

Modelers and Ethnographers as Co-Creators of Knowledge: Do We Belong Together?

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ABSTRACT

In this paper, we explore the process of co-creation of knowledge between modelers and ethnographers through a project focusing on the role played by CIGS (Citizen initiatives for global solidarity) in the refugee crisis in the island of Lesbos, Greece. We describe the process of collaboration and discuss what this type of interdisciplinary collaboration may bring to the development of a research topic when the initial skepticism and questions of epistemological differences have been overcome. Moreover, we address some of the challenges embedded in this type of research collaboration, particularly the skepticism present within the social sciences.

Keywords

Social Sciences, Modeling, Interdisciplinarity, Citizen-Based Humanitarian Aid, Refugees, Lesbos, Citizen Initiatives for Global Solidarity (CIGS), Prototype Agent-Based Model.

INTRODUCTION AND BACKGROUND

We are in Lesbos for the third time, this time to attend "the Lesbos dialogues", but also to explore opportunities of working together with modelers on the Lesbos case. One of them is a refugee researcher and trained in modeling. We are full of skepticism, must admit, but ready to explore. Our potential modeling partners from the US are also attending the dialogues. For sure, that is a good thing, that we are all familiar with the context, and will meet some of the same people before we sit down together. Don't know about this experiment, will we go well together, we talked about it this morning and we wonder, what do they think about us?

(Ethnographers' fieldnote jottings, May 2016)

2015 was a historic year in Europe in terms of refugee arrivals. According to the UN refugee agency (UNHCR), more than a million people reached Europe across the Mediterranean, mainly arriving in Greece and Italy. Another 34 000 crossed from Turkey into Bulgaria and Greece by land (UNHCR, 2015). Refugees primarily came from Syria, Afghanistan and Iraq, fleeing from war and terror. It was the highest number of refugee's arrivals since the Balkan war in the 1990s, and the intensity of the situation particularly impacted some of the Greek islands where refugees would arrive in small boats, in thousands, every day, in the most intense periods of 2015. The situation was difficult, as there was no infrastructure or system in place to address the needs of the arriving refugees. The delayed response from the UHCR (the UN refugee agency) and other established actors led to a massive

mobilization amongst ordinary people without any previous experience from humanitarian work, wanting to contribute to helping the refugees as they arrived on the shores of Europe.

In this article, we present and discuss how four researchers from different fields and backgrounds have teamed up and worked with a particular topic related to the refugee crisis. The team consists of two ethnographers (Haaland and Wallevik) from Norway and two modelers (Frydenlund and Padilla) from the US, who met for the first time in 2017. The ethnographers, who had studied citizens starting their humanitarian initiatives in the global South (Haaland and Wallevik, 2017) were interested in exploring what role individuals could play in assisting in the so-called refugee crisis that played out in Europe in 2015. Previous research had shown how new initiatives often rely on social media to mobilize resources, which was also the case in the refugee crisis. The two ethnographers started following initiatives emerging online on Facebook, initiatives which were often also referred to in the conventional media. In 2016, they visited one of the Greek islands which had become a hotspot for refugees – Lesbos and initiated their ethnographic fieldwork on the role of CIGS in a humanitarian crisis (Haaland and Wallevik, 2019). One of the modelers had previously researched the situation in a refugee camp in Rwanda (Frydenlund, 2015) and the common interest brought all four of us together on the island of Lesbos in 2017. We joined a workshop for researchers working within the field of modeling and simulation (M&S) where the overall idea was to explore the potential mutual benefits we could have as researchers, working with a complex and challenging research field. The workshop became the start of a rewarding, yet also challenging interdisciplinary journey trying to reconcile epistemologies as well as methodologies (Padilla et al., 2018).

In the following, we discuss the process of co-creation of knowledge, involving ethnographers and modelers. We describe how we as four different academicians, positioned in various disciplines and methodologies struggled to find ways of jointly exploring innovative ways of researching the refugee crisis in Lesbos. Hence, the paper is a description of an academic journey and a process of working towards an epistemological and methodological reconciliation, where we reflect upon commonalities and differences and a path forward. We address what can potentially be gained through this type of interdisciplinary work and co-production of knowledge in a challenging and complex field such as refugee studies.

