

CHAPTER TWO | NONPROFIT CLIENT – WEB DESIGNER RELATIONSHIPS THROUGH NIKLAS LUHMANN’S SYSTEMS THEORY and ACTOR-NETWORK THEORY

INTRODUCTION

Several attempts have been made to conceptualize the reasons for, and implications of, inadequate access and usage of technology predominately based on the notion of the “digital divide”. The digital divide began, and continues to a certain extent today, to be described as “the gap between people who have access to computer hardware and/or Internet and those that do not”. A recent article on the disparity of broadband access across the globe stated the implementation of broadband was a necessary tool to fight poverty and increase access to healthcare resources (Fildes 2010). While broadband can be a key element in the success of technology adaption for further uses, it is this very notion of access as relating only to the physical artifact rather than social or environmental relationships, that has limited the thinking of many attempting to close this divide (Van Dijk & Hacker 2000).

In recent years, the concept of the digital divide has come to incorporate a variety of linked demographics that have been helpful in targeting efforts for distribution of technology and education, but still fail to realize the realities and disparity of technology use.

But the emphasis on demographic variables and technology access as determinants of use does not adequately contextualize internet use in the daily life experiences of people with marginal status in our society... Thus, they provide few lessons for understanding how the internet

becomes a part of everyday life for people outside society's mainstream and how internet use can contribute to greater wellbeing. [Mehra et al. 2004: 782]

As a result, many contemporary studies request that we take into account the various stakeholders required for a functioning piece of technology; suggest greater education for technology users in addition to being provided computer hardware; and assert beliefs that technological failures or successes can be held within encompassing communities and social networks. It has also become apparent that the notion of the digital divide, when solely considered as "those who have technology access and those who do not", can no longer be considered valid (Barzilai-Nahon 2006, Mehra et al. 2004, Nardi & O'Day 1999, Tibben 2007, Van Dijk & Hacker 2000, Warschauer 2002, Yu 2006).

In particular, Warschauer calls for the halt of the use of the term digital divide to be replaced with a framework of "technology for social inclusion" as the digital divide connotes a binary of those who are capable of using technology and those who cannot, with no space, to show where and why a technology can be used. He further clarifies the problematic concept of ICT (information and community technology) access by paralleling it to the term 'literacy', where literacy and ICT access involve a similar and variable progression of aptitude based on any number of social and environmental issues (2002). While my research is dependent on the impact and reality of the reconceptualized digital divide - as nonprofits are a group consistently inundated with thwarting issues relating to technology - it is not my aim to further restate or develop the concept of the digital divide. The matter at hand is, rather, how to manage the known difficulties in technology access affecting nonprofits who desire self-sufficient technology use as means of achieving their organizations' goals. It is necessary then to find a route in conceptualizing the many human and nonhuman relationships that are built in the process of technological acquisition and how these actors are capable of moving through society to create successful technology and design.

What I aim to do in this section, is to frame the relationships involved in the creation and successful utilization of a website through the work of Niklas Luhmann's systems theory (1995 [1984]) and actor-network theory (ANT). These are two theoretical frameworks that can map the current and *possible* state of access to technology, as opposed to attempting to describe a number of distinct scenarios in which technology can be better utilized. This will allow the creation of a base for suggestions (see Chapter 8) that may result in the successful operation of technology by nonprofits. Moreover, the interdisciplinary nature of this study and those involved in a website's creation, makes the utilization of theory that can be applied to a variety of scenarios in the first instance more sensible, as it is these theories that can serve as common ground for all those involved.

Niklas Luhmann's systems theory will be utilized for its capacity to describe the autopoietic system: one that is capable of self-reproduction, reflection and organization, which in turn produces meaning. It is my intention to use Luhmann, who privileges the wider movement of social systems, to describe the systems of web design and the nonprofit organization. I will refrain from describing the various sub- and external systems operating simultaneously that could be fractal articulations of Luhmann's theory to allow for discussion of actor-network theory.

ANT was created with the intention of studying human relations with technology and necessarily takes into account the connections between the heterogeneous, both human and nonhuman, elements required for the maintenance of encompassing systems (Noe & Alrøe 2003). As stated by Madeleine Akrich (1992) technical objects can, "...simultaneously embody and measure a set of relations between heterogeneous elements" (1992: 205), making the inclusion of computer hardware and software vital. As opposed to Luhmann, who describes systems beginning with the divide of environment and the all encompassing social system or Society, ANT takes artifacts, people and/or networks and extrapolates the fueled number of relations that permit their own existence. Systems theory could be reduced to fit relationships

between minute external or encompassing systems, just as ANT could provide a model for systems of massive scale; however, this would require an intricate breaking down of elements, diminishing the character and understanding of a systems' general movement.

It is also important to call attention to Luhmann's own description of people - considered to be psychic systems described as sub- or smaller systems with their own autopoietic processes - who are depicted for their ability to communicate information to their larger system. It is not that Luhmann's notion of "people as systems" is inaccurate; but his envisioning their relationship to other systems portrays a lack of digestion by human actors, an almost passive vehicle for communication. Gershon (2005) states clearly, "He [Luhmann] is not capturing sociality well, but he is depicting systems profitably" (2005: 106).

