Learning Prototypes as Boundary Objects to Assist NGO Development Projects:

Their Design and the Learning Spaces Around Them

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Abstract

This thesis is concerned with the effectiveness of NGO building and development projects in creating something for the community that is not only worthwhile, but empowering and something that they can claim ownership over. Furthermore, this thesis investigates Boundary Objects (Star and Griesemer, 1989) as learning aids, and whether or not they can be applied to a developing country context. In doing so, it asks the research question: **"How can learning aids in the form of "Learning Prototypes" be deployed as Boundary Objects to improve the success of NGO development projects in Developing Country contexts?"**
Looking through the lenses of Participatory Design, Capacity Building, Boundary Object Theory, and Matters of Concern, this thesis investigates learning spaces / arenas in the context of a developing country. Desk research facilitated the synthesis of material covering these approaches and theories.
A large proportion of the research was also qualitative and was garnered during a month and a half long field trip to the village of Kassi Kunda, in the very rural Upper River Division of The Gambia. The Nka Foundation had embarked on a development project there and I got involved by facilitating workshops for the local people there throughout the duration of the trip as a way of ensuring the deployment of Participatory Design and Capacity Building practices.
The main findings of this thesis indicate that to overcome discontinuities within NGO development projects in Developing Countries, a Learning Prototype acting as a Boundary Object can be effective. However, the learning space around this Learning Prototype must be carefully staged; taking into account Capacity Building, Participatory Design and Matters of Concern as tools, to ensure it's efficacy.

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1. Introduction

1.1 Bridges of Learning Across Different Worlds

On receiving an email flyer outlining the project: Build With Gambia, my interest was piqued from the outset. Working under the umbrella of the Nka Foundation, the project promised roots in architecture, helping local communities in The Gambia, and seemed like a good fit for a co-design collaboration. I had an interest in the way NGOs implement their projects, and how much input the local people and ultimately, end-users (who have to interact with these buildings and the legacy of developments left behind) actually have.

With roots dating back to the 1970's Participatory Design has come a long way from it's beginnings on the shop of floors of factories, as a device of appeasement to put the minds of workers at rest; those fearing the onslaught of automation, and their "inevitable" replacement. Combined with concepts discussed in material on Capacity Building, it has long been a tool which NGOs utilise in their various development projects which take place in Developing Countries. However, there are still NGOs who facilitate development projects in Developing Countries and do not pay heed to these approaches or do not deploy them properly.

That said, what is the protocol when a discontinuity (a boundary which acts as an obstruction to proceedings) (Akkerman and Bakker, 2011) is stumbled across and a project which hopes to bridge two worlds, comes to a halt? What if, to compound matters, the two worlds are on two very different planes of communication and cultural understandings and the network of actors as a whole is extremely fluid? What if the context in which this happens is a learning context, and knowledge needs to be translated across these two worlds? What if, to make things even more challenging, the context is also a Developing Country in which resources are scarce, if not impossible to come by?

Using Matters of Concern, as outlined by Brodersen & Pedersen and Bruno Latour, as a measurement of the opinions and positioning of the local people and also borrowing from heavily from Boundary Object Theory in learning contexts, with this thesis I aim to take the notion of the Boundary Object as a learning aid into the context of Developing Countries. Furthermore, in writing this thesis I seek to introduce the approaches of both Capacity Building and Participatory Design to learning environments where there can exist discontinuities. Additionally, taking

warnings from Latour about "naive" designers putting too emphasis on the Boundary Object itself, I look to create the optimum learning space around it for participants of workshops.

In other words, I would like to take the work of Richard Edwards into the context of Developing Countries and the work of K. Puri, S et al. and Jørn Braa into learning contexts.

1.2 Background Context

Throughout the fieldwork phase, I have been working with Erika Alatalo in the village of Kassi Kunda. It is in the very east of Gambia, only 5km from the Senegalese border, and by Western standards, could be seen to be fairly under developed. With no electricity, nor plumbed water, the villagers get by and despite this, have a good overall quality of life. The men mainly cultivate rice, millet, and sorghum, while the women work on groundnut and focus on the garden in the dry season. During the dry season, which it was during the field trip, the men tend to work on building projects.

About the project: Nka Foundation has proposed the construction of Kantora Arts Village after the success of a similar project in Abetinim, Ghana. It is proposed by the foundation that this idea, or iterations of this idea can be replicated throughout Africa.

"The arts village is conceived as an informal school, an artisanal vocational development centre that brings together international workshop participants, local artisans and less privileged youths from the region for skills transfer. It is a learning centre that provides relational spaces for creative people from the region and other countries to live, work, learn and create." (The Nka Foundation, 2017)

In real terms, this means that the Arts Village development shall be built in stages; dormitory, by dormitory and then on to the classrooms. Each building is a separate smaller project with it's own project leader. The building I am involved in (at the time of writing) is the second of these smaller projects and shall be a dormitory housing 20 guests at any one point, in 2 to 4 dorm rooms (depending on resources), with a common area, kitchen, and bathrooms.

The overarching aim of the project is to create a hub in which: where rural youths of ages 16 to 25 years undergo a 2-year skills development training in vocational arts and earth architecture. (The Nka Foundation, 2017)

Once completed and handed over to the local population, in around three year's time, the curriculum shall be carried out by both local people and international workshop volunteers. All in buildings which promote earthen architecture in formats of earth bricks, rammed earth and cast clay. Importantly, one of the main concepts of the build is to minimise the use of concrete and utilise materials found on and near the building site.

1.3 Initial Plan (Pre Fieldwork)

When choosing to take on this project, the initial plan was shadow the Nka Build with Gambia project and be critical of how Participatory Design was applied throughout. I would try and assist with the implementation of Participatory Design practices, but also look into how doing this affects the course and outcome of a project, in comparison to on in which no Participatory Design procedures were exercised. Workshops would be organised as part of the programme, to ensure a framework of Participatory Design from the outset.

1.4 New Plan (Post Fieldwork)

To examine how Participatory Design can be utilised by NGO's in these common building projects. In this examination, we can delve further into techniques which may aid in learning and dissemination of information through Learning Prototypes and workshops, and also be critical of these methods in comparison to a project in which no Participatory Design methodology has been implemented. Additionally, the sensitive subject of getting women involved in Participatory Design shall be broached, as in so many developing countries, gender equality simply does not exist. (Eade, 1997)

1.5 Research Objectives

The objective of the field study is to ascertain the effectiveness of Participatory Design for NGO development projects. The Participatory Design approach, along with it's methodology shall be applied to the study, and it's efficacy measured. Additionally, and more importantly, the notion of a Learning Prototype as a learning tool and Boundary Object shall be scrutinized, and how true these prototypes stay to these labels. References to various texts on Participatory Design, Capacity Building, Boundary Object Theory and Matters of Concern shall bolster the arguments; which are also reinforced by the field study itself.

1.6 Project Beginnings

Essentially the project began in earnest back in my home country, with desk research and communication with my main collaborator, Erika Alatalo. I strived to find what I thought would be appropriate texts to gain inspiration as to what may lie ahead. Desk research was focussed on the realms of Participatory Design and NGO projects based in the context of Developing Countries.

On arriving at Banjul Airport and staying with Erika in Serrekunda, the project [for me at least] began properly with an interview and site visit with Doedoe at Tunbung Arts Village.

Doedoe is the younger brother to world renowned Gambian artist Etu. Tunbung Arts Village, Tujereng was founded by Etu when he returned from travelling the world on various residencies. After Etu's death five or so years ago, Doedoe now runs the arts village. The reason that Erika wanted to get in touch with him was to explore a technique of rammed earth wall building which involves the use of layers of pigmented earth in colours [Figure 1] to make a multi-coloured layer cake design. Taking influence from the work of Robert Chambers and Ideo's Human Centred Design Toolkit, the thinking was that to use a known Gambian artist and to include both him and villagers in workshops would evoke a stir and commotion about the project as a whole. Piquing the interest of villagers and inspiring them.

[Figure 1]

Doedoe kindly showed us around the arts village, which had various colourful rammed earth building and functional contraptions [Figure 2], finally showing us a gallery with collections of Etu's artwork. His work is similarly colourful and involves the use of acrylics. Doedoe's work also employs acrylics, and it is from this expertise in these practices that we want to pull skills that can be applied to the rammed earth walls of the proposed building. Doedoe had been working on some examples of coloured clay/ rammed earth bricks which he showed us and explained at length his methodology [Figure 3], inspiring Erika and I to ask to come to the village to head a workshop for the villagers.

[Figures 2 and 3]

2. The First Project Build – A Cautionary Tale

Abetinim was another Nka project, which went very well and gained world Architectural acclaim. So much so, in fact this particular Arts Village is to be used as a blueprint to be used in other places, for example; for this very project. The concept of the arts village is to provide a place for younger (in this case) Gambian people to learn vocational and artisanal skills. All the buildings were to be constructed with very minimal to no concrete. There are to be showcases as to how developments can be constructed using materials that are extremely close to hand and resurrecting traditional, local, and intelligent building construction techniques which are loaded with tacit knowledge. It is hoped that tutors shall travel to this centre from all over Gambia, not to mention the world, to give guest workshops and tutorials. When the development of the vocational development is completed, it shall be handed over to the village or local area committee, and they shall take over it running and maintenance.

Following the success of Abetinim, Nka Foundation decided to replicate the ethos of this project in Kassi Kunda, in the Upper River Region of Gambia. The first build was project managed by "B" (his identity will be withheld for reasons of sensitivity), one of the members of Nka Foundation. However this build seemed to have little to no Participatory Design implementation. There seems to be a notion that the building was just imposed on the villagers without consultation. With those actions, there seems to be an air of anger and disillusionment with the building.

On "B" leaving for another project; and following an appraisal of the building work completed on the dormitory so far, a list of jobs to be actioned according to Alieu the mason, was compiled:

The list of work needed to complete the building is as follows and shall cost 10,000 Dalasi: there needs to be an extra 3 rows of brickwork to the top of the building; the floor needs to be finished with a concrete screed, the roof trusses need to be cut in two for transportation and attached, the plasterwork needs to be done, the bathroom needs to be finished and tiled, the soak-away pit for the bathroom needs to be dug 1 metre deeper to a depth of 3 metres, squared off, concrete block-work needs to be applied and a concrete covering created; and roof sheets need to be affixed.

On examining the unfinished dormitory with Doedoe, it is discovered that the building isn't safe in it's present state. It needs reinforcements. Through conversations with Doedoe and Erika, it soon transpires that "B" had an argument with the main mason, Alieu, on the project about how the columns and walls were constructed. Ali, the mason, stressed that they had to be interlaced and the building as a whole would be unsafe otherwise. However, to reasons only known to himself, he specified the bricks between the columns and walls not to be interlaced (as well as making the walls too high (Lengen, 2008), meaning that in both Doedoe and Alieu's opinion, the building is not safe. Doedoe rates the building strength at about 30% and gives it 1-2 years standing, without big improvements to the structure.

So, why had "B" chosen to direct his build in such a manner? Additionally, during a conversation with Nyama Susso (who shall be introduced later), it transpires there was another controversy between "B" and some youths he had employed to make bricks for the build. The youth who were digging and forming the bricks found the deeper they got, the harder it became, and the longer they took to make. "B" said that he didn't want to change or extend the brick-making site, so they had to continue digging deeper. As a result of this, the youth asked for 5 Dalasis a brick, instead of 3. "B" denied this, and therefore, there was a shortage of bricks for the mason and work ground to halt.

So, what can we learn from this particular example. An "alien" from a foreign country came to a small village in rural Gambia, managed to get hold of a farmer's land and then proceeded to build. Anecdotally, the villagers didn't seem to understand the project at all when we first came to site. It took a lot of work, and still a many of the villagers are not particularly au fait with what has been tried to be achieved. However, it is getting better, with the villagers which we have fully sensitised to the project. What this conveys is that there really didn't seem to be much reaching out to the community with the build led by "B". In conversations with Alieu, it was just the two of them working together on the build, with Alieu bitterly explaining that it was indeed him that did most of the actual labour. There seems to be a lack of evidence of any community involvement, which just feeds the "hand out" mentality of NGO work (Eade, 1997). Additionally, (at the time of writing) there is the fact that "B" is still trying to conduct the dormitory from another country. He is obviously not communicating with the community at all with regards to

these instructions, which furthers the lack of ownership and alienation that the community might feel with that particular building.

3. Literature Review

This chapter shall form the groundwork of the Theoretical Framework of the thesis. However, this material shall be further explored and made reference to later. In this chapter, the material is synthesised from a number of different sources to create a holistic viewpoint of the Theoretical Framework. In the following chapter which outlines the Theoretical Framework, the categories of Participatory Design, Capacity Building, Boundary Object Theory and Matters of Concern shall be introduced and unpacked. However, for now, these categories shall serve as reasoning and structure as to why the following literature was digested.

3.1 Edwards, R. (2005). **Contexts, boundary objects and hybrid space: theorising learning in lifelong learning.** In: *35th Annual SCUTREA Conference*. Stirling: The University of Stirling.

In this text which is rooted in learning and Boundary Object theory, Edwards asks the question of what the characteristics are that define a "learning context". Rather than "a container" (Edwards, 2005), Edwards sets out to describe context as the result of an activity or a set of practices. However, according to the author, learning is not caged by contexts and can be activated in a variety of domains. This is relevant in that this thesis seeks to investigate how a Learning Prototype as Boundary Object can help any context to create learning.

Edwards argues that "pedagogy across the life course" is not constrained by classrooms or other specified learning spaces, but needs to be framed differently than the usual "linear step-by-step way". This, in a way creates an argument for the concept this thesis presents, addressing how non-traditional learnning spaces can be created.

Edwards advocates the notion that "participatory processes are transferred, rather than knowledge", moving away from the standardised idea of a learning and towards a context in which learning which can be "mobilised" in many different situations.

Edwards presents the idea that it is not helpful in this case to think about learning as happening within certain structured contexts. This ties in with the subject of this thesis in that idea that

learning doesn't need a particular arena, the important elements are the network and mediation around the learning, and "that in-between arena of boundary practices". What he is saying with this is that learning should transcend arenas of workplace and community (and the spaces which make up these arenas), whilst being totally inclusive and recognizing past experiential learning. This notion relates to concepts within Capacity Building and hints at a Boundary Object which can transcend these spaces/ arenas.

Furthermore, Edwards states how Boundary Objects flow through networks playing varying roles in varying situations. This is particularly relevant to this thesis in that it is a direct reference to what this thesis will try to achieve: a full scale Learning Prototype as a Boundary Object. After all, it can be described as stuff, a thing, tools, or an artefact (Edwards, 2005). The Learning Prototype shall be further unpacked ad related to Boundary Object Theory later in the thesis in the chapter; Discussion with Concept Outline.

3.2 Akkerman, S. and Bakker, A. (2011). **Boundary Crossing and Boundary Objects.** *Review of Educational Research*, 81(2), pp.132-169.