A BRIEF INTRODUCTION TO MODELING AND SIMULATION AND TO ETHNOGRAPHIC WORK

Modeling and simulation (M&S) techniques have, for many years, been used as tools for academia, industry and government agencies seeking to gain insight, via computational experimentation, into eliminating, or reducing, ethical concerns, costs and safety issues (Shults, 2019). Simulation models rely on abstracting a phenomenon or system computationally programming its most salient characteristics, in a structured manner, facilitating their use, understanding, replication and communication. However, M&S techniques has moved beyond the realm of the natural sciences and engineering and is increasingly applied in the humanities and social sciences research (Gilbert, 2007). This allows for increased co-creation of knowledge across disciplines, backgrounds and thematic interests. Yet, such cross-disciplinary work is challenging, due to epistemological differences between the researchers and the disciplines they represent. Agent based models (ABMs) and system dynamics models have gained ground in the social sciences and simulation literature as they provide explanations of phenomena considering non-linear relations evolving through time.

These models provide the means of making mental models, and corresponding assumptions, explicit while checking for feasibility and correspondence to existing theoretical and empirical work. This “explicitation” process becomes challenging for those of us working primarily with qualitative data.

The ethnographers in the team are working in the field of development which is marked by several disciplines. We have experienced how our interpretive and constructivist approach often is considered irrelevant for other disciplines. Working across different disciplines in various projects has made us experienced in making explicit our standpoint and what our focus on ethnographic data entails. Furthermore, inspired by institutional ethnography, we theoretically argue the case for starting out in the empirical (Smith, 2005). As pointed out by Hammersley and Atkinson, ethnography is not a label used in standard fashion, rather its meaning can vary (2007: 1). In our work, participant observation is an important methodological approach. When doing participant observation there are two broad categories of data gained, namely verbal statements of members of the society and their observed behavior (Holy and Stuchlik, 1983). Consequently, we conduct interviews and engage in informal conversations as part of our field research, as well as observe actions. To understand the context in which these statements and observations are made we also read different types of texts, such as policy documents. The qualitative approach of our research signifies that we often work case-based, and with a limited number of informants or interviewees, to facilitate for in-depth studies and understanding of a certain phenomenon. In line

with what Hammersley and Atkinson (2007) describe, the initial questions that motivated the research are often transformed during the research, and the research process is often time-consuming. The analytical process involves interpretations of the research informants' statements and actions into a wider context.

Context is key to ethnographic research and therefore one of the main concerns for us as ethnographers when exploring potential collaboration with colleagues working with modeling and simulation; how is context taken into consideration when data is transformed into the language of modeling and simulation? Is there a danger of extreme reductionism? Hammersley and Atkinson (2007: 3) also say that «acknowledging the reflexivity of research does not imply that it must be primarily directed towards changing (or for that matter preserving) the world in some way or other». For us, who are also inspired by institutional ethnography (IE), such a change is desired.

FINDING COMMON GROUND IN A RESEARCH THEMATIC

Epistemological differences are never fully dissolved through collaboration. However, to enter into a productive partnership requires a great appreciation and openness for other epistemologies. As we have pointed out elsewhere, qualitative research and M&S have some common fundamental features (Padilla et al., 2018). Being positioned in the part of social science aiming for change through research, we find a common path with the modelers. We quickly understood that we all wanted the collaboration to be a contribution towards acknowledging CIGS as an essential part of emergency management locally, be it in a human-made or a nature-made emergency and that such an acknowledgement could make evident how CIGS work.