Upon reading Luhmann, Gershon poses two challenges to anthropologists: "...how to understand people's relations not just to a social order or system, but to the wide range of incompatible systems they engage with on a daily basis" and, as ethnographers, in what way can we better analyze how our participants view their own relationships to greater social orders or systems (2005: 106, 109)? What ANT further provides us is a way to speak directly to the relationships that humans and nonhumans build, something that Luhmann can chart the journey of, but does not easily pinpoint. As a result, systems theory will be necessarily longer, providing an overarching framework to take the reader through the entire work, while ANT provides us the specifics of relationships that will be outlined below and revisited in further chapters.

NIKLAS LUHMANN'S SYSTEMS THEORY

THE ENVIRONMENT, SOCIETY and SOCIAL SYSTEMS

Niklas Luhmann's systems theory (1995 [1984]) first and foremost makes the assertion that the major division to organize our world is that of the systems versus environment as opposed to parts of a whole. All systems *are* enclosed within the encompassing societal system (i.e. Society), but it is a separate, closed

system that cannot directly communicate with the greater environment. Society can only react through observation and then adapt accordingly to environmental changes. Luhmann states: “...the environment has no self-reflection or capacity to act. Attribution to the environment (external attribution) is a strategy of systems” (1995 [1984]: 17), meaning the environment cannot exert direct pressure on systems and only systems can decide what belongs inside or outside themselves.

The systems within Society consider all other systems to be their environment, including the environment outside of Society. It is a system’s environment that is processed, allowing it to exist. This requires that when a change happens in one system, a change occurs in the environment of all other systems (Gershon 2005: 103). For example, the development of new software, such as the Wordpress content management systems (CMS) has changed the way in which both web designers and nonprofits are able to utilize technology. The development of Wordpress, a change in its own system, was a change in the environment of the web design and the nonprofit systems that was processed and taken in by both as something valuable to their own system. If either of these systems were not able to process new technological options, they would cease to improve and expand their current state, as all systems seek to grow and consume.

AUTOPOIESIS

The processing of a system’s environment makes these systems *autopoietic*. *Autopoietic* systems are recursive, which defines their existence as the product of its own processes, dependent on the production and use of its own elements. Web designers are more prominently connected to this autopoietic environment, as a result of the fast-paced innovation and creativity of the technology industry. In order to improve their skill set, web designers are reliant on various educational methods and online tools obtained through constant scanning of the environment to build upon current resources.

SELF-OBSERVATION

To determine what is necessary and useful, a system then must be able to observe itself. Without the ability for self-observation the system would not be able to distinguish between what is part of the system and what is part of its environment. The recognition of what is and is not useful becomes a distinction or rule in itself, which then allows the system to perform a second-order observation guiding the system to learn to be able to perpetuate itself. This self-observation results in the conditioning of the relations which regulate the existence of specific elements necessary for the system to function (Luhmann 1995 [1984]: 23).

If one goal of the web design system is to build websites, then when observing itself, the web design system will look for what is related to web design and what is not. Once relevance has been confirmed, second order observations will relate to ways in which to improve the efficiency and functionality of both a website and process of web design. Following this, nonprofits distinguish what is relevant to their cause with second order observations, improving upon the resources which allow them to accomplish their mission. As more helpful distinctions are made, the system learns to make better choices on what to pull from the environment. Therefore as new relations are built, the level of complexity of the systems rises, and is then reduced as relations and elements are ordered by validation through their success (1995 [1984]: 27).

BOUNDARIES, SELECTION and PRODUCTION OF MEANING

When the system distinguishes what is of use to it by coding its environment, boundaries are created. Defining what is and is not part of the system creates a demarcation, preventing entrance by other systems. This is the role of the system: to make sense of its environment in order to reduce noise and perpetuate itself according to its own goals; to produce meaning. This constant coding results in ever-shifting boundaries, resulting in meaning that, all at once, is characterized by instability and difference, and yet solidified when the system has made its selection for what can be included (Luhmann 1995 [1984]: 65). As both the web design and nonprofit systems filter their environment,

respectively attaining new workflow methodologies or increasing access to technology, the systems shift their boundaries to adjust to new additions and increasing access to new systems for exploration.

When touched, a system's boundary can help one to define not just overall delineations, but the meaning of individual elements within a system with the boundary's selectivity as an indicator of the system's content. In other words, by viewing what is in the environment, one may better understand what web designers and nonprofits have not yet, or could not utilize. For many nonprofits, technology may still lay in the environment, as they lack the necessary elements in their system to understand how to communicate with other systems that have captured technology, such as web design.