In the text, Akkerman and Bakker introduce the term Boundary Crossing, which describes a situation in which at work someone may enter into new and unknown realms and may be somewhat lacking, so therefore borrow from different contexts to achieve "hybrid situations". This notion of boundary objects in work contexts is further investigated when Akkerman and Bakker go on to talk about "Crystalisation"; enacting new ideas in working practices and developing new rituals which reference back to the learnings from dialogue spaces and boundary objects. Furthermore, Akkerman and Bakker refer to "bridges" which can be related back to going between the worlds of the local people and the NGO's; something which can be applied to teaching aids and learning prototypes.

Reinforcing the notion of the diversity of actors' Matters of Concern (which will be covered later in the chapter in texts by Latour and Brodersen and Pedersen), Akkerman and Bakker state:

"A second important difference between transfer studies and literature on boundary crossing and boundary objects relates to the way in which diversity is appreciated." This strengthens the argument of Brodersen and Pedersen's writings on the flexibility of Boundary Objects.

Akkerman and Bakker describe how it is in fact people, who are directly affected boundaries and how interactions are curtailed- and it is in fact people as mediators who can cross these boundaries to achieve continuity or synthesis: "We defined boundaries as sociocultural differences that give rise to discontinuities in interaction and action. Since it is individuals or groups of people that actually encounter discontinuities in their actions and interactions, it is worthwhile looking more closely at their experiences to understand what boundaries are about."- Referring to (Bahktin, 1986), Akkerman and Bakker extrapolate that boundaries have the ability to be perceived as arenas or spaces for learning, rather than "barriers".

Furthermore, Akkerman and Bakker portray the point that although they enable communication, Boundary Objects aren't a sole means of communicating an idea. They highlight the fault of Boundary Objects being that because they are seen as "self contained objects" and expected to be a viable solution in their own right; when, in fact, they need inputs of additional information (such as backstory of context, a knowledge of the decisions around the object etc.) to be used by other parties. There is also the point that these same objects can be understood and viewed differently over time, offering varying levels of "boundary crossing function". However, Akkerman and Bakker state that boundary objects need to be discussed and revisited again and again:

"...exploration and discussion of the boundary objects are needed to affect the discourses of participants over time."

Akkerman and & Bakker describe the Boundary as a No Man's land, belonging to "neither – nor" one realm and the people which have the power transcend the boundaries "enact" the boundary by "addressing and articulating meanings and perspectives" of the intersecting realms. Additionally, these people or objects have the power to "move beyond" these boundaries as they themselves are "neither-nor".

Describing boundaries as either "both-and" or "neither-nor", Akkerman & Bakker state that these two qualities of boundaries enact a need for dialogue. A dialogue which includes "meanings to be negotiated" and from which a new alignment may emerge.

Akkerman and Bakker purport the idea that boundary objects are plastic and their situational context in spaces or arenas defines their roles:

"...[boundary objects] can still be malleable in each instance of their use and rely a great deal on situated interpretations of people with regard to the historic and current state of relations between groups."

The motivational qualities of boundary objects are further emphasised by the following statement which describes how boundary objects kick-start alignments with the "knowledge and assumptions mobilized in the interpretation of the object."

Acording to Akkerman and Bakker, there is a difference between the complete intersection of social realms and "boundary crossings". These "boundary crossings" take discontinuities around sociocultural dissimilarities and "establish continuity":

"these people and objects enact the boundary by addressing and articulating the multiple meanings and perspectives following from sociocultural diversity." - Boundary Crossings aren't an antidote to boundaries; they address and provide a bridge over boundaries and therefore over discontinuities.

3.3 Chambers, R. (1994) **"The Origins and Practice of Participatory Rural Appraisal"**, World Development (22:7), pp. 953-969.

As one of the older pieces of material in this chapter, "The Origins and Practice of Rural Appraisal" is still one of the most consulted on the subject of Capacity Building. A large portion of the text acts as a comprehensive guide as how to carry out investigative work in the field in terms what kinds of community members to approach and in which way to conduct interviews. Chambers looks at the history of Rapid Rural Appraisal (RRA) and its evolution into Participatory Rural Appraisal (PRA). Empowerment of the weak and marginalised features heavily as part of the

text; as well as acknowledgement of the creativity and capability of poor people and how "outsiders" should act as catalysts and facilitators of positive change.

The main takeaways from this text and how it draws parallels with this thesis project are that it is set very much in the rural context and stresses how the knowledge of these rural people must be highlighted and utilised and ultimately these people are capable of managing their own development:

"Poor and exploited people can and should be enabled to conduct their own analysis of their own reality..."

Not only that; "outsiders", as he aptly coins external facilitators of projects, must be mindful of the time they take from participants in workshops, as opposed to the example given of:

"...one-sided than questionnaire surveys where much of respondents' time is taken and little or nothing is given back."

3.4 Eade, D. (1997). *Capacity-Building: an approach to people-centred development.* Oxford: Oxfam (UK and Ireland).

This material, unlike the majority of the material addressed in this chapter, this is in fact an entire book written about Capacity Building model which Oxfam works towards.

Eade starts by acknowledging the "faddish" connotations which Capacity Building endured in the 1980's and 90's. Despite being commissioned by Oxfam for the work, the material is easily applicable to other contexts, including that of this thesis. Working towards the somewhat self-explanatory principles of People-centredness, Human Rights, Empowerment, Participation, Independence, Change, Sustainability and Risk; the book is comprehensive in it's outlining of what Capacity Building is and how it can be applied.

In its simplest form, Capacity Building is sustainable development, with the view people have the power to perform things for themselves. The Capacity of a person can be described as their ability to do things. Within the book, Eade strongly advocates the uncovering of these

Capacities through investigations and describes the acknowledgement of these Capacities (with a view to adding to them) as an imperative.

3.5 K. Puri, S & Byrne, Elaine & Nhampossa, José & Banu Quraishy, Zubeeda. (2004). **Contextuality of participation in IS design: a developing country perspective.** 42-52. 10.1145/1011870.1011876.

The text opens with a history of the beginnings of Participatory Design: "The participatory tradition can be traced back to the rise of the Industrial Democracy program in Norway during the mid-1960s following debates around the organization of work at the micro- level of shop floors."

K. Puri et al. continue explaining the roots of participatory design and how this initial movement in Norway inspired Sweden and Denmark with their DEMOS (DEMOkratiske Styringssystemer) and DUE (Demokrati, Udvikling og Edb) movements respectively. In the late1970s, the DEMOS project emphasized the notion that the worker has the right and responsibility to participate in deciding factors which affect the design and development of work and management systems. The DEMOS Project created a framework through which the voice of the shop floor workers could be heard through union-to-management negotiations.

According to K. Puri et al. this branch of Participatory Design looked to address the unfairly balanced distribution of power in industry. The idea was to empower regular shop floor workers and shop supervisors by fortifying their managerial and technical skillset as a way of shifting this balance.

Making the transition from the workplace to the social world; K. Puri et al. purport the idea that the idea that the social (and wider) world "can only be understood from the point of view of individuals who are directly involved in the activities which are to be studied." Boiled down, this is levelheaded advice: when investigating a specific area, interview the actors who operate there.

These somewhat common sense tactics are continued by K. Puri et al. with the highlighting the facilitation of key meetings by way of a local guide (enabling the use of local language) and knowing where would serve as best meeting places for the convenience of locals. Though common sense, these tactics served well.

In the text, K. Puri et al. define Participatory design as a learning process during which knowledge is exchanged between designers and users in particular, must have a guarantee that their design inputs (or Matters of Concern – outlined later in this chapter) are seriously considered.

This notion is further developed by K. Puri et al., suggesting local communities must be able analyse the systems put into place and be able change it "to suit the ever changing context". This is where we can start to see the importance of "hand-over" (analysed later in the thesis) as socially sustainable. What Byrne and Nhampossa describe here is empowerment at community level, so any future changes or alterations, adaptions or additions to the project which has been handed over to them will be their responsibility and they shall be more encouraged to take ownership. The concept of ownership is also unpacked further later in this thesis.

This text addresses Information Systems design through Participatory Design means. Despite this, the concepts proposed are applicable to other contexts, according to the authors. K. Puri et al. convey the three main considerations with regards to participatory Information Systems design: politics of design; the nature of participation; and methodology, design tools and techniques – considerations which can be utilised in the context of this thesis project.

3.6 Braa, J. (1996) **"Community-based Participatory Design in the third world"**, in Proceedings of the Participatory Design Conference 96, J. Blomberg, F. Kensing, and E. A. Dykstra- Erickson (eds.) Cambridge, Mass., USA

Similarly to K. Puri et al., Braa writes about the implementation of an Information System, designed through the use of Participatory Design. However, also similarly to the concepts portrayed by K. Puri et al., they too can be applied to contexts out with Information Systems design. Again, the roots of Participatory Design are alluded to in this text, but Braa recognises that in order to transfer these concepts and ideas over from a workplace to a third world context, there must be an emphasis on community. Furthermore, he advocates "empowering through learning" and "design for empowerment"- emphasising the difference between empowering and controlling. He forwards the notion that community empowerment creates a wider involvement.

Braa has three tenets to his approach: a pragmatic perspective (practical ways to increase productivity), a theoretical perspective (a strategy to overcome the lack of shared understanding between actors), and a political perspective (a system of democracy in place, enabling people to influence their worlds).

3.7 Brodersen, S. and Pedersen, S. (2018). *Staging and Navigating Matters of Concern in Participatory Design.* PDC. Copenhagen: Aalborg University.

The first takeaway from Staging and Navigating Matters of Concern in Participatory Design by Brodersen and Pedersen is that Matters of Concern can be used as a way to describe how knowledge is translated and different worlds were and shall be, aligned. Grounded in Participatory Design, this approach appears to be utilised in more fluid networks, such as the one at the main focus of this thesis.

Brodersen and Pedersen describe the designer as "Navigator" - a fitting label for the facilitator. A designer and leader who "steers" the project as a way of facilitating and staging. As Designer working on behalf of the Nka Foundation, it was my job to navigate the spaces for learning and discussion. For the purposes of this section, and as described by Brodersen and Pedersen, navigation can be defined as: "the ability to *navigate* the design process by *staging, facilitating,* and *learning from/synthesising the results* of engagements and interactions." Within the text, the authors focus on how the "navigator" synthesises the dialogue brought forward as actors voice their Matters of Concern. These negotiations are brought to the forefront, as they directly influence the navigational decisions taken by the designer in these situations.

Brodersen and Pedersen introduce MoCs as being "rich, complex, surprising and constructed." This description is appears to allude to the diversity of MoCs, with the authors going on to characterise these attributes as political, making them open for discussion, negotiation, conflict and compromise.

With the research for the article taking place in a nursing home with residents suffering mainly from dementia; the focal point of their problem was eliciting opinions from these actors as they

faced difficulties expressing themselves. I immediately interpreted this as drawing parallels with the Nka project, in that the actors I was dealing with also faced difficulties expressing their Matters of Concern to me due to language barriers and their perception of themselves in comparison to Western people, such as me.

Fittingly for this thesis and the rest of the material studied, Brodersen and Pedersen advocate the use of boundary objects such as "Prototypes and other materiality such as design games", which have the ability to "mediate negotiations by providing a shared or new reference point".

The remainder of the text outlines how the designers went about identifying all Matters of Concern and distilling them down into a "negotiated overall concern of the project".

3.8 Latour, B. (2004). **Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern.** *Critical Inquiry*, 30(2), p.225.

One of Bruno Latour's more recent work, this is another article which looks into Matters of Concern as a "...powerful descriptive tool". It is a very abstract article, but there are concepts within the text which are run parallel to what this thesis project attempted to achieve.

Latour warns of the incorrect use of boundary objects in situations where the designers naively (and it could be argued, subconsciously) are imposing their values or ideas into an object "that does nothing by itself" and releasing it into the arenas or spaces. However, to appease these situations, Latour suggests offering a "suitable arena" around these objects to make them work. This is relevant to this particular thesis project in that it is a reminder for myself as a designer not to put too much of myself in the boundary object used as part of the learning spaces and to design the spaces (and therefore, arena) around them.

From this selection of material we can start to see overlapping and repeating themes. Serving as an underpinning as to my navigational decisions throughout the workshops during the fieldwork, this desk research led me to various points of departure as how to analyse my fieldwork data. These focal points of consideration are as follows: learning contexts, boundary objects as learning aids, Matters of Concern (expression of opinion) as design inputs, people and objects which transcend boundaries, uncovering and building capacities, and self-management by local

people through "hand over" procedures. How these shape the Analytical Framework shall be seen in the next chapter.

4. Analytical Framework

Following on from the material and points of departure uncovered during the literature review, this chapter will serve as an introduction to the theories and approaches I arrived at. The roots of these theories and approaches shall be uncovered, alongside their characteristics an applications.

4.1 Capacity Building

Capacity Building became somewhat of a buzzword in the mid-nineties: almost fashionable, it was claimed by some. After the so-called "lost decade" (Eade, 1997), the hype around the term was much welcomed and seemed to repair the public's reaction to development. Despite it's seemingly frivolous connotations as a term, it has noble roots (Eade, 1997).

Deborah Eade (1997) would place capacity building:

"...somewhere on a spectrum ranging from 'helping people to help themselves', at a personal, local or national level, to strengthening civil society organisations in order to foster democratisation, and building strong, effective and accountable institutions of government."

With that said, the conclusion can be drawn that Capacity Building is a notion of how to address development from the point of view of people to be able to do things for themselves.

Within the Capacity Building umbrella there can exist elements of Participatory Design. It is more of a long term effort and should not be confused with emergency relief initiatives – some of which even have a negative effective on the Capacities of the marginalised. (Eade,1997)

However poverty-stricken or marginalised, people have tend to have a many capacities, even unknown to themselves, and perhaps initially imperceivable to others (Eade, 1997). Uncovering these Capacities takes resources, effort, and empathy. However, to continue with any aid, relief, or charity project, without taking the time to discover or acknowledge these Capacities can be seen as not only insensitive; but also misses the chance to build upon these Capacities and perhaps even undermine them (Eade, 1997). In order for Capacity Building to be truly socially-sustainable, interventions must be assessed to ascertain the potentially negative effects they can have on the individual people and societal groups which they target (Eade, 1997).

Capacity Building requires time; sustained investments in local people and their community organisations. Additionally, it requires a sound dedication to the various processes and systems through which these local people can better forge a path for themselves. For example, both the British Department for International Development, DfID) and USAID "estimate that a realistic time frame for organisational strengthening [is] over ten years". (Eade,1997)

For the development to achieve true social sustainability, notions akin to Capacity Building (despite the dated and out-of-fashion term) must be employed. These measures will ensure a programme of longevity, avoiding the eternal problem with Aid; upping and leaving when the job is judged to be "over", leaving the populous disillusioned.

Capacity Building should never be confused with emergency aid. This work is continual (Eade, 1997) and does not stop when the emergency is perceived to be "over", funding has dried up, or the subject(s) is/ are seen as irrelevant (Eade, 1997).

4.2 History of Participatory Design in Western World

The roots of Participatory Design can be traced back to their advent with the Industrial Democracy program in 1960's Norway. This program was initiated after debates we had around the work organisation at the level of shop-floors (K. Puri et al. , 2004). This primarily Norwegian program inspired a similar movement in Sweden; namely the DEMOS project (K. Puri et al. , 2004).

