Palacký University Olomouc
University of Clermont Auvergne
University of Pavia

MASTER THESIS

Understanding Human-Centered Design in the Context of Global Health and Development

Ákos Gosztonyi
Supervisor: Mgr. Lenka Dušková PhD

GLODEP 2019

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I declare in lieu of oath, that I wrote this thesis myself. All information derived from the work of others has been acknowledged in the text and the list of references is provided in the document.

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Zásady pro vypracování

In this inquiry I problematize the emerging trend of adopting Human-Centered Design (HCD) approaches in development projects and especially in projects related to global health. I aim at uncovering, identifying and mapping the underlying assumptions of such approaches and I link them to established streams of thought in the intertwined and contested fields of Development Studies and Global Health. By doing so I wish to highlight how HCD engages in conversation with certain theories, and I aim at exploring its boundaries. I will approach these undertakings through an extensive literature review and analyzing the discourse on HCD. Furthermore, I wish to investigate how it may succeed or fail to deliver what it promises: to put the human in the center. I will also pose the questions of who and what the human is in the center and what ethical implications may arise depending on the answer, and on the power relations in negotiation with the „development specialist". To investigate such issues and to bridge theory and practice, I will analyze „expert" interviews and contrast them against the findings of the discourse analysis. The explicit aim of this writing is to help „development specialists" position themselves in relation to HCD practices and to fill the missing gap of firmly embedding and grounding HCD in theories of Global Health and Development.

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Abstract

In this inquiry I problematize the emerging trend of adopting human-centered design (HCD) approaches in development projects and especially in projects related to global health. I locate my study in post-structuralist literature and provide a reading of the intertwined discourse of global health and development. I deploy the concepts of biopolitics, psychopolitics, episteme and biomedicalization to enable critical interpretations of HCD and the (re)constructions and (re)negotiations of the human in the center, after establishing the method of ensembling the corpus of my analysis. I pose the questions of who and what the human is in the center and what political implications may arise depending on its discoursive formations. I also highlight linkages between HCD and two development theories to help "development specialists" position themselves in relation to HCD. The thesis fills in the gap in the literature on HCD in terms of critically engaging with "scientific" representations of/in HCD projects through Foucauldian critical discourse analysis. The relevance of my study lies in the timeliness of the trend of applying HCD in development and global health, and in the rather novel application of discourse analysis. The interpretations I provide are opening the door for further analyses.

Keywords: human-centered design, global health, discourse analysis, psychopolitcs, biomedicalization, post-development

"We have developed speed, but we have shut ourselves in. Machinery that gives us abundance has left us in want. Our knowledge has made us cynical. Our cleverness, hard and unkind. We think too much, and feel too little. More than machinery, we need humanity. […] You, the people have the power – the power to create machines. The power to create happiness! You, the people, have the power to make this life free and beautiful, to make this life a wonderful adventure."

Charlie Chaplin, The Great Dictator, 1940

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1. Introduction and positioning

Despite the growing popularity and increasingly widespread application of human-centered design (HCD) in the field(s) of global health and development (Bazzano, 2017; Gordon et al. 2017), no analysis from a post-structuralist, critical social theory perspective has been conducted to address the challenges inherent in the discourse on it. With my thesis I aim at filling in this gap and produce a Michel Foucault-informed critical discourse analysis of the "scientific" discourse on HCD in global health to shed light on how the "human" of HCD is being contested, negotiated and constructed through texts[1] and how the scientific discourse on HCD represents, and thus, constructs and maintains (or deconstructs and renegotiates) power relations. Based on the "findings"[2], I will engage in conversation with two development theories which may help "development specialists" position themselves in relation to such approach.

My writing is firmly grounded in a post-structuralist approach which requires an honest and critical self-reflection on the positionality of the knowledge produced (Wodak and Meyer, 2009). This thought aligns with the theoretical and rhetorical approach of postcolonial, poststructuralist feminist scholarship as well, in terms of deconstructing the false idea of the all-knowing, omnipotent researcher committing epistemological violence (Lykke, 2014; Haraway, 1988; Wetherall, 2001). Hence, I would like to highlight that my interpretation and reading of, and the contribution to the discourse is not an unquestionable, "monolithic" truth, and is strongly tied to my geopolitical and intellectual position, which is also embedded in economic and societal power dynamics.[3] To tackle the question of intellectual positionality, in the first chapter of my thesis, I will provide my understanding of the intertwined nature of global health and development and their playing field of power, where HCD lands as well. In the second chapter, I will provide an overview of human-centered design in terms of its historical emergence and philosophical considerations and an overview of the literature attempting to conceptualize it. In the third chapter I will position my research method in relation to Foucauldian discourse analysis and I will highlight

[1] In a Foucauldian sense, hence, pictures, graphics, topics, social structures, and in "practice" alike. In the rest of my writing I use "text" in Foucauldian sense. If not, I signal it in footnotes.

[2] Social research based on Foucauldian thought rather avoids the expression of "findings" (Graham, 2011: 666). Research conducted from a poststructuralist perspective rather prefers the expressions of "understandings" or "interpretations."

[3] Since I'm also positioned in my bodily existence as a man from the semi-periphery of the global economic order with the privilege of higher education, my interpretations are potentially blind to certain aspects. It is also of outmost importance to clarify that English is not my mother tongue, hence, my interpretations can be highly limited.

challenges (and opportunities) faced when attempting to analyze scientific articles with such method. Since in discourse analysis the approach and the analysis itself are intricately interlaced, I will elaborate my "findings" in this chapter as well; however, I will attempt to do so in a structured manner. The last chapter of my thesis will engage the "findings" of my analysis in conversation with theories of development. The selection of such theories, yet again admittedly, is strongly dependent on the fragmented and positional nature of my knowledge and perception of reality constructed through discourse.[4] Within my thesis project I also conducted two expert interviews in April, 2019, to deepen my understanding of HCD.[5]

Another expert, Marc Steen, an information and communications technology specialist and scholar begins his journey in his wonderfully crafted PhD dissertation to uncover, theorize and address difficulties and power relations in applying human-centered design in his field with the following words: "[n]ow comes a difficult part for me. I will try to explain how my research interest emerged from feelings of frustration and irritation." (Steen, 2008: 4). As a scholar who firmly believes in the political nature of social research[6], I align with Steen in expressing his enthusiasm for HCD which gives people voice to exert influence on designing products and services that are intended for their own use. However, as HCD – originally applied in for-profit settings – enters the field of global health and development and their heavily contested discourse, the question of "whose voice?" and their ways of representation, hence, the construction (or perhaps even more pertinent: the production) of the "human" in the center may invoke frustrating dilemmas. The most important one, guiding my thinking should stand here: is human-centered design a tool for the technology of psychopolitical power, or can we utilize it to find alternative ways to development? In the next chapter I will attempt to provide an understanding of the intertwined nature of the power and knowledge regimes of global health and development, not only to articulate the relevance of my thesis and to locate the theoretical standpoints of my writing, and to conceptualize the playing field of power where my analysis on HCD is taking place, but to highlight the fact that my interpretations depart from such understandings as well.

[4] Which does not mean less legitimacy, since in constructivist scholarship the reflection on one's positionality and admitting its limits rather enhance the understanding of knowledges, and the transparency of their production.

[5] Due to the lack of space, and less relevant information I decided not to include the interviews in my analysis. However, I attach the interview guide I utilized.

[6] Informed by anti-racist, feminist, critical social theories and in contrast to value neutral, positivist social research approaches (see for example Hammersley, 2017).

2. Penetrating intertwined power and knowledge regimes

To better understand why it is important to investigate who the "human" is in human-centered design, and within what concepts of power and how she/he/it comes to existence, I propose building upon a theory of global health that perceives it in the context of (economic) development, and allows for linking it to the modes of knowledge production and the concept of "biopolitics". Developing on the current debates on the Foucauldian concept of biopolitics, I will introduce the rather new concept of "psychopolitics" as a new technology of power (Han, 2017) and highlight its implications on the subject of my investigation. Closing this chapter, I will deploy the thoughts of Arturo Escobar on reengaging with the world through human-centered design (Escobar, 2018) in light of the above-mentioned conceptual framework.

2.1. The "global health and development nexus" in the light of neoliberal capitalism

Theorizing and conceptualizing the field of global health has been a major challenge for scholars working in global health and development studies alike. Some would even argue that the field of global health is rather a set of issues than a discipline, while the lack of strong theoretical and conceptual basis for generalization, knowledge construction, critique and empirical testing has been limiting the emergence of an intellectually robust field (Kleinman, 2010). To approach this challenge, Arthur Kleinman, the Harvard professor of medical anthropology and cross-cultural psychiatry, proposed four different readings of the field of global health from four distinctive social theories (Kleinman, 2010). Out of the four, two interrelated theories have informed and enabled my reading of the field of global health: the social construction of reality based on Berger and Luckmann's work (Berger and Luckmann, 1967) which "holds that the real world, no matter its material basis, is also made over into socially and culturally legitimated ideas, practices, and things" (Kleinman, 2010: 1518), and the Foucauldian concept of biopower, which not only allows for the study of control of bodies and populations through medical (and "health-related") and political governance[7], but for the construction of the subject of interest as well (Foucault, 1990).[8]

Departing from a similar theoretical background, and building upon a strong scholarship of postcolonial studies, Stephanie Reider in her thought-provoking work, titled

[7] Not only through institutions, but medical and social practices as well.

[8] The other two readings depart from: a, the theory of Robert Merton explicated in his work titled "*The Unanticipated Consequences of Purposive Social Action*" (1936) and b, the theory of social suffering.

"*Interrogating the global health and development nexus: Critical viewpoints of neoliberalization and health in transnational spaces*" (2016) investigates the construction of the discipline of global health as a set of issues, placing global health back into its historical, economic and social context – and its present existence into neoliberal settings in light of the Foucauldian concepts of biopower and biopolitics. Among many other things, Reider highlights current technologies of power through the biomedicalization[9] of society, which "has allowed for the construction of novel medical objects and subjects" (Reider, 2016: 56). She understands contemporary global health in the context of public health and medicine as "power-laden projects" situated in "their interrelated economic, political, and social factors" (Reider, 2016: 56). She argues that "[t]he origins of many of these relations of power are located within colonial projects and are reconstructed through globalized neoliberal capitalism [Anderson, 2006; Fassin, 2007; Findlay, 1999; Stoler, 2010]" (Reider, 2016: 56). However, she argues "[t]hat is not to say contemporary global health functions as colonialism, but rather that it provides a framework through which to engage in many comparable processes of 'othering.' This occurs through a desire to produce identities that represent dominant ideals of personhood while maintaining separation and difference within previously established global hierarchies [Bhabha, 1994]" (Reider, 2016: 56). Furthermore, she highlights that the processes of biomedicalization fostered by neoliberal capitalism exerted through biopower

> "… has impacted the practices of physicians and patients, putting new emphasis on auditing, changing consumption of expertise and medicine, and reconfiguring boundaries within and outside of clinical sites. New categorizations of risk, through advancements in biotechnologies have resulted in novel patient identities and social relations that adhere to contemporary standards of self-regulation and optimization [Rose, 2007]" (Reider, 2016:58).

When human-centered design enters the field of global health, the researcher investigating the construction of identities – the construction of the "human" in the center included – must account for such tendencies and concepts. Reading global health from this viewpoint also guides my perception and interpretation of the analyzed texts, to which a

[9] Following Clarke et al.'s definition: "Biomedicalization is our term for the increasingly complex, multisited, multidirectional processes of medicalization that today are being both extended and reconstituted through the emergent social forms and practices of a highly and increasingly technoscientific biomedicine." … "The extension of medical jurisdiction over health itself (in addition to illness, disease,and injury) and the commodification of health are fundamental to biomedicalization." (2003: 162)

post-structuralist scholar must admit, in order to elucidate the writing process. However, I believe, the Foucauldian concept of biopolitics, and recent advancements around the concept should be discussed in more detail to address and elaborate on the theoretical and conceptual standpoints of my writing.

2.2. From "biopolitics" to "psychopolitics"

The concept of biopolitics have inspired a great number of social theorists and philosophers who have attempted to theorize power dynamics governing human life, death, health and sickness, resulting in the establishment of a philosophical field in itself.[10] Michel Foucault, when proposed a genealogy of biopolotics in the beginning of his lectures at Collége de France, he (seemingly) shifted the focus of his analysis from biopolitics as such, to governmentality (Foucault, 2010; Lemke, 2001; Kenny, 2015). Stephen J. Collier argues that this shift does not mean a change of focus, but the fact that "Foucault's analysis of biopolitics and liberalism are fundamentally interconnected: Foucault found in liberalism the initial articulation of a 'new kind of governmental reason that understood individuals and collectivities not as legal subjects [of sovereignty] or docile bodies [of disciplinary power] but as living beings' [2011: 16]" (Kenny, 2015). He calls this governmental reason biopolitics, which functions according to the (neo)liberal logic of economic thinking, and expands to all spheres of life, exerting power over human health as well, to produce well-functioning, efficient, cost-effective, and healthy workers. As Kenny (2015: 13) building upon Foucault describes: the "… expansion of the economic form holds consequences not just for the objects of neoliberal governmentality but for its subjects as well; for the particular figure of the human that it envisions. Just as all domains of social activity and human life come to be deciphered through an economic lens so too does the individual come to be seen primarily as an economic agent [Foucault, 2010]." He further argues that

> "… neoliberalism as a political rationality, then, configures the self as an entrepreneur and the state as a firm, and prescribes the conduct for both according to a logic of optimizing future rates of return on investment, especially through practices of self-investment. In the biopolitical domain, this equates with an emphasis on those (cost–effective) health interventions directed towards encouraging individuals to enact health-maximizing behaviours" (Kenny, 2015: 14).