As already outlined, our collaboration started as we physically met in Lesvos. We had been introduced to the idea of merging ethnography on the refugee crisis with modeling, through a colleague all of us knew and who had recently ventured into using M&S to understand the role of religion in contemporary society in Norway (Shults et al., 2018). His newfound enthusiasm for modeling and simulation made him want to present this field for social scientists, hoping to convince some to start working with M&S and potentially joining him in future work. He presented his project in a seminar at the social science faculty where the ethnographers work. He focused on what M&S could add to qualitative research and how building models and simulations could potentially contribute to policymaking. The epistemological questions and divides became evident throughout the seminar, through the number of questions asked. Most participants, mainly geographers and anthropologists, dismissed of M&S as reductionists, failing to incorporate the complexity of ethnographic data and easily falling into the pitfalls of turning into simple predictions not grounded in solid empirical data. Our colleague was familiar with such critique, but as he is not doing the modeling work himself, he had not developed a comprehensible language to disseminate the core content of M&S to respond to the audience's critical questions sufficiently. We, the ethnographers in the team, also attended the seminar and found ourselves intrigued but without enough understanding of what M&S entailed. Yet, with a strong research interest in the refugee situation in the Greek island of Lesvos, we continuously debated amongst our self how small sample data could be relevant to policymakers and could contribute to new understandings leading to change.

As mentioned, the team met for the first time in Lesvos in May 2017. The ethnographers had previously conducted ethnographic fieldwork on the island on the emergence of CIGS – a term coined to reflect emergent actors in the development sector - and now also in the humanitarian sector. The modelers were visiting the island for the first time. We all joined a seminar exploring the challenges to the humanitarian work in Lesvos (Lesvos Dialogues) and a four-day workshop exploring the potential for collaboration between researchers working with modeling and simulation and social scientists. Before departing for Greece, three of us had an introductory meeting on Skype, where the overall aim was to get to become a bit more familiar with each other's research focus and interests and present our work to each other. The modelers were calling from the US, the ethnographer from Norway. We were not just continents apart from each other but also struggled to find some common language to talk about how we potentially could work together. The ethnographer voiced her concern with maintaining the complexity of the context and her fear that modeling would not capture the data and its rich contextual insights. A potential for reductionism was discussed. The modelers made it clear to how they were equally concerned with this, stressing that "all models are wrong, but may still be useful".

Meeting in Lesvos in May 2017, it was with a great deal of skepticism towards what modeling and simulation could contribute to our work with understanding CIGS in a context of crisis. We spent the three initial days together visiting different refugee camps on the island, interviewing different actors involved in the crisis, such as representatives of humanitarian agencies and organizations, representatives of local government, and the tourism industry. The meetings were long and intense, leaving little room to talk or compare notes. When we

finally sat down to talk about where ethnography and simulating and modeling could possibly meet, we had established some common ground for understanding the situation in Lesvos. The shared experiences enabled us to explore to what extent we could find a common language and approach to understand the context and potentially use the ethnographic material already collected for building a model. However, before starting, we were given a new introduction to modeling by our American colleagues. They started with the basics, emphasizing the difference between system-based models and agent-based models.

Starting of our work together the modelers asked: “So what is the question?” and after initial fumbling, the ethnographers replied – “here is the story”. Roughly, the story was about different interpretations of crisis in Lesvos, seen from the perspectives of the different actors. As pointed out by Fetterman, the ethnographic study allows for multiple interpretations of reality and alternative interpretations of the data throughout the study. The ethnographer is interested in understanding and describing a social and cultural scene from the emic or the insider’s perspective (Fetterman, 1989). Hence, the ethnographer relies not only on observation or participant observation but also interviews with key informants. Ethnographic fieldwork thus produces complex data, rich in detail and located in a particular context. By being asked to reduce the complexity of the situation into a single question, we feared for a reductionism of the rich data collected through ethnographic fieldwork. Our colleagues, the modelers did not think in terms of capturing a story, but rather in terms of purposeful models that “go beyond” a description of events. But as they were familiar with the skepticism social scientists often display when confronted with the idea of modeling, they started to listen to how we sketched out the context of the situation in Lesvos in 2015 and 2016. We particularly emphasized how various humanitarian actors and local people had attempted to meet the growing needs of thousands of refugees arriving on the island, the emergence of CIGS, their interaction with the humanitarian aid establishment.

The modelers responded with questions about the chronological evolution of events, stakeholder, potential variables and the context of each year. The opportunity to relate to the interviews we had conducted together during the previous days contributed to building an environment of trust, as it made clear how all four dealt with and interpreted data from the same interviews. The modelers, focusing on *factors*, *actors* and *relations* asked questions which required that we, the ethnographers explicitly outlined and questioned own assumptions in the interpretation of data, as well as making us aware of where we had limited data or even lacked data. It became evident for us that both groups of researchers think in terms of conceptual models, but not necessarily applying the same terminology. And more importantly, there is also a difference in the structuring and representation.