These forerunning Participatory Design Programmes sought to address an imbalance of power in the industry. The aim was to empower shop supervisors and general workers by arming them with managerial and technical tools; allowing them to compete and barter with management on a more equal footing. (K. Puri et al. , 2004) As part of these initiatives, workers were involved in design processes through capturing their tacit knowledge of work practices. (K. Puri et al. , 2004)

In addition to attempting to increase user involvement in design, decreasing the time it takes to develop a product, and increasing user happiness, these approaches also look to build upon the existing skills of designers. This is done through placing them in abnormal work situations; situations where standard design practices cannot be employed. (K. Puri et al. , 2004)

Historical use Participatory Design in the Western World not only recognises the rights of workers to have a say in the design and development of systems which have direct repercussions on their working environment, but also the shortfalls of traditional managerial approaches; highlighting where these can be addressed by Participatory Design.

4.3 History of Participatory Design in Developing Countries

Taking the notion from (K. Puri et al. , 2004) that Participatory Design (in relation to Information Systems) from the "developed world" cannot be replicated in so-called developing countries: the same can be said of regular Participatory Design. A different approach to Participatory Design must be administered, for it to be effective. This can be seen, more recently, in texts such as Ideo's Human Centred Design Toolkit.

Participatory Design and Capacity Building for the so-called developing world has been addressed in Robert Chambers' The Origins and Practice of Participatory Rural Appraisal in which he purports a tool box of Participatory Design techniques which include: the use of key informants; the forming of groups of any kind (in the context of this project the groups were made up of the volunteers that participated in our workshops); do it yourself (effectively being taught by the participants); they do it (local people investigate and do research); participatory mapping and modelling (during the workshops; this meant basic and physical methods of planning the size, shape, aspect etc of the prospective buildings); transect walks (which effectively meant complete cultural immersion; which includes ethno-biographies); seasonal calenders (taking local knowledge from speaking to local about their seasonal activities); daily time use analysis (finding out the daily timetables of the different local people); stories, portraits and case studies; participatory planning, budgeting, implementation and monitoring (this involved getting villager to advise on budgeting for the project); group discussions and brainstorming; and finally, immediately reporting whilst in the field. Despite this being somewhat of an older article, it still achieves relevance, being adapted for Information Systems design in recent years (K. Puri et al. , 2004).

4.4 Participatory Design Approach

Participatory Design Advocates "cultural immersion", as featured in Ideo's Human Centred Design Kit. The full month and a half spent in the rural Gambian village, Kassi Kunda could be labelled as such. People-centredness and empowerment are pillars in the structure of Participatory Design.

According to Robert Chambers (1994), through choosing carefully the place and people you wish to investigate, it can be ensured that a project can be performed in the spirit of Participatory Design:

"These biases were recognized as spatial (visits near cities, on roadsides, and to the centres of villages to the neglect of peripheries); project (where projects were being undertaken, often with special official attention and support); person (meeting men more than women, elites more than the poor, the users more than the nonusers of services, and so on)..."

Choosing to ground a project with investigations which include biases mentioned above results in the masking of "the worst poverty and deprivation" (Chambers, 1994). Chambers also advocates Participatory Design as the art of field learning; being fully immersed in the field, performing "unhurried participant observation" and having meaningful conversations with local people – valuing their local knowledge. Utilising key informants, group discussions, workshops and training sessions, Participatory Design enables the local population to participate in a conversation. However, there are several structural factors that are needed for these elements to go ahead; and the constraints affecting these structural factors must also be considered. What this means in practice is; conducting these meetings and dialogues in the local language, with actors which they trust, in settings (both place and time) which suit them best. (K. Puri et al. , 2004)

4.5 Boundary Object Theory

There is a notion portrayed by (Fenwick & Edwards, 2010) that Boundary Object Theory encourages a looser and more fluid network. A network such as this, not "frozen" (Fenwick & Edwards, 2010), is better suited to the temporary network set up around the project. In facilitating this network (Burns et al., 2017), the NGO worker – which could also be described as the network manager – isn't taking something frozen, unfreezing and reshaping it, and then re-

freezing it (Fenwick & Edwards, 2010). The kind of network created around an NGO project can be seen as quite casual and one that will be subject to change, as participants come and go and the timelines for these projects run out. NGO workers couple and decouple in terms of network with the villagers and local people with each project.

Taking into account the works of Vinck, Star & Griesemer, and Carlile which focus on Boundary Object Theory, the concept which shall be unpacked later in the thesis is intended to translate the network of NGO workers, participants, and local people.

According to (Vinck, Jeantet and Laureillard, 1996);

"...[boundary] objects are given existence through their use by other actors".

This statement is powerful in that this is quite literal description for the learning context this thesis attempts to portray. The Learning Prototype takes life through the actions of both the leaders of the workshops/ projects and the participants/ local people.

In Institutional Ecology, `Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, Star & Griesemer (1989) outline the concept of boundary object to illustrate how certain objects can perform a role in building a bridge between intersecting practices. Boundary objects are artefacts which:

"both inhabit several intersecting worlds and satisfy the informational requirements of each of them...[They are] both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual site use." (Star & Griesemer, 1989, p. 393)

According to Star & Griesemer (1989), we can assume that with continued use and development, objects can continue to be effective. What this means in the context of this thesis is that the more a Boundary Object is used and interacted with by participants and NGO workers; the more it evolves and develops as the network is translated through education.

Star and Griesemer (1989) further emphasise this point:

"Their boundary nature is reflected by the fact that they are simultaneously concrete and abstract, specific and general, conventionalized and customized".

4.6 Matters of Concern

Although there are many crossovers in terms of the approaches mentioned in this chapter, Matters of Concern, specifically addresses the translation (Latour, 2004) of all participants (both NGO workers and local people). A theory which can used within contexts and applications that Obligatory Passage Point (Star and Griesemer, 1989) cannot; it can be applied to more chaotic networks, or just networks which are in constant flux. However, similarly to Obligatory Passage Point, Matters of Concern seeks to aligning the network: albeit in an alignment of opinions and positions. In utilising this approach, the designer works towards uncovering the "overall concern" of the project, and from there achieving alignment of the actors (participants) in the network.

To achieve this alignment, the designer needs to "navigate" (Brodsersen and Pedersen, 2018) and create spaces for dialogue. Utilising techniques such as "prototype ambassadorship", through this tool the designer uses "boundary material" (Brodersen and Pedersen, 2018) (in the same vein as Boundary Objects) to explore different ways of eliciting and gauging opinions (or Matters of Concern) regarding the project. The designer – in the role of Navigator – has the power to make decisions in navigating the project, taking into account the outcome of dialogue spaces and workshops. However, that said, the utilisation of Matters of Concern is a step towards finding a less "designer driven" (Brodersen and Pedersen, 2018) dialogue space.

However, in one of his later texts, Latour (2004) warns against callous and unfettered use of Boundary Materials when a designer is not in fact striving for a less designer-driven dialogue space. Latour (2004) states that designers who do not utilise Matters of Concern earnestly are:

..."doing with objects simply a projection of their wishes onto a material entity that does nothing at all by itself."

4.7 Conclusion

Having uncovered the characteristics and constraints of these four theories / approaches and also have insights as to which situations they can be applied, we can look at how they can play a part in the analysis of the data garnered through the duration of the fieldwork exercise. The spaces navigated and design decisions taken during the field trip workshops shall be viewed from the perspective of these theories and approaches.

5. Analysis

Taking into account the methodology introduced in the Theoretical Framework, we can now look to the qualitative and anecdotal evidence gathered on the one and a half month field trip on site in Gambia. Looking through the lenses of these methodologies and approaches we can relate them back to the evidence.

As the evidence gathered for this field work is almost purely anecdotal and therefore qualitative, this chapter will be an account of how, in the navigation of our daily workshops and dialogue spaces (Brødersen and Pedersen), I attempted to implement the chosen approaches and methodologies alongside the Project Leader.

However, there weren't only positive influences to take from. The first build, managed by an Nka employee name Barthosa, was lesson on how an NGO should never perform a charitable build in a developing country. A complete lack of participatory design implementation, mismanagement of funding and poor communication left a legacy of bad feeling in the village, which the Project Leader and I tried to overcome.

5.1 The First Kassi Kunda Arts Village Build

There seemed to be a controversy in the way that Nka (represented by their employee, "B") carried out the previous project in the village of Kassi Kunda. Ali, one of the main builders in the village, had qualms with the way in which the project was managed. The first dormitory of the development was supposed to have been finished on our arrival on site, but for reasons relating to the administration of the project, it was not. Ali stated it was to do with a lack of management throughout the construction of that particular building, and when "B" left the village to join another project, he literally and metaphorically handed over the keys of the unfinished project back to the village builders. With nobody overseeing of the project and no formal handover meetings or due process, the village builders felt that they could not proceed. Ali felt passionately about this and alongside some of the other villagers, was under the impression that we (Erika and I) were there to finish that project. It was not our responsibility, but we endeavoured to aid with the it's completion. However, there still remains annoyance with the

villagers in the way the project was implemented and a general distrust of "B". It is hoped that our actions will have gone some way in alleviating this feeling, our intention was to regain trust.

From this example, we can see how are poorly facilitated NGO development projects shape the way people perceive the projects facilitated by NGOs. Furthermore, this perception can be extended to the way people react to projects which are properly researched and facilitated. We can conclude from this that there have been Nka projects (as well as the poorly facilitated in the past in which the local people have had no say. This leads them to view these projects purely as hand outs, which in turn, instils a lack of ownership on the part of local populations; which ultimately leads to the disuse of the completed project in many cases. Not only that, the perception of a project being a "hand-out" leads to feelings of powerlessness in people that are supposed to be helped – they feel they have no say.

Having deciphered how not to manage a building project in a developing country and implemented that into our strategy, I looked to the literature on the approaches and methodologies covered in the previous chapter, Analytical Framework to help guide me in designing the space for more structured workshops. These five more structured workshops were held in addition to the daily workshops that were held on building the Learning Prototype and focussed on addressing the approaches and theories of Participatory Design, Capacity Building, Boundary Object, and Matters of Concern.

5.2 Structured Workshops

Workshop 1: Clay Bricks and "Shelter"

The meeting point for the workshops (as with the majority of the workshops) was at the site of the construction of the first dormitory of the arts village, just beside Kassi Kunda, taking influence from the work of Robert Chambers (1994) and Participatory Design. The equipment we had was basic and mostly tools to make clay wall formers, timber to construct the formers out of, the metal brick formers that we commissioned from the welder, and of course clay/ earth.

The outcome of the workshop was to be a simple arched structure to be used as a shelter from the sun and the rain in rainy season. Used as a tool for learning [and boundary object] this was intended to also span multiple workshops, enabling us to cover the subjects of; bricks, multicoloured rammed earth walls, benches, foundations, and lime work. The premise of the workshop was simple: everyone works together to make the bricks and form the arch. The villagers taught us the techniques they knew in the process. Again, these happenings can be seen as relating back to the approaches of Capacity Building and Participatory Design [Figure 4]. In effect, this was the first deployment of the Learning Prototype, which will discussed in the next chapter.

Around thirty people came, a good mixture of men, women, and children. This was a fantastic opportunity for us to tell everyone about what we were doing, introduce ourselves and the project, through our interpreter, Susso (Nyama). We explained about the building we would like to create (with their input) and the overarching project.

We gathered a group around us -anybody who was immediately interested- and started with the first task of marking out where the building would be. Even this simple act of marking out a building with string [Figure 5] has the potential to be seen as the use of a boundary object as a learning aid. This was done, so everyone would be able to see the scale and placement of the building. Around about this time, most people who had gotten the idea about the project, but didn't want to construct that day, departed to get on with their daily proceedings. This left us with a core of mostly young men and a few children.

We then got to marking out where the aforementioned "shelter", which will be used as an educational tool for experimenting with materials and techniques. Consulting with the people there, namely Alieu (who is a skilled mason), we had a group discussion about the placement and aspect of this shelter. From there, the foundations were marked out and dug and others we tasked with making a sieve for the soil for making the clay bricks. The whole workshop took from 0800-1230 and it has been decided it will be repeated daily in the mornings, with the consultation of Salifu, Alieu, and Saloum (see actor cards in appendix).

[Figures 4 and 5]

Workshop 2: Batiks Workshop for Women

Planning

The Project Leader and I spent a great deal of time discussing the controversy of getting the opinion of the women of village. The problems that we face are the general consensus (within the village) that women don't deal with the construction of buildings. This opinion appears to come from both sides too; from both men and women. The is also the problem that for reasons that we have yet to uncover, the women of the village do not seem to speak any english. The main language of The Gambia is, in fact, English. However, when you reach the Eastern regions of Gambia, people tend to speak either MandiNka or Fullah (also know as Pullah).

In order to try and get more of the women involved in what we're trying to achieve, we had planned to spend a day or two with the women in the community garden in which they spend their dry-season days. However, this plan did not materialise and the women were simply too busy with their daily tasks. It was not our place to take them away from the work they were proud to do:

"if an aid programme enlists men to undertake tasks, such as food distribution, from which women drew status and identity, the overall impact may be to damage women's self-esteem and organisational capacity." (Eade, 1997) We had to be sensitive about taking away the tasks that women actually identify with, even if – by our Western Feminist values – we do not condone the allotting of such roles and tasks to specific genders. We uncovered their capacity (or potential capacity) which was the tradition of fabrics used in buildings and attempted to build upon that.

Additionally, there was anecdotal and spoken evidence (on conversing with he villagers over the month and a half I was there) that the women are also involved in aspects of the construction of certain buildings. On bigger builds, groups of women would be heavily involved in pouring of the clay / concrete floors, often tasked with the mixing of the cement with their feet and collecting the masses of water needed. Therefore, it was discovered that their lack of participation for the most part of the workshops was not because of their inexperience or

unwillingness to get involved with building. This lesson is illustrated in the words of Deborah Eade (1997):

"Breaking down what women and men actually do (including seasonal fluctuations) reveals their distinct workloads, capacities, needs, and scope for action. This makes it possible to plan training activities for times and seasons convenient to both sexes, while help with domestic tasks and child care may enable more women to participate." (Eade, 1997)

Outcome

It should be emphasised that getting views, opinions and conversations from the women of the village was uncovered to be a difficult task. Various factors such as; the lack of any English speaking women; having to go through the Elders to meet with them; the notion of what we are doing not being translated to them properly and the fact that culturally they are not involved in building – had all conspired against our efforts.

 On a chance encounter with someone who ran a "cultural centre" and hearing that he was capable of facilitating a batiks workshop; we made the connection and proposed getting the women of the village to one of these workshops. We had previously discussed getting the women involved through textiles – as they just don't seem interested in construction; and this would be a great way to achieve this. It should be noted that the person teaching and leading the workshop, was a woman from a nearby village, spoke the local language (Mandinka), who is considered an expert in her field. This decision to have this person as the workshop leader runs parallel to concepts discussed in Ideo's Human Centred Design Toolkit. Therefore, the workshop achieved meaning. The village women were provided with a lunch during the workshop, to make them more comfortable within the learning space of the workshop and in turn feel wider interessement in the project. Transport was arranged to and from the workshop and should took three hours each way, as the village is fairly isolated.