[10] See for example Agamben (1998), Hardt and Negri (2000), Balibar (2002), Esposito (2008) and others.

In Foucauldian theory, such practices to craft the healthy and optimized human took the forms of disciplining, punishing, prohibiting and repressing. However, according to Byung-Chul Han, the extremely influential contemporary German-South Korean philosopher, whose "main concern is to illuminate changes in the experience of subjectivity in the transition from post-industrial to digital society" (West, 2017), this framing of control and power is no longer suitable for the 21st century. He argues that the current

> "… neoliberal technology of power does not prohibit, protect or repress; instead, it prospects, permits and projects. Consumption is not held in check, but maximized. No production of scarcity occurs; instead, surplus is generated – indeed, a superabundance of positivity. Everyone is encouraged to communicate and consume. The principle of negativity, which still defined Orwell's state, has yielded to the principle of positivity. Needs are not repressed, but stimulated. Confession obtained by force has been replaced by voluntary disclosure" (Han, 2017).

He argues that in Foucault's theory the subject of power is the body, the corporal, the material, while in fact, the body is no longer a central force of production today. It is "… being released from the immediate process of production and turning into the object of optimization, whether along aesthetic lines or in terms of health technology" (Han, 2017). On the question of the "nature" of the technology of power today he argues that it takes a subtle form. "It does not lay hold of individuals directly. Instead, it ensures that individuals act on themselves so that power relations are interiorized – and then interpreted as freedom. Self-optimization and submission, freedom and exploitation, fall into one" (Han, 2017). And thus, individuals exploit themselves not only willingly, but even enthusiastically. Following the footsteps of Bernard Stiegler (2010), he calls this new technology of power psychopolitics.

As Han further develops his theory, he underscores some characteristics of this new technology and its mediums and instruments. He shows how emotions have become instrumental for psychopolitical governance of our neoliberal, present digital society in contrast to the "disciplinary society" of our post-industrial past. He argues that "[t]he neoliberal regime deploys emotions as resources in order to bring about heightened productivity and achievement. Starting at a certain level of production, *rationality* – which is the medium of disciplinary society – hits a limit" (Han, 2017). To move towards higher levels of productivity, emotional capitalism exploits the dynamic, situative and performative nature of emotions that are – in contrast to rationality – quick and operate on a visceral level,

and feed on uncertainty. He also points out that "[c]onsumer capitalism enlists emotion in order to generate more desires and needs. Emotional Design moulds emotions and shapes emotional patterns for the sake of maximizing consumption" (Han, 2017). Henceforth, he concludes that "… psychopolitics seizes on emotion in order to influence actions on this pre-reflexive level. By way of emotion, it manages to cut and operate deep inside. As such, emotion affords a highly efficient medium for psychopolitically steering the integral person, the person as a whole" (Han, 2017). To illustrate Han's theory, I elaborate on his example of gamification as a cultural phenomenon, which is understood as an instrument of emotional capitalism and its psychopolitics. It becomes an instrument, because "gamification lends an emotional, indeed a dramatic, charge to working – which in turn generates more motivation. Because games rapidly deliver a sense of success and reward, the result is higher performance and a greater yield. A person playing a game, being emotionally invested, is much more engaged than a worker who acts rationally or is simply *functioning*" (Han, 2017).

Reading global health and its discourse in light of these concepts and understanding it as a field that cannot escape such technologies of power in our globalized world enables the researcher to interpret cultural products – in a broad sense, including scientific articles – in a critical manner, that sheds light on the power dynamics constituting texts, their subjects and their objects as well. Since human-centered design engages with emotions and applies the logic of gamification – among many other practices – one must carefully take into account such concepts when analyzing it, even if – or perhaps especially if – through discourse analysis. I argue that even though human-centered design as a set of cultural practices inherently carries the footprint of the neoliberal knowledge-power regime and its current developments (being its product in itself), it may also be understood as a sensible tool to overcome societal and developmental problems. It should be noted here that the above-mentioned concepts are oftentimes critiqued for their western-centeredness, thus, understanding them from a development studies perspective, which analyzes texts often constituted about and in non-western contexts, is a rather novel attempt. In the following sub-chapter, I elaborate on how design, which enters the above-described field of power of neoliberal capitalism, may be understood.

2.3. Can we design ourselves out of this "massive design failure"?

A recently published book of Arturo Escobar, titled "*Designs for the Pluriverse*" (2018) takes a very special place in his life-long quest to find alternatives to development and

consumerist neoliberal modernism. In his writing he appositely touches upon the changing nature of the design field as it expands beyond the design studios and enters and (re)engages with the world. Building on a vast scholarship of Latin-American social and design theory from an ontological perspective, he discovers the most influential critical design branches investigating what future(s) we want to build, and thought-provokingly poses the question: "[i]f we start with the presupposition, striking perhaps but not totally far-fetched, the contemporary world can be considered a massive design failure, certainly the result of particular design decisions, is it a matter of designing our way out?" (Escobar, 2018: 33). Elaborating on this thought, he recalls the definition of design by Ezio Manzini: "[d]esign is a culture and a practice concerning how things ought to be in order to attain desired functions and meaning" (2015: 53; quoted by Escobar, 2018: 33). This definition with its emphasis on meaning creation calls for approaches outside of the "business-as-usual" box. According to Escobar:

> "… a lot of 'going beyond the same' is already happening in so many social, political and technological spheres; the bad news is that it might not be happening fast enough, if we heed the criteria of climate change scientists and activists, or with the degree of purposefulness required. More worrisome, most of the policy design that goes on at the level of the State and international organizations sits comfortably within the same epistemic and cultural order that created the problems in the first place. How to go beyond the aporias caused by the fact that we are facing modern problems for which there are no modern solutions [Santos, 2014] is one of the key questions that radical design thinking needs to tackle" (Escobar, 2018: 33-34).[11]

He goes on to explicate the common tendencies that shape new guiding principles of designing our world(s) arguing that "[a]s design moves out of the studio and the classic design professions [industrial design, engineering, and architecture and art] and into all domains of knowledge and applications, the distinction between expert and user/client breaks down. Not only does everyone come to be seen as a designer of sorts, but the argument for a shift to people-centered [and, to a lesser extent, earth-centered] design is more readily acknowledged" (Escobar, 2018: 33). The act of "designing people and the environment back into situations" results in "… displacing the focus from stuff to humans, their experiences and contexts. From mindless development to design mindfulness

[11] Such dilemma has been prevalent since the emergence of Frankfurt School. See for example Adorno and Horkheimer (1944/1972).

[Thackara, 2004], from technological fixes to more design, from object-centered design to human-centered design, and from 'dumb design'[12] to 'just design'[13] [e.g., Laurel, 2003; T. Brown, 2009; McCullough, 2004; Chapman, 2005; Simmons, 2011]" (Escobar, 2018: 33). He claims that this new sensitivity of design towards the environment and humans "… is more attuned to its ability to contribute to creating a better world" and its function shifts from a simple "solution-making expertise" to "a medium in the service of society" (Escobar, 2018: 33).

He highlights that such principles and tendencies open up the space for other disciplines as well, to engage in discussion about epistemological and methodological issues emerging in applying design. The new ways of designing render "… the designer as facilitator and mediator more than expert; conceive of design as eminently user centered, participatory, collaborative, and radically contextual; seek to make the processes and structures that surround us intelligible and knowable so as to induce ecological and systems literacy among users; and so forth" (Escobar, 2018: 33-34).

In light of these tendencies, concepts and theories it is timely to return to one of the main frustrating dilemmas I coined in the beginning of my work here as the following: is human-centered design an another technology, or a set of technologies of psychopolitics, or is it possible to design ourselves out of this "massive design failure" with the help of it? I believe analyzing the discourse on it can improve our understanding of this cultural phenomenon, and through understanding the construction of the "human" in the middle I can provide valuable contribution to the thinking of scholars and professionals in terms of positioning themselves in relation to human-centered design.

3. Conceptualizing human-centered design

Human-centered design is not a new field; however, its application in global health projects is rather novel. Mapping the theoretical assumptions and the development of definitions of HCD are essential to understand how it may enter the intertwined discourses of global health and development. With this chapter I would also like to underscore the rather confusing, but exciting fluidity of the definitions of HCD, and provide my reading of the approach, which largely aligns with the reading of Marc Steen (2011), but must be adjusted to the approach of my analysis. Literature on HCD oftentimes use different

[12] Understood as it is: inconsiderate, not-human-centered, and environmentally harmful.
[13] In contrast to "dumb", design should be in itself smart.

expressions to name the approach, depending on the choice of HCD researchers and/or practitioners. It has been used interchangeably with the expressions of "design thinking", "designer-ly mindset" and "user-centered design", often without clear definition, demarcations of its borders, and without explicating the choice of expression (Li et al., 2018; Steen, 2011; Bazzano, et al., 2017). To facilitate the understanding of HCD, I will elaborate on its more critical readings, which helped me understand my own position towards HCD as well. I will also discuss more in depth the newer version of an influential field guide for HCD, which was referenced in almost all of my analyzed articles.

The definition of HCD has been progressively evolving;, however, its origins can be located in the fields of computer science, the ICT sector, artificial intelligence and ergonomics (Bazzano et al., 2017). The principles of such approach has been distilled in an engineering-focused ISO standard 13407 (ISO, 1999) and has been revised under the ISO number 9241-210 (ISO, 2010) which defines HCD as an "approach to systems design and development that aims to make interactive systems more usable by focusing on the use of the system and applying human factors/ergonomics and usability knowledge and techniques", and clearly defines the set of principles an HCD project should follow:

a, the design is based upon an explicit understanding of users, tasks and environments;

b, users are involved throughout design and development

c, the design is driven and refined by user-centered evaluation;

d, the process is iterative;

e, the design addresses the whole user experience;

f, the design team includes multidisciplinary skills and perspectives (ISO, 2010).

As Giacomin (2014, quoted in Bazzano et al., 2017: 2) argues, over the years this definition which deploys the imagery of a "static user" and a predefined use of items and services in the design process has evolved into a new design paradigm, which is grounded in human behaviors and meanings, "… based on the use of techniques which communicate, interact, empathize and stimulate the people involved, obtaining an understanding of their needs, desires and experiences which often transcends that which the people themselves actually realized" (Giacomin, 2014: 610). He argues that HCD is "… distinct from many traditional design practices because the natural focus of the questions, insights and activities lies with the people for whom the product, system or service is intended, rather than in the

designer's personal creative process or within the material and technological substrates of the artefact" (Giacomin, 2014: 610). Moreover, he conceptualizes HCD as an "umbrella paradigm" that incorporates a constantly changing and growing methodological apparatus and encompasses numerous design approaches[14] (Giacomin, 2014: 611-612).

Similarly, in his PhD dissertation titled "*The fragility of human-centered design*" (2008) Marc Steen conceptualizes HCD as an umbrella term, which comprises of numerous approaches, also acknowledging the fluidity of the term and what it may encompass. He critically analyzed six typically-used approaches[15] to illustrate his reading from a social constructivist perspective: human-centered design is a socio-cultural process, which is inherently political. He does so by analyzing HCD projects which he conducted himself, through mostly ethnomethodology- and semiotics-informed lenses. He came to see HCD "… as an attempt by researchers and designers to open their research and design efforts to users; an attempt to step outside their ivory tower and interact constructively with people out-there for whom they are developing a product" (Steen, 2008: 19).[16] He also discusses that the modern thought of progress is prevalent in his field (ICT) with the idea of technology push through which people's lives will be improved. Yet, he attempts to explore HCD as "… as an *alternative* to technology push and to the Baconian dogma that holds that we can and should observe, model, predict, manipulate, monitor and control the world around us, including other people" (Steen, 2008: 20). He also notes that "… there are not many *critical* texts about HCD. Many texts about HCD are prescriptive or in the form of guidelines, setting out how to do HCD, and if they are descriptive, they are often case studies in the form of success stories to show the added value of HCD" (Steen, 2008: 56). His observation from 2008 still holds today. During my investigation I did not find articles with a critical social theory background analyzing explicitly applied HCD or its approaches with reflection on power relations and/or its political implications in an exhaustive manner – with some partial exceptions discussed below.[17] One issue, however, is frequently problematized which has implications for my writing as well: taking a stance against using the term of "user-centered design" in favor of using the expression of human-centered

[14] Examples include: "… design for product experience, design for customer experience, design for emotion, emotionally durable design, sensory branding, neurobranding, service design…" (Giacomin, 2014: 612).
[15] Participatory design, applied ethnography, lead user approach, contextual design, co-design, empathic design (Steen, 2008: 35).
[16] Such experience may be familiar for the development sector as well, with policy designs ignoring local realities.
[17] Critical literature exists on for example participatory design, as carefully reviewed by Steen, 2008: 56-58.

design. Such decision derives from the concern that the term "user-centered design" puts emphasis on the role of the human as user, which is "… by implication if not by intention – dehumanizing" (Jordan, 2002: 12).

My analysis attempts to take a critical approach as well; however, diverging from Steen's standpoints, by focusing on the discourse and on human-centered design and its representation of power relations within the global health and development nexus, and not mapping and analyzing the power relations embedded in the practice of such projects. As I will further elaborate in the next chapters, I do not aim to uncover *hidden* power relations and knowledge/power structures, as Foucauldian critical discourse analysis cannot be deployed to do so, since it deals with the realities the discourse may construct. In other words, the object of my study is *what's there*, and not *what cannot be seen*.