“It is interesting to see how the idea of modeling and simulation opens up for a good discussion about complexity and context, a discussion which is far more interesting than what we sometimes do in other types of interdisciplinary conversations.”

(From one of the ethnographer’s field notes jottings)

The result of some very intensive days of working together was a first conceptual model of the situation in Lesvos (fig 1 below). The model illustrates some of the mechanisms at play which fuels the emergence of citizen initiatives on the island. The model attempts to establish a relationship between refugees, volunteers, tourists, employment and solidarity. The model is conceptual and designed to advance the discussions between ethnographers and modelers while familiarizing the former with some of the modeling terminology and approaches. In other words, the model provided an artifact for communication with common (and new) terminology representing the modelers’ understanding of the ethnographers’ understanding of the local situation.

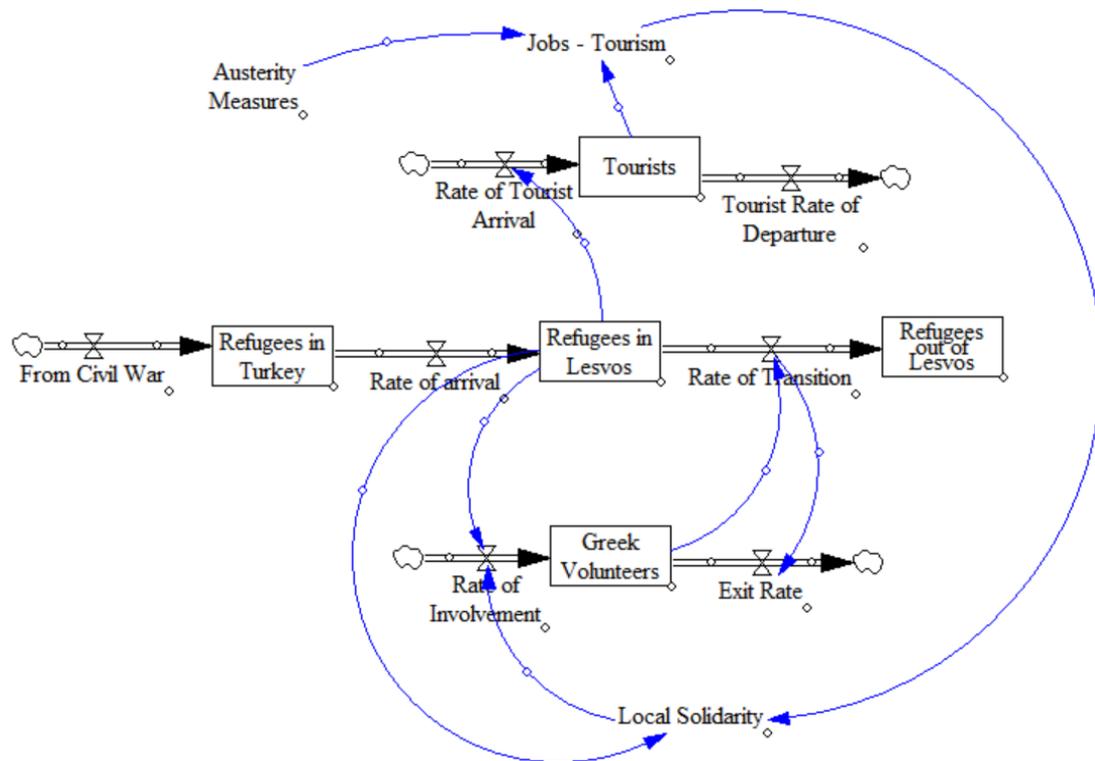


Figure 1. The first Conceptual Model as developed in Lesvos

DETOURING AND DEALING WITH DOUBT: FACING EPISTEMOLOGICAL MISCONCEPTIONS

For someone who had never worked with modeling and simulation earlier, the first days of work were exhausting, and a constant battle between feelings of excitement and glimpses of understanding – to situations of discomfort and distrust. Yet the simplicity of the initial conceptual model (fig 1) and the fruitful interaction we had the initial days made us increasingly optimistic about the way forward for our cooperation with modelers – could it be that the road ahead was less bumpy than imagined? However, this changed halfway into our week of exploring M&S. The change was a result of a presentation given by another group of modelers participating in the same workshop.

