the principle that an evaluation should be asserted based on how useful it is (Intrac 2017). This also means that UFEs are implemented and carried out with a focus on identifying and delivering findings that are useful. In UFEs’, the evaluators job is not to make decisions on behalf of the intended users but rather to facilitate decision making amongst the contributors and users of the evaluation and its findings.

There’s a variety of ways to conduct and facilitate UFEs’, which usually vary depending on the context and needs of the evaluation situations. The 5 steps of the UFE framework are;

1. Identify primary intended users. OH are usually mandated and organized by organizations to evaluate on ongoing programmes or projects. These organizations are often driven by a theory of change (CTC 2019), in which their strategies would produce outcomes that can be harvested and evaluated through OH.
2. Gain commitment to UFE between evaluators and focus the evaluation.
3. Decide on evaluation options.
4. Analyse and interpret findings and reach conclusions.
5. Disseminate and share evaluation findings.

### Terms in OH

The OH approach makes use of a wide variety of terms related to the approach. Below you will find a quick run-through of the meaning associated with these different terms.

**Outcome:** Visible and significant changes in actors behaviour, relationships, activities, politics or practices which has been affected or is the direct result of a “change agent”.

**Change Agent:** A change agent is a person, or an organisation, who is contributing and participating in creating outcomes.

**Social Actor:** A person, group, organisation, institution, local-community or any community that changes because of the change agents intervention.

**Harvest User:** The organisation, or individual, who needs the OH to use it as a foundation for making decisions in the relevant context. Usually this is one or more people from the change-agents organisation, but can also be external; for example, a donor or stakeholders related to the project, programme or an intervention.

**Harvester(s):** Person(s) who are responsible for the execution of an OH. This would typically be a person who is internal to the change-agent organisation but can also be an external consultant experienced in OH.

### How to conduct an Outcome Harvest

#### Step 1 – Design the harvest

The first step in an OH is to plan how to approach the actual “harvest” of information. Traditionally, this involves identifying change agents and social actors. When these are

identified, we can start planning interviews, workshops and other qualitative methods that can help us (the harvester) in extracting valuable information and outcome descriptions from the relevant change agents and social actors.

## Step 2 – Review Documents, gather data and draft outcome descriptions

The next step is for the harvesters to review all literature that is relevant for the project or programme undergoing the harvest. At this stage of the harvest, harvesters might identify potential outcomes already, and is encouraged to describe these and save them for substantiation in a later step. To describe these outcomes precisely, harvesters are encouraged to follow the principles of SMART (BetterEvaluation 2012);

**Specific:** The outcomes should be defined and formulated in sufficient detail so that the intended user, without contextual and/or subject knowledge, can understand and appreciate who have changed what, when and where it changed, and how the change agent contributed to this change.

**Measurable:** Regardless of who is collecting data for the harvest, the description of the outcomes should contain objective, verifiable quantitative and qualitative information. Questions often asked here is “how much?”, “how many?” or “where and when did the change happen?”.

**Achieved:** The outcome descriptions should establish a plausible relationship, and a logical link between the outcome and how it is related to the actions of the change agent. How did the change agent contribute to the change/outcome? Through the whole process, directly, indirectly, intentionally or unintentionally?

**Relevant:** The outcome must be relevant, meaning that it should at least represent a significant step towards the action or impact that change agents seek. Those who identify and formulate outcomes and the “contributions to change”, should have a certain level of contextual knowledge towards the outcome-situation. Meaning that harvesters should have a special position, or experience, that give them the requisite knowledge to describe outcomes and how they contributed to change.

**Timely:** Outcomes always happens after a change agent has contributed to a change. It is important to identify and formulate, regarding time, when exactly the change happens, and when did the contribution to this change happen? It is therefore important to keep track of, and formulate, when exactly a contribution was implemented in relation to the outcome it affected; weeks, months or maybe even years before?

Besides formulating outcomes in relation to SMART, there is a few core-elements that should always be described in an outcome description;

- Who and what has change behaviour?
- What has changed? And how much?
- When and where did the change happen?
- Why is this outcome and/or change important?
- How did the change agent contribute to the change? (directly, indirectly, partly, intended or/and unintended)

Below is an example of an outcome, taken from the tax justice programme that ActionAid Denmark initiated in 2015 in mozambique (Scheers 2017).

### Example of an outcome from the Tax Justice Programme

#### **Outcome Description**

*In 2015, the Minister of Finance of Mozambique stopped signing new Double Taxation Treaties (DTTs) and is awaiting review of the current 9 DTTs in Mozambique.*

#### **Significance:**

*Mozambique has 9 DTTs, most of which give away significant taxing rights on Royalties, Dividends, Interest and Service Fees, especially the ones with South Africa, UAE and Mauritius. There was treaty shopping by investors through Mauritius and UAE. As a result of the above, the Mozambican Government was losing very significant revenue. This could have been used for progressive spending to improve quality of education which is very low with some pupils learning under trees and studying seated on the floors. The amount lost to DTTs in Fiscal Areas of Maputo, Beira, Tete and Nacala in 2014 amounted to over 1.97 Billion Meticaís, equivalent to over US\$119 million. After the recognition by the Minister of Finance, a new unit specifically working on DTTs in the Mozambique Tax Authority was set up.*

#### **Contribution:**

*AADK provided technical and financial support which enabled AAMoz to:*

- *Conduct a study on “Socio-economic implications of DTTs in Mozambique” in 2015*
- *Carry out debates and conferences in 2015 on how to improve Domestic Resource Mobilisation (DRM) by reviewing the current generous DTT framework with the Ministry of Finance, The Planning and Budget Committee, Mozambique Tax Authority and CSOs including youth Activista in Maputo, Mozambique.*
- *Conduct validation meetings of the study on DTTs with the Tax Authority and Ministry of Finance in 2015*
- *Publish an open letter on the DTT attended to the Minister of Finance in a national newspaper in March 2015. After publishing of the letter AAMoz was invited by the Minister of Finance to discuss DTTs.*

*The P4C Advisor was instrumental in:*

- *Development of the TORs for the study on DTTs*
- *Hiring of consultant to conduct study on DTTs*
- *Reviewing and validating the study*
- *Designing advocacy strategy based on recommendations from the study*

*In addition, Youth Activista contributed to a larger public debate for government to review the DTTs and the Ministry of Finance actively participated.*

*“Example of an outcome description” from (Scheers 2017)*

### Step 3 – Engage change agents in formulating outcome descriptions

Step 3 is about engaging with change agents, to validate, test and improve outcome descriptions from step 2; through this process, new outcomes might be identified and formulated in cooperation with change agents. Ideally this step would be executed in one or more workshops, but if this is not possible, semi-structured personal interviews and asynchronous online communication (e.g. A forum or via GoogleDocs) can be implemented.

Harvesters should facilitate discussions and debates as well as revision and validation of already identified outcomes. New outcomes might be identified and formulated in this process, and the principles of describing these outcomes are the same as in step 2 (SMART).

It's in this step that the final, "credible-enough", outcome descriptions are formulated. The process can be rather time consuming, so it's suggested that harvesters set aside a substantial amount of the OH' time for this step. Remember that social change can be difficult to identify and formulate, but even small changes and changes that change-agents didn't contribute too can be important to identify and mention in an OH. Generally, as a rule of thumb, all social changes that in one way or the other (negative or positive, intended or unintended) affects the OH are valuable observations and important to mention.

#### Step 4 – Substantiate

Now that the outcome-descriptions are done and refined in step 3, they should each be validated. A validation in OH means that the outcome description should be assessed by a person who understands the outcome-situation and context; but who is unrelated to the change agents and haven't been part of the activities that contributed to change in the OH-setting. It is important to clarify if outcomes happened, how important they are, and if the activities can be regarded as contributory to the outcome and change.

At this stage, there is often a substantial amount of outcome descriptions. It can therefore be a time-consuming task for harvesters. Harvesters can successfully make use of tools such as questionnaires and interviews to validate outcomes, and potentially help speed up this process of validation (especially with a well-placed questionnaire).

#### Step 5 – Analyse and interpret

At this point of the harvest, harvesters will have acquired a certain number of validated outcomes. In relation to the objective of the OH, the outcomes can now be analysed, categorized and interpreted in various ways, to help answer the questions raised when initiating the OH. For example, it is important to categorize found outcomes relating to each other (if possible), as this can give indications towards which outcomes are "big" and which are "less" in relation to the society/community where the changes and outcomes happen.

If dealing with multiple outcomes, or maybe even a huge number of outcomes, a database for storing and categorising outcomes can prove valuable.

## Step 6 – Support use of findings

Harvesters now have a set of findings that are valuable information to the stakeholders of the OH. To further help the use of these findings, harvesters are encouraged to implement methods and take steps towards encouraging the use of these findings; amongst users of the harvest.

AADK have successfully implemented the use of workshops and group-discussions to make decisions amongst harvest-users on future interventions in communities; based on the findings in the OH' (Brauer 2017).

## Theory of change

As NGO's most often work in humanitarian capacity building scenarios in 3rd-world countries, change-initiatives are most often focused towards achieving change not only in the country, but even more so in the local communities. It is often easy for companies and NGOs to articulate their missions, goals and visions; but it is not always easy when it comes to describing or documenting exactly how they aim to achieve these parameters (Dhillon 2018). Theory of change offers a solution to this problem. Furthermore, it offers a solution to a long-running struggle with evaluation of programmes in 3rd world and humanitarian capacity building contexts (Center for Theory of Change 2019).

Traces of the theory of change started emerging in the mid 90's, answering the call for a more precise way of evaluating complex social or community change programs (Center for Theory of Change 2019). A group of researchers from the Aspen institute and its roundtable on community change released a book called *New approaches to evaluating community initiatives* (Center for Theory of Change 2019). In this book, one of the four researchers, Carol Weiss, argues that one of the reasons that complex social or community change is so difficult to evaluate, is because the interventions, strategies and programs that drive them are most often very poorly articulated (Center for Theory of Change 2019).

Weiss clarifies further by hypothesizing that initiative and program-stakeholders are often unclear about how change will unfold doing the early and mid-term change that is necessary in order for longer termed goals to be achieved. In short, a Theory of Change is a hypothetical scenario describing and often illustrating the change that will occur as a result of an organizations' strategies, mission and activities. In a Theory of Change, an organization's mission is achieved by monitoring and adapting inputs towards intended, observable outcomes (Dhillon et. al. 2018).

Since late 2018, the DCA has been following their own Theory of Change (DCA theory of change ref). An important part of DCA's reasoning for implementing the Theory of Change approach, was the immediate possibility of evaluating and adapting outcomes during the course of the Theory of Changes' lifespan.

To measure these outcomes, DCA and a number of other danish NGOs have started implementing the evaluation method that this study is aiming its design at; "OH". OH provides a methodological 6-step framework for harvesting, evaluating and presenting findings regarding the Theory of Change outcomes.

## Communities of Practice (CoPs)

The learning-lab has a tradition of catering to CoPs in their learning-designs, as they believe in the concept of fostering organizational learning ecosystems (learning-lab 2018) to harness and make full use of the learning potentiality that Wegner (1998) argues is present in these CoPs'.