Human-centered design has taken an increasingly important place within development and global health projects. With its (assumed) sensitivity towards people, the HCD process "… is viewed as a particularly useful framework in development because it allows practitioners to gain a deep understanding of customers and stakeholders tied to their design context, and in its ideal form, HCD gives practitioners the freedom to modify any part of the design context toward its betterment" (Li et al., 2018: 3). Moreover, human-centered design with its "… focus on empathy, context, ideation and iteration appears well-suited to addressing issues of population health, and over the last decade there have been increasing examples of the use of design thinking [and HCD][18] for global health" (Bazzano, 2017: 2). The two texts referenced in this paragraph can be considered as inspirations for the systematic selection of articles into my analyzed corpus. In the following paragraphs I will briefly discuss their findings.[19]

Bazzano et al. (2017) in their extensive scoping review, titled "*Human-centred design in global health: A scoping review of applications and contexts*" analyzed the existing scientific and grey literature on human-centered design in global health "… to understand why and how HCD can be valuable in the contexts of health related research" (Bazzano et al., 2017: 1). They found that HCD has been a method applied across numerous locations and topics involving a wide range of issues. Their study underscores the gaps in the literature as well, stating that "… most design studies may not adequately describe

[18] Inserted by the author of the thesis.
[19] In the chapter titled "Selection of texts for analysis and coding" I will also highlight how I proceeded with ensembling my corpus in relation to their studies.

methodology, results, and impact of the application of design to health outcomes, potentially limiting the extent to which they may be critically evaluated and replicated" (Bazzano et al., 2017: 16-17). Therefore, they call for more precise empirical evidence of the effects of applying HCD in global health. Their undertake to conduct such scoping review assured me about the fact that there is a developing and evolving scientific discourse on HCD in global health. However, the goal of my study does not align with their call to fill in the gaps they identified, as I analyze the discourse constructed, maintained and renegotiated in the intersection of HCD, global health and development by scientific articles. Such call for analyzing the language of HCD in texts arrived from the working paper, which preceded the groundbreaking study written by Li et al. (2018), titled "*Co-author network analysis of human-centered design for development*". In the working paper Gordon et al. (2017) discuss in high detail the method of selection of texts for the analysis, and provide initial findings. They explicate that their "… paper is an effort to broadly characterize the HCD for development field and we welcome further researchers who aim to investigate how others have adopted, critiqued, or modified the language of HCD for development" (Gordon et al., 2017: 6). With my thesis I wish to take up this challenge and analyze the discourse on HCD through language as a form of text and its implications within my reading of the global health and development nexus. In their dataset, starting from 2004, they identified eighty-three papers published which applied human-centered design in development projects, out of which twenty-four papers were published in the field of global health – the second most popular topic among the various "sub-themes" of development – applying HCD, right after the topic of "inclusive infrastructure" (Gordon et al., 2017: 17). This finding also reinforced my perception of an existing and emerging scientific discourse on human-centered design. The authors attribute the popularity of HCD in global health (and in inclusive infrastructure) to the technological nature of interventions (Gordon et al., 2017: 14).[20] They also demonstrate that the emergence of HCD in published articles on development has taken off since 2009.

This date coincides with the year when IDEO, a United States-headquartered leading design firm introduced their Human Centered Design Toolkit, "… a first-of-its-kind book that laid out how and why human-centered design can impact the social sector" (IDEO.org,

[20] However, I consider global health interventions in a different manner compared to Gordon et al., (2017) and Li at al., (2018). I will elaborate on my choice of definition in the sub-chapter titled "Selection of texts for analysis and coding".

2015). This toolkit has been revised by the firm, and a book titled "*The Field Guide to Human-Centered Design*" was published in 2015. Since either the toolkit or the field guide were referenced in all of the texts I analyzed, their influence cannot be ignored. Even though analyzing the language and the text of the books could be a research topic in itself, here, let me elaborate on at least some of the aspects how the language through which the process of HCD is being introduced in *The Field Guide to Human-Centered Design* operates. Firstly, the HCD process is introduced as an admittedly and utterly optimistic project, with a firm belief in progress. "Embracing human-centered design means believing that all problems, even the seemingly intractable ones like poverty, gender equality, and clean water, are solvable" (IDEO, 2015: 9). They call for adopting a mindset, that is about Empathy, Optimism, Continuous Iteration, Creative Confidence, Making, Embracing Ambiguity and Learning from Failure. They claim that human-centered designers tinker, test, fail early and often,[21] spending "… a surprising amount time not knowing the answer to the challenge at hand" (IDEO, 2015: 10); yet, they "forge ahead" (IDEO, 2015: 10). However, this forging ahead is not completely linear and the process itself comprises of three phases: inspiration,[22] ideation[23] and finally, implementation[24] in which "[y]ou'll figure out how to get your idea to market and how to maximize its impact in the world" (IDEO, 2015: 11).

Briefly summarizing the logic of the process introduced, it is about:

> "… believing that the people who face those problems [like poverty, gender equality, and clean water][25] every day are the ones who hold the key to their answer. Human-centered design offers problem solvers of any stripe a chance to design with communities, to deeply understand the people they're looking to serve, to dream up scores of ideas, and to create innovative new solutions rooted in people's actual needs." […] "By starting with humans, their hopes, fears, and needs, we quickly uncover what's most desirable. But that's only one lens through which we look at our solutions. Once we've determined a range of solutions that could appeal to the community we're looking to serve, we then start to home in on what is technically feasible to actually implement and how to make the solution financially viable" (IDEO, 2015: 9-14).

[21] Although in the sense of "Fail early to succeed sooner" (IDEO, 2015: 21).

[22] Inspiration: "In this phase, you'll learn how to better understand people. You'll observe their lives, hear their hopes and desires, and get smart on your challenge" (IDEO, 2015: 11).

[23] Ideation: "Here you'll make sense of everything that you've heard, generate tons of ideas, identify opportunities for design, and test and refine your solutions" (IDEO, 2015:11).

[24] Implementation: "Now is your chance to bring your solution to life. You'll figure out how to get your idea to market and how to maximize its impact in the world" (IDEO, 2015: 11).

[25] Inserted by the author of the thesis.

It is noteworthy how the guide positions the designer rather ambiguously in terms of shifting focus from “designing with” communities and having the belief that people have the *answers* and *solutions,* to bringing the *designer’s idea* to the market and maximize its impact. In my reading, such ambiguity raises numerous questions about the ownership of the ideas (services and products), about the power relations in which the communities may be the “Others” against the normalized authority of the designers, and signals potential issues regarding economic[26] gains and losses once the products and services (and ideas) are brought to the market. These issues are amplified if read in light of the concept of psychopolitics, considering that product and service development in human-centered design is based on the quick emotional input extracted from users with the optimistic promise that there’s no problem that cannot be overcome. And doing so to maximize *impact* in the world with the product on the market. In this market-oriented conceptualization of the HCD output, it is perhaps not too implausible to understand impact as a result of demand or supply generation for, and maximizing consumption and production of the products and services that are made desirable through HCD. Understanding global health issues in the grand framework of the neoliberal market without critical lens, thus, interpreting them as market failures on the demand or supply side, may hinder shifting the focus towards understanding this grand framework itself as the driver of global socio-economic and socio-political issues producing health (and wealth and income) inequalities, while hiding under the shield of self-proclaimed respect towards local individual human needs. Such concerns and contradictions lead me to start my investigation on the discourse on human-centered design in global health and development.

IDEO has not been the only design firm giant expressing its support towards applying HCD in societal challenges. It has been supported by for example Frog, Dalberg Design, and countless smaller organizations. Donors are also pushing for more human-centered design projects in the field(s) of global health and development. Notable examples are the Center for Innovation and Impact at the United States Agency for International Development (USAID) and the Bill & Melinda Gates Foundation, who also started to set up a network of implementers, donors and designers (DesignforHealth.org, 2017; Cheney, 2018). In fact, the above-discussed field guide and toolkit were also made possible through funding from the Gates Foundation (Gordon et al., 2017).[27] The HCD method has also been applied in the

[26] Even in case of public goods.
[27] Research on the funding networks on human-centered design would also be a very fruitful investigation.

work of the most prestigious international development organizations. One notable example is the United Nations Children's Fund (UNICEF), who also produced their own human-centered design kit in a booklet titled "*Demand for Health Services: Field Guide – A Human-centered approach*" (hcd4i.org, 2018).[28]

It is clear that HCD for development and global health has been more and more widely applied and accepted. It has entailed criticism as well, that mostly "… critique the problematic hierarchy between the outsider designers and the targeted design beneficiaries" (Clarke, 2015; quoted in Gordon et al., 2017) and the heavy focus on the "… individual humans as the actor of interest for understanding a design context, which can make a designer blind to the broader social dynamics" (Gordon et al., 2017). Janzer and Weinstein (2014) approach the emergence of design thinking and human-centered design from a position concerned with the neocolonial nature of these approaches.[29] They draw attention to three issues regarding the process:

1. "Research is deemphasized, devalued, and simplified. The necessary context required to inform effective problem definition and relevant concepts is removed.
2. There is no emphasis on ensuring or checking that solutions are appropriate, informed by context, or that issues are thoroughly understood prior to the design and implementation of solutions.
3. The agenda of the designer and freedom of creativity are prioritized over more paramount components such as end-user empowerment and a deep understanding of the end-user's worldviews" (Janzer and Weinstein, 2014: 331).

For these three findings I would also like to add one more: there's a tendency that human-centered design projects portrayed in scientific research in the field of global health and development do not reflect on the rich theoretical streams of thoughts neither in development studies, nor global health, nor in their reading as intertwined discourses. In the interpretative analysis part of my thesis I will also attempt to draw linkages to two development theories, while keeping in mind my own theoretical perspective, and the main dilemma of my writing.

[28] I call for further research on the critical comparison of the guides.

[29] A notable and utterly well-written attempt to investigate HCD methods in cross-cultural settings should be mentioned here. Lee (2012) in her PhD dissertation titled "*Against Method: The Portability of Method in Human-centered Design*" discusses how human-centered design methods should be, can be and are modified according to local realities, however, she does not question the implications of global power structures, nor the implications of "exporting" HCD as a "Western" product to the "Rest" on a more theoretical level. Her book, however, provides great examples and recommendations for practitioners in cross-cultural settings.

4. Making sense of the discourse on human-centered design in the context of the global health and development nexus

To investigate the rather contradicting dilemma of reading HCD as psychopolitical tool, or as a technology facilitating alternatives to development, and to study the construction of identities and power relations through discourse and language, I believe the most suitable tool is the Foucauldian critical discourse analysis. Foucauldian critical discourse analysis helps to see already existing analyses on the topic in new light as well, as it recognizes the fact that they also contribute to the formulation and development of the discourse, hence affecting, or rather, constituting the reality and the consciousness of individuals and populations alike. To understand the approach of critical Foucauldian discourse analysis, and to explicate the importance of studying it, first I discuss how discourse as such can be understood. According to Jäger (2001: 34) discourse is "the flow of knowledge – and/or all societal knowledge stored – throughout all time, which determines individual and collective doing – and/or formative action that shapes society, thus exercising power. As such, discourses can be understood as material realities sui generis." Such definition stands in contrast to the concept of false consciousness in orthodox Marxist ideology critique, because Foucauldian theory of discourse does not consider discourses as mere "distorted views of reality" or "necessarily false ideologies", but it recognizes the fact that representations of reality through discourses have their own materiality as well, "… they produce subjects and – conveyed by these in terms of the 'population' – they produce social realities" (Jäger, 2001: 36).

Despite the fact that according to Foucauldian theory it is the discourse that creates individual subjects, not the other way around, it does not deny the subject per se. It rather constitutes the subject within its historical and socio-economic context, hence, stands against individualism and subjectivism (Jäger, 2001: 38). However, one must account for the fact that her/his analysis cannot and does not stand outside of the discourse; it is inherently part of it, and contributes to shaping, formulating and fabricating it. Yet, influencing and accessing discourses are not democratic, nor are equally available for everyone.[30] People existing within different power relations have different power over influencing discourses. It does not mean that a single person can exercise power over discourses, nor does it mean that discourses come to existence through conscious manipulations. Hence, we must differentiate

[30] Note that in Foucauldian theory power is everywhere as it comes from everywhere through discoursive formations. Discourses come to existence without the individuals' intentions.

between the intentions of a participant in discourse and the social consequences of independent, living discourses (Jäger, 2001: 34-39).

Through critical discourse analysis the interpreters can reveal the discourses' "… contradictions and non-expression and/or the spectrum of what can be said and what can be done covered by them, and by making evident the means by which the acceptance of merely temporarily valid truths is to be achieved" (Jäger, 2001: 34). Foucauldian critical discourse analysis does not seek ultimate truths. It recognizes that "… truth is contingent upon the the subjectivity of the reader and the fickleness of language", hence, Foucauldian discourse analysts do not speak of "findings" in their work, as they recognize that "… the reader has ultimate authority over interpretation" (Graham, 2011: 666). It is rather about questioning the truth(s) that we have learned to take for granted, and about understanding how they have come to existence. Foucauldian critical discourse analysis is about making sense of the power and knowledge structures that shape our reality and the individual and collective consciousness and our truths, and invites them/us for active participation in it.

Critiques of the approach oftentimes claim that it results in relativism. However, as Graham (2011: 666) highlights, evoking Wetherall: in poststructuralist scholarship "the process of analysis is always interpretive, always contingent, always a version of reading *from*[31] some theoretical, epistemological or ethical standpoint" (2001: 384). It does not mean that there's no truth, it solely means that the understanding of truth is contingent, and "subject to scrutiny" (Graham, 2011: 666). Yet, I believe for the sake of transparency and for the sake of producing valuable knowledge, the poststructuralist, constructivist scholar must admit to the theoretical and conceptual standpoints of her/his readings and truths, as I attempted to do so in the previous chapters. In fact, as Graham (2011: 666) argues: "Ultimately, the value of poststructural work is intellectual and conceptual." […] "Through the experience such analysis provides, it is possible to come to a different relationship with those truth(s) which may enable researchers to think and see otherwise, to be able to imagine things being other than what they are, and to understand the abstract and concrete links that make them so."