The workshop ended up taking the full day, during which they learned three difference techniques of the Batiks process: plain dying, fold-dying, and sew-dying. The day prior to the

workshop, we travelled to Basse to buy all materials and discuss the workshop with the workshop leader and venue manager. We settled on the structure of the day, taking in to account the plain material we had to hand (for dyeing) and the colour pigments available, and also the specialist pots, pans, and firewood.

The workshop leader, thankfully also spoke a little English. This being the case, we used this opportunity to capitalise on this fact. We had pre-prepared some questions and raised them in a fairly structured fashion at the very end of day, whilst the women are comfortable and engaged with the workshop. However, we did not get the results we had hoped for as workshop leader's English wasn't quite good enough to translate the questions. Unfortunately, we had to ask the owner of the "cultural centre" to translate for us, even though he was a man. The importance of women translators for interviewing women is summed up in the quote below:

"Although men may claim to speak on behalf of women (and children), if women are not consulted, their interests may be misrepresented, their work- loads increased, and their quality of life and social status undermined." (Eade, 1997) – However, being able to find another women translator in such isolation in rural Gambia just wasn't an option.

[See figure 6]

[Figure 6]

Workshop 3: Introduction to Rammed Earth

This workshop was planned as a good opportunity for everyone in the village to get a chance to learn. Adding to the Learning Prototype, which was starting to take shape, Erika and I demonstrated to the participants on the day the basics of rammed earth construction.

On the advice of our local contacts we decided to stage the workshop in the morning so it was not too hot. Again, the workshop was held at the site of the Learning Prototype, with the purpose being to convey the new idea of Rammed Earth construction to the participants. At present, they do not have much, if any, knowledge on the process this far, but they have tacit knowledge and skills which are easily transferrable. Again, this can be viewed as building upon

their existing capacities. For the transfer of knowledge to be facilitated, we experimented with the process with the purpose of constructing benches for the Learning Prototype. Again, this is using the Physical Learning Prototype to convey ideas in a full scale and relatable context.

In requesting some people to set up the formwork, whilst asking other participants to mix the dry sand and clay, and other volunteers to fetch water; we attempted a fair and responsible balance of roles. It was hoped that most people would have a role of some description, in order to keep up participant engagement. This notion of "hard-labour" versus more engaging tasks shall be further unpacked later in the chapter

Again, in attempts to keep all participants moving and engaged, when everything was set up and ready to go, we started asking people to shovel in the sand and clay along with water. In the meantime we requested others, using the steel tampers (we had fabricated by the welder), to compact the mixture within the formwork. This continued until the formwork was completely full. When full, the formwork was released and then moved up the newly hardened and shaped mixture, and the process is repeated until there is height enough for a bench. [PICTURE]

Workshop 4: Doedoe the Artist as a Local Expert

Planning

We made a concerted effort to gather everyone was even remotely interested to this workshop with Doedoe. Word of mouth seemed to be the only way to advertise the workshops; the majority of the population of the village cannot read. It was also an imperative that we acquired the agreement from the village Elders before any workshops out of the ordinary were attempted. It was an important part of their cultural hierarchy that the Elders (led by the Alkalo) were consulted on all arrangements. This kind of situation is backed up and explained in literature within Ideo's Human Centred Design Toolkit.

For this workshop, we asked him to go over the techniques he used to colour the rammed earth brick examples he has made. We then encouraged the villagers involved into making more example bricks with the pigments and clay and formwork we have to hand.

As with the rest of the workshops, it took place at the building site of the Learning Prototype and time-wise, it was held from early in the morning (7.00am) when it was much cooler.   The idea was that the women (fresh from their workshop in Basse) would have had a renewed interest in the project, as the workshop would contain colours and patterns too – relating back to the textiles. It was hoped that they'd make this connection between the textiles and coloured rammed earth wall, and provide an input.

Outcome

This was the first proper workshop with Doedoe, working on the rammed earth feature wall. Unfortunately, no women turned up, but we had a good number of people and of varying ages.

However, something very special happened on this workshop which was a real turning point; Musa and Sussa, who had been shadowing me and Erika in the rammed earth construction and who had become adept at the process, began to teach all the newcomers to the workshop! They had began on their journey of empowerment and chosen to self-manage – they were exercising their Capacities as building constructors.

Everyone began to pitch in brainstorming with ideas with regards to the formwork and different mixtures of rammed earth. A lot came from Doedoe, but others also contributed. Doedoe, directed the use of colours, bring the artist. The wall will feature a "hill design" to represent Gambias hills in a dusty sunset [PICTURE]. Doedoe was a fantastic influence in making us seem less "alien" and more relatable. He acted as a bridge between us and the villagers. So much so that the participants grew confident and started actively experimenting with colours and clays etc, without being prompted by Erika or myself.

Again the conflict of hard work (efficiency) versus engaging activities for participants arose. It arose not from complaints of participants, but in our observations of how the work was apportioned.

Workshop 5: Bamboo Weaving with a Local Expert

Referring back to Ideo's "Ask an Expert" and Chalmer's Rural Appraisal, this small workshop, really just involved the local artisan bamboo weaver. Usually in the practice of weaving fans, fences and beds; we asked him to experiment with weaving some metal frames that we have had made in Fatoto, with the local welder. He was given completely free reign to design the weave as he saw fit, the only stipulations being that the two must be difference and that they are to serve the purpose of dividers or the experimental shelter.

5.3 Navigational Actions as Seen from the Perspectives of the Approaches and Methodology

Using these same headers as the Literature Review and Analytical Frame chapters; the journey of how we carried out this Participatory Project is analysed within the framework of the aforementioned methodology and approaches. This exercise of this analysis shall lead to uncovering the design specifications of the concept.

5.4 Capacity Building

The project sought to encourage empowerment as it's main Modus Operandi. The project as a whole was orchestrated so that further down the line, the local population would be the true owners of the development, being able to monitor, analyse and alter the management of the vocation college once up and running.

Capacity Building is development with the view that local people can very much do things for themselves (Eade, 1997). True and effective Capacity Building identifies the existing capacities of the local population and builds upon them (Eade, 1997). Not only is it poor practice not to take the time to uncover these capacities, leaving them unaddressed can make the vulnerable even

more vulnerable, due to their capacities melting away with lack of use. The NGO design sought to address this by holding an early skill share work in which various building techniques were covered: different techniques being offered and learned by both parties. From the project's inception, it was decided that the project should be designed in such a way to discourage any dependency. This was achieved in a number of ways; democratising maintenance of the development by namely using materials available (and able to process these materials) directly on site (or at the very furthest away, in the closest market town), using building techniques the locals were (or will be at the end of project) skilled in, and employing local artisans (so the more skilled repairs required throughout the lifetime of the building can be performed by them).

Understanding the confusion between "emergency aid" and a project done in the spirit of Capacity Building (Eade,1997), the NGO design team took every opportunity to impress on the local people and local participants that the project was and is a long term one, and would be years in the making. Additionally, the concept of a "hand over" of the development was floated and implemented in a final meeting (for the author at least). The completed project would not be handed over completely to the local populous for a few years, after the last building is completed. However, it was recognised that these "hand overs" should take place at various points in the entire project, in order to keep local people and participants feeling like they have ownership. Latterly, as conscious navigational decision to sustain the notion of ownership over the project whilst both the Project Leader and I were absent, we suggested a timetable of self-completion for the experimental building (the Learning Prototype which shall be unpacked later). This could also be described as a device of interessement (Latour) in keeping engagement levels high with the local participants. It is hoped in the years to come that with the development having been handed over the local population and they are in management of the curriculum, they will "determine their own values and priorities" (Eade, 1997).

5. 5 Participatory Design Approach

First and foremost, the initiative was and still is a Participatory Project, employing a Participatory Design approach. Taking initiative from articles from the likes of Chambers and Ideo's Human Centred Design toolkit the first PD techniques put in motion were to employ a local guide; Musa

Jarra, our village Guardian. With his tacit knowledge of the village and the surrounding are, we were able to garner an insight into daily life that we would not be privy to otherwise. With Musa came his community connections; a prominent person being Nyama Susso who ended up acting as a translator for us. This enabled us to conduct most meetings in the local language of Mandinka (the official language of The Gambia is English, but in more rural settlements, the majority of people speak the tribal languages of Mandinka [also known as Mandingo], Fullah [also known as Pullah], Wolof, and Jolo, amongst others). In a way, these local people can be seen as vulnerable, as their opinions cannot be voiced as easily as most participants in a Participatory Projects for a number of reasons. It could simply be that they feel they cannot articulate themselves properly, or that as citizens of a developing country, their views aren't as valid as the views of a Western person. Either way, it was import for us to make the project as "democratic" (Brodersen and Pedersen, 2018) as possible as to make sure they were heard.

This tacit knowledge brought by Musa and his connections also enabled the NGO design team to be able to plan meeting spaces in such a way as to make them a comfortable, familiar and convenient to the people of the local population we required to meet with. Additionally, what also came along with having a "Guardian" in the village and surrounding area meant a relatively complete cultural immersion, including staying with a local family and in amongst other villagers for the full duration of the fieldwork. We also made concerted efforts to integrate into the community, for example watching football matches and attending funerals in amongst other things. This help us empathise with their needs.

 Structured interviews were avoided as per (Eade, 1997) and (Chambers, 1994). I didn't want to "scare" or intimidate the villagers with rapid-fire questions, which demand an answer there and then. Structured interviews simply weren't suitable for both the context of Kassi Kunda and the people who were to be the subject of the interviews. With interviews to be held with various people throughout the community, right from the youth, to the village elders (including the community coordinator), a much more casual structure of meetings was more suitable. During very early attempts to use prepared questions in a "time tabled" interview situation, villagers seemed very uncomfortable when "cornered" and the answers they gave seemed unnatural and rehearsed. Therefore, a gradual, less timetabled, and more casual form of discussion elicited the best transfers of knowledge from the villagers. This process took a lot longer than any timetabled and structured interview; but the nature of the trip enabled such a technique.

Although we tried our best to avoid the problem of men speaking on behalf of women (the risks of this highlighted by (Eade,1997) being that this can directly lead to their workloads being increased, their quality of life being diminished, and their views being undermined), frustratingly, it was an inevitability of working in that region of the Gambia. The problem being that (almost no) women of that region spoke any English, and if they did, it was definitely not conversation. The reasons for this have the potential to be myriad, and the problem is the basis for a thesis in itself. To compound the issue, in an area so inaccessible to reach and to reach other places, the chance of find a translator who was a woman was extremely unlikely.

This leads us on to another aspect of Participatory Design in which the project could have performed much better: in inclusivity. Namely, this was getting the women of the village involved in the daily workshops, experimenting with building techniques. The women of the village were extremely busy in their daily lives (on observing daily life through those months, it was noted by both the Project Leader and myself that the village operated purely on account of the work of the women) and it was understandable that they didn't have time to attend daily building workshops. Also, anecdotally, as deducted from conversation with the local people; it was a part of their their cultural make up that construction and farming (during the rainy season) were jobs assigned to men and the rest assigned to women. We did succeed in getting women to a handful of workshops in the month, but obviously it would have been better to achieve a better turn out. In an effort to sensitise the women to the building process, we arranged a Batiks workshop, so the women would be trained in fabric design, and during the course of the workshops, would produce several patterned curtains for the finished building. It is a local building vernacular to have thin, light curtains over each doorway of a building, to allow for privacy, but also enable airflow to keep the rooms as cool as possible. The notion behind this was highlight the connection of these door curtains to the building which will be getting built, and therefore pique the interest of the women in the project. The six women of the village who were chosen to attend the workshop very much enjoyed it and seemed engaged. This led to a temporary rise in attendance of women in the daily construction workshops, but it soon waned.

At these workshops and due their nature, we came across a particular controversy; how to apportion work. The work could be perceived as being in two categories: "hard labour" and "engaging". The nature of the building materials and techniques that were employed during the daily workshops meant that there was always going to be an element of "hard labour" amongst

daily tasks, but we had to be very mindful of getting the same participants to do it every time. We wanted them to be able to take part a lot in "engaging work" too, but if too many people were spending too long on that, who would do the "hard labour", which was vital for materials flow? It was a tough lesson in balance.

5.6 Boundary Object Theory

Drawing upon the work of Richard Edwards and how he emphasises Boundary Objects as a catalyst for learning, it seemed appropriate to apply this theory and approach to the "learning arena" we wished to create. As touched upon earlier in this thesis (and which will be further unpacked in the following chapter), we (the Project Leader, Erika Alatalo and I) had the notion that we wanted to create a learning environment with the local people and participants, to be able to share their tacit vernacular building knowledge and our (Western) building knowledge, and have a "reference point" (Brodersen and Pedersen, 2018) for discussions and negotiations about the project as a whole. It was also the idea, that the space created should serve as a conversation piece to initiate discussion with passing villagers and local people.

Not only that, by drawing parallels the specific nursing home case featured in the work of Brodersen and Pedersen (2018) in which they addressed the democratisation of a Participatory Project to include actors who could not express themselves verbally, we too wanted to "democratise" (Brodersen and Pedersen, 2018) the arena we wished to create. The reason being that, despite English being the first language of The Gambia, many people (both men and women) had little to no English and not only did they deserve a place at the table too – the workshops would not truly be in the spirit of Capacity Building or Participatory Design otherwise. Taking all these things into consideration, and mostly the fact that we wanted to experiment with material choices and techniques, exchanging knowledge with the local participants; it was decided that we should set about constructing an experimental building that would achieve all the criteria listed above. This experimental building, or Learning Prototype was to be smaller than the main building which was to be the main outcome of the project, but also fulfil a function on it's completion – rather than just be a learning project. It was originally thought that the Learning Prototype would solely function as a shelter, showcasing all the construction techniques and materials that was to be used in the main build. However, as time went on, and the local

participants saw the building come to life, they decided that it should be a new village Bantabaa (a local dialect term, which describes a village meeting point – usually a concrete slab for seating, under a tree for shade) because of the shade provided by it's arch and the seating arrangement. This can be seen to be perceiving the learning prototype differently, from the perspective of a different cultural background (Edwards, 2005).

Arguing that this Learning Prototype could be perceived as a Boundary Object, we are able to analyse how it was employed during the project through the lens of the work of (Edwards, 2005), (Edwards and Fenwick, 2010) and (Akkerman and Bakker, 2011).

Taking inspiration from Actor Network Theory a network was mapped to such an extent that we were able to identify the different groups of actors to investigate how to translate them (Callon, Law and Rip, 1986). The identification of these groups of actors was relatively easy: they were identified as the NGO Design team (Erika Atalatalo, the Project Leader and myself) and the local workshop participants from the village. There potentially be a third group: the local villagers not in participation with the daily workshops. However, as the project goes on and more participants arrive from Western Countries to work with this NGO, these groups might need to be re-assessed. It was with this incarnation of the network, how we perceived it at the time, that we strived to translate using the Learning Prototype as a Boundary Object.

According to (Star & Griesemer, 1989), we can assume that with sustained use and development, objects can continue to be effective, but the way they are perceived can potentially change over time. What this means in the context of this thesis is that the more a Boundary Object (as such defined later) is used and interacted with by participants and NGO workers; the more it evolves and develops as the network is translated through education, which brings us back to the work of Edwards and Edwards and Fenwick.