A CoP, is in short a community of people who share the same hobbies, crafts or professions (Wenger 1998). These types of communities evolves naturally as a result of the shared interest of the domain that the community has. This common interest prompts members to learn from each other through a process of information and experience sharing; which in turn give them the opportunity to grow both personally and professionally (Wegner 1998).

Wegner (1998) argues that there are three main characteristics which are crucial and must be present, in order for a community to be considered a CoP:

### **The domain**

A CoPs' identity is defined by its' members shared domain of interest. Members of a CoP is connected to each other through this shared interest of domain, and it is this common interest that is the main catalysator for information and experience sharing within the community (Wegner 1998).

### **The Community**

As members of a CoP pursue their interest in its domain, they engage with each other to form relationships, have debates, share experiences and information; all with the common goal of learning collectively about their shared domain of interest. A hobby website, or a website with a specific topic is not in itself a CoP; what really defines a CoP is its members ability to interact and learn collectively (Wegner 1998).

### **The Practice**



A CoP is not just a collection of dedicated fans of a specific topic or domain. Members of CoPs' are practitioners in their field, and the CoP help them gather share a repertoire of domain-related experiences, tools and stories (Wenger 1998). The establishment of CoPs' can be both conscious but also happen less self-consciously. For example: a group of equity traders working in the same office might openly and consciously share knowledge about stocks, forming a relatively conscious CoP. On the other hand, a group of airport-security workers might meet every day at their lunch while sharing friendly chatter containing knowledge and experiences relating to the domain of airport-security; thus forming a less self-conscious CoP.

The combination of these three characteristics are what constitute a CoP. Cultivating CoPs' requires the development of these three areas simultaneously. The establishment and cultivation of CoPs' take time and required sustained interaction and effort (Wegner 1998). As the digital learning experience on OH will be developed on Fabo, and sustained primarily by the learning-lab, this study will attempt to build a digital learning experience that incorporates the learning theory of CoPs'. As such, the final prototype should involve a strategy for cultivating and nurturing the future CoP around the OH learning experience.

## Discover / Preliminary investigation

### Human-Centred Design and Interaction Design

Interaction design saw its early beginnings somewhere around the mid 1990's; until then, the design community regarded the design and applications of the virtual world of PC's to be out of their expertise. Instead it was regarded as a speciality within cognitive engineering or computer science (IDF 2018). The increasing digitisation of the world in the 90's, with the help of innovations such as the internet, broad accessibility of personal computers, and even mobile communication devices, started raising awareness of an increasing number of interaction design flaws and problems. Answering these new complex challenges, the discipline of interaction design started emerging.

A principle of the californian design company "*IDEO*", Bill Moggridge, stated in the early 1990's that he realised that his company had started creating different products than they were used too, and coined the phrase of interaction design (Saffer 2009). Moggridge argued that this new discipline of design came from a combination of three other areas of design which by themselves seemed insufficient for the new design challenges at hand, these three areas was communication design, product design and computer science (Saffer 2009).

Norman (2013), who coined the phrase of “*Human-Centred Design*” later categorized interaction design as one of the three main areas of focus in the approach of Human-Centred Design (HCD). Norman (2013) describes the HCD process as one that ensures that the needs and capabilities of intended users are met. The HCD process have three main areas of focus which are:

- Experience design
- Industrial design
- Interaction design

Traditional interaction design revolve around three major schools of thought (Saffer 2009);

- Technology-centred view
- Behaviorist view
- Social Interaction Design view.

As I create a learning experience that takes place in the digital world of computing, our interaction design approach is leaning towards a social interaction design view. But in our case, we are not just dealing with a product. The digital learning experience on OH is regarded as a product by stakeholders who’ve invested money into the project because they hope to optimize their own business-models. But it is also something, that to the actual end-users of the product, will be regarded as a digital learning experience.

In this study, interaction design is used as a starting-point for the direction of the final design of a digital learning experience on OH. Activity theory in combination with interaction design and expansive learning theory is then applied in order to focus data-collection of the study; and to eventually help the analysis of results in order to generate a list of design requirements for the final prototype.

## Activity theory

Through identifying activity systems on the basis of 3rd generation activity theory (Engeström 2001) 2013), investigating interacting activity systems, and by attempting to identify contradictions in said interacting activity systems; this study aims to generate a list of design-requirements that will guide the prototype of the outcome-harvesting learning experience.

This study also attempts categorizing the activity and activities of OH in “the hierarchical structure of activity”; to further support the final list of design requirements (Kaptelinin and Nardi 2006).

Concepts from expansive learning will be used in combination with activity theory, as it has proven useful in other scenarios cases (Engestrøm 2001). Finally, interaction design will be used in combination with the analysis of the “hierarchical structure of activity”, as it too has proven useful in other HCD-related scenarios (Kaptelinin & Nardi 2006).

This study is guided by two different interpretations of third generation activity theory; the first being that of Kaptelinin and Nardi (2006), and the second being that of Engestrøm (2001). Both interpretations are closely similar and, but while Engestrøm (2001) use activity theory in combination with expansive learning principles, Kaptelinin and Nardi (2006) use activity theory in combination with interaction design. These interpretations are both relevant to this study, as the final list of design requirements for the prototype of a digital learning experience would involve elements from HCD that is guided by a solid learning theory; expansive learning (Engestrøm 2001).

## Interaction design with activity theory

To understand the argumentation for using theory, in particular activity theory, in combination with HCD and interaction design, it is equally important to understand the two major trails of thought in HCI. In the early 1980's, with the rise of personal computing in the late 70's, a combination of computer science and cognitive psychology started forming the field of human-computer interaction (IDF 2018). With the rise of PC's, the need for increasing usability and ways of understanding the cognitive processes of the users became urgent.

Early HCI adapted models from the broad paradigm of cognitive science, where part of the programme was to design PC applications which was built on systematic and scientifically informed applications. The systematic application of this approach is known as “*cognitive engineering*”, and the approach helped shape early HCD. A famous model from this era is the Model Human Processor model, which incorporates principles from cognitive psychology in order to help developers in their design-process (IDF 2018).

As the method of applying cognitive science, or more precisely; the information-processing paradigm, experienced growing traction in early HCD, challenges and limitations to this approach started appearing in the early 90's (Kaptelinin & Nardi 2006).

Bødker (1987) argues that in these early stages of rapid development within HCD, the theoretical conception of what happens when a user prompts a computer to do a specific task, was falling behind. At this time, no matter which approach taken, there were examples that indicated a lack of perspective towards applications and designs produced through the use of traditional HCD.

Bødker (1987) attempts to make up for this lack of perspective, by looking at the users interaction with the computer in a broader perspective. As opposed to the more traditional views in HCD that regards the user as only interacting with the computer. This broader perspective included looking at users and their interaction with the computer through an activity system perspective; emphasising the importance of human joint labor activity and communication, in order to achieve the overall goals of activity systems or workplaces (Bødker 1987).

In order to use these activity systems to understand the context we are investigating, it is important to notice that activity systems can not be applied to all types of activity; the level of activity the activity systems are concerned with, is the level of subject-object interaction where the object of activity is in fact a motive (Kaptelinin & Nardi 2006). Thus the reason for the subject to engage in the activity system that holds this subject-interaction, is to meet the subjects own needs. Within this frame, activity theory provides a coherent way to account for and analyse processes present in different levels of activity and acting (Kaptelinin & Nardi 2006).

In this study, this approach to activity theory is used to account for, and analyse, the hierarchical structure in the interconnected activity-systems (Kaptelinin & Nardi 2006) concerning OH. Identifying and accounting for these different processes firstly done by performing a literature review on OH in combination with basic desktop research. After this, two expert interview was performed with a subject that had professional expertise in OH, in order to validate and further findings regarding these processes.

## Expansive learning

In most standard theories of learning, the focus is primarily on the processes wherein a subject, individual or organisation, acquire new knowledge that is identifiable by observing a relatively documented and lasting change in behaviour (Engestrøm 2001). In this standard theory of learning context, it is implicit that the knowledge being acquired is stable, well-defined and is being taught by a teacher who is competent in the knowledge being taught. These standard theories of learning leave little to no room for learning and teaching knowledge that is unstable, undefined and maybe not even fully understood yet (Engestrøm 2001).

The most intriguing and complex kind of learning in modern-day organisations is often orbiting around knowledge that is unstable and undefined. Organisations, individuals and teachers all have to adapt to these unknown forms of activity in important transformations of their function and lives; activities that are essentially “*learned as they are being created*” - Engestrøm (2001). To an increasing extent, individuals and organisations have to learn new forms of activity; activity which is not even present yet, and standard theories of learning offer little to no help at all.

In its combination with activity theory, Engestrøm (2001) argues that one learning theory that is helpful in this context, is the one Bateson presented in the early 1970's (Tosey 2006). Bateson's theory of levels of learning is an application of the Theory of Logical Types to the process of learning, in an attempt to describe a common denominator for “*various species of behavioural scientists*” (Tosey et. al. 2015).

Bateson's theory of levels of learning originally includes five different levels of learning, but Engestrøm's theory of expansive learning in combination with activity theory only makes use of three of these levels (Engestrøm 2001). This is sensible, as level 0, or learning 0, is the level at which no changes take place, responding to stimuli is the only activity present in this level. The other learning level left out, is that of learning level 4. Learning level 4 is process of change happening in learning level 3. But since learning level 3 is very rare, and even dangerous, it is unlikely that any human being will ever reach learning level 4 (Tosey 2006).

The learning level 1 refers to the standard context of learning, or more precisely put “*Change in specificity of response*” - Tosey (2006). (Engestrøm 2001) uses the example of a classroom, and how students are required to learn a specific set of answers for the appropriate context .

The learning level 2 is the change of the process of learning level 1. Essentially, this means learning and getting involved into the pattern of the context of learning level 1. As learners progressively acquire new knowledge, they are simultaneously learning and adapting their behaviour characteristics appropriate for the context. Engestrøm (2001) continues the metaphor surrounding a classroom from learning level 1, and refers to learning level 2 as a “hidden curriculum” of sorts. The students are learning and acquiring hidden behavioural patterns at learning level 2, in order to make sense of the context of being a student; passing exams, pleasing teachers, fitting in with the co-students etc.

Learning level 3 is the result of double-binds generated in learning level 2. A double-bind is a paradox, or dilemma, imposed on an individual, or a group, where two conflicting messages are given to the subject; one negating the other. This creates a situation where the subject can't answer the dilemma, paradox or conflicting messages without being wrong. (Tosey et. al.) argues

that this creates a situation where learning level 3 is present; triggered by double-binds which are generated by the paradoxical messages imposed by the context (Engestrøm 2001).