What are the implications of such thoughts for the methodology? How can we study social constructs and power/knowledge structures? As Graham (2011: 667) argues based on Foucault's famous writing, "*The Archeology of Knowledge"* (1972): discourse analysis does

[31] Italics added by the author of the thesis to highlight once more the importance of positionality.

not aim at uncovering some sort of "true meaning" of what is said or written, or unsaid or unwritten. "Instead, when 'doing' discourse analysis within a Foucauldian framework, one looks to *statements*[32] not so much for what they say but what they do; that is, one question's what the constitutive or political effects of saying this instead of that might be?" Graham (2011), Following Foucault's thought highlights that "there is no subtext" (1972: 134): "The analyst's job 'does not consist therefore in rediscovering the unsaid whose place [the statement] occupies' [1972: 134]. Instead, Foucault [ibid.] maintains that 'everything is never said' and that the task is to determine, in all the possible enunciations that could be made on a particular subject, why it is that certain statements emerged to the exclusion of all others and what function they serve" (Graham, 2011: 667). Therefore, the method of critical discourse analysis aims at explicating statements which "… coagulate and form rhetorical constructions that present a particular reading of social texts" (Graham, 2011: 667).

That being so, in my analysis I investigate how statements about and around the "human" in human-centered design (re)constructs, (re)defines and constitutes its subjects, and how the representation of such approach renders and constitutes the human in the center into power relations in global health projects, which are already embedded into tense historical and socio-economic realities (of discourses) currently shaped by neoliberalization. It is important to clarify here that statements are not exclusively words or sentences. They can be signs, symbols, utterances, descriptions, categorizations, and so forth, as long as they contribute to meaning creation in a broad sense.

4.1.1. Dealing with the present[33]

Before discussing my interpretations, I must reflect on two issues that I have to deal with for the sake of clarity of my methodology and its implications on my work. First, the fact that I analyze texts and statements which are products of the present, or at best, the near past, requires me to diverge from the "classical"[34] sense of Foucauldian discourse analysis.

[32] Italics added by the author of the thesis. As Fadyl et al. (2013: 483) quoting Foucault (1972): "… one can only 'state' something with implicit reference to a field of truth and knowledge, which provides context and determines function, without this it is meaningless."

[33] I will not elaborate on the philosophical understandings of the "present"; however, it would be a potentially fruitful analysis in light of Foucault's work.

[34] If it is possible to diverge from it, as it is in itself a very fluid technique, that allows for modification and can even be considered as a "toolbox" following Foucault's frequently cited words: "I would like my books to be a kind of tool-box which others can rummage through to find a tool which they can use however they wish in their own area [...] I would like the little volume that I want to write on disciplinary systems to be useful to an educator, a warden, a magistrate, a conscientious objector. I don't write for an audience, I write for users, not readers" (Foucault, 1994: 523-524, quoted in Fadyl, et al., 2013: 490).

As noted by Rainbow and Rose (2003) and problematized by Fadyl et al. (2013: 491), in the context of health practices, Foucault "… never wrote an archeology or genealogy that included analysis of the present-day." He, in fact, analyzed how our current understandings of things believed to be evident, came to existence through discursive operations of power and knowledge, for which he utilized two interconnected methodological tools:[35] genealogy and archeology, "… with archaeology working to allow identification and examination of discursive formations, and genealogy providing analysis of how these formations come about and operate through knowledge–power relations" (Fadyl et al., 2013: 481). In other words, genealogy provides "… the analysis of the topic at various points in history, which work to illuminate the discourses and practices of the present time by examining their past forms" (Fadyl et al., 2013: 488).

Diverging from Foucault's method, in my analysis I do not strategically map the historical formation of the discourse on HCD, but I do reflect on its emergence and reformulations.[36] As it is proposed by Fadyl et al. (2013: 492), who applied and reinterpreted Foucault's theoretical and methodological work in order to conduct a discourse analysis on vocational rehabilitation:

> "… Foucault's work has enabled a form of analysis that can include an explicit link to the present-day, combining a history of the present with an analysis of the present itself, with a focus on what discourse enables. This can encompass two types of effects concerning discourse in the present: first, what is produced and reproduced by discourse to the extent that it appears self-evident and second, the 'grey' areas – articulations, actions and material effects that do not fall outside of possibility within current discourse but are still not squarely within what seems self-evident."

This interpretation of Foucault's work is fairly frequently applied not only in discourse analysis in public health, but in various other fields as well, and perhaps the most exciting analyses on our present are born by analyzing how present understandings are being constantly re(created) and (re)negotiated, thus, bending the boundaries of what can be said through the "grey" areas.[37]

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[35] Or, as Foucault named them, "dimensions of analysis" (Foucault, 1992: 12).

[36] See the chapter on Conceptualizing human-centered design in the context of the global health and development nexus as well, and further reflections in my analysis.

[37] See for example the fascinating work of Kováts and Pöim (2015) on how the initially subversive concept of "gender" is currently being renegotiated, reframed and reconstructed as a "symbolic glue" that is deployed by

That being stated, I would like to highlight that, although I deal with the present, it is not without reflection on the historical context and knowledge-power structures that made such formulations and constitutions possible in the specific way they are being thought of and being framed. It is maybe not too implausible to consider neoliberalism as the *episteme* of our times. In Foucault's work *episteme* refers to the overarching thought that structures our way of knowing about what is true and what is false, what can be said and what cannot. As he defines it, it is "… the strategic apparatus which permits of separating out from among all the statements which are possible those that will be acceptable within, I won't say a scientific theory, but a field of scientificity, and which it is possible to say are true or false" (Foucault, 1980: 197).[38] In my work I reflect on how the discoursive construction of the human is subject to the neoliberal techniques of power in the form of bio- and rather psychopolitics through the discourse on human-centered design, and how this neoliberal episteme allows to frame projects applying HCD. Yet, I acknowledge that there may be multiple epistemes co-existing at the same time.[39, 40]

4.1.2. Negotiating scientific discourse

The second issue I have to reflect on is the fact that in my analysis I investigate a set of scientific articles exclusively, although taking into consideration a more diverse set of texts about HCD in the chapter "Conceptualizing human-centered design".[41] Some scholars argue that the strength of Foucauldian critical discourse analysis lies in the diversity of the sources of texts (e.g. Fairclaugh, 2003). Hence, the reasons behind my decision to limit my analysis to scientific articles, and the implications of studying "scienctific" discourse require further explication.

One of Foucault's main topics was to problematize the scientific knowledge production, or rather, the previously mentioned "scientificity" across various fields. However, to link back to the concept of episteme I evoked in the previous sub-chapter, he framed his inquiry

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conservative and far right discourses to reconstitute themselves against various imageries of the "Other" glued together under the term "gender".

[38] The Foucauldian concept of "episteme" is very similar to the concept of "paradigm" explicated by Thomas Kuhn in his famous work, titled "*The Structure of Scientific Revolutions"* (1962). Episteme, however, is not restricted to scientific discourse.

[39] With this thought Foucault's work was rather incoherent. See for comparison Foucault's "*Archeology of Knowledge"* (1971, chapter II.IV.) referring to more epistemes possible, versus chapter VI.I. of "*The Order of Things*" (1994) referring to one episteme only in one epoc.

[40] It does not mean that one episteme cannot be hegemonic.

[41] However, without analytical lens – yet, I cannot deny that it is also becoming a part of the discourse on HCD.

in the preface of "*The Order of Things: An archaeology of the human sciences"* (1994: XXII) as the following: "…what I am attempting to bring to light is the epistemological field, the episteme in which knowledge, envisaged apart from all criteria having reference to its rational value or to its objective forms, grounds its positivity and thereby manifests a history…" Such episteme is independent from the individual scientist; it is the accepted grand framework and logic of producing knowledges, and ways of formulating truths and falses, or, in other words, things one can say or cannot say. Through analyzing a systematically selected set of scientific articles that are representations of human-centered design projects, I can sensibly investigate the dilemma I proposed through understanding and interpreting the ways of representations and the (re)constructions of humans in the middle through contrasting them against the episteme of knowledge (and subject) production. I chose this specific genre, because I assumed great detail (richness in quality) in scientific articles about challenges, definitions, justifications and descriptions. Scientific articles also carry the authority of legitimacy, producing and reproducing what can be said, hence, providing a great media for reading against, or reading within the episteme of our times.[42]

It is important to note here that my interpretations are not critiques of the individual articles, nor the projects the selected papers discuss, but the ways of representations and (re)constitutions and meaning (re)creations.[43] One may argue that, after all, my interpretations are in fact about the scientific discourse, and not the discourse on human-centered design. To reflect on it, it is important to highlight that "… there is a mutual relationship between discourses and *institutions;* discourses are produced and disseminated through institutional practices and they in turn legitimize and maintain these practices" (Georgaca and Avdi, 2012: 148). Thus, in the case of my analysis, the institution of the academia must be briefly problematized. Following the thought of Simon Springer (2012) who reads neoliberalism as a discoursive construction,[44] "[f]rom initial explorations concerned with the implications for state reform, the expansion of neoliberalism into a field of academic inquiry has been meteoric" (2012: 135). Indeed, there is a growing literature

[42] Or representing traces of ruptures on the epistemes.

[43] One must also consider the production of scientific texts as a process that involves not only the author(s), but the contributions of an editorial team, the knowledges of peer-reviewers and the participants of the research/project as well. It is a highly discoursive genre.

[44] Integrating four conceptualizations: neoliberalism as "governmentality", as "policy program", as an "ideological hegemonic project" and as a "state form" (Springer, 2012: 136-138) following the work of Ward and England (2007).

problematizing how academic practices and knowledge production is subject to neoliberalization, highlighting for example the commodification of conferences (Nicolson, 2017), or how the logic of neoliberal consumerist capitalism imposes the logic of demand and consumption, and fast production on the academia (Pack, 2015).[45] These tendencies must be accounted for when analyzing what can be said about human-centered design in the academic discourse – and how it is being framed. I argue that even though my analysis is limited to this discoursive reality of HCD in global health, it does powerfully shape the production of identities and perceptions with its authority and social status. Beside the theoretical considerations in focusing my study, I also had to approach my analyzed corpus from a more practical perspective to enhance the feasibility of my study within set timeframes. In the next chapter I discuss the method of text selection and exclusion I applied in ensembling my corpus.

4.2. Selection of texts for analysis and coding

When deciding to analyze the discourse on HCD in global health I faced many challenges about *how* to do it. I decided to analyze the language of published and peer-reviewed scientific articles because of two reasons. First, as discussed above, I wanted to analyze texts which portray HCD in detail, with potential problematization of power relations faced on the field. My pre-analysis which I conducted on a more diverse set of texts, including reports and articles from arbitrarily selected NGOs and companies showed great variance in the depth of detail, and I found it difficult to set up systematic criteria of inclusion and exclusion into the corpus, as some companies do publish, some do not publish their reports online. On the other hand, in papers published in scientific journals I found more consistent portrayal of the process, and the criteria of selection and exclusion proved to be more feasible through search engines. Second, I found it somewhat attractive and suitable for my discourse analysis that the process of publishing in peer-reviewed journals is highly discoursive and never confined solely to the author(s)' input. It should be noted, that when I speak of *scientific* texts, I simply mean that the texts were published in scientific journals, hence, they carry the (questionable) legitimacy of academia, and provide a platform to analyze what is considered to be "true"; in other words, what can be said and what is accepted as scientific knowledge. Moreover, the genre requires some form of justification of *why* selecting human-centered design as a method or process, which is a great opportunity to analyze how

[45] Or our everyday experience facing austerity policies introduced on various levels of education.

human-centered design fits or diverges from the episteme. Of course, there are other platforms for scientificity within the academia as well, such as books, conference papers, conference speeches, dissertations and research proposals; however, for the sake of integrity of my corpus and the feasibility of my study, I decided to confine my focus to peer-reviewed journal articles. It was a rather difficult decision, since for example PhD dissertations and conference papers oftentimes discuss case studies, which could be a potentially great source for further analysis.

The next decision I had to make was the selection of the search engine. The two most popular online search engines for health related literature are PubMed and Google Scholar. Research suggest that the two engines often give different results; however, Google Scholar is more likely to identify papers classified as relevant (Nourbakhsh et al., 2012). Thus, I decided to pull articles using Google Scholar. To facilitate the management of the enormous number of texts identified, I used the software Publish or Perish (Harzing, 2007) following the method of Gordon et al. (2017). This software also allows for exporting the list of identified texts into more manageable formats, like Excel sheets.[46]

The next step was to identify keywords that may be utilized to find the best matches for my analysis. For this, it was necessary to establish a more operative definition of "global health". As I refuse to read global health as an issue of developing countries only, I decided to utilize the definition of Koplan et al. (2009) who states that in global health the word "global" "… refers to any health issue that concerns many countries or is affected by transnational determinants such as climate change or urbanization, or transnational solutions." […] "such that the 'global' in global health refers to the scope of the problems, not their location" (Koplan et al., 2009: 1994). In my reading this definition allows for shifting the (neo)colonial gaze looking at a predefined set of localities and groups that need to be "made healthy", and allows for reflection on the fact that issues may be prevalent in developed[47] countries as well. Moreover, I also had to consider establishing a more operative definition of "development". The discourse on development is highly contested, and the definitions of development carry heavy political meanings. The reading of development from a post-structuralist perspective implies the deconstruction of development itself, and understanding it as a discursive power-field embedded in history that creates its

[46] See the Excel sheets on the attached CD, or contact the author of the thesis.
[47] I use the term for countries with "high" and "very high" Human Development Index where it is not a reflection on discourse.

subjects and objects who need to be improved and governed over (Escobar, 1995). The keywords I introduced are drawing upon the historically constructed subjectivities, localities and objects that fall under the governance of the development discourse. It is important to note that by introducing such keywords I also contribute to the (re)creation of the boundaries of the field. Yet, I aimed at not limiting the localities to a predefined set of countries that needs to be developed.