The aforementioned language barriers and the fact that the project as a whole needed to have a consensus on building technique and material construction can be described as "discontinuities" (Akkerman and Bakker, 2011) which needed addressed. Using the Learning Prototype as a point of departure, leaving these "discontinuities" open for discussion, negotiation, and compromise (Brodersen and Pedersen, 2018), this "sticking point" was able to be transcended and both

worlds were able to be aligned in agreement in terms of materiality and building technique for the main build.

Again, with reference to the works of Richard Edwards, the learning arena we have described is very much detached from "traditional" spaces of learning such as workplaces and schools. The Learning Prototype as used in the context of the village of Kassi Kunda is in fitting with his notion of transcending these traditional arenas of learning. As something that can be described as "stuff, a thing, tools, or an artefact", it fits his definition of Boundary Object or point of Boundary Crossing.

As mentioned earlier, this employment of the Learning Prototype as a Boundary Object was used to translate the knowledge of two worlds of actors and put them into alignment. This shall be described in more detail below, looking at the process through the lens of Matters of Concern and the later work of Latour and articles by Brødersen and Pedersen.

5.7 Matters of Concern

The purpose of the analysis chapter is to synthesise all the quantitative data from the fieldwork and distill it into concept specifications, and this particular section shall be looking through the lens of Matters of Concern by way of later Latour (2004) musings and Brodersen & Pedersen (2018) literature, Matters of Concern shall be used in this section as a way to describe how knowledge was translated and different worlds were and shall be, aligned. The fact that there were so many actors and this "pool" of actors was always changing. This means that the older theory of (Callon, Law and Rip, 1986); Obligatory Passage Point, as a part of Actor Network Theory would not have been suitable. In navigating these spaces and networks, the manager isn't taking something frozen, unfreezing and reshaping it, and then re-freezing it (Edwards and Fenwick, 2014); like in networks in where OPP Theory is applied. Both the Matters of Concern of the individual actors and of the project as a whole were represented in the concept specification (Brødersen and Pedersen) which will be outlined later.

As stated in the literature review, the learning space which we attempted to create had a roster of actors which fluctuated greatly from day to day. These varying and very different actors all each had their own ideas of what they wanted from the project, and hence their own Matters of

Concern. Through daily workshops and the more structured workshops, which punctuated my time at the village, their MoCs were aligned alongside that of the NGO design team, which in turn allowed the knowledge translation to take place, taking the perceptions of all parties from not really knowing what the project was about and what it wanted to achieve, to a general perception of where the project was going and how we would get there. The ultimate incarnation of this notion rang true when, at the end of the daily workshops, the Project Leader and I left the participants with the task of finishing the Learning Prototype as a purposeful Participatory Design navigational move. In our absence they had completed Learning Prototype on their own, demonstrating their knowledge of the building techniques and materials, but also showing their commitment and understanding of the project.

Similarly to the case described by Brodsersen and Pedersen (2018); there was a requirement to find other ways of gauging the opinions and therefore Matters of Concern of participants who otherwise may not be able to express their position. As mentioned earlier in the chapter, the language barrier was a real problem, and not only that, despite our efforts, there was always a sense we weren't getting their true opinions.

Dialogue spaces (Brodersen and Pedersen, 2018) were actively encouraged throughout each of the workshops. Usually, every person took part in the workshops had a say, whether or not they spoke English – Nyama usually was on hand to translate – we tried to create a comfortable and social environment which became more-so as the workshops went on. The transfer of knowledge was therefore constant and democratic. On daily basis, this meant encouraging discussion within the workshops as much as possible. For the more structured workshops, this meant talking through and planning them with the Project Leader, making sure they were spaces designed in accordance with Participatory Design as much as possible.

The designer and navigator should "steer" the project by way of facilitating and staging (Brodersen and Pedersen, 2018). As Designer working on behalf of the Nka Foundation, it was my job to navigate the spaces for learning and discussion. For the purposes of this section, and as described by Brodersen and Pedersen (2018), navigation can be defined as: "the ability to *navigate* the design process by *staging, facilitating,* and *learning from/synthesising the results* of engagements and interactions."

The learning spaces we sought to create were fluid in that they were extremely casual and democratic. Judgements could be made at any point and taken by either the NGO Design Team

or the participants. There was never a specific or timetabled moment for them to be taken. They could also be taken after the workshops, as topics arose, or people (Both NGO Design Team and local participants) felt they had ideas of where the project should be going. As the project unfolded, participants become more and more comfortable voicing their Matters of Concern. "Interestingly, these translations were made without the involvement of the elderly people with dementia or the nursing staff as they were initially only represented through the literature study and the challenges stated by the nursing home management. " (Brodersen and Pedersen, 2018)

Navigators of these spaces have the power to make decisions after dialogues and workshops. This role of designer and navigator advocates the use of "prototypes and other materiality" in Participatory Design sensitive projects. These objects enable the mediation of decision making processes and can act as a point of reference between different realms. For example between us; the NGO and the villagers. This new "reference point" (Brodersen and Pedersen, 2018) can be the point of departure for translation of either or both groups- intentional or not (Brodersen and Pedersen, 2018). Based on the outcome of a decision making or dialogue space, the overall concern of the project (Brodersen and Pedersen, 2018) can be translated.

Furthermore, "prototype ambassadorship" as coined by Brodersen and Pedersen (2018), entails the introduction and re-introduction of Boundary materials as they evolve to the "dialogue space" between different groups of actors. Alignment of Matters of Concern by navigating Participatory Projects using prototypes (boundary materials) to help navigate and create these dialogue spaces. Seeing prototypes (and other non-human actors) as boundary objects, allows an ability to track their development, and in turn, the decision making processes along the way. These "boundary materials" are able to address both the concerns of the individual, as well as the project as a whole entity and create a less designer-driven dialogue space (Brodersen and Pedersen).

 When we understand and digest the outcomes of the Navigational Decisions we took in and around the spaces of the workshops, we can start to see these outcomes as characteristics that can be built up in to a solution which encompasses and addresses all of these theories and approaches – like pieces making up a puzzle. In the next chapter, Discussion with Concept Outline, we shall see how these characteristics have influenced the formation of my proposed solution.

6. Discussion With Concept Outline

Following on from the Analysis chapter, we can now distill these experiences into design specifications; reflecting on my actions throughout the duration of the project through the lenses of the selected theories. The theories and approaches of Capacity Building, Participatory Design, Boundary Object and Matters of Concern have led me to compile the following list of design specifications for the Learning Prototype concept:

6.1 Design Requirements

- The concept should enable "hand over" as an implemented interessement device, taking influence from Callon, Law and Rip (1986).
- It has the potential to be evolved and shaped by the local people, during workshops and also after the NGO or project facilitators have gone.
- It should be universal, in that it can work in different country contexts (whether they be differences in culture, landscape, race, economic status etc.)
- There should be minimal use of English (or any other non-indigenous language spoken by NGOs or project facilitators) needed for it to be effective.
- It must be as accessible for women as it is for men.
- The Learning Prototype must facilitate the perpetuation and uncovering of local tacit knowledge – building upon already existing Capacities.
- The Learning Prototype shall overcome discontinuities (reference) to translate knowledge and allow participants the expression of Matters of Concern.
- They must be adaptable to fluctuating learning spaces (in terms of context and number and nature of participants).
- Learning Prototypes should make expression of position (Matters of Concern) easy for all participants, allowing them to be measurable.
- It must aid in aligning Matters of Concern.

6.2 Design Criteria

- It should be easily facilitated or incorporated into the project it addresses.

- It must instil local ownership.

- It should facilitate the equal apportioning of work (hard labour vs engaging).

- Learning Prototypes must act as "reference point" or point of departure.

- They must have the ability to be translated as the knowledge of the actors in the network also translates.

- They must translate knowledge between different worlds of actors.

- It must evolve with sustained use and development, as the actors/ participants knowledge is translated.

- It's use must give a sense of being "official", but in the same vein, keep participants relaxed and willing to voice their feelings.

6.3 The Learning Prototype Concept Outline

Taking into account these design specifications, I would like to propose a solution that addresses these points in the context of the Nka Project, but a solution that can also be applied to other contexts too. What follows is its introduction and formal description:

Evolving from a notion earlier in the project, whilst we discussed how to approach organising workshops, the concept of Learning Prototypes started as a workshop exercise in experimenting with materiality and building technique. We first wanted to experiment with different clays and methods of earth-building, but as we held this first workshop, it became apparent that there was more which the workshop participants and ourselves wanted to explore. We made a list of these various materials and building techniques we all wanted to explore further and mused on how we could cover all of these through workshops.

It was decided that, in order to cover all of these aspects, that a space in which to do these things in and have discussions around them must be created. By space, this is defined as a time and an environment for learning, which is facilitated around the subjects that the actors would like to explore. Therefore, we came to the decision to address all of these things in addition to the design requirements listed earlier in the chapter with an "experimental building", to try all

the different materials and building techniques with. This was in effect the first Learning Prototype, and a month-long experiment into whether or not this approach would be effective in these kinds of contexts.

Essentially, what is being outlined here is an approach, specifically for NGOs or other Project Facilitators in developing country contexts. What is central to this approach is a prototype of sorts, which acts as a Boundary Object (as well as fulfilling the criteria outlined at the start of this chapter), whilst being easily shaped by all project participants and providing a departure for discussions and decision making around the project. The approach isn't solely limited to projects in developing countries which involve building, but can be applied to other projects such as teaching, infrastructure and digital design. The aspect which will have to be a common denominator amongst these projects in order for the model to be able to be applied is an overarching need and want for Human Centred Design (or UCD).

6.4 Guidelines For Use of the Learning Prototype Model

- The workshops which the Learning Prototype can be applied to can be as long or short as the facilitator requires.
- The Learning Prototype is an object which every participant in the workshop is focussed on.
- Taking influence from Ideo's Human Centred Design, every participant is theoretically on the same level.
- Essentially, it is a way to model workshops.
- On selecting the object to be a Learning Prototype, it has the ability to be as simple or as complex as the workshop outcome requires.
- All participants have the ability to shape the Learning Prototype, including the facilitators.

6.5 Choosing the Learning Prototype Object

- An object which is accessible to all participants.
- An object which can be built upon to represent/ achieve the ultimate outcome of the workshops/ project.

- An object, which when interacted with, encompasses the techniques utilised to achieve the project outcome.
- The object must be easily sourced in context in which it is intended to address. Not only do developing world countries have problems with raising fund to buys goods, experience from our project with Nka Foundation made us acutely aware of the inability to even find a source many materials.
- The object must be open to uncovering capacities on the project subject matter – which any well chosen object naturally should do.
- An object which actively uncovers capacity – the participants' ability to be able to do things themselves.

6.6 Discussion

Why am I looking into how workshops run NGOs can be better designed? The truth is that many Projects akin to the one I was involved with are still being staged with no heed, nor notion given to the theories or approaches described in this thesis; the earlier Nka project being a prime example. For the sake of a concise description, we shall call them "poorly facilitated projects". Not only do these feature in the texts of (Eade, 1997) and others, but I didn't have to look far to see an example of one – as highlighted in the Analysis.

So, what would the outcomes be for all similar NGO projects to be facilitated responsibly, with research done into Participatory Design or Capacity Building approaches and/ or the employment of Boundary Object or Matters of Concern theories? It can be assumed, from the earlier definition and analysis of these theories and approaches in this thesis, that proliferation of correctly facilitated workshops will have outcomes extending to:

- The local population having more of a say in how NGO and other similar projects operate.
- The outcome of the project is more likely to be a design which is fit for purpose.
- People in all roles of the project shall be educated as it unfolds (translation of knowledge).
- All inclusivity: these projects shall strive to gain the inputs of both men and women.

- Local People will be more likely to feel ownership towards the outcome of these projects, which in turn lead to them being more inclined to provide maintenance and upkeep in the future.

- A change to labour force required to complete the project. It could be case that building projects similar to that which I was involved in will require no paid labour at all, and all work will be voluntary.

With all of this said, what I am trying to advocate with this thesis is the responsible facilitation of NGO building projects, by employment of Learning Prototypes as Boundary Objects throughout. Before how Learning Prototypes operate is revealed, what follows is a general outline of the criteria they fulfil in relation to the aforementioned approached and theories:

6.7 Learning Prototype as Boundary Objects in Spaces for Learning

In essentially functioning just like a large scale Design Game, they are able to bring groups of actors of opposing opinions in alignment. They enable a transfer of knowledge between these groups of actors through discussions around and the designing of them. They'll work particularly well if employed throughout the duration (but more importantly, near the beginning) of a project – which strengthens trust between the NGO and local participants (and population) as it allows for a display of ability for all parties.

Learning Prototypes will develop as you and your team go through and think things out practically and have the potential to serve as constant workshops. Taking existence from the Participatory Design applications to the project, they can allow an end-user to have direct influence over a project outcome. They can operate as interessement devices for getting larger groups of local populace involved.

Again, just like in the case of design games, Learning Prototypes are best being of low fidelity, meaning that they are perceived to be more malleable to the actor. A Learning Prototype could be as simple as marking out shapes or placement of the footprint of a building or designing a building by marking out the rooms first in string **[picture]** – as suggested by our participant,

Alieu. It is all about designing in a very literal and basic sense, with as many stakeholders present as possible. However, that's not to say that a Learning Prototype can have the complexity to cover all experimental techniques and learnings for a project.

More practically, Learning Prototypes act as preparation for a larger project, or idea. Learning Prototypes can give a sense of size and scale, but are also scalable solution. Learning Prototypes can also give a sense of the quantities of the materials, labour and general costs of the main building (or proposed outcome of the project).

[See Figures 7 and 8]

6.8 Learning Prototypes in Other Application Contexts

Learning Prototypes have the potential to be used in other applications other than solely for NGO building projects in developing countries. As they encourage very physical or literal learning – which is non-written and not necessarily verbal – it has the potential for use in situations where language or verbal communication is a barrier. This notion can be continued, and it could be speculated that the Learning Spaces created by Learning Prototypes could have the potential to work in education centres for people with learning and physical disabilities. It should also be noted that the use of Learning Prototypes is not affected by the age of participants.