Their presentation had involved assumptions and theories which did not seem to be very well connected to the local context and it had an impact on our team's discussion the following day. "Something happened yesterday?" the workshop leader asked as he joined in to check on our discussions. The ethnographers agreed and admitted that in terms of trust and enthusiasm for how qualitative data can be used in modeling and simulation, the presentation made by the other team had resulted in a major setback. The sudden shift made in the presentation, from a focus on modeling and simulation to how modeling and simulation can influence policy, had triggered our initial concerns about reductionism and predictions. Consequently, we discussed the weakness of models, particularly their relationship to policy, fearing for simplifications which could potentially do harm. "All models are wrong," one of the modelers said, "but all models are useful, even the wrong ones". The idea that models could not be interpreted and used separately from an overall research question was reassuring. The modelers in our team also stressed how M&S might just be tools for thinking within a policy process. Epistemologically, we cannot model human experience, the modelers stressed, but we can theorize about human behavior, which is what the model attempts to. Ontologically, the simulation becomes the reality for the modelers - which is why there is a need for continuous verification and eventual validation. This discussion helped us reduce some of the doubts that had emerged and to get back on track in our work.

FROM A BASIC CONCEPTUAL MODEL TO BUILDING A PROTOTYPE

Returning to the conceptual model (fig. 1), the model begins with some basic ideas as to the causal connections in the Lesvos refugee crisis. Our goal was to express the relationships among refugees, locals, tourists, and

of working together, starting out with the prototype exploring the different loops, we realized that we were indeed a team working innovatively when researching the refugee crisis. Discussing the prototype, we quickly realized that we did not have enough data to populate the system-based model. We thus looked at the prototype anew and decided to focus on the issues concerning the voluntary sector, where volunteers, CIGS and NGOs play a central role (i.e. the right low corner of the prototype model, fig. 2). Building upon the prototype of a system-based model we thus decided to start developing an Agent-Based Model focusing on the CIGS actor (Citizen Initiatives for Global Solidarity). The section focused on is illustrated in a basic conceptual model (fig. 3, see below) which we continued working on to develop a more focused model, especially the rise and fall of CIGS in a particular context and with various scenarios. We continued working on Citizen initiatives for global solidarity (CIGS)¹ to develop a more focused model (Frydelund et al, 2020).