Hence, I included sets of keywords in my search that are not specifically related to developing countries (and its synonyms), but can be understood in the context of developed countries too, such as “low-resource” or “underserved”. Nevertheless, to keep my topic focused on the intersection of global health and development, I decided to put emphasis on keywords that are explicitly placing texts in this discourse – leaving it up to the texts to define what their reading is about development and health. As discussed in the subchapter titled “The global health and development nexus”, global health can be read as rather a set of issues; thus, I did not want to limit my search to very specific topics, such as HIV-prevention or child mortality. I let my keywords be as inclusive as possible, to allow topics to emerge. However, the hard criteria I set at this stage was that the texts must include the expressions of both “human-centered design” and “health”. This way, I iteratively ensembled the following keyword pairs: "human-centered design” conjoined separately with “global health” and “international health”, and the following triplets: “human-centered design” and “health” conjoined with “international development”, “global development”, “development studies”, “third world”, “developing economies”, “low-resource”, “underserved”, “global poverty”, “developing world”, “global inequality”, “developing country”. The goal of this stage was to draw as many relevant texts from the pool of potentially descriptive literature as possible to further narrow them down in later stages. The selection of keywords was partially iterative and partially drawing upon the set of keywords Gordon et al. (2017: 6) introduced based on a survey. This method is widely applied in scoping reviews of emerging disciplines.

The search with the keywords resulted in 2347 finds, after screening the literature set for duplicates. Following this step, I systematically screened the literature. I started with excluding documents which were not cited in other documents until the end of 2017. I had two reasons to exclude such texts from my corpus. First, I had to consider the feasibility of my work, as it would have been impossible to analyze all of the findings. Second, the citation count may be an utterly distorted indication of impact of articles on the discourse,

but it is the closest proxy I found deployable for screening. However, I eased this criterion to include texts which had 0 at their citation count, but were relatively new – published after 2017 – to include articles that may have not had the time to be read by a wider audience. This way I narrowed my corpus down to 1366 texts. Then, I excluded books from the data set, as this genre offers great variety in the depth of portraying HCD projects, and my research focus is explicitly on texts that may explicate applied human-centered design in depth. This resulted in a collection of 1146 files that I screened for the following selection criteria one by one.

I wanted to investigate texts that were written by authors who actually conducted or participated in the human-centered design process portrayed in the articles. I decided to screen for this criterion, because many articles discussed HCD only on a theoretical level, or as an alternative method to what the articles actually used, with no, or very little practical and rich examples, which would be essential for my investigation. It was also a priority to include those articles which explicitly mentioned the application of HCD, and not its synonyms (like design thinking), despite the sometimes interchangeable nature of them discussed in the chapter "Conceptualizing human-centered design", to have a clearer focus on HCD. I also excluded articles that did not draw clear linkages to health issues, but I decided to keep articles that drew linkages to improving individual or community health, or health inequity or inequality through the products or services designed. Moreover, I excluded texts which were not written in English, and articles that were not available through legal channels.[48] Furthermore, I decided to exclude texts that were written in other genres than peer-reviewed and published journal article, as the Google Scholar search pooled for example from conference papers, book reviews and short articles as well. It was a rather difficult dilemma to exclude or include conference papers, as some of them explained in rich detail health related HCD projects. After thorough consideration, I decided for exclusion to keep the integrity and focus of my dataset. Further research might involve a more diverse, but similarly systematic source selection.

At this point I ended up with 49 papers (see in attachment "Results.xlsx"[49]) that I re-screened for the above-mentioned criteria, and I introduced a new, more subjective criterion:

[48] It should be noted that very few literatures (11 texts) were not available for me, which is due to the nature of the Erasmus Mundus Joint Master Degree in International Development Studies, and the online library access provided through the 3 universities' systems.
[49] With the initial codes for my pre-analysis included.

the articles must be descriptive about the human-centered design process. Hence, I excluded papers that were only mentioning "HCD principles"; those which evaluated the impact of a product or service which was designed through HCD process without discussing the process itself; those which referred to only a method that is also applied in HCD; and those which were not explicating the HCD process in general, though claiming that they applied human-centered design. However, I included articles that mixed HCD with other methods, in case human-centered design was also discussed. In the documents I applied color cording first, and in the later stages I complemented the codes with short explanations for inclusion/exclusion where it was necessary.[50]

I conducted the pooling of the texts from the 26th of March, 2019, to the 30th of March, 2019. I did not set a timeframe for the date of the publications, as I wanted to have the widest reach possible timewise too. This resulted in the following corpus of texts fitting my criteria, on which I conducted the discourse analysis:

Table 1. – Selected articles for the analysis

Inclusion	Author(s)	Title	Year of publication	No
No explicit mentioning of global health, but fits the definition	Person, B.; Knopp, S.; Ali, S. M.; A'kadir, F. M; Khamis, A. N.; Ali, J. N.; Lymo, J. H.; Mohammed, K. A.; Rollinson, D.	Community co-designed schistosomiasis control interventions for school-aged children in Zanzibar	2016	1
Fits the selection criteria	Boyd, N.; King, C.; Walker, I. A.; Zadutsa, B.; Bernstein, M.; Ahmed, S.; Roy, A.; Hanif, A. A. M.; Saha, S. C.; Majumder, K.; Nambiar, B.; Colbourn, T.; Makwenda, C.; Baqui A. H.; Wilson, I.; McCollum, E. D.	Usability Testing of a Reusable Pulse Oximeter Probe Developed for Health-Care Workers Caring for Children< 5 Years Old in Low-Resource Settings	2018	2
No explicit mentioning of global health or international health, but fits the definition by addressing health inequalities	Vechakul, J; Shrimali, B. P.; Sandhu, J. S.	Human-centered design as an approach for place-based innovation in public health: a case study from Oakland, California	2015	3
Fits the selection criteria	Catalani, C.; Green, E; Owiti, P.; Keny, A.; Diero, L.; Yeung, A.; Israelski, D.; Biondich, P.	A clinical decision support system for integrating tuberculosis and HIV care in Kenya: a human-centered design approach	2014	4
No explicit mentioning of global health, but problematizing health inequality and serving the underserved.	Kia-Keating, M.; Santacrose, D. D.; Liu, S. R.; Adams, J.	Using Community Based Participatory Research and Human Centered Design to Address Violence-Related Health Disparities among Latino/a Youth	2017	5
No clear explanation of global health, but	Lucero, R.; Sheehan, B.; Yen, P.; Velez, O.; Nobile-Hernandez, D.; Tiase, V.	Identifying consumer's needs of health information technology through an innovative participatory design approach	2014	6

[50] In the Master file on the CD attached: orange = irrelevant/not fitting the criteria, blue = not available legally, purple and its shades (the darker, the more relevant for me) = theoretical approach, yellow = to be revisited, and green = fits for inclusion. In the Results file I only applied 3 color codes: orange = irrelevant/not fitting the criteria, purple = more theoretical approach, and green = keep for inclusion. I also gave short explanations for my decisions in the first column of the Excel sheet.

referring to global tendencies		among English-and Spanish-speaking urban older adults		
Fits the selection criteria	Vedanthan, R.; Kamano, J. H.; Horowitz, C. R.; Ascheim, D.; Velazquez, E. J.; Kimaiyo, S.; Fuster, V.	Nurse management of hypertension in rural western Kenya: implementation research to optimize delivery	2014	7
No explicit mentioning of global health, but targeting health issues among others	Kisaalita, W. S.; Katimbo, A.; Sempiira, E. J.; Mugisa, D. J.	Cultural Influences in Women-Friendly Labor-Saving Hand Tool Designs: The Milk Churner Case	2016	8
Fits the selection criteria	Bhatt, S.; Isaac, R.; Finkel, M.; Evans, J.; Grant, L.; Paul, B.; Weller, D.	Mobile technology and cancer screening: Lessons from rural India	2018	9
Fits the selection criteria	Salmon, M.; Salmon, C.; Bissinger, A.; Muller, M. M.; Gebreyesus, A.; Geremew, H.; Wendell, S.; Azaza, A.; Salumu, M.; Benfield, N.	Alternative ultrasound gel for a sustainable ultrasound program: application of human centered design	2015	10
Fits the selection criteria	Vedanthan, R.; Blank, E.; Tuikong, N.; Kamano, J.; Misoi, L.; Tulienge, D.; Hutchinson, C.; Ascheim, D. D.; Kimaiyo, S.; Fuster, V.; Were, M. C.	Usability and feasibility of a tablet-based Decision-Support and Integrated Record-keeping (DESIRE) tool in the nurse management of hypertension in rural western Kenya	2015	11
Fits the selection criteria	Cole, B.; Pinfold, J.; Ho, G.; Anda, M.	Exploring the methodology of participatory design to create appropriate sanitation technologies in rural Malawi	2014	12
Not explicitly global health, but fits the criteria in terms of reducing health inequalities	Huang, T. T. K.; Aitken, J.; Ferris, E.; Cohen, N.	Design thinking to improve implementation of public health interventions: an exploratory case study on enhancing park use	2018	13
Fits the selection criteria	Mullaney, T.; Pettersson, H; Nyholm, T.	Thinking beyond the cure: A case for human-centered design in cancer care	2012	14
Fits the selection criteria	Knopp, S.; Person, B; Ame, S. M.; Mohammed, K.; A.; Ali, S. M.; Khamis, I., S.; Rabone, M.; Allan, F. Gouvras, A.; Blair, L.; Fenwick, A.; Utzinger, J.; Rollinson, D.	Elimination of schistosomiasis transmission in Zanzibar: baseline findings before the onset of a randomized intervention trial	2013	15
Fits the selection criteria	Modi, D.; Gopalan, R.; Shah, S.; Venkatraman, S.; Desai, G.; Desai, S.; Shah, P.	Development and formative evaluation of an innovative mHealth intervention for improving coverage of community-based maternal, newborn and child health services in rural areas of India	2015	16
Not explicitly global health, but fits the criteria in terms of reducing health inequalities	Swierad, E.; Huang, T.	An Exploration of Psychosocial Pathways of Parks' Effects on Health: A Qualitative Study	2018	17
Fits the selection criteria	Adam, M.; McMahon, S. A.; Prober, C.; Barnighausen, T.	Human-Centered Design of Video-Based Health Education: An Iterative, Collaborative, Community-Based Approach	2019	18
Fits the selection criteria	Salgado, M.; Wendland, M.; Rodriguez, D.; Bohren, M. A.; Oladapo, O. T.; Ojelade, O. A.; Olalere, A. A.; Luwangula, R.; Mugerwa, K.; Fawole, B.	Using a service design model to develop the "Passport to Safer Birth" in Nigeria and Uganda	2017	19
Not explicitly global health, but fits the criteria in terms of designing for the underserved	Martin, E.; Cupeiro, C.; Pizarro, L.; Roldán-Álvarez, D.; Montero-de-Espinosa, G.	"Today I Tell" A Comics and Story Creation App for People with Autism Spectrum Condition	2018	20
Fits the selection criteria, aiming at helping the underserved, but not designing with them.	Portnova, A. A.; Mukherjee, G.; Peters, K. M.; Yamane, A.; Steele, K. M.	Design of a 3D-printed, open-source wrist-driven orthosis for individuals with spinal cord injury	2018	21

I believe the inclusion of some of the articles into the analyzed corpus require further explanation. Article 1 and 15 are interrelated in their topic and share some of the authors.

Article 1, "*Community co-designed schistosomiasis control interventions for school-aged children in Zanzibar*" (Person et al., 2016) for example did not explicitly mention global or international health in the body of the text, but it did fit the inclusion criteria as countering schistosomiasis is a global issue, and its prevalent across countries (WHO, 2019). On the other hand, article fifteen, "*Elimination of schistosomiasis transmission in Zanzibar: baseline findings before the onset of a randomized intervention trial*" (Vedanthan et al., 2015) does explicitly reflect on the global nature of their topic. Article 3, titled "*Human-centered design as an approach for place-based innovation in public health: a case study from Oakland, California*" (Vechakul et al., 2015) was conducted in a highly developed country, the United States; however, it does reflect on within country, but cross-state health inequalities, and it does target communities that are constructed as "underserved" in their context. I argue that the inclusion of this article aligns with the definition of global health I proposed, because the existence of health inequalities is a global phenomenon. Article 13 and 17 are interconnected articles as well, exploring the effects of park use (Huang et al., 2018; Swierad and Huang, 2018) in yet again a highly developed context in New York, US. The decision for inclusion was more clear with article 17, as they explicitly focused on groups that are constructed as "predominantly underprivileged", whose situation needs to be improved. In case of article 13, however, the focus was to train public health researchers to acquire skills in HCD and design thinking with an example that *may* serve underserved neighborhoods. I decided to include the article, because it does implicitly reflect on a global phenomenon, namely urbanization, hence fitting the definition I deployed. Article 14, titled "*Thinking beyond the cure: A case for human-centered design in cancer care*" (Mullaney, et al., 2012) is another example conducted in a highly developed context, in Umea, Sweden. However, the topic they investigated – namely: cancer care – is clearly a global phenomenon, that has an increasing burden on developing countries especially (Boutayeb and Boutayeb, 2005). The research of the text number 20, titled "*'Today I Tell' A Comics and Story Creation App for People with Autism Spectrum Condition*" was also conducted in a developed country setting in Spain, but it touched upon an issue – autism – with global occurrence, even though there is a lack of quality data from low- and middle-income countries (Elsabbagh et al., 2012). Thus, I considered it as fitting my selection criteria based on the definition I deployed. Article 21 titled "*Design of a 3D-printed, open-source wrist-driven orthosis for individuals with spinal cord injury*" (Portanova, 2018) was also set in a high income country context, namely in the US, yet its explicit aim was to contribute to the improvement of the situation of the constructed group of the "underserved". Moreover,

spinal cord injury is increasingly recognized as global health priority "… in view of the preventability of most injuries and the complex and expensive medical care they necessitate" (James et al., 2018: 56). Hence, I decided to include the text into my corpus. Furthermore, article 6, "*Identifying consumer's needs of health information technology through an innovative participatory design approach among English-and Spanish-speaking urban older adults*" (Lucero et al., 2014) is also set in New York, US, and also lacks clear linkage to global health. However, it does reflect on the global occurrence of its topic, which enabled me to include it into my analysis. Article 8, "*Cultural Influences in Women-Friendly Labor-Saving Hand Tool Designs: The Milk Churner Case*" (Kisaalita, 2016) does not reflect on global health as such either, but its findings had health improving qualities discussed. The other articles in the corpus fitted the inclusion criteria and either explicitly referred to global, or to international health and development, entering their intertwined discourse, hence, constituting the corpus of my interest.