## Methodology / Define

### Integration of expansive learning and the five principles

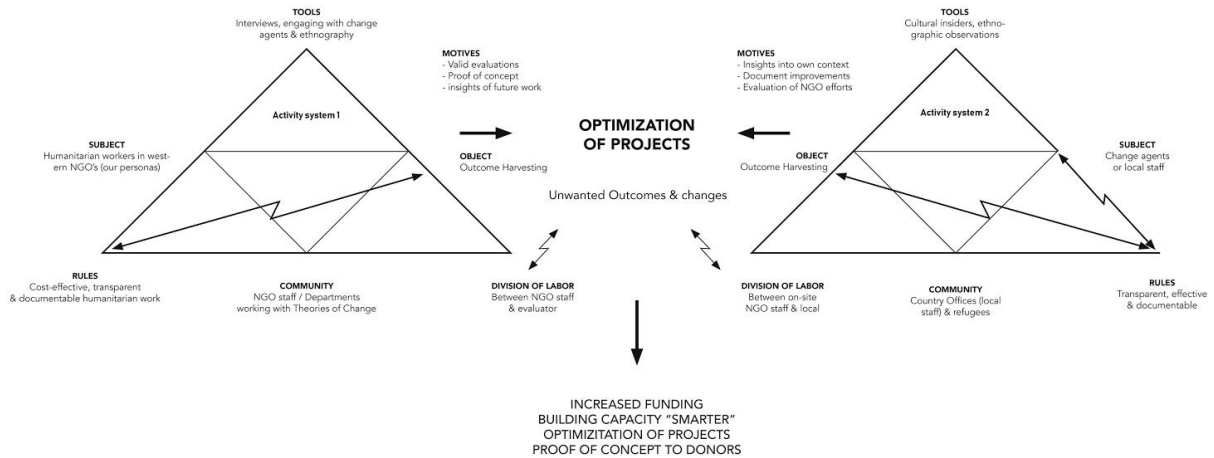
As this study is making use of Engestrøms' expansive learning theory in combination with activity theory, it seems relevant to summarize the current state of activity theory. Engestrøm (2001) argues that third-wave activity theory has to develop new conceptual tools, in order to make sense of communication, multiple perspectives and interacting activity systems.

Engestrøm (2001) summarizes the current state of activity theory with the help of five principles . In this section, I will give a detailed walkthrough of these principles, while also arguing for their applications and implications for this studies' two interacting activity systems (appendix).

#### *The first principle*

The first principle states that the prime unit of analysis is a artifact-mediated, object-oriented activity system, which must be seen and analysed in its network of relations to other activity systems. In this study, the end-users of the digital learning experience are defined by the personas drawn from the collaborative workshop, but by first glance all have a common denominator; they work in NGO's (Appendix 2).

Therefore, the prime unit of analysis is the activity system present in the context of being a humanitarian worker, or working in an NGO of a western country; seen and analysed in its relation to other activity systems (Engestrøm 2001). In our case, these "other activity systems" will consist primarily of the activity system identified in relation to the context of being a country officer, working for a western NGO in a 3rd world humanitarian context. . See model 3 for a detailed mapping of the primary activity system. A larger version is also available in the appendix (Appendix 3).



Model 4: Interconnected activity systems 1 & 2 . (Appendix 3)

Individual, collective and automated actions are subordinate units of analysis in relation to the activity system, and can only be understood when interpreted against a whole activity system or systems. In relation to these goal directed actions, Engestrøm noticed that activity systems “realize and reproduce themselves by generating actions and operations” (Engestrøm 2001).

### *The second principle*

Activity systems are always multi-voiced, meaning that an activity system is always a community of various and varying points of view, habits and interests. The division of labor offers multiple roles for participants, participants who themselves carry their own diverse backstories (Engestrøm 2001). The principle of multi-voicedness is also deeply integrated into an activity system itself, as it carries multiple layers of history, visible in an activity systems artifacts, rules and conventions; a multivoicedness that is greatly amplified and multiplied when looking at networks of relating activity systems (Engestrøm 2001).

### *The third principle*

All activity systems are results of their past history. It takes time for activity systems to transform. In this transformation process, parts of, or all parts of an activity system might be subject to complex and elaborate changes over time. In practice, this means that all activity systems must be studied against its own history, both locally and globally, in order to fully understand an activity systems tensions and potentials (Engestrøm 2001).

Contextual inquiry used in combination with a standard desktop analysis, in order to acquire data relevant for the activity systems generated in Model 1 and Model 2 (Holtzblatt & Jones 1993). Semi-structured and unstructured interviews with open questions was also implemented in order to generate data for these activity systems, and to understand its history better (Appendix 4).

### *The fourth principle*

Engestrøm (2001) states that one of the most important things when seeking transformation of an activity system, is to identify and bring “*Contradictions*” to life. Contradictions can occur around and within an activity system, and is essentially historically accumulated structural tensions between parts of and activity system; or tension between network related activity systems. Engestrøm (2001) argues that these contradictions can help us transform and innovate activities, but also points out that they often generate disturbances and conflicts.

With conflict and disturbances, he is most likely referring to the process of revealing such contradictions to subjects of activity systems. It is not an easy task facing contradictions in an activity system which you yourself are part of, something Engestrøm experienced first hand in his research with the children's health-care system Helsinki. In this research, Engestrøm (2001) gave physicians in a children's-hospital the task of explaining the root-causes of their patients illness’ to their parents; well-knowing that part of this root-cause was how the parents raised their children. The doctors became clearly stressed by the situation, but it also gave them valuable insights and made them consider new ways of approaching the situation.

Contradictions are not far from the Batesons’ concept of double-binds (Engestrøm 2001). Tosey (2006) explains how Bateson theorised that these double-binds could essentially trigger the progress of reaching learning level 3 through expansive learning. Bateson theorised that attempts at reaching learning level 3 could be dangerous; even possibly lead to the development of psychosis (Engestrøm 2001).

As Engestrøm later developed Bateson’s idea of learning levels into a systematic framework for understanding activity systems, he also deemphasized the tense statements Bateson made about



learning level 3. Instead of being a dangerous voyage into the human mind, with the possibility of becoming psychotic; Engestrøms perception of learning level 3 is that it is now seen “*as a learning activity, which has its own typical actions and tools.*” - (Engestrøm 2001).

In this study, contradictions played a significant role in helping answering RQ2 and RQ3, as they were used to unveil and analyse activities in OH that could produce tension. Interconnecting activity system models was used to identify these contradictions (Appendix 3). After identification of contradictions, a semi-structured interview was conducted with a subject that has expert-knowledge on the subject of OH.

This was done to collect data with the aim of analysing and identifying ways of catering to tension that might be present in the final solution on a learning-experience on OH. But it was also done in order to further the process of expansive learning and move closer to a possible transformation of the method of OH (Engestrøm 2001).

### *The fifth principle*

This final principle proclaims that there is a possibility for expansive learning transformations in all activity systems (Engestrøm 2001). Engestrøm (2001) argues that activity systems move through iterative processes of qualitative transformation. This transformation starts occurring when contradictions in an activity systems becomes too provocative. To many provocative contradictions in an activity system will result in participants deviating and questioning the behaviour and norms of this activity system.

It is at this point that activity systems usually starts an expansive transformation; through collective and deliberately efforts from participants at changing the activity system (Engestrøm 2001). Engestrøm (2001) argues that an activity system is ready for an expansive transformation when “*the object and the motive of the activity are reconceptualized to embrace a radically wider horizon of possibilities than in previous mode of activity*” -Engestrøm (2001).

## User-Centred Design (UCD)

UCD, is a framework which outlines the phases in the development-cycle of digital innovations for human-computer interaction. It puts special emphasis on gaining a deep understanding of the users of a digital innovation (IDF 2018). In UCD, designers attempt to understand the user-experience as a whole by putting the users at the center of the design.

Norman (2013) was one of the first designers who used the term, and has since expanded on it by saying that since the users are always people, it might as well be called “people-centered design”; alluding the importance of understanding the human-aspect of users of a design (Norman 2017).

UCD takes a human-centred approach to design by designing engaging multisensory experiences through digital innovations, but is not to be confused with the concept of HCD; a framework for considering human perspectives throughout a design process (Francesca 2017).

In this study, I will be implementing the use of the double-diamond model (BDC 2015) which satisfies the conditions of a UCD, with the aim of designing a prototype of a digital OHOH learning experience.

## Participatory Design

This study will also make use of the concept of participatory design, in order to engage users actively in the process of developing content, and a final design solution, for the OH learning experience (Enerson 2013).

Contextual inquiry fosters participatory design, and will be used to make sense of data gathered from semi-structured interviews and workshops with users, as it provides yet another way for users to participate in the design-process (Holtzblatt & Jones 1993). This means that through the implementation of workshops, the users will participate in developing material such as personas, artifacts related to DBR, list-categories and design-principles.

Formal interviews, conducted with an ethnographic approach, was implemented in order to validate and further findings from the quantitative data gathered in my internship report from 2018 (Turley 2018).

Furthermore, I will attempt to facilitate and foster a CoP around the concept of digital OHOH (Wenger-Trayner 2015). I will do this by implementing a “forum”, or asynchronous messaging system, on the first prototype-version of the OH learning experience. The forum might be accommodated by some open questions that can spark debate and generate valuable insights through the collaborative effort of the CoP (Wenger-Trayner 2015).

## Participant observation

During my internship with learning-lab in 2018, I gathered a substantial amount of both quantitative and qualitative data about the learning-labs daily practices and their digital learning platform fabo (Turley 2018). I also had the opportunity to practice the method of participant observation during my internship; engaging myself into the context of learning-lab and their daily activities (Bryman 2016).

The results of this participant observation data-collection is present in my internship study from 2018 (Turley 2018). I've included a section from the 2018 study in this report, as most of my information regarding the learning-lab and their organizational context, was acquired through this participant observation (Appendix 5).

I was invited to continue my practice at the learning-lab while conducting this study; which allowed me to continue my practice of conducting participant observation. As I had an increased focus on this study going into 2019, I've chosen to also apply the method of contextual inquiry together with participant observation, in order to broaden my perspective on the qualitative data-collection of this study (Holzblatt & Jones 1993). The strategy was to combine my earlier participant observation findings about Learning-lab's technological capabilities, with data acquired in learning-lab in 2019 through contextual inquiry and this studies pragmatic activity theory approach.

Conclusively, I conducted two expert interviews with a subject that was working in a context very similar to that of the learning-lab (Appendix 4). Helene Bach had been working with OH for three years prior to this study, and was the most experienced member and employee of participating NGOs' that had come together; working in the same context, or interconnected activity systems (Engeström 2001), as learning-lab, to collaborate as part of the outcome-harvesting project.

While conducting these expert interviews, and partly during the workshop, I also attempted to validate the data I had gathered about OH in 2019, through simple contextual inquiry. Personas was generated during the workshop; a workshop informed partly by my data regarding OH, but also on participants experiences with the subject (Appendix 1).

## Ethnography

When conducting qualitative research, researchers must have a certain degree of immersion into the field of investigation before it can be categorized as an ethnographic investigation (Bryman 2016). As I had the possibility of continuing my function into 2019 at the Learning-lab, after ending my internship in 2018, I ceased the possibility to truly immerse myself into the context

and field of the Learning-lab. From January 2019 to April 2019 I spend on average 3 days a week in the Learning-lab, where my primary objective was to map the activity systems related to the Learning-lab and their context (Appendix 3).