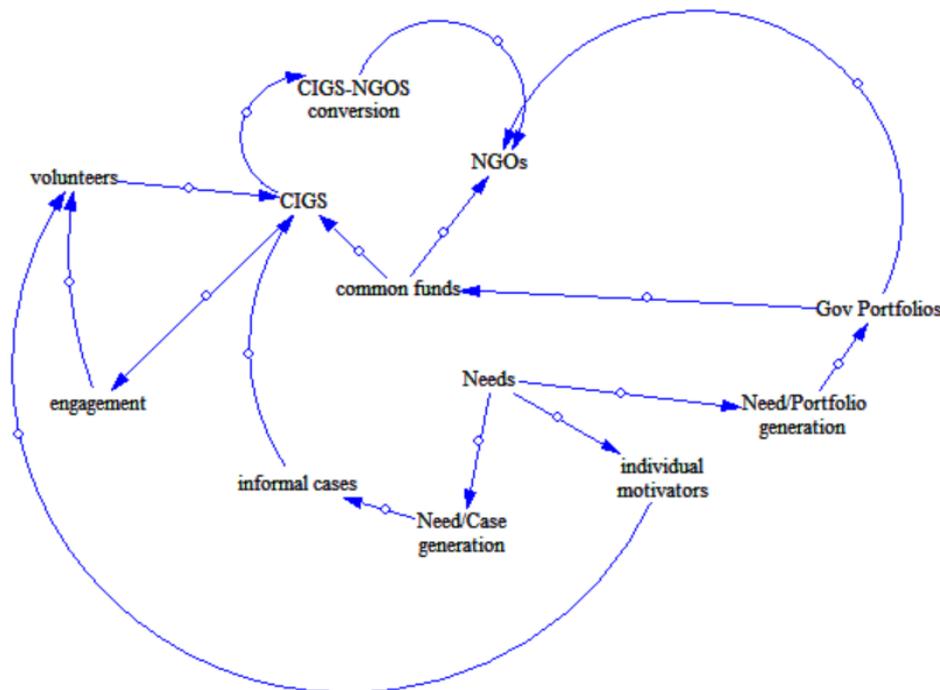


Figure 3. A conceptual model of CIGS

ETHNOGRAPHERS AND MODELERS AS CO-CREATORS OF KNOWLEDGE: IN WHICH WAYS DO WE FIND THE COLLABORATION FRUITFUL?

To the modelers of our team it is evident that a collaborative effort is worthwhile, and that qualitative data can be used for modelling and simulation. They had worked with qualitative material in other projects and saw the potential uniting with us (Padilla et al., 2018). Moreover, ethnographic data has spurred new questions, which has led to the design and funding of a new project focusing on the absorptive capacity of host communities. For the ethnographers, new to modelling and simulation, knowledge co-created between modelers and ethnographers is appealing as that models may be used for interpreting data and for making implicit models explicit “where all assumptions are laid out in detail, so we can study exactly what they entail” (Epstein, 2008). Furthermore, the models guide us in our data collection and in which questions which may be missing as the model reveals where there is a lack of data. From the prototype, it became evident that for us to populate the model we (the ethnographers) needed to do more fieldwork, exploring mainly the left lower corner of the prototype in fig. 2 concerned with the loops linking solidarity with quality of life, for example. Thus, modeling enables us, through dialogues with modelers and the model itself, to explore ethnographic data, ask new questions, drive the research process further and aim for filling in gaps in so that we can provide enough qualitative data to enable an agent based model to emerge, and also to eventually populate the system-based model.

¹ In the prototype referred to as Ad-hoc NGOs (AHNGOs)

THE WAY FORWARD: ESTABLISHING A LARGER COMMON RESEARCH PROJECT

Our preliminary work was promising and answered an initial question of whether ethnographers and models belong together. Both ethnographers and modelers argued the case for a continued relationship. We concluded the preliminary phase with the need to secure grants for a larger project combining our efforts. The **novelty** of the project lies precisely in the methodological approach of combining ethnographic and simulation modeling efforts to capture the dynamics of a real-world, increasingly impactful phenomenon of CIGS. Due to our common aim of contributing to change related to the advancement of SDGs globally. The **ambition** of the project is to generate a generalizable theory of a phenomenon observed predominantly in ethnographic contexts by exploring CIGS across countries and aid environments. Ethnographic theories are not generally meant to stretch across contexts. Still we see simulation as a means to open dialogue between social science researchers, interrogate inconsistencies across theories, and evolve a new type of simulation-based theory. This effort requires a significant data collection effort across different countries and contexts while following a unified conceptual and theoretical framework, and thus forms a substantial part of this project.

Our leading research question seeks to establish how CIGS emerge and connect with the larger system of humanitarian and development aid: *What are the conditions under which CIGS emerge, evolve, and disappear in their efforts to meet humanitarian and development needs?*

The dynamic nature of the research question lends itself naturally to the use of simulation for computer-based experimentation. In our research team's experience working on ethnographic models over the last two years, the methodological approach requires *iterative processes* (Padilla et al., 2018, Salimi et al., 2019). This means that the process begins by ethnographers leading the qualitative data collection effort and then generating candidate actors, factors, and causal mechanisms that will inform the conceptual (often hand-drawn) model. Ethnographers and modelers then participate in joint data collection and model development as the conceptual model reveals needed data, concepts for reconciling or refining, or opens additional questions that only fieldwork or consultation with other scholars can answer. The methodological approach is therefore situated neither firmly in ethnographic nor modeling traditions, but the product of truly collaborative, interdisciplinary work. In this way, modelers will participate in data collection and analysis while relying on ethnographers as subject matter experts (SMEs) of local dynamics, and ethnographers become deeply engaged in the model development process.