In my analysis I focused on the body of the texts, excluding the references part of each study. I also decided to include the titles and the abstracts into my analysis; however, those contained less rich information, but helped the navigation in linking HCD to global health. The coding process of the analysis was a careful, but organic balancing between deductive and inductive thinking. I believe it is important to honestly admit from what intellectual position I started my reading and writing process, because the concepts and theories I introduced in the second chapter clearly shaped my readings of the corpus, and highly influenced the coding of the texts and fragments. This can be considered deductive thinking, as I approached the texts from already existing conceptual frameworks. Moreover, the inclusion of the texts into the analyzed corpus was highly dependent on pre-defined definitions and criteria. However, I also aimed at allowing the codes and themes to emerge from the texts, shifting towards a more inductive thinking in the analysis part. The goal of this inductive thinking was to align with the (modified) Foucauldian critical discourse analysis method, that is a clearly text-based, bottom-up approach, but does not deny the situatedness of knowledge in the pursuit of truth, hence, legitimizing deductive thinking as well. To establish a sense of emerging keywords and focus, I first input the texts I analyzed into Atlas.ti 8, and created a word cloud (*Image 1.*), which is based on the frequency of the words in the corpus. Note that this method is based on the quantity (frequency) of the words, but it can provide useful insight about surprising or inspiring themes emerging from the texts. However, to investigate the questions and dilemmas I proposed, it was essential to

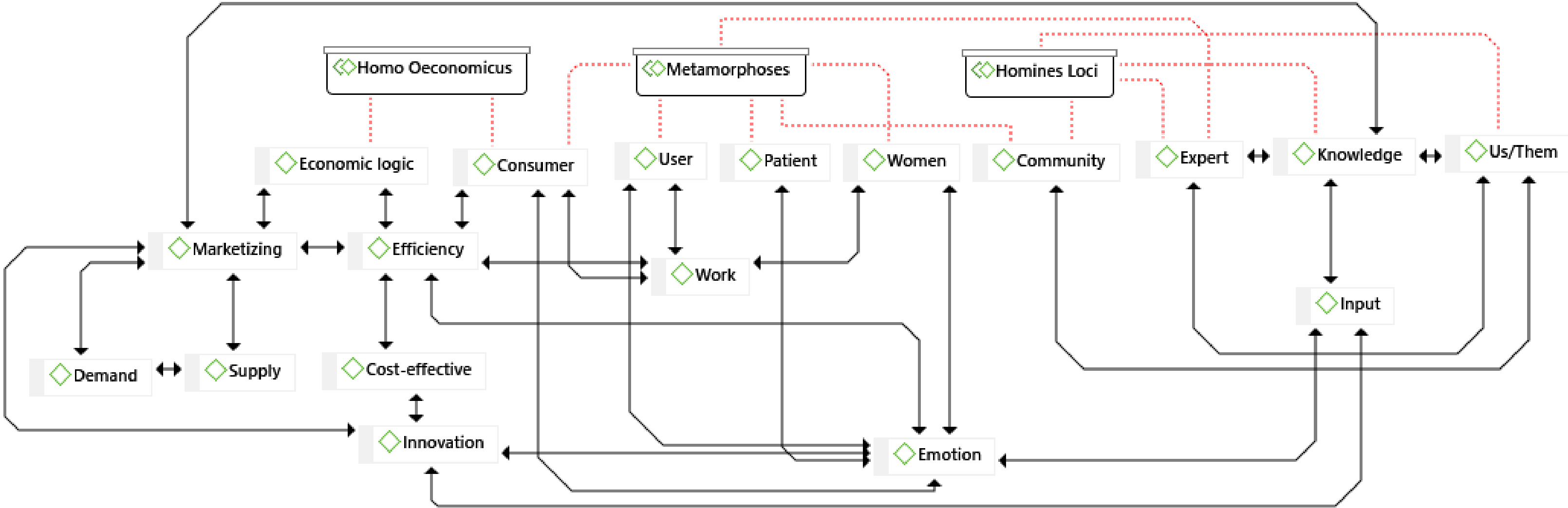
read the texts closely to enable interpretation. At this point, I printed the texts, and applied color coding and then continued with continuously changing worded coding manually as I read and re-read the texts. In the end, the code forest introduced on the next page emerged from synthesizing deductive and inductive coding, which I formalized in Atlas.ti 8 (*Image 2.*).

I used the worded codes to signal fragments of texts through which I found possible to investigate the proposed questions: is human-centered design a new technology of psychopolitics, or can it provide an alternative to development? How does human-centered design enter the intertwined discourses of global health and development against the backdrop of our neoliberal episteme? What are the implications of such power relations that can be noted through the construction and constitution of the human in the center through scientific representation?

I also introduced relations among the codes, signaling that in certain fragments and texts more than one discourse threads form discoursive knots that need to be interpreted. In the following, I will briefly discuss the corpus of my analysis, and in the next sub-chapters I will explicate my interpretations with examples from the texts and engage in discussion with certain development theories that can be potentially useful for further research and help the theoretical understanding and positioning towards HCD. I will utilize the code forest illustrated on the next page as well, to help navigate my interpretations, and guide the logic of my text. I will provide explanation for the names of my codes where needed.

Image 1. – Word cloud of the analyzed texts from Atlas.ti 8. The bigger the size of the words the higher their frequency is.

Image 2. – Code forest for analysis exported from Atlas.ti 8.



The topics of the texts in the corpus of my study vary significantly, which signals the broad application of HCD across cultures and issues in global health. One possible continuation of my thesis could be to conduct a postcolonial studies-informed research about how the composition of the authors and the location of the conducted projects collude, which could be a potential indication of Western (and Northern) influence (or the questioning of it), through human-centered design projects. Such study could take into consideration the funding sources of the studies and projects as well, that also have influence on the representation of success and failure. Interestingly, and probably related to the recent emergence and expansion of funding sources to support HCD, the earliest scholarly article included in my dataset is from 2012.

Co-authorship is extremely prevalent in the texts analyzed, which is perhaps because of the multidisciplinary nature of HCD, and because of the involvement of people into the research who are familiar with the contexts in which such projects take place. However, Li et al. in their paper "*Co-author network analysis of human-centered design for development*" (2018) analyzed this phenomenon and found that "… most HCD+D [human-centered design and development][51] authors publish few papers and are part of small, well-connected sub-communities. Influential authors that bridge separate communities are few. HCD+D is emerging from disparate disciplines and widely shared scholarship across disciplines continues to be developed" (Li et al., 2018: 1). I argue that further research can be conducted on my collected literature (after its adequate expansion) as well to investigate such phenomenon. It should also be noted that the scoping review on HCD in global health by Bazzano et al. (2017) also gathered 21 articles, and there is overlapping with their corpus. However, my collection method differed from theirs in terms of applying stricter criteria regarding the terminology (only human-centered design, and not including its synonyms) and in the genre of the articles (peer reviewed journal articles only, and not including grey literature) and in the time scope of my collection (as I collected data from 2018 and 2019 as well).

Another possible continuation could be to investigate the methodological constellations paired with HCD, as for example community based participatory research (CBPR) is frequently applied alongside HCD, which has a rich philosophical grounding,[52] possibly

[51] Inserted by the author of the thesis.
[52] See for example Rahman and Fals-Borda (1991) or Minkler (2004).

influencing the analyzed language, representations and power relations in the following analysis as well. In this sense, analyzing the language of HCD in global health through Foucauldian discourse analysis is a first step for opening up a scholarship that may build a strong theoretical grounding for (or critique of) applying HCD through the lens of critical social theories. In the following chapters, I will introduce my interpretations of the texts and fragments I attempted to analyze and make sense of, from my situated point of view.

4.3. "Homo Oeconomicus"

In the texts I analyzed, numerous fragments indicate that there is a potential to diverge from approaching people in global health as merely biomedical subjects. It is, however, not a clear break. I argue that the analyzed texts - by constituting issues to be health-improving - contribute to the maintenance and reproduction of the humans in the center as biomedical subjects in their situated roles. As Clarke et al. (2003) highlights, biomedicalization shifts the focus from the illness, the cures and treatments to "… health, preventative care, enhancement, and persistent personal responsibility" (quoted in Smirnova and Owens, 2018). In Foucauldian terms (1979) "[i]nstead of a 'cure', the goal is 'normalization' or the realization of an ideal self who is free of the risk of illness (Quoted in Smirnova and Owens, 2018).

In the analyzed texts, the normalization and realization of the ideal, healthy self are oftentimes intertwined with the logic of economic thinking, thus constituting the human in the center as a person who needs to learn to demand, supply and consume better or appropriately, in order to become or stay healthy. The HCD process in global health, thus, becomes a platform to discipline subjects on various levels, in which emotions, experiences and local knowledges become inputs (in Marxist terminology: become commodified), or as two of the texts (5., 10.) even explicitly mention, HCD "capitalizes on" local knowledges, experiences and emotions for developing marketable, cost-effective innovations, that may be attractive enough for people to demand. It is hard to ignore the psychopolitical nature of such interventions, as HCD explicitly deploys emotions as resources for product or service development and innovation, and doing it quickly to enhance consumption and supply, and to improve the efficiency of services, workflows and interventions. I argue that the discourse on HCD may contribute to maintaining and reproducing the neoliberal episteme of our times, through which the human is envisaged as a primarily economic actor, who is not only self-disciplining to become more efficient in their work, their consumption, production and their health, but is also subject to happily and actively engage in HCD to transform and

discipline themselves. I retrospectively gave the "Homo Oeconomicus" name[53] of the tree of my code forest which incorporated branches that enabled me to include fragments and texts into the interpretation(s) through which I can problematize such notions and constructions. I will not discuss all of the fragments I coded, because of the limited space provided, but I will draw attention to and interpret the most exemplary fragments I support my statements with.[54]

This pervasive neoliberal economic thinking emerges from the analyzed literature inductively as well. Text 19, "*Using a service design model to develop the 'Passport to Safer Birth' (PSB) in Nigeria and Uganda*" (Salgado et al., 2017) consequently follows this logic, as they claim that "[t]he concept of the PSB was developed around the idea that improving demand for effective interventions and respectful care can increase the quality of services provided to women and the coverage of key interventions" (Salgado et al., 2017: 56). They further explicate the innovative nature of their products and services designed, and identified barriers for demand using quotes from their research participants elaborating on experiences and emotions. In my interpretation, placing the human in the position of an actor whose emotions and experiences are utilized to (co-)create products and services that are expected to be demanded by the same people, and thus, solving health issues through market mechanisms – which did not function "well" beforehand – is the exemplification of thinking within such episteme. This way the human in the center becomes an economic actor, whose main task is to function well according to the market. Such thinking about improving health via demand-generation and supply adjustment through HCD emerges in text 12 as well, titled "*Exploring the methodology of participatory design to create appropriate sanitation technologies in rural Malawi*" (Cole et al., 2014).

The logic of neoliberal economic thinking is perhaps most visible in Text 3 (Vechakul et al., 2015). Within a project that explicitly aimed at improving infant mortality rates in Oakland, they proposed a target to create a "vibrant local economy", which they modified to co-create a local community "Market" through HCD that generates more income for local vendors. They justified their decision for pursuing this direction by stating that "supportive community environments – access to healthy food, safe and appealing parks, high quality

[53] I do not intend to discuss the implications of understanding HCD through the lens of behavioral economics, as the term may implicate; however, approaching HCD from this perspective could be a potential research area. The code is merely inspired by its Latin meaning, as economic man.

[54] Please find the fragments I selected useful for analysis on the attached CD.

housing and education, job opportunities, clean air and water, resources to save and build financial assets, and other community factors – are key to good health" (Vechakul et al., 2015). They also acknowledge the complexity of the issue they aimed at tackling; however, it is rather evident that on a discoursive level, in the framework of the text, tackling the issue of health improvement becomes the task of the "Market". By leveraging the task of health improvement to, literally speaking, the "Market" (as they named their project) through HCD, yet again, we can observe the logic of disciplining the human in the center, not only through crafting a good economic actor to achieve health, but through their self-disciplining as well, as the decision to pursue the community Market concept was based on "community feedback" (Vechakul et al., 2015: 2557). The text explicates that this is what the humans in the center want in a completely depoliticized manner, even though a representative of the government also took part of the design sessions.