During these 3 months, I also continued research that I had started making during my internship in 2018. This research involved the evaluation and usability testing on the digital learning experience “DCA essentials” present on the fabo-platform (Turley 2018). I figured that if I could continue my investigation on the design and usability of this course from 2018, I could also gain new and deeper insights into the design limits and possibilities of the fabo-platform.

The primary reason for choosing ethnography as the approach for this specific task, was that I was already emerging myself deeply into the context of Learning-lab through participant observation (Bryman 2016); reviewing documents and conducting formal interviews with members of DCA community seemed possible and effective in regards to time-constraints.

Conducting 60-90 minute interviews, as is the tradition with for example contextual inquiry (Holzblatt & Jones 1993), seemed too time-consuming and inappropriate. Inappropriate because the users of the “DCA essentials” learning experience that I was inquiring about, were all recently hired, brand new employees with less than a month of experience in DCA and its context (Turley 2018).

Five formal unstructured interviews were conducted with these new employees that had recently taken the on-boarding learning experience “DCA essentials” on the fabo platform. Answers from these interviews was then compared to the quantitative data regarding DCA essentials usability from my internship report (Turley 2018). Conclusively a list of design requirements was generated that was used to guide the final design of a prototype for the digital learning experience on OH.

It is important to notice that this study is not ethnographic in its nature, but rather uses ethnography as a method of social research (Bryman 2016). This is done to increase the accountability of, and to support, the quantitative results from my prior research on the fabo-learning experience “DCA essentials” (Turley 2018). The results of this analysis will then be presented through coding tables that are supported by an ethnographic text written as a realists’ tale; leaning towards the field of public ethnography (Bryman 2016).

## Sampling

Purposive sampling (Bryman 2016) was applied when seeking participants for both unstructured and the expert interviews. The approach of purposive sampling is a non-probability form of sampling that allow researchers to seek sample participants on the basis of certain criteria; as opposed to being random (Bryman 2016).

A purposive sampling approach can be especially helpful when the research, as this study for example, requires sampling for multiple purposes or criteria, also referred to as “*Criterion sampling*”- (Bryman 2016).

Besides from fulfilling the criteria of being an expert on the subject of OH, our expert sampled for the expert interview also proved valuable in gathering deep insights into the field of OH. As such, sampling for our expert interviews also meets the criteria of “*opportunistic sampling*” - Bryman (2016)

The sampling of research participants was done on the basis of my research-questions; expert interviews was sampled with the intention of answering RQ1, RQ2 and RQ3 while unstructured interviews had focus on gathering data to answer RQ3 and RQ4.

## Unstructured Interviews

The four unstructured interviews, were carried out with recent users of the “DCA essentials” course. The main aim of the interviews was to validate and gain further insights concerning design usability on fabos’ digital learning experiences. These interviews does not follow an interview guide as such (Bryman 2016), but is rather focussed on having a general conversation about design on fabo.

I choose unstructured interviews as my approach, as it is explorative in its nature. As opposed to structured interviewing, few questions are asked and focus is rather towards sparking conversations or discussions (Bryman 2016). Researchers must attempt to lead the “conversation” as little as possible, and therefore unstructured interviews often involve only one question, and rarely includes the implementation of an interview-guide (Bryman 2016).

## Expert Interviews

Through the workshop (Appendix 1), I quickly noticed that the most experienced in the method of OH who participated in the workshop, was Helene Bach from Actionaid AidDenmark (AADK). Out of all the gathered NGOs’, MS had three years experience with the method and

Bach had been the leading project manager on the evaluations. In comparison, the NGO with the second-most experience in OH were Dignity and danish center against torture, whom had a little over one years experience with OH.

Two interviews were performed with an expert in the field of OH; one introductory unstructured interview, and conclusively a semi-structured interview (Bryman 2016). The interviews were conducted in the MS offices, and especially the unstructured interview was general and casual in their approach; in order to make the subject feel more at ease (IDEO 2015).

The two types of interviews were performed with different aims in mind;

#### 1. Introductory unstructured interview

Was conducted to follow up on discussions from the workshop regarding the processes in relation to activity theory (Kaptelinin & Nardi 2006) of OH. At the workshop, Helene Bach had noted that they had developed a framework for reporting outcomes digitally, and I initiated the interview with a question about this framework (Appendix 4).

A long conversation endured, and general insights towards AADKs' approach towards OH was uncovered. I present my findings through the use of open and emergent coding (Lazar et. al. 2010) presented with selective and axial coding tables (Khandkar 2014). The findings in this interview also guided my analysis of OH through the use of northern european-based activity theory and expansive learning (Engestrøm 2001), and is presented in the "analysis with expansive learning" section.

#### 2. Semi-structured interview

The next interview with Helene Bach was a bit longer, and was constructed as a semi-structured interview complete with an interview guide (Bryman 2016). The main purpose of this interview was to uncover Helene Bachs' attitude towards the contradictions discovered through the use of activity system theory, in relation to OH. This was done to uncover tension-points in the method, that could then be catered too, and guide the production of design principles, and the final solution.

A tertiary purpose of exploring these contradictions with Helene Bach, was also to identify possibilities of transformation (Engestrøm 2001) within the method of OH. In northern european activity theory, it is argued that by making practitioners face the contradictions of activity systems they participate in; possibilities of transformation of same activity system may arise (Engestrøm 2001).

I then analyse and present my findings from this interview through open and emergent coding (Lazar et. al. 2010), presented with selective and axial coding tables (Khandhar 2014). The findings of this interview are also visible in my analysis of processes in OH through the use of US-based activity system approach of Kaptelinin & Nardi (2006)

## Co-creation workshop

The workshop was hosted and guided by the learning-lab from DCA. This meant that I didn't have much influence on the methodological approach of the workshop, yet I was able to participate in the workshop; and I was given access to the data gathered as a result of this workshop. The total duration of the workshop was approximately 2,5 hours (Appendix 12), and all partners from the OH-project was present (Appendix 6). These partners from collaborating on the OH-project are:

The Danish Institute for Human Rights (DIHR)

DIHR is an independent state-funded NGO based in Denmark. Their work includes promoting and protecting human rights and equal treatment; both in Denmark and abroad. (DIHR 2019).

MS, as part of Actionaid Denmark (AADK)

MS, is an open membership-union with both organizations and individual members. Their primary mission is to fight global hunger and poverty (AADK 2018).

Dignity

Dignity is a danish-seated institution with partners in approximately twenty countries around the world. Dignity has consulting status to the UN's economic and social advisory board and is a member of the WHO's alliance for prevention of violence. Since 1982 Dignity has been providing political, legal and health-care related help and rehabilitation care for victims of torture (DIGNITY 2018).

ACT, Church of Sweden

The swedish church aid, whom the DCA have a growing partnership with, also participated in the workshop. As part of act-alliance, the two have a good and growing relationship. The two NGOs' have very similar approaches to humanitarian work; with the ACT tending to be a slightly more religiously guided in their approach (ACT Svenska kyrkan 2018).

Firstly participants were welcomed to the workshop and participants took turns standing up and presenting themselves, their organisation, and their primary goal with participating in the OH project (Appendix 1). And after this, participants were given an introduction to the learning-labs double-diamond model (appendix 7).

Post introductions, the workshop was focused towards gathering four different types of information, through four different phases that involved approaches of co-creation; inviting future users, or people, to participate in the design-process (Sanders and Stappers 2008):

1. What is DCA and our partners mission with this project? What organisational change are we aiming at?

Learning-labs' main goal with this question, was to understand each partner-organizations' expectations and objectives towards their involvement in the OH-project (Appendix 13). This part of the workshop was brief, and fifteen minutes was given for ideation, and partners was instructed to come up with at least one mission-description and share it or share an ideation on the subject. When the time was up, participants were instructed to write their results into the real-time polling platform named Slido (Slido 2019).

2. Creating personas.

The participants had two weeks prior to the workshop been given the learning-lab persona template (appendix 8), and been instructed to bring a maximum of three persona-examples each. Participants were informed of Learning-labs' didactical foundation, that incorporates elements from both Hiilde' and Hims' didactical relationship model (Jensen 2012) and Blooms taxonomy (Heick 2018).

Participants were informed that the purpose of these personas, were to move closer to a realistic understanding of the learners that would engage with the final learning material on OH. The primary purpose of these personas was to identify our learners prior knowledge, motivation and needs for learning. These personas was presented and further debated at the workshop, and a final list important to the three different learning pathways in the learning-lab persona template (appendix 14). Furthermore, the personas was grouped together, and through a group-discussion narrowed into five general personas relevant to the final solution (appendix 2).

3. Uncovering learning objectives.



In this session, participants were given a short introduction to Bloom's taxonomy (Heick 2018). Participants were then grouped in pairs and given the task of writing 1-3 learning objectives for the five personas uncovered in the previous session. Conclusively, the pairs would present these learning objectives to the group for joint-discussion.

After the joint group-discussion, the remaining learning-objectives that were relevant to each persona, was written down and saved for later. Later, these learning objective was debated and narrowed in the Learning-lab post workshop. Then these learning-objectives was sent out for all partners to review; a process that is still ongoing.

4. Learning paths; what themes, activities and content should be included in the final solution?

A short introduction was given to the Learning-lab pathways canvas (appendix 9), and then participants was instructed to come up with ideas for these learning pathways; write them on post-its, and put the post its on the learning-canvas that was projected onto a whiteboard. Participants were told that this session was very explorative, and all suggestions was welcome; even weird ones (Appendix 1).

Through this process, a list of general themes and activities relevant to the three learning pathways in the Learning-lab pathways canvas, and this concluded the workshop.

In my analysis section of this co-creation workshop, I present the findings from the Learning-lab (sidsel marie ref). These findings were generated by Sidsel-Marie from the Learning-lab, with me as an assistant. Furthermore, in my analysis section, I present an analysis of data from this workshop, through a narrative analysis of findings (Bryman 2016).

## Accountability and Validity

Qualitative research was chosen as the approach for this study, because measuring the meaning of experience subjectively can be difficult. In quantitative research, quantity and frequency is usually more important than subjective meanings (Bryman 2016). With qualitative interviewing, researchers take a greater interest in the subjects point of view than in quantitative research, where questionnaires and interviews often reflect the researchers point of view, or concerns (Bryman 2016).

To ensure validity and accountability of my research findings, I've tried to implement the eight steps or strategies described by Creswell (2007), that can help qualitative researchers ensure validity. Below I give a narrative run-through of these eight steps, and to what extent I have satisfied their criteria;

Prolonged engagement:

Prolonged engagement and persistent gathering of research-data can ensure that researchers does not draw conclusions based on isolated or abnormal experiences with the phenomenon under investigations (CRQ 2015). As I've been emerged in the learning-lab context since August 2018, I feel that I've come close to what would be considered a prolonged engagement within the context that I am researching. Furthermore, data was gathered over a span of three months. In the future, consistent and continuous data-gathering and analysis would be optimal; as the phases of usability-testing would begin.