6.9 Learning Prototypes As Boundary Objects

As stated earlier in the chapter, Learning Prototypes are to be deployed as Boundary Objects. The following points form a description of how both the Learning Prototype adhere to the Intermediary Object (or Boundary Object) requirements outlined by (Vinck, Jeantet and Laureillard, 1996):
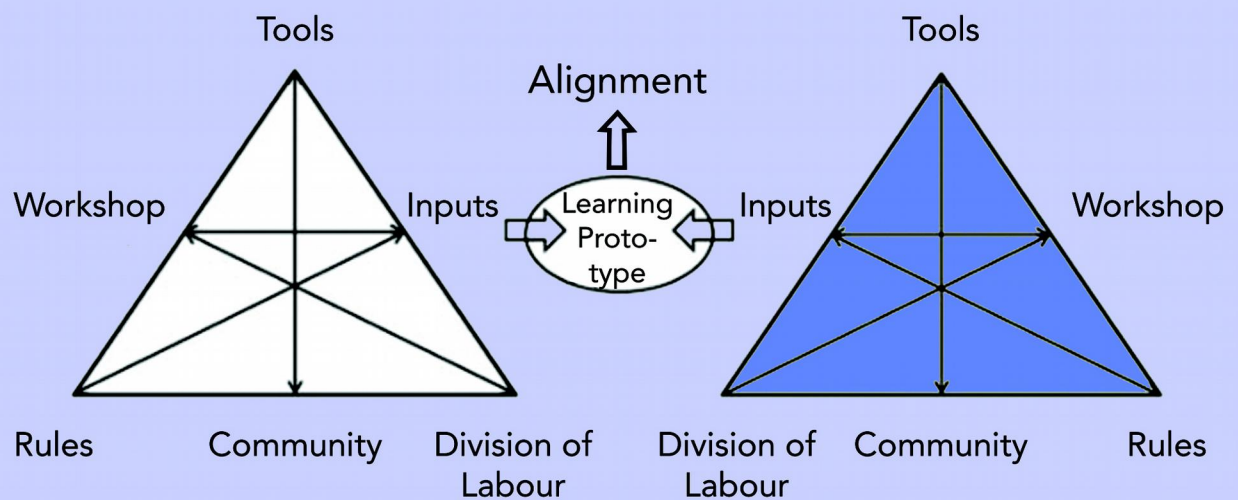
[Figure 7] Adapted from (Akkerman and Bakker, 2011) shows what two worlds in a learning space may look like.
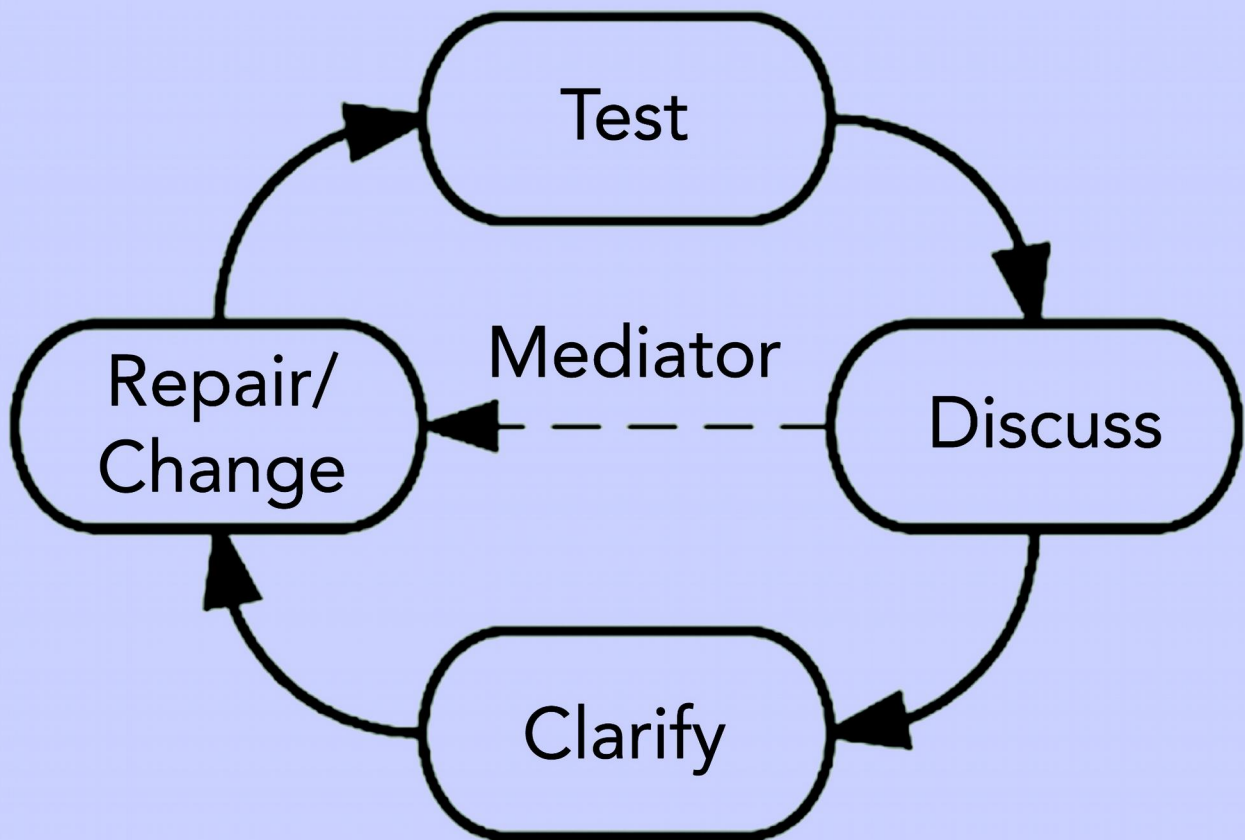
[Figure 8] show what the cycle of use of the Learning Prototype might be perceived to be like by the participants. The dedigner and facilitator is the Mediator. Adapted from (Nicolaysen Berntsen, 2015).

-Prospective representation. Intermediary objects are the mouthpieces of an object which is only being created. Representing is to be taken here in the strong sense of making present the object (final component) on which actors should agree:

The Learning Prototype creates a dialogue space by being a reference point, encouraging discussions around the project it is in place to aid. In discussions around the Prototype a general consensus is drawn, which can be seen as the translation of the knowledge of participants.

-Commissioning. Intermediary objects carry the intentions of their authors:

As a Learning Prototype, this device embodies the intents of the project. Therefore, it attempts to carry out the will of the facilitators of the project. Not only that, the Learning Prototype is intended to malleable enough to be shaped each participant of the any project is addresses. With a Learning Prototype like that described in this thesis, the scale and nature (being fully interactive and buildable) allows for this.

-Mediation. Intermediary objects betray and transform the intentions of the same authors:

It is inevitable that the Learning Prototype, as a Boundary Object, shall evolve alongside the translation of the parties involved in the learning space and will naturally take a form or design intention that is a long way away from what the original facilitator intended or envisaged. The facilitator of the Learning Prototype must be mindful and permissive of this evolution. This evolution can and should be tracked as workshops based around the Learning Prototype progress, so as to gather useable data for the outcome of the staged workshops.

-Prescription. Intermediary objects tend to impose choices and decisions on their users:

Choosing to integrate a Learning Prototype into a project actively encourages the creation of dialogue spaces which naturally lead to decisions to evolve the project as a whole. If a Learning Prototype is of the same scale and complexity as the one described in this thesis is employed around a timetable of regular workshops, then there are opportunities for discussion at any point during their duration.

-Facilitating interactions, confrontations and interpretations. They help compromises to be achieved but also local adjustments to be made when prescription is not too restrictive:

As we can see in the previous analysis chapter; the Learning Prototype and the navigational choices taken around it that are intended to uncover Matters of Concern, also in doing encourage negotiations, discussion and compromise. What this means is that during a workshop which includes a Learning Prototype, participants are encouraged into dialogue spaces, which in turn encourages them to state their position (their MoC), which naturally leads to the malleable Learning Prototype to be shaped (literally and metaphorically) by them.

Data garnered from the use of this methodology was for the most part qualitative and extremely insightful as it led to one of the main turning points of the investigation.

7. Conclusion

When taking a holistic view of NGO development projects in Developing Countries we can now see how the implementation of a Learning Prototype can be the catalyst needed to overcome discontinuities at boundaries caused by an inability to communicate freely or feeling confidence in expressing Matters of Concern.

Through the deployment of these Learning Prototype, particularly at a scale that all participants can be a part of, and ideally if the Learning Prototype has a perceivable meaning or use that the participants find relatable. Additionally, we can see from the literature after digesting the workshop examples, that it is not only the Boundary Object has to be paid heed to – the overall learning space and more holistically, the network arena, needs to carefully staged.

We can see from the cases brought to the foreground from the fieldwork, that a Learning Prototype can be as simple as the outlining of a building shape using string and pegs on site, it depends on the resources you have to hand, and in some Developing Countries these are sparse to nil. Furthermore, in experiencing first-hand the frustration that a poor managed development project, with no Participatory Design or Capacity Building framework, can bring – it becomes all the more favourable that these approaches must be deployed. Utilising a Learning Prototype can be a simple tool to achieving this.

Inspired by the guidelines and structured framework of Participatory Design and Capacity Building, the deployment of Learning Prototypes can aid the transfer of knowledge in a number of situations in which discontinuities exist. Also, in doing so, they shall instil ownership and encourage empowerment amongst the local population, instead of leaving them with the legacy of a failed project, compounding the feelings of powerlessness.

Drawing inspiration from Matters of Concern, instead of Obligatory Passage Point and Actor Network Theories enables this recommendation to be more suited to Developing Countries, as local volunteers to these kinds of Development Projects often have busy lives and other responsibilities, other than helping an NGO achieve what *they* think is best for the local

community. Achieving alignment of actors using Matters of Concern as tool of measure of their positions and a design inputs means that network which is in constant flux is can aligned.

When looking at all the NGO Development projects which are commenced in Developing Countries, Learning Spaces around Learning Prototypes should be staged and navigated carefully and responsibly to ensure their future success and the empowerment of the local people they are intended to benefit.

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Appendix – Daily Fieldwork Diary (unedited)

Day 0 30.03.2018 Interview With Doedoe and Arts Village Visit

Doedoe is the younger brother to world renowned Gambian artist Etu. Tunbung Arts Village, Tujereng was founded by Etu when he returned from travelling the world on various residencies. After Etu's death five or so years ago, Doedoe now runs the arts village. The reason that Erika wanted to get in touch with him was to explore a technique of rammed earth wall building which involves the use of layers of pigmented earth in colours (FIND PICTURE) to make a multi-coloured layer cake design. The thinking is, that to use a known Gambian artist (in a small nation - Gambia only has a population of around 1.3 million) and to include both him and villagers in workshops will evoke a stir and commotion about the project as a whole. Piquing the interest of villagers and inspiring them.

Doedoe kindly shows us around the arts village, which has various colourful rammed earth building and functional contraptions (PUMP PICTURE), and finally shows us a gallery with collections of Etu's artwork. His work is similarly colourful and involves the use of arcylics. Doedoe's work also employs arcylics, and it is from this expertise in these practices that we want to pull skills that can be applied to the rammed earth walls of the proposed building. Doedoe had been working on some examples of coloured clay/ rammed earth bricks which he shows us and explains at length his methodology (PICTURE). This inspires Erika to ask to come to the village to head a workshop for the villagers (SEE WORKSHOPS APPENDIX).

Day 1 Monday 02.04.2018

Straight into the mix of everything, we get introduced to the village Elder, who already knows about the projects beforehand, but we talk about what we would like to do and explain about the participatory design aspect. We note seeing three men at work, in the compound of the Elder, making a building from clay bricks. We are are introduced to Saloum, who is the community coordinator - appointed by the NKA Foundation. We also have an informal meeting

between us (Erika and I), Saloum, Musa (our guardian) and Yoroman Cessay who is a builder. Later that evening, Ali, the son of Musa and also one of the main builders, explains his exasperation about the previous building not being finished. We are also introduced to chargerman(?) who is not only able to charge our phones and laptops, but hopefully will be a great translator to us as his English is some of the best in the village.

We head off to Fatoto, a neighbouring town (we are trying to use as many local artisans as possible), to meet with a welder who can make brick forms and rammers (for pushing down the earth in rammed earth construction). We needs this for our first workshop (see workshops) on actually making clay bricks. We outline the designs to him and he sets to work. Later that evening, Ali, the son of Musa and also one of the main builders, explains his exasperation about the previous building not being finished. We also help fix the pump for one of the wells, by buying bolts with Musa showing us where to get them, but this is unrelated to the project. It today that we first have the "rainy season" controversy mentioned to us. Unfortunately for us, the villagers foresee problems in building with clay in the rainy season, for obvious reasons. During these season, if something needs built, then they would tend to use concrete. However, abstaining from concrete is part of some of the core value to this project!.

Day 2 Tuesday 03.04.2018

We head off to Senegal market by horse and cart with chargerman(?), Musa and a couple of others. It is extremely busy, but colourful and full of life. We get shown around a little and buy some provisions for the compound. Later in the day, we head off to Song Kunde to look for the local carpenter to make the shuttering, but on the way we end up having an informal meeting with some of the younger men of the village. One of them, Alieu Badona Sanja, is an extremely skilled builder, so we do our best to outline our first workshop and get his contemporaries on board also. They seem very interested and I feel that there is a great deal we can learn from them in terms of the brick making. The challenge of the aforementioned workshop is to test out the idea of an arch in clay brick. Perhaps alongside the participants on the workshop, we can work if it will work. It should be noted at this point that society here is very much patriarchal, and it really isn't my place here to initiate my views on the patriachy or feminism. Women seem to

bare the brunt of most of the work which makes the village actually function. Without meaning to, Erika and myself have only seemed to be able to get in contact with men with regards to our brick workshop. We do want these workshops to be all inclusive, but socially, most of the time the men only gather socially in groups with other men, and the women always seem to be working.

Day 3 Wednesday 04.04.2018

Erika and I get up early to go to the nearest biggest town, which is Basse. We head off with Musa, who is a great help in guiding us around and most importantly negotiating prices for us! Starting off from the village by horse and cart Our aim was to pick up tools, materials and equipment for the first workshop, which will be building the bricks to make up an arch. Basse is much busier than the surrounding area and we made our way to the carpenters to get timber a suitable size for the formwork. Being the largest town, pretty much all the buildings are still single storey and very much ramshackle looking. However, as is characteristic of Gambian towns (well, the three I have been to), all industries seem to cluster together, so finding what you need is easy and the buildings and street serve their purposes well for industry. After a few hours of various dealings with the carpenter, our wood is being planed smooth and having holes drilled into it, and we make our way to the hardware store in order to pick up the tools we need. Today, it is very much learned that travelling in Gambia can be really quite gruelling. After a the really quite pleasant horse ride and relatively smooth Gelly-gelly (makeshift minivan with extra seats welded in. Up to 26 people can be seated in these pretty standard-sized vans. The almost public (yet also private – any person, as long as they have some sort of licence can start a Gelly-gelly) transport system in Gambia really is quite interesting in it's complexity and it's consistent fare prices. It serves it's purpose well - all things considered, and could very easily be a thesis study in itself. Gambian society functions in spite of it's infrastructure. The roads are rough to say the least (at the time of writing, it is dry season, and that's when the roads are considered at their best). The materials we bought made their way back through the villages (much to our bemusement) on two different Gelly-gellies to ourselves. On the way back, it took us three and quarter hours to travel 42km, taking the horse and cart the whole distance would have been

preferable in my opinion, and also marginally quicker! Now that we have the materials to get us started, we can really start planning the first workshop.

Mandinka words learned:

- Be – today.
- Be becandere – today is hot.

Day 4 Thursday 05.04.2018

In the morning we have a meeting with the carpenter discuss the planing of the sides of the timber we have, so it fits together tightly, to make an effective formwork. This will enable us to do the workshop on Saturday (or if not then, then ASAP). Musa also collects the finished metal brick formers from Fatoto, so this also helps.