Through HCD the field of labor and work is being reshaped as well, and I argue that it also is embedded in and compromises with the framework of the efficient, cost-effective neoliberal episteme. It is especially striking, that when health workers take the place of the human in human-centered design in my corpus, as they become the ones with whom the design process is being conducted, the co-occurrence of the fragments I coded with the label "efficiency" emerges. I decided to investigate it further, and I found that the topic of mHealth (mobile health) emerges – such as in text 4, 9, 11, 16. Although it would be fruitful to interpret such phenomenon through the lens of posthumanist theory[55] and its conceptual framework (see for example Braidotti, 2017), here let me elaborate on how mHealth configures, constructs and disciplines the human, and the implications of introducing mHealth for health workers as the humans in the center of human-centered design.

As Lupton (2013: 399) states "… [c]hanges in technologies addressed at monitoring and regulating bodies and health states represent transformations in how bodies are conceptualised, touched, managed and visually displayed, not only from the perspective of professionals operating in the medical or public health field, but also for those who are their subject.". Text 16 (Modi et al., 2015) , titled "*Development and formative evaluation of an innovative mHealth intervention for improving coverage of community-based maternal, newborn and child health services in rural areas of India*" for example, discusses the human-centered design process for creating a mobile application for accredited social health

[55] I call for further research from such theoretical standpoint.

activists (ASHA) who work in rural areas of India aiming to improve maternal, newborn and child healthcare, with varying levels of education and training. The application aims at providing "corrective mHealth strategies" to overcome the shortcomings of ASHA workers. In the application created, the

> "… system automatically generates a complete schedule of home visit 'tasks' for the ASHA. The system displays tasks on the ASHA's Daily Schedule module in the ImTeCHO application on the appropriate date. The system sends a task reminder to the ASHA a few days prior to the patient's due date, providing flexibility to the ASHA so that she can complete the assigned tasks at a time convenient to her. Such tasks include home visitations for providing antenatal care, home-based newborn care, and child care; reporting the outcome of each pregnancy; and follow-up visits for complicated cases" (Modi et al., 2015: 3).

The application also provides checklists, videos, and algorithms to guide ASHAs in inventory management, counseling, diagnoses, data registration and the management of complicated cases. Moreover, the application also measures and tracks the performance of the activist workers. It includes an "[a]utomatic calculation of performance-based incentives, based on digital records of services provided by ASHA on time." and "[a]udit trail and transparency to reflect amount and timeliness of incentive payment" (Modi et al., 2015: 4). The performance indicators are supervised and evaluated by the Auxiliary Nurse Midwives (ANMs) of the Primary Health Center (PHC) who decide about the incentive payments.

In my reading, in this case mHealth technology provides a platform for disciplining the health worker through surveillance, self-reporting, and automatized, pre-set task guidelines to improve efficacy. The technology, at the same time, is shaped through the needs and experiences extracted from the health workers themselves in a human-centered design process, to facilitate not only the help provided by the workers, but the surveillance of the work and the self as well. The human is being augmented with technology, which simultaneously evaluates his/her/its performance and provides continuous corrections to create efficient and "corrected" workers and obedient subjects, who must follow the guidelines and timelines to receive incentive payment. The knowledge is provided through pre-set information and educational videos and images. I argue that in this case mHealth may render the human in the center into a passive position, who obeys and follows "expert" knowledge that is broadcasted through the application. The software also renders the ones receiving care into a passive, observed role, who need to be managed at the same time.

While the health worker is being governed through psychopolitical technologies of power, the care receiver is being governed through their biomedical representation.

Similar tendencies emerge in the other three articles elaborating mHealth technology development in global health, with varying reflection on local contexts that are being negotiated by introducing a new technology. Text 9, titled "*Mobile technology and cancer screening: Lessons from rural India*" (Bhatt et al., 2018) in which a low cost mHealth development for community health workers (CHWs) is being introduced through HCD process, they describe that:

> "The social impact findings were interesting – we didn't fully anticipate the extent to which provision of the mHealth prototype to CHWs would alter their social standing in their communities and families – this a potential added effect of our intervention. Indeed, mHealth approaches may have an 'empowering' effect on health care workers in poor, rural settings which may, in turn, motivate them to perform their preventive activities to a higher level - it's an area which warrants further exploration" (Bhatt et al., 2018: 7).

I argue that the logic described in this fragment aligns with the psychopolitical technology of power, as the motivation for work is being amplified through the feeling of empowerment, which moves forward the construction of people they screen for health as biomedical subjects categorized into healthy, at risk, and sick roles. Hence, the health workers discipline themselves, and provide and practice the means to govern biomedical bodies.

Text 4, titled "*A clinical decision support system for integrating tuberculosis and HIV care in Kenya: a human-centered design approach*" (Catalani et al., 2014) describes the design process with health care workers, in which they introduce a system in which "… computer based algorithms for TB and IPT care produce messages that are patient-specific, educational, and promotional to inspire behavior change among HIV providers." […] "If a required action is not completed, such as most commonly due to delays and breakdowns in radiography, then the reminder is repeated during the next patient visit" (Catalani et al., 2014: 6). These reminders are automatically printed sheets. In this fragment, the discipline of workers emerges yet again through the digital tool introduced, as the reminders guide the actions and changes the behavior of the care provider.

At this point, let me argue with my own interpretations. The above-interpreted interventions, projects and fragments may take place in the power field of

discipline/punishment, cost-effectiveness, demand/supply, psychopolitics and biomedicalization within our neoliberal episteme, hence, deploying a language and a logic of textual constellations that enables the interpreter to read such texts in a critical manner, but there are signs that the logic and reasoning to deploy such techniques departs from somewhat different considerations than it would prescribe. I argue that the logic of effectiveness and disciplining may gain different meanings in the discourse on HCD for global health, allowing for constructing and constituting the human in the center in more sensible and respectful manner, and engaging with local realities, hence providing if not completely elaborate alternatives to, but ruptures on the discoursive body of development.

As text 4 puts it, when justifying the choice of HCD for innovation in global health:

> "The consequences of failing innovations in global health are far more dire than in commercial innovation, which might be limited to loss of private investment. In global health, failed interventions can result in loss of life, wellbeing, and funds that might have otherwise been used for proven interventions. In this way, global health innovators might be better served by approaches to design that encourage iterative testing for efficacy and safety and grounded in local expertise" (Catalani et al., 2014: 8).

Such narrative, although not abandoning the market-based logic, does contrasts global health failures to private investment failures, in terms of putting the emphasis on human life over capital. In this sense efficacy, safety and local expertise become a question of life and death, and indeed, reading from this perspective, considering the urgency of global health issues prevalent in the analyzed texts as well, the failure of interventions should be preempted, and should be done so quickly. The narrative about HCD may shift the behavior change strategy as well, yet again, not abandoning completely its disciplining aspect, as it is constructed as a method, which "… encourages leaders and managers of health innovations to design technology around how users such as clinicians, patients, and community beneficiaries can, want, or need to use technology, rather than requiring them to majorly alter their behavior or attitudes to accommodate the technology" (Catalani et al., 2014: 2). In this case, I would like to highlight that among the "can, want, or need" words the expression "need" is highly political, as it may express the will of the people themselves for whom the design process is being conducted; but it can also signify a need defined and targeted from the outside. In fact, in the corpus I analyzed there was no text which explicitly discussed a situation in which even the topic of intervention was defined by the community/people themselves, even though the articles drawing linkages between participatory action research

or community-based participatory research and human-centered design especially emphasized the importance of co-decisions (text 5 and 12).

The appreciation of local expertise, however, clearly emerged. One notable example of grounding innovation in local expertise can be found in text 10, titled "*Alternative ultrasound gel for a sustainable ultrasound program: application of human centered design*" (Salmon et al., 2015) in which the participants of the design process built upon the knowledge of local market vendors in Democratic Republic of the Congo, Ethiopia and Mali to create an extremely low-cost ultrasound gel to provide an alternative to ultrasound gels on the market that are exceedingly expensive for local usage. In my interpretation, such intervention can be understood as resistance against market forces through innovation, and in-depth knowledge about local realities. In this context, vendors are represented as "local experts", while the beneficiaries of the innovation, the clinicians as "end-users" and a research team on ultrasound gels as "background knowledge experts".

Another exemplary text in which local expertise played a big part in the design process is text number 12, titled "*Exploring the methodology of participatory design to create appropriate sanitation technologies in rural Malawi*" (Cole et al., 2014). The narration of the text places the project of designing and building affordable, safe, durable and desirable latrines in rural Malawi, in the narrative framework of the success of "demand-led sanitation programs" invoking yet again the market-based logic, in which HCD is expected to generate demand through incorporating local knowledge. However, the product designed in the end turned out to be an extremely cheap alternative to the ones available on the market.

I believe designing products and services that fit local contexts and emerge from local knowledges and expertise does hold potential to find alternative ways to development; however, to reflect upon the representation of the humans in the center on a discoursive level, the conceptualization and the ways of representing issues (as discussed in this sub-chapter), the ways of (re)constructing and (re)constituting actors, and problematizing power relations are politically charged issues. I argue that such politics can be investigated through the modifications of language in discoursive representation. In the following sub-chapter, I will highlight how the human in human-centered design is being reconstituted as different actors (as partially discussed in this sub-chapter as well) in different scenarios, and I will attempt at interpreting the politics of shifting and modifying discourse. I gave the code tree the name "Metamorphoses", which incorporates branches that signal shifts in the represented roles of the human in HCD. This coding process was rather inductive, emerging

from the texts, as I expected less variation by explicitly searching for human-centered design projects. I gave the name retrospectively, to better structure the occurrence of discoursive transformations.

4.4. "Metamorphoses" – The politics of the situated roles of the human in HCD for global health

As previously noted in the chapter "Conceptualizing human-centered design", the expression itself emerged due to critical reflections upon the dehumanizing nature of the expression of user-centered design. One of my inclusion and exclusion rule was to focus on explicitly human-centered design projects, and not user-centered ones; yet, some of the articles use the latter expression as a synonym for HCD, although with the dominance of the expression of human-centered design (text 4, 10, 14, and 16). However, the modification of the language, does not stop at taking a stance for human-centeredness.

To highlight how discoursive threads are interconnected, forming discoursive knots, and to link back to the above-interpreted neoliberal episteme, first, I would like to shed light on how the human-centered design expression shifts to "consumer-centered design" in text 6, titled "*Identifying Consumer's Needs of Health Information Technology through an Innovative Participatory Design Approach among English- and Spanish-speaking Urban Older Adults*" (Lucero et al., 2014). The text explicates the development of a consumer-centered participatory design approach (C2PD) which was deployed to develop a health information technology (HIT) innovation in the form of a web-based fall prevention system for older adults, to improve self-management. The approach is said to move the field of HCD by marrying human-centered distributed information design and community-based participatory research. The logic of the text is very similar to the power mechanism described above, in terms of aiming at engaging "… consumers in interactive activities that elicit their expectations and behaviors associated with information technology use to inform each iteration of prototype development" (Lucero et al., 2014: 948). And doing so to increase the consumption of the product. Hence, it is, perhaps, the most honest use of words to modify the expression of human-centered design to consumer-centered design; however, shifting the emphasis from humans towards consumers, evokes the construction and constitution of the human in the process as an "input-machine" whose qualities, reactions and emotions are capitalized on to develop more demand, and more consumption.

Another example of shifting the focus from human-centeredness to the situated role of the human in the center – as patients – can be found in text 16, titled "*Thinking beyond the*

Cure: A Case for Human-Centered Design in Cancer Care" (Mullaney et al., 2012). The case study investigates the triggers of anxiety in cancer treatment, and places its focus on the experiences of patients with the fixation device used in radiotherapy treatment in Sweden. In this case, the narrative of the text explicitly reflects on the "socially scripted 'sick' role" (Mullaney et al., 2012: 27) and disempowerment in such setting:

> "… [t]he restrictive nature of this technology places patients in a disempowered position during radiotherapy, where they become passive recipients of treatment." … "If we extend our insights about the fixation device to medical technology as a whole, we suggest that many medical technologies are embedded with the social construct of the 'passive patient', and the action space that they afford these individuals is narrow and constrained to the role of 'receiver of treatment' instead of 'active participant' within healthcare" (Mullaney et al., 2012: 34).

However, the text identifies as end-users of the device not the people receiving the treatment, but the nurses and doctors operating it. The text states that "[t]he cancer patients we have studied within this paper are both physically present and directly interacting with the technology, and yet at the same time, they are silent in these interactions, rendered powerless by the technology" (Mullaney et al., 2012: 36). The text links negative experiences of patients with the fixation device to the passive role of the patients and calls for redesigning such devices to allow an active role for the patients in using a device for adjusting and aligning their own bodies into the correct position while the screening takes place, hypothesizing that such role would empower both the patient and the nurses and doctors operating the device (Mullaney et al., 2012: 36).

On a discursive level, the text invites the idea of patient-centered care and links it to HCD, transforming human-centered design into patient-centered design, even though the end-users are not the patients themselves, but the doctors and nurses. Approaching HCD from this perspective is rather interesting. Self-management in the discoursive field becomes an anticipatory and empowering act by giving voice to the patients through actions. In this sense, the self-disciplining power diverges from previously described power mechanisms, as it seeks to give agency to the otherwise silenced patient. However, the logic aligns with the concept of psychopolitics, in terms of seeking to allow more movement in an otherwise completely restricted situation. In this sense, as explicated above, it is a technology of power that empowers people to discipline themselves not through disciplining and punishing, but

through more freedom and self-disciplining. It is, however, happening to decrease anxiety and improve wellbeing.