Rich, thick description:

I've attempted to describe the phenomenon that I am researching as detailed as possible. I've also attempted to include data that was discarded, and explained the process of doing so.

Triangulation:

In order to build a complete picture of the phenomena that I am investigating, I've attempted to combine multiple data-sources driven (Creswell 2007). As my study is pragmatic in its approach, I've also attempt to richly describe and explain the reasoning behind my different theories and data-collection approaches.

Member checking:

Member checking (Creswell 2007) was done with some of the data, but regretfully not all. Amongst the data that was memberchecked is the co-creation workshop data and the expert-interviews; the rest of the qualitative data, unstructured interviews, was not memberchecked.

Discrepant information:

I've attempted to be honest in my presentation of the research-process; presenting negative or descriptive information when it occurs. For example, in relation to my content analysis, where I

later in this section account for which stages of my method for doing content analysis, “*A method of analysing transcripts in qualitative research*”, I simply weren’t able to follow as I had turmoil in my personal life.

Clarifying researcher bias:

I’ve attempted to clarify for my bias’ and preconceptions, especially in my discussion section.

Peer debriefing:

Traditionally, a social-science researcher whom I could cross-check my findings with would be optimal; and in some sense I’ve had this, in relation to my supervisor Lone Dirckinck-Holmfeld.

External auditor

This was a criteria that I was unfortunately not able to fulfill. As I will share my findings in this study with the learning-lab, I will hopefully have the implementation of an external auditor in the near future.

Lastly I would like to account for the stages in Burnards’ “*A method of analysing interview transcripts in qualitative research*” (Burnard 1994), that I haven’t followed or had issues with. These stages were:

Stage 6:

I did not have time to invite other researchers to review my generated ranked list of categories. Because of this, some validity of the coding tables have been lost. I hope to make up for this by inviting other researchers in on the project, in the future.

Stage 11:

No time to present the four unstructured, and the last semi-structured interview with Helene, to the interviewees’ after generating categories. In the future I hope to account for this by presenting the categories to Helena to validate their appropriateness.

## Analysis/Findings

### Unstructured interviews results

Unstructured interviews (Bryman 2016) were conducted with four employees from four different departments in DCA. The participants were chosen based on their recent participation in the onboarding “DCA essentials” learning experience on the fabo platform; which also indicated that they were recently hired employees.

The aim of these interviews was to validate and further my findings from the questionnaire I analyzed in 2018. The interviews was started with a question about when the participant started in DCA, how they decided to work there and how they felt the onboarding course “DCA essentials” had influenced them after participating in it.

Below is the final selective and axial coding table that I based on my open code tables (Khandkar 2014) with categories produced by the use of emergent coding (Lazar et. al. 2010).

<i>Open Codes</i>	<i>Axial Codes</i>	<i>Selective Code</i>
<i>Wanting to be part of company; Learning, understanding, feeling; Seems Motivated; Satisfaction; Learning; Positive Learning;</i>	<i>Being emergent in the learning experience and perceiving information well.</i>	<i>Wants to participate and gives inputs.</i>
<i>Skeptical; Bored; Unreflected; Not present; Disconnected; Not satisfied</i>	<i>Failing to emerge in the learning experience due to poor design or own capacity.</i>	
<i>Wanting to be part; Perceived Outcomes; Unreflected; Seems motivated; bored;</i>	<i>Wants to emerge in the experience but feel bored or indifferent about the experience.</i>	

*“Selective and Axial code based on the open code table”. (Turley 2018)*

Model 5: *“Selective and Axial code based on the open code table”. (Turley 2018).*

As these findings was from a questionnaire on a specific learning experience on fabo, not all of the results were generalizable and usable for this study. However, “DCA essentials” is a course that builds on the same learning principles, and design principles as the majority of learning experiences on fabo, some general statements can still be made about the overall design of learning experiences on fabo:

- Multiple users are suggesting case-stories
- Too much text is always noticed and frowned upon
- Learners want to emerge themselves but get bored quickly by content that is not interactive, thus losing immersion.

After finding these three major themes, content analysis was implemented to make valid and accountable assumptions by interpreting our qualitative data gathered through the formal interviews. The aim of conducting content analysis on this qualitative data was to identify major themes and tension in the qualitative data, and gather them under a “*reasonably exhaustive category system*”- Burnard (1994).

This newly acquired category system was analysed in relation to my selective and axial coding tables from 2018, in order to generate new categories that can be linked to this research-projects literature. Finally, I present a set of categories and sub-categories, and discuss how they are relevant to my research. One example of data that was denoted during the process of identifying categories and sub-categories will be presented; as it advised when using the approach of content analysis to increase accountability for qualitative data (Burnard 1994).

Open Codes	Axial Codes	Selective code
Wanting to be part of DCA identify; learning, understanding. Motivated; new to context, positive mindset.	Being emergent in learning experience and understanding contexts of categories in learning experience.	Interaction works, text is boring
Unreflected & Unemerged; disconnected, fail to emerge in learning experience.	Failure to emerge in learning experience due to poor design (to much text mainly), and or a lack of interest in the topic.	Want to emerge and participate in DCA identity. Does not change perception but “deepens it”.
Young, eager to learn; Motivated; Used to interaction technology; bored with text.	Wants to emerge in the learning experience but feel bored with repetitiveness, or failure to supply interaction elements.	

Table 1: Selective and Axial coding table based on categories and subcategories of unstructured interviews.

As is clearly visible when looking at my coding tables from 2018 in relation to these from 2019; there are recurring themes present. Especially the heavy text areas and the repetitiveness; with a

lack of interactions, had a big impact on the young new DCA members motivation to perceive knowledge. Half of the participants mentioned the historic section to be the most interesting and engaging part of the “DCA essentials” learning experience.

## Expert Interview Results

The semi-structured interview was initiated with two questions regarding our two primary identified contradictions in the two interconnected activity systems present in the OH context;

1. How do you, as an organisation defend spending money on evaluation methods such as OH, instead of spending money on something which affects crisis-affected areas more directly?
2. How do you get your primary data for OH from? Are they from “change agents”, and if so, how do you ensure that they don’t have a personal interest in affecting the outcomes to their own advantage?

Based on the interview, I took notes and recorded the process (Appendix 4). Post interview I did an evaluation of major themes in the interview and generated an axial coding table, which guided some factors in expansive learning matrix; while also providing information for identifying levels of activity in processes related to the OH-method.

Open Codes	Axial Codes	Selective Code
Guidance required for change agents ; Education of outcome-description providers important ; Sampling and workshops ;	Tension low between change agents and NGOs’ but education not always easy.	A need to effectivise “own documentation”; A framework for registering outcomes.
Unwanted outcomes ; produce tension ; takes time ; Unwanted change ; Empathy for context ;	Unwanted outcomes can produce tension. Change suggestions from Activity system 1 can produce tension between Activity system 1 and 2.	Tension with unwanted outcomes

Table 2: Selective and Axial code based on the open code.

I quickly established that the answer to the first question, was that it simply wasn’t a contradiction, as doing evaluations is an unavoidable part of NGO work; this is especially important in relation to donors.

A new contradiction was discovered in relation to this, one that Helene Bach mentioned herself; the process of presenting and adapting to unwanted outcomes. This is a method that can produce a great amount of tension, especially if the required changes from activity system 1 are disagreed with by activity system 2 (Appendix 3). Something that could also produce tension was the timely process of documenting and substantiating outcomes. In regards to this issue, Helene Bach stated that they had attempted to use online project-management tool podio to gather and substantiate outcomes; but still felt a better framework could be found to optimize time consumption.

Regarding the second question this contradiction was confirmed. It was established that sampling and engagement with “change agents” through workshops might be a solution to this contradiction. The final design principles and prototype attempts to cater to this tension, by attempting to nurture a CoP around the method of OH; hopefully engaging change agents in a community where collaboratively can learn about OH and validity.

## Participant observation

The initial reason for conducting participant observation on the learning lab was to “*Measure the effect, usability and learning outcomes of the Learning-labs’ learning experiences and activities on the fabo platform*” - Turley (2018). During my analysis, I created a table of all the interactive possibilities available, when creating digital learning experience on fabo. Besides from video, audio and text, almost all interactive content is created in an open-source plugin for CMS’ named H5P (Turley 2018). See table below:

- <i>Multiple Choice</i> Create flexible multiple choice questions.	- <i>Course Presentation</i> Create a presentation with interactive slides.	- <i>Interactive Video</i> Create videos enriched with interactions.
- <i>Drag the Words</i> Create text-based drag and drop tasks	- <i>Fill in the blanks</i> Create a task with missing words in a text.	- <i>Quiz (Questions Set)</i> Create a sequence of various question types.
- <i>True/False Question</i> Create True/False questions	- <i>Fill in the blanks</i> Create a task with missing words in a text.	- <i>Quiz (Questions Set)</i> Create a sequence of various question types.
- <i>Drag and drop</i> Create drag and drop tasks with images.	- <i>Mark the Words</i> Create a task where users highlight words.	- <i>Memory Game</i> Create the classic image pairing game.
- <i>Accordion</i> Create vertically stacked expandable items.	- <i>Dialog cards</i> Create text-based turning cards.	- <i>Documentation Tool</i> Create a form wizard with text export.
- <i>Single Choice Set</i> Create questions with one correct answer.	- <i>Iframe Embedder</i> Embed form a url or a set of files.	- <i>Audio</i> Upload an audio recording.
- <i>Single Choice Set</i> Create questions with one correct answer.	- <i>Iframe Embedder</i> Embed form a url or a set of files.	- <i>Audio</i> Upload an audio recording.
- <i>Chart</i> Quickly generate bar and pie charts.	- <i>Twitter User feed</i> Show your Twitter feed with H5P.	
- (Turley 2018) "Creating digital learning experiences" pp. 29.		

Model 6: "Interactive content available at the fabo platform"- Turley (2018).

These possibilities are relevant for this study, as the aim of the research is to deliver a prototype of a digital learning experience that exists on fabo platform. Knowing the interaction design tools accessible, and their effects on users, are key for developing an optimal digital learning experience on fabo.



## Co-creation Workshop and Personas

The co-creation workshop was guided by Sidsel-Marie from the learning-lab, but we've had many debates and talks before the hosting of the workshop. I had made sure that Sidsel-Marie understood how important it was for me to include the users in the design-process (Sanders & Stappers 2008). Sanders and Stappers (2008) argue that in contrast to traditional design-practices which focus on designing products, the emerging design-practices focus more on designing for a purpose; an approach suited for both my research, but also learning-labs interests in the OH learning experience.

The following is a narrative analysis of the data gathered through the co-creation workshop, which as mentioned earlier followed four phases:

Session 1: Mission of participants: what organizational change are you aiming at with this learning experience on OH?

After the brief introduction, participants were encouraged to take part of a live-voting and creation process; using sli.do on a projector for the live-voting and creation of categories (Slido 2019). Participants could create their own missions, and vote on others'. The top votes were:

- Feel ready to identify change.
- Have an understanding of an outcome
- Staff and partners feel ready to start harvesting outcomes
- Partners and staff are confident to use the method
- Feel ready to identify change in the work.
- Know the six steps of OH.
- Partners and staff motivated to use OH.
- Understand and formulate outcomes.