CONCLUDING REMARKS

In this paper we have discussed how ethnographers and modelers can cooperate to gain an increased understanding of complex situations, such as the refugee situation in Lesbos. Perhaps one of the major challenges in teams with ethnographers and modelers is arriving at a common language that leads to agreeable research goals. While departing points of inquiry are different (capturing a phenomenon description vs establishing a driving question), approaches are different (holistic understanding vs strong analysis of situations), and outcomes are very different (rich narratives vs computer models) to mention a few, the agreements and disagreements lead to interesting individual learning and phenomena insight. Ethnographers start formulating questions that can improve their research, modelers start thinking about capturing stories; a tug of war between holistic and reductionist views take place; both start seeing data under a new meaning until a simulation prototype is generated. Ethnographers have been investigating Citizen Initiatives for Global Solidarity (CIGS) towards establishing a rich description. Modelers, relying on ethnographers as subject matter experts, attempted to capture this phenomenon in Lesbos. Ethnographers and modelers were able to use the ethnographic model to drive a new line of questions as CIGS were connected to other variables like solidarity. Finally, we arrived to a model driven by a question: as CIGS were considered to play a crucial role in humanitarian aid, and in the context of the region, the dynamics on how they are created, and how they disappeared, became more important. A prototype agent-based model was created with a simple set of rules that provided insight into the life cycle of CIGS. Through a continued collaboration both models will continue evolving to better understand the role of CIGS into the larger context of humanitarian response.

REFERENCES

- Epstein, J. M. (2008) Why Model? *Journal of Artificial Societies and Social Simulation* vol. 11, 4 -12
- Fetterman D.M., 1989 *Ethnography: Step-by-Step*. Applied Social Research Methods. 3rd Edition

- Frydenlund, E. 2015. Home was Congo. and Durable Displacement in the Borderlands of 1,000 Hills. Doctor of Philosophy (PhD), Dissertation, International Studies, Old Dominion University
- Frydenlund, E., Wallevik H., Padilla, J. and Haaland, H (2020) The Rise and Fall of Humanitarian Citizen Initiatives: A simulation-based approach. In review, submitted to SBP-BRIMS 2020 (2020 International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation
- Gilbert N. (2007), *Agent-Based Models*, Sage Publications: London, 2007
- Hammersley M. and P. and Atkinson (2007) *Ethnography: Principles in Practice*. Taylor and Francis.
- Holý, L., & Stuchlik, M. (1983): *Actions, norms and representations: foundations of anthropological inquiry*. Cambridge: Cambridge University Press.
- Haaland, H. and Wallevik, H. (2017) Citizens as Actors in the Development Field: The Case of an Accidental Aid-Agent's Activities in Aid-Land. *Forum for Development Studies*, 2017. 44, 2, 203-222.
- Haaland, H. and Wallevik, H. (2019) Beyond crisis management? The role of Citizen Initiatives for Global Solidarity in humanitarian aid: the case of Lesbos. *Third World Quarterly*, 2019. 40,10, 1869-1883.
- Padilla, J.J., Frydenlund E., Wallevik, H., Haaland, H. (2018). 'Model Co-Creation from a Modeler's Perspective: Lessons Learned from the Collaboration between Ethnographers and Modelers.' *Proceedings of the SBP-BRIMS 2018 Conference*. Washington, D.C. July 10-13
- Salimi, K; Frydenlund, E., Padilla, Jose J; Haaland, H.; Wallevik, H. (2019). How does humanitarianism spread? Modeling the origins of citizen initiatives through norm diffusion. *Winter simulation conference: proceedings*. 2018-December 33 - 44.
- Smith, D. (2005) *Institutional Ethnography: A sociology for people*. Altamira Press
- Shults, F. LeRon (2019). Computer modeling in philosophy of religion. *Open Philosophy*. ISSN: 2543-8875
- Shults, F. L; Tolk, A.; Wildman, W. J.; Diallo, S (2018). Human Simulation as Lingua Franca for relating the Humanities and Social Sciences. *Journal of Cognition and Culture*. 18 (5)
- UNHCR (2015) Over one million sea arrivals reach Europe in 2015. From <http://www.unhcr.org/567918556.html>, accessed March 30th, 2017