Another extremely important way of modifying and negotiating the language of HCD, and the human in the center, can be found in text 19, "*Using a service design model to develop the "Passport to Safer Birth" in Nigeria and Uganda*" (Salgado et al., 2017). The text links human-centered design to designing "women-centered" childbirth care. In this stance, the engendering of the discourse is a powerful step to negotiate patriarchal, male dominance in society, and putting the emphasis on the woman as the main actor who is the focus of the experience of childbirth, and not the health care worker, or the nurse, or the partner, or the fetus or the embryo. In the text, in contrast to the previous example, women are not represented as solely passive receivers of medical care. The text, in fact, elaborates on 4 constructed "design archetypes" of women, based on observations and interviews, which is a common methodology in HCD. The archetypes, or personas represent vulnerable, passive, empowered and accepter attitudes in light of demanding or not demanding medical care during pregnancy (Salgado et al., 2017: 63).

I argue that both patient- and women-centeredness carry significant political meanings in terms of giving focal voice to those who are otherwise silenced, and placing them in the center is a powerful message. However, in the case of text 19, the (re)constitution of women acknowledges the case of being empowered, hence, not automatically assuming the oppressed imagery of women who need to be saved. Nevertheless, the question of giving voice to those who are silenced may be problematized through the lens of subaltern studies in future research, as HCD requires the participation of those for whom the design process is being conducted, which may hit a limit with certain groups.

In the next sub-chapter, I begin with another role taken by the human in human-centered design that needs to be problematized; however, I argue that it also provides a platform to negotiate power relations in terms of questioning the designer/researcher - user and designer/researcher - community dichotomies. I will also shed light on and interpret situations represented in the corpus, which show signs of shifting positions and power relations between the designers/design researchers and the local communities. In the coding process I gave the name of "Homines Loci" to this code tree, meaning "local people". This code emerged deductively in terms of my interest in the politics of conducting (design) research, and inductive coding reinforced the need to problematize it. However, it must be noted that, despite my expectations, research papers constituting the corpus of my analysis

tend to avoid highlighting situations in which conflict or disagreement occurs; hence, I found limited examples to interpret such situations.

4.5. "Homines Loci" – "Othering" the "Locals"?

The humans in HCD oftentimes come to be seen as "experts" which, I argue, creates a space for reproducing or even imposing a Western way of knowing prevalent in modern scholarly knowledge production on localities (be it "Western" or "Eastern"), and, at the same time, creating a space for "othering" the locals in relation to the designers and design researchers. In text 1, "*Community co-designed schistosomiasis control interventions for school-ages children in Zanzibar*" (Person et al., 2016) the text argues that "Human-Centered Design is a co-design process based on the assumption that community members are experts who know best about workable solutions for their own problems – in this case preventing schistosomiasis. [IDEO, 2011]" (Person et al., 2016). Yet, in the human-centered design process the text explicates an assembly of a local social science research team, who needed to be trained by a "senior social scientist" due to their "inexperience in social science research methods" (Person et al., 2016: 70) who gathered data and facilitated discussions and events "… to highlight and educate safe play alternatives to risky, contaminated water play. The research teams worked with the trained teachers to create a fun-filled behaviour-change day that allowed students to participate in safe play games and activities" (Person et al., 2016: 56).[56] The behavior-change intervention was intended to respect local norms and to work out "community-owned" products based on local cultural practices.

What we witness here is a shift from claiming the expertise of local people, to altering their behavior by researchers who were trained by another researcher. The locals become experts through their embeddedness in their localities – as teachers and as kids –, and the design researchers become data collectors and facilitators. However, the lack of knowledge about the disease itself among children and to an extent, the teachers, renders the local people into the role of the "Other", who is being studied and needs to be educated and disciplined. The disciplining is happening through "fun-filled" activities, which allows me to interpret to the practice as a psychopolitical technology of power. There is a clear intention to subvert the hegemony of biomedical knowledge, and classical hierarchies of power between the researched and the researcher, but it crawls back through the embodied and discoursively constructed scientists participating in the project. It is noteworthy that in

[56] Schistosomiasis spreads through contaminated water.

global health “their own problem” as the language deployed calls schistosomiasis, is never restricted to one locality. It is, however, being constructed as distant from the researcher/designer, and reconstructed as a problem of the “Other”.

Text 13, “*Design thinking to improve implementation of public health interventions: an exploratory case study on enhancing park use*” (Huang et al., 2019) contrasts expert-led design process with human-centered design. The text discusses an HCD practice, that is called “wallet exercise” which invites people to design quickly a wallet first with no preparation, and then returning to the design with a specific user in mind, to reflect on needs, emotions, and values and to sensitizes people to them (Huang et al., 2019: 4). The text claims that: “[b]y providing a contrast in experience from an ‘expert led’ design process to a ‘human-centred’ process, the wallet exercise effectively demonstrated the power of tacit knowledge in designing a product that ‘fits’ a user” (Huang et al., 2019: 6). Such statement indicates that in HCD the human can be envisaged as an actor who is the holder of tacit knowledge, and the aspects making them human are the needs, emotions and values. It also draws attention to HCD as a process, in which the experts of a design process are not the designers, but the people involved in the process, aiming at crossing the hierarchies of the designer/researcher and the researched/designed for. Other texts (2, 3, 10, 14) do not explicitly aim at crossing such boundaries. They invite experts on topics or in disciplines they find relevant for the design process; although, some with respect to, and emphasizing local expertise (for example text 4, 10, and 18).

Another emerging discourse thread related to local people and their negotiated and reconstructed position were situations in which disagreements occurred between the designer(s)/researcher(s) and the local people. Perhaps the most elaborate example emerged from text 12, which I previously discussed twice already, due to its rich descriptions. The text elaborates on the co-creation of latrines in rural Malawi to improve health through sanitation development (Cole et al., 2014) and honestly reflects on a highly political issue, when the people involved in the design process express their need towards cement latrines, for which, according to the locals, the “[g]overnment should provide the cement through a subsidy programme” (Cole et al., 2014: 56). The future users of the designed products expressed their views considering cement as “… an essential component of a strong and modern latrine” and that the “… subsidy programmes for cement can be successful if managed appropriately” (Cole et al., 2014: 56).

On the other hand, "[r]esearcher–designers also presented their personal experiences of subsidized programmes that had failed under various forms of management" (Cole et al., 2014: 56). As a resolution, "[t]o overcome this tension, the first author [Cole] recommended that the group recognise the important characteristics of cement while creating designs that reduce or eliminate its use" (Cole et al., 2014: 56).

I argue that in this example human-centered design process silences the people who have a clear political objective, while rendering the decision of the designer/researcher as more important, and the locals' needs and wants as subordinate. Through these power dynamics people are depoliticized, HCD becomes designer-centered and the local community becomes the "Other" group, who needs to recognize the value of the end product designed. It is interesting to note that the preference for the technique which is imagined as "modern" comes from the local group, while the designer seeks local, pre-existing solutions to develop further as an alternative, silencing the need for the "modern".

The same text problematizes the question of ownership of the design produced as well, reflecting on the contrasting meanings of ownership in the West, where new ideas are owned by either corporations or individuals, and in numerous African cultures, where the "… ideas and knowledge are 'owned by ancestors or the land' [Winschiers-Theophilus et al., 2012]" (Cole et al., 2014: 58). However, this text remains the only one that problematizes such issue in a legal sense – beside text 8, which does not reflect on it elaborately. In fact, the other texts which mention ownership (text 1, 3, 9, 13, 18 and 19) shift the meaning of the word from ownership as possession, to the psychological sense of ownership, leaving the question of legal ownership of the designs undiscussed, except for those cases where open-source accessibility was expressed (text 9 and 21). Further research could analyze the situated and localized meanings of ownership, co-ownership and public ownership and their implications for local communities and the power relations within the community, with the technology and designers alike. A deeper understanding of such relations could improve the theoretical grounding of human-centered design as well.

5. Drawing linkages to development theories: HCD to facilitate "Big Push" or opening up the space for alternatives to development?

Stepping back from closer readings of texts and fragments, I would like to briefly highlight how my interpretations can be understood and further developed through two established and somewhat contradicting theories of development. Before doing so, let me

summarize what I have learned through my analysis. It is clear that human-centered design is an innovative approach in the field(s) of global health and development which drives further innovation – all of my selected articles discuss it to an extent. It is also clear that there is an inherent intention to be sensitive towards cultures and communities, even though there are cases where the complexity of local realities challenge the designers/researchers, the humans in the center and the communities alike. It has also become clear that the representation of the projects themselves through "scientific" articles entail a logic of economic efficiency, and there are signs that technologies of (neo)liberal (self-)disciplinary power are being practiced through such projects, reconfiguring the human body, reconstituting and negotiating the human in the center, but also empowering the psyche and improving health and well-being. There are signs that HCD in global health may be capable of overcoming, or reducing unequal power relations, but the discourse on HCD in global health is also contributing to maintaining and reproducing them. HCD can depoliticize, and be utterly political at the same time. It is about finding alternatives, but also about modernizing through innovation, based on local human needs, thoughts, knowledges and emotions.

In my reading, the discourse on human-centered design in global health is dancing on the line between the theoretical heritage of the Big Push and post-development. In my interpretation I evoke Ulrike Krause and her understanding about the ambiguous readings of the emergence of innovation in the development discourse. She poses her dilemma which aligns with my proposed research question, that is "… whether innovation is the new orthodoxy, that is, the pursuit of conventional development by other means, or whether it has the potential of forming a new critique, a basis for rethinking and recasting development" (Krause, 2013: 223). She argues that innovation can be understood as the reformulated paradigm of the Big Push theory, which emerged in the 1950s, based on the work of Paul Rosenstein Rodan (1943) aiming to increase productivity through economic intervention in the form of enormous financial aid, with the explicit hope to develop the underdeveloped. Krause argues, that the current nearly universal and enormous volume of application of innovation in short time, and the belief that the development of the underdeveloped can be achieved through innovation may signal a paradigm shift in the development industry towards innovation as the new, symbolic Big Push. However, she also highlights that in post-development theory the key is to find alternatives to development,

and new or different ways of developing can be elicited and are being elicited through innovation (Krause, 2013).

Human-centered design, as a method for eliciting innovation, takes its place in this dilemma. However, I would like to argue with both interpretations, even though I also find the problematization of understanding innovation (and human-centered design as its driver) in light of development theories timely and necessary. In Big Push theory, the idea is that the intervention arrives at once, on an enormous scale, so that the economy can "take-off" and begin to develop through increased efficiency. In HCD for development the key thought is indeed somewhat similar, as the interventions are imagined as impacting the communities to an extent, that enables people to be more efficient. However, scaling-up HCD projects usually is a difficult task. Moreover, HCD does not aim at stimulating the economy through financial interventions, but through increasing human capital to create efficient workers on an efficient market. Nonetheless, there is a notion of (critiqued) modernization in Big Push theory, which is also prevalent in HCD, as it operates with technological development as well.

On the other hand, post-development indeed seeks alternatives, and refuses orthodox ways of development and deconstructs the discourse on it. It does so by questioning what development means, how we come to understand the "underdeveloped" as underdeveloped, the "Third World" as Third World, and progress as we imagine it in the West. It aims at shifting the narrative of the West-and-the-rest, and it also comes with a strong critique of the episteme (Escobar, 1995). In my analyzed corpus, however, HCD projects did not start from questioning such discourses. They indeed gave voice to the human in the center, but in pre-defined settings, and regarding pre-defined problems, instead of allowing the people the question them. In other words, HCD does not (yet) seek change on a systematic level, but I argue that it does have the potential to do so with its reflections on power relations and sensitivity and respect towards people. Of course, if people want it as well.

I argue that practitioners need to take a stance in HCD projects for development regarding what theoretical grounding they depart from - as the end-goals, the questions asked, the way HCD is negotiated and the perception, representation and the reconstitution of the people may be, and should be contingent upon such considerations. It is, however, also possible to understand HCD as a middle-ground between the two ends. Moreover, I am also aware of the naivety of the argument for taking a stance as co-authors may have different points of views, and project funding may also depend on well-crafted, depoliticized

reports and proposals, especially today, when the development aid industry is increasingly overruled by private sector investors, also explicitly aiming to profit from development.

6. Conclusion

In my thesis I attempted to conduct a Foucauldian critical discourse analysis, through which I aimed at investigating power relations and the politics of representations embedded in the "scientific" discourse on human-centered design in the context of global health and development. Deploying the concepts of episteme, biopolitics and psychopolitics proved to be fruitful in the critical readings and (re)interpretations of the analyzed fragments and texts. The dilemma I proposed, whether human-centered design is a tool for the technology of psychopolitical power or a tool for finding alternative ways of development remains unresolved. However, my interpretations showed that from the discourse on HCD in the intertwined fields of global health and development can emerge both possibilities. My analysis indicates that HCD in global health may be capable of overcoming, or reducing unequal power relations, but the scientific discourse on HCD in global health can also contribute to the maintenance and reproduction of them through its discoursive reality. I also shed light on the political implications of negotiating the (re)construction of the human in the center of HCD, which might be valuable for future considerations about the ways of representation. Through elaborating on two development theories and their links to HCD, I hope I managed to contribute to helping development specialists position themselves in relation to human-centered design in our field.

I highlighted multiple possible ways to continue critical scholarly work on studying HCD, for which my writing can provide a starting point. I believe future research on HCD can be fruitful through the lens of postcolonial theories, subaltern studies and posthumanist theories alike. I also called for the analysis of the donor structure supporting HCD, for critical reflection on problematizing ownership in HCD projects, and for critical comparison of the language and structure of HCD toolkits too. Throughout the writing process I attempted to be as transparent and honest about the intellectual positionality of my writing as possible, which is simultaneously the strength and the limitation of such analysis. As an endnote, and to put my writing under more radical light, let me quote Haraway, who could be the first clue pursuing a posthumanist research path: "[a]ll readings are also mis-readings, re-readings, partial readings, imposed readings, and imagined readings of a text that is originally and finally never simply there. Just as the world is originally fallen apart, the text is always already enmeshed in contending practices and hopes" (Haraway, 1990: 124).

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