Session 2: Creating personas.

The personas and their attributes were debated in the group, with the purpose of identifying learning objectives for each persona. Conclusively to debating the personas that participants had brought, five general personas and their learning objectives was agreed upon (Appendix 2). The five personas were:

- The implementer
- The local partner representative

- The quality checker
- The process facilitator
- The compliance reporter

Common for all these personas, were that they had learning objectives related to communicating with each other; in other words, it seemed like there was a possibility for nurturing a CoP thus incorporating collaborative learning amongst actors in the OH.

Session 3: Uncovering learning objectives.

These learning objectives were then, through group conversation, narrowed down to five suggested overall learning objectives for future learners in the OH learning experience. The debate was fueled by the question “After watching the animated videos, the learner will be able to:

- Explain the concept of OH
- Describe the three elements of an outcome
- Identify outcomes in their own context
- Discuss identified outcomes with colleagues and partners to improve outcome descriptions
- Make an initial comparison of the OH methodology to their prior experience and current needs.

Session 4: Learning paths; what themes, activities and content should be included in the final solution?

The learning-labs’ learning experience canvas consists of three major pathways (appendix til Lx canvas). The general themes and topics discovered in this session are listed below, under their respective pathway:

- Entry (How do participants discover the learning experience)
  - Podio invitation
  - Workshop invitation
  - Email from HQ
  - Seminar
  - Strategic planning/reflection workshop
  - Onboarding of new staff
  - Was part of OH workshops and now has to implement
  - Mail from director to staff

- Engagement (What do participants learn and how)
  - Take an e-learning together.
  - I understand how to compare the outcomes with program objectives
  - An outcome has three parts
  - Use the e-learning during meeting or workshop
  - What is a social actor / what is a change in the behaviour of a social actor
  - What is change
  - Development, monitoring, utilization focus
  - Interactive elements/reflection exercises
  - Primary harvester tools
  - Sense making tools
  
- Exit (How participants stay engaged after finishing the course on OH)
  - Community on OH
  - Sharing best practice examples of workshops/formulations etc.
  - Online forum to discuss and share experience on OH
  - Learning/reflection workshop with link to ToCs.

## Analysis with expansive learning

This study makes use of Engestrøms “*Matrix for the analysis of expansive learning*”- Engestrøm (2001). This matrix can help us answer the four questions of expansive learning; “*Who, why, what and how do they learn?*”. (Engestrøm 2001) This is done through the use of the five principles that Engestrøm (2001) has derived from activity theory; also mentioned in the methodology section of this study.

This section is dedicated to the four questions of expansive learning, and will give a narrative run-through and analysis of these four questions. The object of expansive learning activity, is the whole activity system that users or learners are engaged with, and the goal is to identify or produce new cultural patterns and new forms of work activity within the two interconnected activity systems of this study (Appendix 3).

Aside from expansive learning, interaction and participatory design was also implemented in order to help answer some of these four expansive learning questions. An unstructured and semi-structured interview was also performed with a very experienced member of the OH community, in order to collect data for the answering of Engestrøms (2001) four questions.

### Who and where are the subjects of learning?

Earlier two network-related activity systems were identified (Appendix 3). Looking at these interconnected systems, we identify at least two or more activity systems that learners are engaged with; NGO staff/humanitarian workers and country offices. Engeström (2001) mentions Wengers' theory of situated learning, as mentioned earlier; CoPs'. He states that these theories ask us to look towards teams, work-units and communities to identify CoPs' that are collaborative subjects of learning.

The two interconnected activity systems are creating tension, and is being energized by their own inner contradictions while being influenced by interconnecting activity systems externally. The two main voices present in these two systems are those of humanitarian workers in western NGO's, and humanitarian workers in country offices/refugee camps (Appendix 3).

### Why do they learn?

The role of contradictions play a big role in answering this question, and most of the answer to this question has already been uncovered through the use of personas, learning objectives and interviews (Appendix 3). In our interconnected activity systems, the curved line with an arrow on the end are meant to visualise these contradictions.

It is still relevant to account for the historical emerging pressure that is present in these interconnected activity systems; which was identified through the presentation of the contradictions to an expert-member of interconnected activity systems. This is also discussed and presented in the analysis of the semi-structured interview earlier, and these findings helped the information of our final expansive learning matrix.

### What are they learning?

The second expert interview in this study, gave valuable insights towards answering this question. Bach noted that AADK had previously been using tracer-studies to document and reveal outcomes; but also mentions that the use of this method seemed to time-consuming and ineffective.

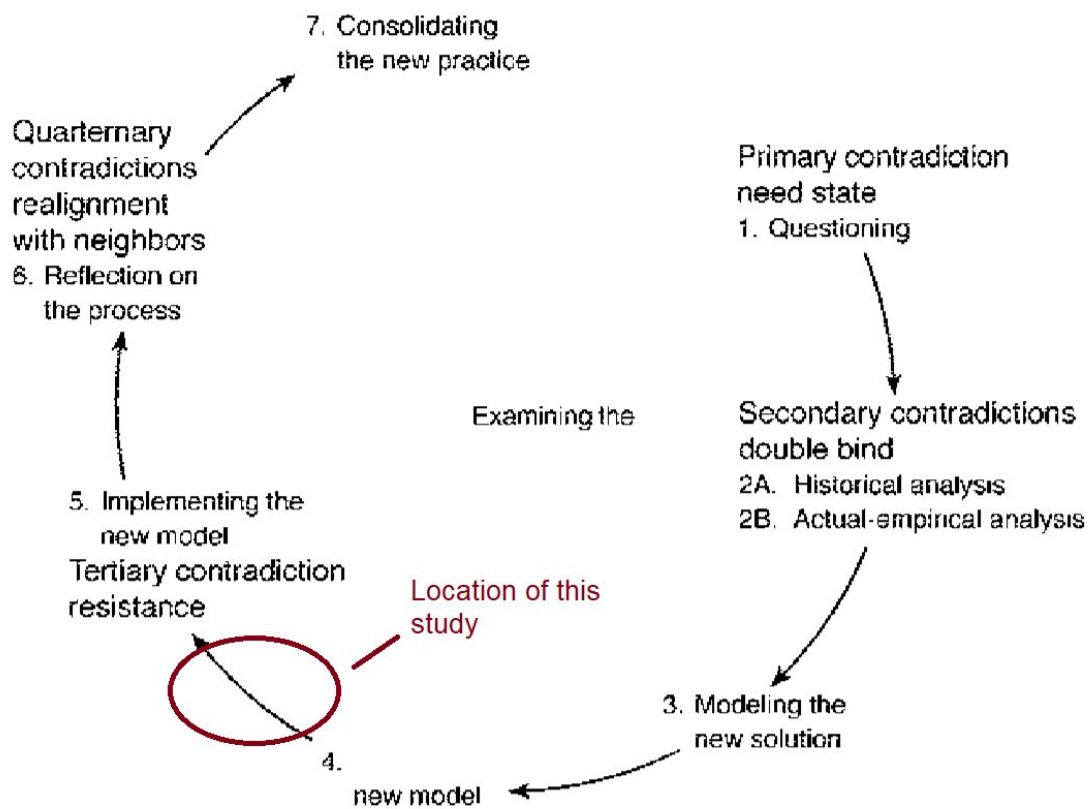
As the final solution has to be learning experience on OH, it seems obvious that our learners will be learning the evaluation method of OH. It is important to notice thou, that this phase of the matrix for expansive learning, as Engeström (2001) argues, is a learning process. Hence forth, in future research it might become extremely relevant to track this question over a longer period of time; while doing usability testing on the final learning experience. This way, researchers might

discover important insights or tension-points that can be drivers for future transformations (Engeström 2001) of the final learning experience.

How do they learn?

As there is no final solution yet, this just as the question above, can be a hard one to answer. Again, this would be a moving process once the final solution is done, and to be able to fully understand it one must implement and continuously analyse the “*Strategic learning actions and corresponding contradictions in the cycle of expansive learning*” - (Engeström 2001).

Below I’ve placed this studies location in the cycle of expansive learning; thus illustrating why this is a difficult question to answer. As stated above, this will be possible once the rest of the steps of the cycle of expansive learning can be implemented; possible when the first prototype is done.



*Model 7: Location of this study in the cycle of expansive learning.*

One thing that is certain, is that the prototype will involve elements that should help nurture and help begin a growing CoP around the concept of OH. This learning theory of collaborative

learning (CoPs’) can help guide future iterations of the design-process; thus optimizing the final learning experience to nurture and incorporate CoPs’ as much as possible. It is also important to notice the similarities between the “deliver”-phase of the double-diamond model (Appendix 17), and the cycle of expansive learning.

## Matrix for expansive learning

After answering the four questions, the findings can be incorporated into the matrix for expansive learning (Engeström 2001). The purpose of doing so, is to visualise and present the findings through the use of expansive learning; uncovering the learning experience on OHs’ current situation and location in relation to the expansive learning process.

	<b>Activity system as unit of analysis</b>	<b>Multivoicedness</b>	<b>Historicity</b>	<b>Contradictions</b>	<b>Expansive Cycles</b>
<b>Who are learning?</b>	Interconnected activity systems: Humanitarian workers, Local staff	Voices of Country offices & Western NGO’s.			
<b>Why do they learn?</b>			Historically tension in the area of evaluation; time-consuming, lack of framework, education	Contradictions between Rules & Object in both activity systems. Contradiction between subject & rules in Activity system 2. Contradictions in both activity systems towards unwanted outcomes/change; Contradictions cross-activity systems.	
<b>What do they learn?</b>	New pattern of activity; OH.		Historically relevant to measure outcomes in relation to increased use of Theory of Change.	Tension between subject of activity system 2 & new concepts; to heavy?	Expansion of understanding the object in both activity systems. Activity system 1 most critical.

<b>How do they learn?</b>		In future; Through CoPs' between both activity systems.	On-site workshops or online learning material.	Contradictions converted to double-binds; presented to experts	Learning objectives, activity systems, implementing, re flecting.
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Model 8: Matrix of expansive learning.

## Processes of activity

These descriptions are made on the theoretical foundations of the US-based activity theory presented by Kaptelinin & Nardi (2006). “*Activity in a narrow sense is a unit of life, a subset of all possible processes related to the interaction of the subject with the world*”- Kaptelinin & Nardi (2006).

Kaptelinin & Nardi (2006) also argues that humans are not directed straight towards their motives, but rather reaches the motive through a sequence of steps of different activities (Kaptelinin & Nardi 2006). The second step of activity, after activity that points to motive, comes *actions* that points to *goals*. Lastly is the last step of activity; *operations* which points to *conditions*. (Kaptelinin & Nardi 2006) Operations are levels of activity that are done automatically by humans; and when an operation becomes automated enough, requiring the subject to almost not think about it; it opens up the possibility of engaging in new activity simultaneously (Kaptelinin & Nardi 2006).