We discuss more ways in which we can involve the women in this project, with it being such a patriarchal society. It is decided that we should try to spend the day with them in the community garden, in which they spend the dry-season days working. The problem is, for whatever reason, it seems to be the men which speak any English.

The village Elders have discussed amongst themselves what we are doing, and give the go-ahead for us to continue and to ask them if we need anything that the community can provide.

We have an evening meeting with the main builder, Alieu. He's clearly extremely knowledgable and adept at his work. We really need to keep him on side. He goes through everything that needs done to complete the existing unfinished dormitory, including costs and timescales. More is unearthed about the controversy regarding the payments of the NKA Foundation. We take all of his advice and tell him that we'll give him the go-ahead to complete the building once Erika can confirm a source of funding for the remainder of the work.

The list of work needed to complete the building is as follows and shall cost 10,000 Dalasi: there needs to be an extra 3 rows of brickwork to the top of the building; the floor needs to be finished with a concrete screed, the roof trusses need to be cut in two for transportation and attached, the plasterwork needs to be done, the bathroom needs to be finished and tiled, the soakaway pit for the bathroom needs to be dug 1 metre deeper to a depth of 3 metres, squared off, concrete blockwork needs to be applied and a concrete covering created; and roof sheets need to be affixed.

Day 5 Friday 06.04.2018

Our day starts with an impromptu visit to meet all the Elders, some 20-30 men, and it was a both very encouraging to see that they wished to discuss our roles within their community, but also very intimidating. Again, the Elders reiterate that, if we need anything from the community, we just need to ask and "not hide away". We also express to them, that we want to serve them, and we would like complete honesty about their opinions on the building, which is unfinished and also how're we're doing on the new dormitory building. We also emphasise how we want to gather EVERYONE who would be interested in the brick making and wall making, and that was to include women as well.

The carpenter comes to do some work on the formwork for both the workshop and the actual building process. He hand planes the sides of the planks that make up the shuttering and drills holes for the threaded bar which will hold the two sides of the shuttering together [SEE SHUTTERING PICTURES].

Erika has come up with the idea of making a shelter as part of the workshops [SEE PICTURE OF SKETCH UP MODEL]. It is hoped that this will make the workshops more "tangible" for anyone who decides to come. They can see something which we are working towards.

We head to Fatoto to see the carpenter and welder about getting beds made for the unfinished dormitory, in order to create a space for the workshop volunteers to have a place to sleep. The carpenter says he won't have time to do the beds as his helpers are only very young. We go to

see the welder, the same who made the roof trusses, and he agrees to make the 16 we need. He gives us a quote for 3000 Dalasi per bunk bed.

Tomorrow we may have our first workshop, but we're skeptical anyone will actually turn up. We shall go to site anyway, and see if anyone turns up.

Day 6 Saturday 07.04.2018

The first thing we do today is get the carpenter over from Song Kunda to finish his work. We've asked our resident translator and chargerman, Souso, alongside our NKA Foundation appointed Community Coordinator, Saloum (through Musa), to spread the word around about our first workshop, which will be as follows:

- An introduction of ourselves and why we are here, and we'll get them to introduce themselves with an explanation of why they're there also.
- An introduction of the project overall, and what the project is trying to achieve.
- An introduction of the exact building we propose building and why.
- A look over the sketch Erika has prepared, alongside explaining what the series of workshops are about.
- A glance at the an example of an arched earth building as a reference point for all the workshop participants to get an idea of what the building could potentially look like. (We did have a discussion about showing them a drawn up example of an earth-arch building might be somewhat of an influence, but we both agreed that some sort of point of reference would be important.

Unfortunately, at the first workshop the only attendees are Erika, Musa, Souso, Saloum, and myself. Saloum explains that the reason for this is that we scheduled our workshop at 5pm, which is during football time! All the kids were on the football field. However this does not explain where the adults were. Therefore, we ended up discussing where the shelter, which we will complete as a result of the workshops shall go. We end up agreeing on as close to the road as possible (which is to the south of the site), facing north. All along a central-ish line. We then

agree with Saloum to hold the workshop the following day at 8 AM onwards and he shall gather interested people for us.

Rather encouragingly, and older woman of the village comes up to us and says that she shall be attending the workshop in the morning, but we cannot tell if this is a joke or not...hopefully not!

Day 7 Sunday 09/04/ 2018

Today was the day we were supposed have our first workshop. However, only a handful children turned up, not our target demographic. We set up our "site office" in order to be more "seen" and have a consistent presence – intended to create intrigue. We had set out to create an introductory workshop, outlining who we were, where we were from and what we intended to do. It is hoped that even though it was only a handful of children that showed up, perhaps it might create word-of-mouth around the village. It is hoped that the next workshop will get people hooked.

Day 8 Monday 09/04/2018

Today we went off to Basse again in order to buy white lime and get Erika's visa extended. Our conversation turned again on how get the women involved. We discovered that (after general conversations in the compound) that we really cannot just turn up at the garden to talk to the women. Not only that the hierarchy of the village would not allow for it. Everything must be done through the elders and we must be sensitive towards that.

On getting to Basse we wonder around, head past the immigration office- which was an experience in itself, and tried to find a specific cafe which we had read about in Lonely Planet. It just so happened that this place is called Traditions and is also a cultural venue, and the proprietor was capable of putting on workshops. On hearing what the mana was capable of putting on, he told us of a batiks workshop. It was then that we made the connection...we shall get the women of the village to one of these workshops. We had talked before about getting

the women involved through textiles – as they just don't seem interested in construction; and this would be a great way to achieve this.

On another note, it should be reiterated that getting views, opinions and conversations from the women of the village has been uncovered to be quite a difficult task. Various factors such as; the lack of any English speaking women; having to go through the Elders to meet with them; ideas of what we are doing not being translated to them properly and the fact that culturally they are not involved in building – have all conspired against our efforts.

Day 9 Tuesday 10.04.2018

We had our second workshop today and around thirty people came, a good mixture of men, women, and children. This was a fantastic opportunity for us to tell everyone about what we were doing, introduce ourselves and the project, through our interpreter, Souso. We explained about the building we would like to create (with their input) and the overarching project.

We gathered a group around us -anybody who was immediately interested- and started with the first task of marking out where the building would be. This was done, so everyone would be able to see the scale and placement of the building. Around about this time, most people who had gotten the idea about the project, but didn't want to construct that day left. This left us with a core of mostly young men and a few children.

We then got to marking out where the aforementioned "shelter", which will be used as an educational tool for experimenting with materials and techniques. Consulting with the people there, namely Ali, we decided together the placement and aspect of this shelter. From there, the foundations were marked out and dug and others we tasked with making a sieve for the soil for making the clay bricks. The whole workshop took from 0800-1230 and it has been decided it will be repeated daily in the mornings, with the consultation of Salifu, Alieu, and Saloum.

The previous day, Saloum had spoken to the Lead Woman, and let her know about what was happening. Hopefully, we'll get to meet her soon.

Has the focus of the thesis shifted? Will it be on the subject of participatory design with women in developing country contexts? We will need to look into the possibility of a female translator close by, as she will mot probably have tacit knowledge on the culture here. Perhaps this may form a chapter of the thesis.

Day 10 Wednesday 11/04/2018

The second workshop, is usually a bit of make or break time. We began the day at 7am, unfortunately it was only ourselves and Musa present. We decided to press on regardless, as we worked, more people joined by midday. After that, we had a good seven participants. We thought it would be good at this point to document them:

- Salifu Fatty (32). A driver and builder.
- Saloum Drammeh (33). A volunteer for the village, woodworker, and builder.
- Haronah Sanneh (25). A commodities traders.
- Ibrahim Sanneh (24). House painter.
- Tamba Sanneh (36). House painter.
- Sarja Sanneh (35). Mason, builder, driver, and security guard.
- Musa Jarra (38). Guardian of village visitors.
- Mohammad Fatty (Grade 3). Schoolboy.

All participants said that they wanted to be a volunteer for the village and they were just generally interested in what we were doing.

During the workshop session, more of the foundations were dug, with a deeper edge [IMAGE]. Due to the materials available to us on site, the foundations are to be compacted gravel (which will stop the earth moving around underneath the building) with a concrete topping to seal the surface and provide an acceptable floor for the "shelter". This process involved going out into the bush and digging earth with pickaxes and transferring it back to site by spading it into a wheelbarrow. Back at site, the dug earth was then filtered with the use of the earth sieve they

made (this is quite a regular tool that they use for construction, therefore the participants had Tacit knowledge on the tool) and split into clay sand and gravel. The clay sand was spaded onto plastic to keep for bricks later, and the gravel was laid and compacted into the void for the foundation. The workshop was ended by around 2.00pm.

Later in the day, we talked to Saloum regarding getting in touch with the Lead Woman/ the Woman's Council. He said we'd hear from them on Friday about the Batik workshop which should happen at the weekend.

Day 11 Thursday 12/04/2018

We had our morning workshop as usual (we are making a point of trying to be in the same place at the same time most days) and again it was only Erika and I there (Musa was away the morning to vote in the local elections).

We worked for a couple of hours, pickaxing the earth from the bush and transporting it back to site for filtering. Whilst we were filtering the earth and adding the gravel to the slab foundation, a woman came up to us. She spoke, but she was speaking Mandinka, so we were unaware of what she was saying. She automatically started working with us, and it was clear that she knew what she was doing. This means, that our earlier assumption of woman not being involved in construction was debunked! Or, it might relate back to what Souso was saying about the woman being involved in making the foundation for the unfinished building?

During the evening, I had a long talk with Souso. He told me about farming in the area and how he came to be back at the village. At 33/34 years old, he isn't much older than me. We covered how they ploughed as soon as the rains start in June, and they do things the old fashioned way, with horse, ox, or donkey driven ploughs. There is a tractor in Fatoto, or in Koina 8km away, but they only use this to the end of the season, when the owners of the tractor have done their own land and the ones close to them. We talk about building styles and I ask about even though the thatch roofed traditional huts are cooler in the months than the more-seen corrugated iron roofs on more recent builds. He replies that the corrugated roofs are more durable as the thatched

ones need replaced every 3-5 years. He says that these days it is mostly the elders who live in the small thatched hut dwellings as the bigger dormitory buildings you see in the village nowadays are more space efficient for a compound and due to the size of their roofs, they can only have corrugated roofs.

Day 12 Friday 13/04/2018

Physical Working Prototype as Boundary Object

- Brings parties of opposing opinions together.
- A large-scale Design Game?
- All parties learn.
- As Alieu said, designing a building rooms first?
- Can equally low or high fidelity.
- Enables direct transfer of knowledge both ways.
- Can be as simple as marking out a shape/ placement, or even a fully functioning building that covers all experimental techniques and learnings.
- Can create alignment with all parties through designing together.
- Strengthens trust between NGO and local people as is displays ability of and to both parties.

Physical Prototypes as Participatory Design Learning tools (characteristics)

- Writing about specifically for building in NGO context?
- The prototypes develop as you and your team go through and things out practically.
- Their fidelity is neither/ can either be high or low, as they're created in contact with the end users.
- Boundary/ intermediary object? Check literature to see if this fits?
- Existing through Participatory Design.
- Direct contact with user.
- Learning tool.

- Constant workshop.
- Preparation for a larger project, or a larger idea.
- Interessement device for getting larger groups of people involved.
- Gives a sense of size and scale, but is also scalable solution.
- Can give a sense of materials/ labour/ costs of main building/ concept/ idea.

Physical Prototypes As Learning Technique and Other Applications.

- Can be applied to younger students.
- Potential use in Education Centres such as Garvald for people with severe learning disabilities.
- Potential use for in educating non-english speakers in english speaking countries.
- It's non-written and not necessarily verbal.
- Potential use with outdoor learning.
- Encourages problem solving.
- Literal learning.
- Potential use with younger students.
- Speak to Alix and Jeanette.
- Assisted learning in both higher and primary education.

Sunday 15/04/2018

- Tense an quiet to start off. Workshop leader as 1-2 hours late!
- People quite nervous to begin.
- Workshop seems to start with very little dialogue.
- Continues this was with mostly physical instruction.
- People begin to pick up in spirits, feel more at ease, and chat and have a laugh.
- The workshop remains mostly non-verbal throughout.
- As well as demonstrations, there are groupwork/ teamwork elements.
- Does this lead to empowerment? The idea is that the women will become teachers after this.

- Do they see the connection? > Would they like to attend the coloured earth wall workshop?

- Workshop 9am-4pm

- Video and written description provided for them to refer back to.

- Talk of two more workshops, so the women can get a certain certificate enabling them to have a business loan in future. [However, is this just furthering Solomon's agenda, or do they really need it?]

- How do we combat this notion, of saying "yes, everything is just fine"?

- They did actually look as if they were engaged, and were laughing and joking as the fabrics were unravelled after the tie-dying process, revealing the final designs.

- Apparently, this lack of criticism will only die with there being trust. How can this be built up?

- Is there some sort of performance we can effect, which will leave ourselves completely open criticism? How can we achieve this?

The workshop was carried out as follows:

i. Dying cloth cut up into portions.

ii. Demonstration of a sewing technique to "rouche" up the fabric.

iii. The basic dying of plain colours.

iv. A folding technique of cloth.

v. The dying of the folded cloth. It takes three separate mixtures of dyes, can be dyed one mixture at a time, left in the dye for 15mins.

vi. The dying of the sewn "rouched" cloth, which takes 7 minutes per dye mixture.

vii. The dying of a cloth which has been pleated and then bound with thread. @ colours of mixtures of dyes which take 40mins each.

viii. A "ruffling" technique is shown and the dying technique is shown, which takes 28mins.

ix. A group tying technique is shown, which is then dyed for 7 minutes.

x. Finally a gum-dipping technique is shown, to keep all the dyes fast. The fabrics are then beaten for some reason on a big log.

Questions and Answers:

- This is linking for a better development for the future (?)
- Fatima – Happy, when hearing about the project, they were happy.
- They welcome the idea, they just need to convince the men in their compounds.
- When they go to the workshops they feel sensitised to what we are trying to achieve, apparently.
- Musa gives us a summary – from the villager's perspective – of the project; Barthosa approached the elders with this overarching project, the NKA Arts Village project, villagers are reluctant to actually sell land, a farmer/ land owner gives land over to the projects on goodwill, a trust gift of the land, now our Modus Operandi is get it completed.
- When asked if there were other factors which would prevent them participating in any other of workshops, they replied that they didn't understand what the workshops were all about. They didn't understand what the overarching project was about either.
- Solomon claimed that they were asking for workshops on the tie-dying process, but is unsure whether this is just to further his own agenda.

Monday 16/04/2018

In the scheme of things, this was quite an uneventful day. We went to work, putting together the formwork in preparation for the main rammed earth workshop on Wednesday. Unfortunately no-one turned up on site to help us. A bit disheartened by this, we later on had a meeting with Saloum, asking how we can encourage more people to come to our workshops. Unfortunately, he didn't provide us with any concrete answers, but assured us he had told as many people as possible about our workshops and the benefits (education) of going. We notice that people out constructing for the day would drink tea constantly, so we thought this may be something we can introduce into our workshops. A cultural understanding.