The processes identified and described in this process, together with our expansive learning matrix, co-creation workshop findings and our interview findings, will guide the description of this studies design principles. By looking at our interconnected activity systems, and cross referencing them with the findings of the literature review, co-creation workshop and interview of this study; I've visualized the processes of activity, and hierarchical structure of activity present when performing an OH:

### Step 1 - Design the harvest

Activity	Actions	Operations
Plan the harvest	Identify social actors and change agents	None.
	Organize interviews; Workshops; Qualitative	

	method	
	Project Management	

Step 2- review documents, gather data and draft outcomes

Activity	Actions	Operations
Review and gather data	Reviewing documents	None.
Identify, understand and draft outcomes	Formulating SMART outcomes.	
	Following a framework	

Step 3 - Engage with change agents in formulating outcome descriptions

Activities	Actions	Operations
Engaging with change agents	Implement interviews or workshops with change agents	Human interaction prior and post interview/workshop.
Gather and validate outcome descriptions	Future framework.	Commenting online/synchronous in digital framework
	Collecting observations and discussing them.	

Step 4 - Substantiate

Activities	Actions	Operations
Substantiate findings / outcomes	Gather literature to support findings	None.
Use a quantitative tool?	Implement questionnaire	
	Categorize outcomes	



## Step 5 - Analyse and interpret

Activities	Actions	Operations
Gather all data and categorize	Categorize outcomes; use “big” and “small”.	None.
Analyse and interpret	Interpret outcomes and their contextual impacts for ToC.	

## Step 6 - Support the use of findings

Activities	Actions	Operations
Supporting use of findings	Implement specific methods. (expansive learning?)	Use methods from field of expertise for validity & accountability
Speaking to donors & stakeholders	Inform of findings and integrate in strategies	Speaking to partners & stakeholders.
Readjusting ToCs' & identifying possible tension	Readjust ToC to support findings of both intended and unintended outcomes.	

# Solution / Prototype

## Design principles

Building on our research findings and applied theory, a set of design-principles was generated. These design-principles are supposed to be thought of as guardrails to the final prototype; offering quick, memorable themes and recipes that can help further design-iterations in being consistent (IDEO 2015).

**Design principle 1:** Design for a learning experience that involves elements from both CoP and expansive learning theory.

**Design principle 2:** Design a learning experience that nurtures CoPs' and can support collaborative learning.

**Design principle 3:** Design a learning experience that involves inputs from users (UCD, participatory design) in every design-iteration.

**Design principle 4:** Design a learning experience that leaves room for the development of a future OH-framework.

**Design Principle 5:** Design a learning experience that teaches the method of OH through CoPs', expansive learning and interaction design.

## Wireframes

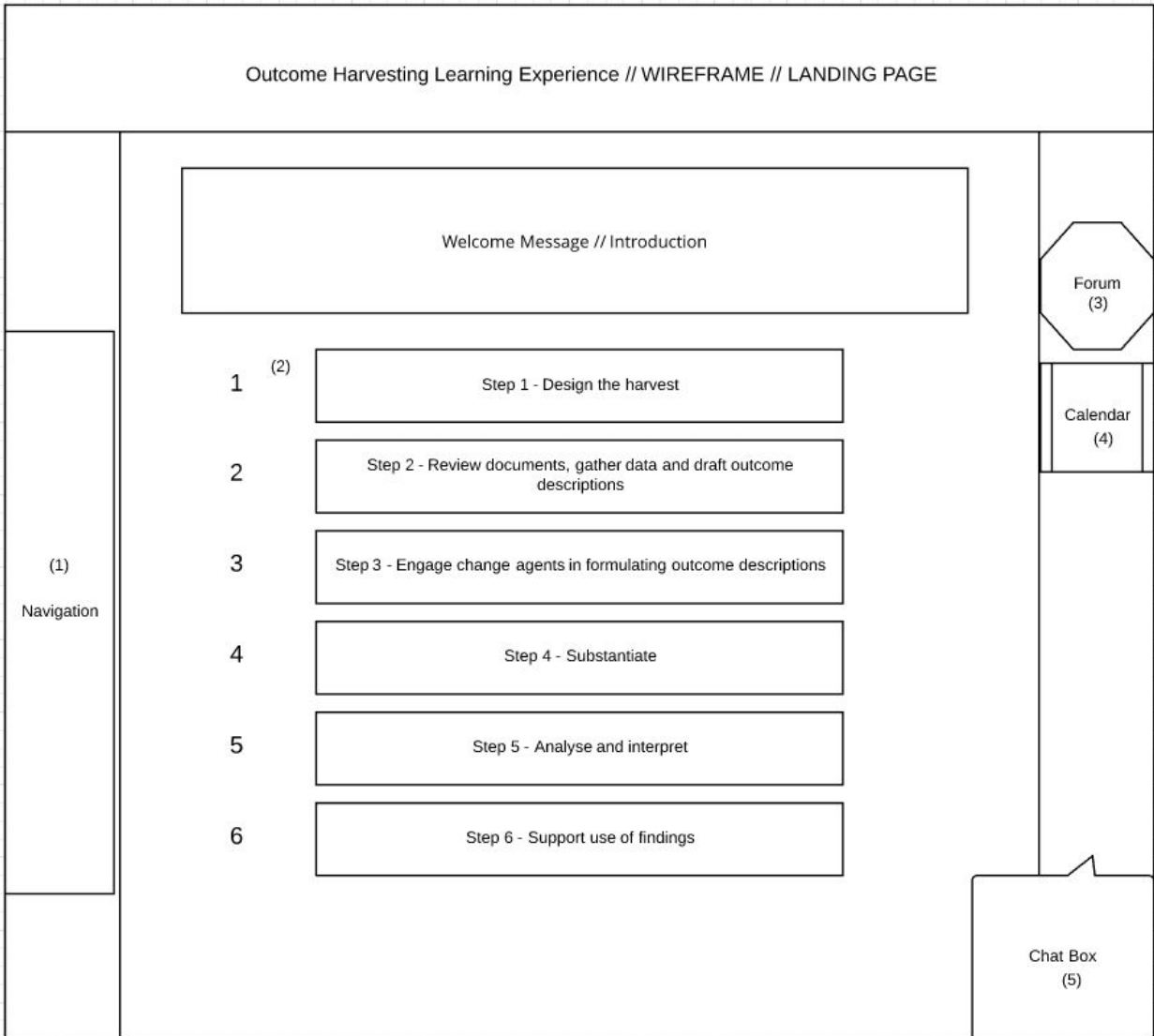
This section is dedicated to the presentation and descriptive run-through of the first wireframes for a digital learning experience on OH. While presenting the wireframes, I will explain and describe how the wireframes, and final prototype is influenced by the findings of this studies research.

The prototype for the digital learning experience has been divided into six sessions, each representing a step in the OH. Along with each step in the learning experience follows a two-hour adobe connect session where learners get taught the material by an experience OH'er, whom also facilitates online workshops and tasks.

After each adobe connect session, and step, one week is given for reflection and possible task and deliveries. The OH learning experience is thus six weeks long; leaving one week for each step. After completion learners will get a diploma proving their participation and are encouraged to participate in future sessions, and engage with the forum, in order to keep their newly-learned skills within the intended CoP for collaborative learning.

Aside from these six sessions, a selection of features are available to participants at any time and also present on the landing page. These features and the landing page are presented below:

### Wireframe 1



Wireframe 1: Landing page and features.

### 1. Navigation

A navigation bar in the left column; ensuring participants don't lose their overview of the course and their process.

2. The six steps are also represented in the middle as collapsible bars; participants can close or open multiple bars at any point if they wish.

### 3. Forum

The forum button on the right bare is a direct link to the learning sites own integrated OH forum. This feature was implemented with direct relation to design-principle 3; with the purpose of nurturing CoPs'. The forum will have sub-categories devoted to uploading and debating outcome descriptions. This could hopefully also help in uncovering tension and guide transformations (Engeström 2001).

#### 4. Calendar

The calendar is always on the right side-bar in order for participants to keep track of upcoming Adobe Connect seminars. According to how much funding and staff will be available for the final solution, this study suggests having recurring seminars integrated into the learning experience. This could nurture CoPs', but also help teachers with giving students tasks and deliveries.

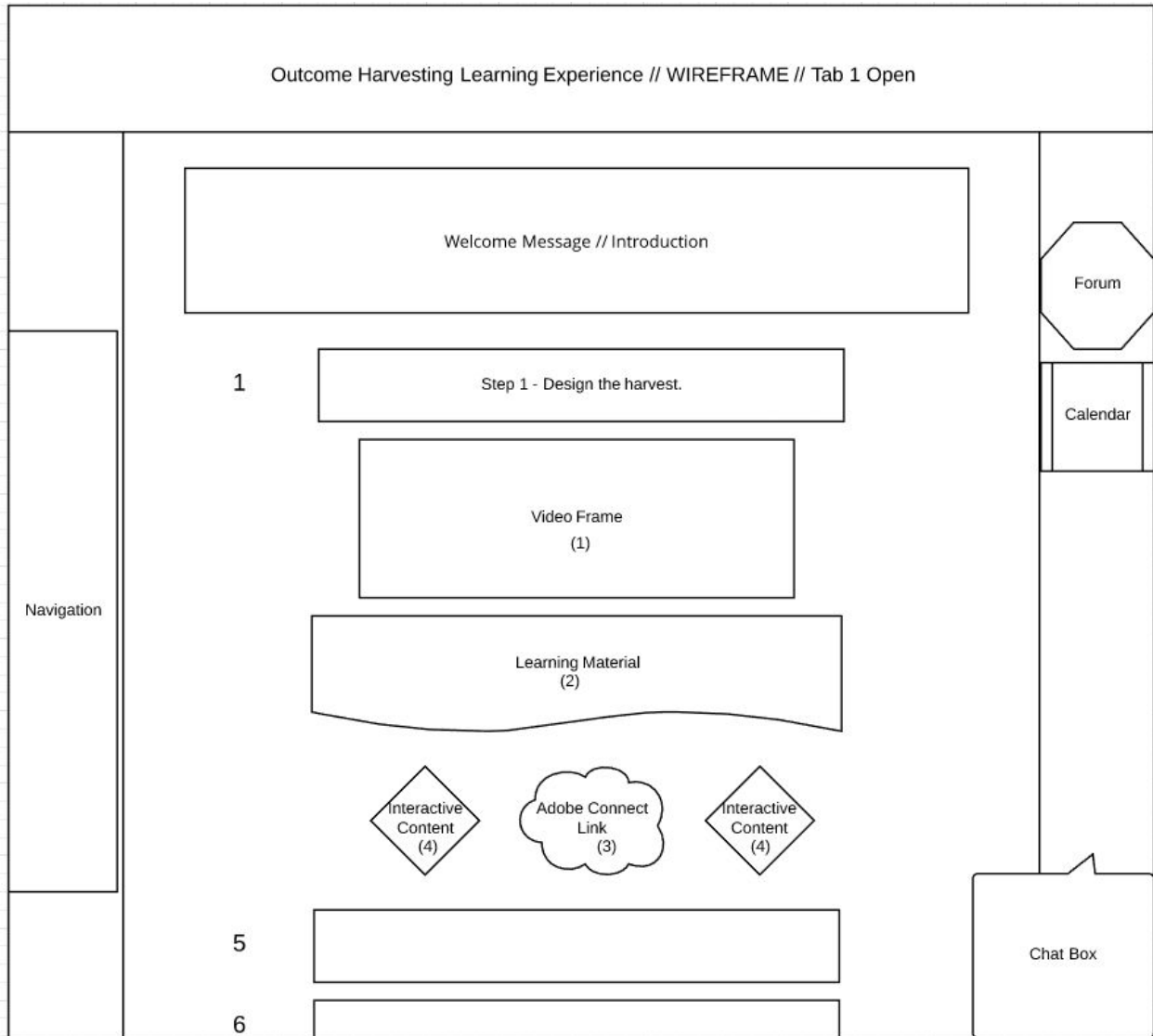
#### 5. Chat box

The chatbot is a tool that is supposed to support synchronous communication between both participants of the learning experience. In both step one, two, three and four of the learning experiences, participants are encouraged to engage with each other in order to solve and debate tasks collectively and collaboratively.