Tuesday 17/04/2018

Again, another quiet day. We have Haronah and Salifu join us to volunteer. We're sift the earth in order to obtain sand, vital for tomorrow's workshop. Between the 4 of us, we manage to sift around a tonne and a half by hand, chatting whilst we do so. Haram and Salifu, tell me of the difficulties they face being younger men in africa, and what kinds of things stand in way of their progress. The main one being education. They know they need to get education, but out here in rural Gambia, education stops at 17 years old and goes no further. Haram has a brother in Germany, and wants to go Germany himself to learn. Many people see a move to Europe as the golden-ticket to a better life. Haram also has two other family members in Europe, and they regularly send money back to the village. Salifu has travelled around Africa doing different jobs and gaining many tangible skills. This is place, he says, of schooling. Back when he was younger, the highest schooling you could do would be at the tiny Arabic School in the village. This school only goes up to a very young age. He states that many intelligent young people cannot progress because of lack of avenues for education. However, feels that with the building of a proper road nearby, by a Chinese Aid Organisation, shall open things up for the area, and make access to higher education much easier for young people in the area.

Wednesday 18.04.2018

Today was the day we tested out the rammed earth for the first time. We had quite a high turn out of women, men and children in the beginning, and they all helped with the putting together of the formwork. However, numbers greatly dwindled within about half an hour of actually doing the rammed earth. This was put down to the women having lots to do.

On another note, the point was raised today on the value of having a completely impartial community coordinator, as there were concerns that Saloum had more of a bias towards the villagers. The importance of this being that the organisation (NKA) is able to get a good deal on transactions throughout the project, what with it being a charity after all. The case in point, was the commissioning of a group of village builders to complete the soakaway (for sewage from the new building) and square off the corners and edges. Salifu, who wanted the contract, quoted 8000 Dalasi. Considering 10,000 Dalasi was needed to complete the entire building, it was felt that this figure was way too high. Saloum talked with Salifu and said that he could get the figure

down to 5000 Dalasi, but again, this was too high. On speaking to both Musa and Souso, and a community coordinator from another village, it was agreed that 3000 Dalasi would be a fair price.

- The idea of doing this kind of role as being a "game of logistics".
- The idea of being so uneducated that people are wary of coming out to our workshops to gain any knowledge. The people in the community who have said this separately are Souso, Saloum, Ali, Kamang and Salifu.

Thursday 19.04.2018

Today we made our way to Basse again. Not having very much to do there, we went to the ATM (the nearest one, and only place to get money if you run out. Basse being 2 and a half hours from Kassi Kunda) and then just waited for Artist and our new collaborator, Doedoe.

How are non-PD NGO Projects Shaping the Way People Respond to PD?

- So many projects with no say.
- No PD before (it wasn't so widespread in the past). Colonialism, traditional "white man knows best" etc.
- Seen as hand-outs.
- Lack of ownership from local populations; which ultimately leads to the disuse of the project.
- Feeling of powerlessness for local people.
- How will PD change the shape of AID and these Projects?

How Can PD Change the Way NGO/ Aid Projects are Operated?

- More of a say for local people.
- Design which should be fit for purpose.
- People get educated along the way.
- People more inclined to provide upkeep for the building.

- All inclusivity.
- Local People have ownership.
- A change to labour: perhaps not just the use of contractors, perhaps no contractors at all? All local volunteers who are willing to learn?

Friday 20.04.2018

On returning to the village, we hydrate quicklime in preparation for the new bench building. This time we're trying rammed-earth mixes with lime and cement, to experiment how these come out. As mentioned before, building the "shelter" is just a series of trials and experiments.

Before we actually start work on the rammed earth experimentation via the bench, we take another look at Barthosa's unfinished building. This is because, like so many other people in Gambia, Doedoe has extensive building knowledge.

On examining the unfinished dormitory, it is unearthed that the building isn't safe in it's present state. It needs reinforcements. Through conversations with Doedoe and Erika, it soon transpires that Barthosa had an argument with the main mason on the project (Alieu) about how the columns and walls were constructed. Ali, the mason, stressed that they had to be interlaced and the building as a whole would be unsafe otherwise. However, to reasons only known to himself, he specified the bricks between the columns and walls not to be interlaced (as well as making the walls too high [see Barefoot Architect], meaning that in both Doedoe and Ali's opinion, the building is not safe. The complete opposite approach of PD!

Doedoe rate the building strength at about 30% and gives it 1-2 years standing, without bog improvements.

Why has Barthosa chosen to direct his build in such a manner? Additonally, during a onversation with Souso, it transpires there was another controversy between Barthosa and some youth he had employed to make bricks for the build. The youth who were digging and forming the bricks found the deeper they got, the harder it became, and the longer they took to make. Barthosa

said that he didn't want to change or extend the brickmaking site, so they had to continue digging deeper. As a result of this, the youth asked for 5 Dalasi a brick, instead of 3. Barthosa denied this, and therefore, there was a shortage of bricks for the mason and work ground to halt.

I'm not sure if the idea of what we're trying to do, has gotten across 100%, as information as always 2nd or 3rd hand.

We have problems with getting the correct number of people to attend. There are times that too many people turn up and then there isn't enough to do. That leads to people being idle on the project and getting bore and ultimately leaving, not having enjoyed themselves.

Saturday 21.04.2018

This was the first proper workshop with Doedoe, working on the rammed earth feature wall. Unfortunately, no women turned up, but we had a good number of people and of varying ages.

Something very special happened on this workshop; Musa and Sousa, who had been shadowing me and Erika in the rammed earth construction and who had become adept at the process, began to teach all the newcomers to the workshop!

Everyone began to pitch in brainstorming with ideas with regards to the formwork and different mixtures of rammed earth. A lot came from Doedoe, but others also contributed. Doedoe, directed the use of colours, bring the artist. The wall will feature a "hill design" to represent Gambias hills in a dusty sunset.

Doedoe is a good influence in making us seem less "alien" and more relatable. He's a bridge between us and the villagers.

The conflict of hard work (efficiency) vs engaging activities for participants is raised.

Sunday 22.04.2018

We discuss ways in which to get the volunteers integrated into the village when they'll be working on the main building, as the plan was to get them housed at the newly (hopefully) domritory on site. Doedoe mentions putting one volunteer in each compound, so they are spread equally throughout the village and being properly immersed in the culture.

Monday 23.04.2018

More on the rammed earth wall. Again Demba, Sajar join us, but Kamang's brother joins us too. The wall is really taking shape and people really know what they're doing. They know better than me at least.

The concept of everybody leaving the village that is educated. And the problem that nobody uneducated feels confident enough to gain more education.

Doedoe mentions that women are better at mobilising groups than men. As he puts it: "They'll always sit on the corner drinking green china."

Tuesday 24.04.2018

I make my way out to Basse in order to pick up the Community Development Officer, Solomon, in an attempt to get him to speak to the villagers and convey our message to them more clearly and further reinforce our relationship with them.

So far, Doedoe has been our best interpreter, and even his grasp of English is a little rough in patches. Solomon is a bit of an Orator and has background in mobilising people of the Gambian community with his work in the past as a Forestry Officer. Often he would have to get many villagers nearby to forests needing maintenance or conservation, gather them and motivate them to carry out voluntary work to achieve a common goal.

Another topic which Erika and I have discussed, is the problem of how to integrate the new influx of volunteers into the village. The volunteers will be housed in the newly completed dormitory out on site, which is around 5-10 minutes walk out of the village. Compared to the experience both Erika and I are having; staying with a number of families in a "compound"; theirs will be much less integrated if they even just that short walk away. Not only that, and perhaps more importantly, we are anticipating the problem that the villagers might be less inclined to "drop by" or get involved with the macro project. Using Solomon as a "bridge" for the linguistic gap between us and the villagers – not to mention the tacit knowledge and sensitivities he has of the local area – we hope to elicit the knowledge of what the villagers might need. With this information, we can integrate some sort of aspect of the overall design of the development which will encourage the villagers to make the journey out to site.

Thursday 26.04.2018 (After two days out in Basse)

After a two day stay in Basse, I returned to Kassi Kunda with Solomon. We fixed his motorcycle in return for a few day's work from him, which probably isn't an advisable move – just paying straight cash would have been a lot simpler and probably cost less. I'm not too sure how much I trust Solomon, as he is constantly asking Erika and I to buy things for him. However, I'm hoping his credentials prove true and he is what he says he is. He claims to be a Community Development Officer, having worked for a forestry aliance.

On arriving to the village, Solomon actually doesn't disappoint. Within half an hour in being in the village, he's managed to call together a meeting of 10 people (inluding ourselves):

- Musa
- Souso
- VDC Chair
- VDC Vice Chair (Salifu's Brother)
- Women's Group Leader
- Solomon
- Fatima (Women's Group Vice Leader?)

- The compound Elder

Solomon also made us aware of the VDC (Village Development Council), the Youth Council, and the Women's Group (which we already knew about) and perhaps some other community council. He has already maanged to get a big meeting together with the leaders of all these smaller organisations tomorrow, along with the Alkalo.

He also stressed the importance of bringing Kola nuts to the meeting with the Alkalo and the Imam – which was true, as they said a prayer and performed a small ritual on receiving the Kola nuts. This aspect of their culture would have otherwise totally by passed us. These are yet more reasons as to why it is important to have someone with plenty of tacit area knowledge on your side. He has also stressed the importance of giving lunch (or payment for lunch) to the volunteers and as a way of continuing to gain their attendance. He claims it makes it just worth their while as they could stay at home and not have 100-200 Dl for the day's, or come volunteer and learn and earn than money.

Other things highlighted today are that if we work past lunch on a day workshop, our volunteers will not eat until dinner at around 8pm. This is because, when they eat, they eat communally out of big bowls and if they are not present, none is saved for them. This was highlighted by Doedoe.

Again, Erika highlighted that even though we have two steady volunteers, they aren't entirely sure why they are there. We need to convey to them that they are here to learn and potentially teach the international volunteers when they come to build the bigger, main building. They seem to think that we just need them for the purposes of labour, but we genuinely do not need them for that. We need them to learn.

Friday 27.04.2018

Solomon did disappoint. He woke us at around six in the morning to say he wanted to leave. Which he can't, the vans back to Basse leave earlier than that. He claims that his "work here is

done, and it is up to the village to decide"; which is nonsense as it simply will not look good to the village for someone to arrange a meeting and then just vanish. He wanted to go to Fatoto anyway for some reason, but I expressed my disappointment in him and he eventually changed his mind. However, once the meeting is over and he can go home in the morning, I really don't think we'll be calling upon his services again.

We all ventured up to site and proceeded with working on site for the day. There was a good turn out of volunteers and everyone was working well together and joking around. The two walls to support the arch went up, using clay bricks with clay mortar. Meanwhile, I mostly sifted clay from the earth dug out for the soakaway. Solomon joined in for some of this.

Later on, I was invited to a football match. I felt that I should go as it would make me seem like I was more interested in integrating with the village. However, soon I had to leave to attend a meeting with all Elders and the Alkalo. Here are the minutes:

- Is there an Elders/ youth barrier.
- Solamon iterates that the project is for everyone in the village.
- "The welcome the idea of the project" - They will brainstorm questions about the VDC.
- "Kaffo" - youth kaffo.
- VDC isn't as strong now.
- They need to be careful about holding on to this development and not miss this opportunity.
- Each compound will try to sensitise their youth.
- They're positive about general development for the village – the project as a whole.
- They recognise that they need to cooperate more.
- VDC has lost village. But they will take charge of projects.
- 20-25 compounds.
- Every day they will try produce 10 participants.
- Imam says the weakness of the VDC isnt just the fault of them, but of the entire village. If they try hold a meeting, nobody turns up.
- Perhaps "officialness" is a factor.

- The meeting becomes more about the reinstatement of the VDC.
- Decends into argument about VDC.
- Idea of dividing village into two – half providing youth one day, other half the alternate day.
- Break for prayer.
- Apparantly, the government has VDC incentives – agriculture and development.

Saturday 28.04.2018

- A lot of people on site, making concrete blocks for soakaway etc.
- Start made on archway, consulting heavily with local masons on the method of construction.
- Start of the new organisation of people by the Alkalo and the Elders.
- Definitely more volunteers, but not as as many as ten.
- I start to wonder when it might be appropriate to leave and to make sure that people know we're both leaving, but Erika will be coming back with more volunteers.
- I need to leave for practical reasons such as thesis writing.
- Should I stay for the meeting, or design the meeting with Erika and leave a little earlier?

Sunday 29.04.2018

Today we discussed the handover meeting further. I am anxious to get writing my thesis properly , but know the value of us both leaving at the same time. Keeping people of the village posted with what is happening, and making sure that they don't feel deserted. Therefore, the handover meeting is going to take place, precisely to stop this feeling of desertion. Topics discussed during this meeting will be work needing done (we purposely made sure the learning prototype was incomplete so the participants could "practice") whilst we are away (Erika will be back in 1 month), and how they should organise themselves for that time. There will be preparations needing done for the main build (soakaway pit, foundations, clay and sand sifted etc) which should be done whilst we are away. Not only that, there will be paid work to be done on Barthosa's build; which is needing a lot of remedial work to be safe. Alieu is not pleased at the way Barthosa works.

One thing happened today, which I don't think was in the spirit of participator design. Erika decided that the brick that made up the newly built, but not completed, archway (two days worth of labour for our participants) were not aligned properly and should be taken down. She, Alieu, and Salifu set about taking down the arch. I think this will have negative repercussions in terms of esteem on our participants. I feel it is the "architect" in Erika wanting things to be correct.

There was a particular instance whilst Erika was trying to work out the brick position and alignment for the arch. She had placed an entire course to create an arch. Subsequently, she consulted with Alieu, the head mason, who then immediately took down all the bricks she had put up. However, on working out how to place them again, he put them back up exactly the same way. This shows how the Learning Prototype teaches by learning by doing.

Monday 30.04.2018

Speak to villagers about how they felt about Barthosa, and what information did Barthosa actually provide them with?

Tuesday 01.04.2018

Thinking about questions/ or points for the "handover meeting"
- Arch needs to be completed.
- Bricks need to be made from clay.
- Food will have to be arranged for volunteers daily.
- Said volunteers will also have to be organised.
- Sand will need to be procured and sifted.

Keeping in touch with the villagers and the project

- Susso will report back to us, as he has one of the best grasps of the project and the best English. We shall contact him through Musa and also, his wife's whatsapp number.

- More officially, there's Jim Nyie, who has now been appointed Gambian ambassador for NKA Foundation.

How to avoid feeling of desertion

- Emphasise that Erika will be back and there will more volunteers on the way, in a month's time.
- Iterate that this project could potentially take years before handover, with many people being involved.
- Work out strategy for building handover. How can this be done in a sustainable manner?

Potential Leaders in our absence

- Musa Jarra
- Nyama Susso
- Alieu
- Solayman Sanneh

Capacity Building

- How can we perpetuate learning with the project? > building > teaching > getting people we've taught to teach.
- What are the long term actions an implications with handing over the project?

Bottom Up

Handover Appraisal

Also had a conversation with Susso and Musa today. We talked about how long the project would take over all, new project leaders and Erika and I leaving. They said they'd be happy to take a leadership role in our absecence.