### Wireframe 2

This second wireframe represents the design when a participant clicks on one of the six steps. Participants are encouraged to use the calendar in order to sign up for upcoming adobe connect seminars, but asynchronous material is also available if for some reason participants can not join in on adobe connect.

Below is a representation of how such a site would look and function, along with a description of its core features:



Wireframe 2. Subpage and features.

### 1. Video frame

This container embeds an animated video produced by the learning-lab (appendix 6). The learning-lab will produce six of these instructional animation videos; one for each step of OH.

### 2. Learning material

Besides from the video, this subsection also includes a variety of text-material that teaches this section of OH in a more straightforward nature.

### 3. Adobe connect link

This link will turn green when an adobe connect session is running, or starting, and participants can click the link for direct access to the associated adobe-connect room.

### 4. Interactive content

This content is meant to be a few small engaging exercises for participants; surrounding the concept of OH, and even more so the sub-category related to the interactive content. In the current prototype, this section (step 1) has an integrated interactive quiz which challenges the participants knowledge on the subject being taught. Look to the prototype (appendix 10) for a more detailed overview of interactive content available in the current learning experience.

## Prototype

Based on the wireframes, my design-principles and my findings; the prototype, as is in first iteration is available at the fabo platform (Appendix 18).

In the live version, a sample of future features are presented described, but I've also attempted to describe these features and their purpose in my findings section and in my conclusion section of this report. The reason for doing so was that unfortunate events dictated that microsoft closed fabos' hosting-service in the week I was handing in this thesis, and therefore no screenshots are available for a narrative description.

## Discussion & Future Work

In this section, I will discuss my findings and if I have been successful with my research. I will also attempt to discuss the implications of this work, as well as implications for future work and design-iterations.

**RQ1:** What is OH and what is it used for within the field of programme and project evaluation?

This study attempts to answer this research question through its literature review, but also through the co-creation workshop and the two expert-interviews. Especially the first expert-interview was crucial in understanding the use of OH in a real-world context. Given more time, it would have been interesting to look at the field of evaluation as a whole, for example investigating the tracer-studies that Helene Bach talked about in the first expert interview.

In relation to expansive learning, it has admittedly been very hard to implement the concept, and core ideas behind contradictions that should lead to transformations (Engeström 2001). Catering to these contradictions in the final solution seems like a good idea, but continuously understanding contradictions in the OH-related activity systems might prove difficult, as these activity systems start to transform (Engeström 2001).

In order to increase the validity of the study, it could be interesting to implement a larger literature review, conducted by several researchers in the future. Furthermore, implementing interviews and co-creation workshop with participants of activity systems 2 (Appendix 3), could give valuable future data and insights.

**RQ2:** What are some of the tensions concerning the method of OH used in practice?

Some tension points were found to be directly related to previous mentioned contradictions of expansive learning. Since the final learning experience is going to be available both for western NGO staff and humanitarian workers on site in refugee camps; I would expect that there could be some future tension in the forums of learning experience, surrounding the concept of CoP. This could maybe be nurtured, or catered to, by implementing moderators in these forums that can help participants and organize the themes in the forums.

Because this study is pragmatic in its approach, it is not committed to any specific system of philosophy and reality (Creswell 2007). This has proven helpful as it gives the individual researcher a freedom of choice, but it could also account for some lost validity. As is tradition with pragmatic research, this study offers multiple methods of data-collection; and focuses primarily on the practical implications of the research (Creswell 2007).

**RQ3:** What theory and methods from HCD and Information Studies can be implemented to help create a future digital Outcome Harvest learning experience?

The aim of this research is to deliver a prototype that incorporates conventional elements from HCD with the more pragmatic theoretical foundation of activity theory. Kaptelinin & Nardi (2006) argues that an adequate theoretical foundation for the expanding scope of interaction design should be found somewhere between the two extremes of cognitive science and ethnomethodology (Kaptelinin & Nardi 2006). He argues that the two main criterias and attributes of such a foundation should be:

- 1) *Rich enough to capture the most important aspects of the actual use of technology*
  - 2) *Descriptive and generalizable enough to be a practical, useful tool in interaction design.*
- (Kaptelinin & Nardi 2006)

With this description, Kaptelinin & Nardi (2006) offers a post-cognitivist approach which incorporates the complexities of real-life practice while attempting to account for the concept of people and artifacts that influence one another in the iterative cycle of design and evaluation that is one of the characteristics of interaction design (Kaptelinin & Nardi 2006).

The multiple methods of data gathering and theory has also been inspired by Bødker and her approach to HCD in her dissertation *“Through the interface: A human activity approach”*- Bødker (1987). She approaches interface design with activity theory argues that her approach is inspired by Winograd and Flores’ use of this newly evolving theoretic approach to computer science (Bødker 1987). This aims of this approach, and of Winograd, Flores and others, is to *“create a new foundation for design of computer applications, and for understanding the role of computers in the life of human beings; in general or in specific human activities, such as work”* - Bødker (1987).

While using this multiple methods and theory approach, I have also attempted to incorporate traditional and non-pragmatic methods such as Burnards method for analysing interview transcripts (Burnard 1994), and Creswells’ eight strategies for ensuring validity in qualitative research (Creswell 2007). This was done in an attempt to keep meaning condensation and analysis of gathered data as valid as possible.

**RQ4:** What are the design principles based on RQ2 and RQ3, which can guide the design of the digital OH learning experience?

This studies design principles were generated directly of the findings from my collected data; and are meant to act as small recipes that can guide future iterations of the design process (IDEO 2015). I’ve attempted to account for the possibility of transformations in the method of OH by implementing expansive learning (Engestrøm 2001); I feel I have failed in doing so. Instead expansive learning painted a complete picture of the optimal learning environment; giving valuable insights towards design-principles and general design artifacts that might be relevant to our final prototype.

In future design-iterations, and especially when the prototype is implemented and usability testing is possible, it could be interesting to implement the approach of expansive learning; to find tension through contradictions, and thus the possibility of transformations within the method of OH.

In relation to the prototype and design principle one and two, I’ve attempted to nurture CoPs’ by the implementation of an OH-forum, and live-chat. It is the hope that these two features will help



participants of the course to stay on contact; synchronous and asynchronous, no matter where they are located in the world. Furthermore, I would suggest that the final learning experience would include monthly meetings in Adobe Connect, in order to keep the CoP as engaged as possible. This has also been mentioned in the prototype.

Design principle three and four has been left for future iterations, as no users of the learning experience, or a framework for reporting outcomes, are available yet.

Design principle five is catered too by the implemented chat-room, forum and before mentioned Adobe Connect meetings. In relation to expansive learning (Engeström 2001), it is hard to guide or identify transformations at this early stage of design, as our primary users are not present yet, and further investigation is necessary. A great deal of qualitative, quantitative, data-collection lies ahead to fully understand the activity system related to country offices and local staff (appendix 3).

## Conclusion

In this chapter I conclude, describe and share my research findings and results in relation to my problem statement.

In order to answer my problem statement, I've tried to implement multiple theories, and variations of some of these said theories (US-based and Northern European HCD). The reason for doing so was that I found adequate evidence that the field of HCD was in a transformation phase, moving steadily closer to each other; caused by the common rising interest of seeing users as people, or humans (Sanders and Stappers 2008). In order to support this HCD-approach, activity theory in combination with expansive learning, in order to provide a wider theoretical foundation (Kaptelinin & Nardi 2006) than the grounded and cognitivist approach to HCD.

Through this theoretical foundation, insights was made in relation to tension points in the method of OH, possibilities for transformations in OH in relation to expansive learning, and an uncovering of activity systems, their processes and their contradictions was made.

Through participant observation, it was discovered that DCA, and a majority of NGOs', implement the learning theory of CoPs' (Wenger 1998), and so the final solution attempts to nurture CoPs'. It is important to notice that CoPs' is the learning theory that most NGOs' follow, but that does not mean the elements of expansive learning can not be used simultaneously.

In the final prototype, I cater to and suggest that using the learning theory of CoP for maintaining and nurturing a collaborative learning-environment is possible while also implementing elements

of expansive learning; guiding learners and their material collaboratively towards possible transformations.

As expansive learning is an iterative process (Engestrøm 2001), it would make sense to continuously monitor the learners and the digital learning experience OH in relation to the cycle of expansive learning. This method could be used as a way to open up for the possibility of transformation (Engestrøm 2001) in OH, and as a form of usability-testing for future design-iterations; identifying contradictions from the OH interconnected activity-systems and presenting them to learners continuously.

Sanders & Stappers (2008)s explains how the emerging design practices focus' on designing for a purpose; they even goes as far as to say that one of those purposes could be designing for transforming. In this studies co-creation workshop, and through the qualitative interviews, this study have attempted to put future users of OH-learning experience in the role of co-designers. Both the personas generated from the co-creation workshop, in combination with the qualitative data collected, have helped in guiding the design principles and the design of the first prototype.

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## Appendix

**Appendix 1:** Notes that support the evaluation of the Workshop.

**Appendix 2:** Personas:

- Change Agent / Local Partner
- Change Agent / Implementer
- Compliance Reporter
- Process Facilitator
- Quality Checker / Partner / Staff

**Appendix 3:** The two interconnected activity systems, activity system 1 and activity system 2.

**Appendix 4:** Audio Recordings.

- Co-creation workshop, audio recording.
- Helene Bach, 1st unstructured interview.
- Helene Bach, 2nd semi-structured interview.
- Hind, unstructured interview.
- Iris, unstructured interview.
- Mathilde, unstructured interview.

**Appendix 5:** Learning Lab Participant observations results and description of context.

**Appendix 6:** Outcome Harvesting Project Brief.

**Appendix 7:** Learning-labs' Double-Diamond model.

**Appendix 8:** Learning-lab persona framework.

**Appendix 9:** Learning-labs' Learning Experience Canvas.

**Appendix 10:** Link an login to prototype on fabo.

**Appendix 11:** This studies revised Double-Diamond Model.