LOGIC

This relates further to Luhmann's condition that systems, due to their autopoietic nature, have self-contained logic that cannot be accessed by other systems. He however, does accept the fact that systems can recognize other methods of processing, or other ways of being autopoietic. However, a newly recognized autopoietic processing in other systems is never seen as superior, even if the system doing the recognizing is a subsystem. This describes Luhmann's notion of 'interpenetration' which is the relationship between systems that are environments for each other (1995 [1984]: 212). Both the web design and nonprofit systems are necessary for each other to complete a website, and are therefore part of one another's environments, but will have different approaches or logic in attaining technology access and website construction.

This enclosed logic is important to systems because it is a singular aspect that helps to uphold boundaries which are constantly being pushed, as all systems seek to expand. The logic thwarts people from moving across systems as differences in communication and meaning are encountered. Here is where I hope the utilization of Wordpress and design ethnography will help to shift systems' logics and improve communication, for what a website encompasses

and means from the perspective of a web designer may be different than that of the nonprofit's vision. Even if by definition a website appears the same, the logic of a system will ensure the end result is mismatched. Therefore, systems only know what is in their own system and cannot then work consciously for or against another. Also meaning communication across systems is always first a miscommunication (Luhmann 1995 [1984]: 140) as systems cannot communicate until they have taken the time to contextualize another system's logic in reference to its own.

COMMUNICATION

Communication itself is the elementary unit of an ongoing autopoietic reproduction, composed of the synthesis of information, utterance and understanding (including misunderstanding) (Luhmann 1986: 86). While the above synthesis can be broken apart and discussed separately, the system will always refer back to communication as a whole, as one must know what was said to move forward in the communication. This requires that communication (even if resulting in miscommunication) is accepted, never simply transmitted (connoting one-way transference) information.

As no access to its environment is possible, communications must refer to previous or future communications to inform itself.

Their [the systems'] communication observes itself within its world and describes the limitation of its own competence. Communication never becomes self-transcending. It never can use operations outside its own boundaries. [1986: 89]

This also requires that communication depends on useful selections from the environment, and if selections inform boundary delineation, then communication also results in meaning. Communication extends and limits the societal system as a process of selection, deciding what to communicate or avoid. Therefore communication is neither about harmony.

It is not the function of communication to produce a consensus as a favored state of mind. Communication always results in an open

situation of either acceptance or rejection. [...] If the system were set up to produce consensus it would soon come to an end. [1986: 87]

Once a system has reached a level where it has pulled together its elements and relations into a form that can be communicated, an action occurs. Action is made of up communication and attribution in order to reduce complexity. But because actions communicate meaning, they themselves must be made up of communication and cannot stand on their own. Therefore communication remains the more basic element of systems.

For web designers and nonprofits, the principals of design ethnography which value collaboration and education can be introduced and accepted by the systems' environments. The particular organization of elements and relations redefined by design ethnography then permits a new mode of communication changing the way in which web designers and nonprofits are able to build relationships and the act of building a website. Therefore, if people want to move successfully across systems, they will be rewarded as they acquire the skills and knowledge to relate to that particular system (Gershon 2005: 106). As web designers and nonprofits using design ethnography are exposed to more elements (e.g. technology or nonprofits' missions) part of each others' systems, as required by ethnographic methods, the greater the communication between systems will be achieved. Better communication allows systems to code more of their environment, thereby increasing their boundary or goal of all systems. As meaning and logic are changed as a result these shifting boundaries, technology access also changes; design ethnography and Wordpress both pushing for collaboration and education in technology use.

Upon completing the description of systems theory, which has described the general movement of the two major encompassing systems of this work – nonprofits and web design – ANT can now be brought forward to understand the specifics of individual nonprofits and web design projects.

ACTOR-NETWORK THEORY (ANT)

Actor-network theory (ANT) can be attributed predominantly to Michel Callon, Bruno Latour, and John Law as a framework for better understanding the fields of science and technology and fits largely under the umbrella of science and technology studies (Sismodo 2010). I will be focusing primarily on Latour's *Science in Action: How to follow scientists and engineers through society* (1987) which, as the title suggests, documents the process of science and technology in order to expose all its hidden relations. More specifically, ANT offers a way for me to explain to the reader what a technology is composed of, in order to showcase everything involved in the building of a website, not just for clarifying purposes, but also as a means to introduce to terms that will help opposing systems communicate.

Within ANT, the actors in the web design and nonprofit systems are both human and nonhuman. Because the term actor is socially linked to humans, the term 'actant' is used instead. Latour states, "...both people able to talk and things unable to talk have spokesmen¹...I propose to call whoever and whatever is represented actant" (1987: 84). The defining features of an actant are the relations associated with it, rather than what or who the actant is; therefore, all actants have an equal role in the production of networks and must be confronted in their [the actants] entirety (Sismodo 2010: 69). Actants embody the goal or purpose of a technology and are able to constantly adjust to changes in their surroundings (Latour 1999). As an example, both the web designer and website are actants, each holding equal ground in the relationship created with the nonprofit client.

ANT uses 'collective', "- defined as an exchange of human and nonhuman properties inside a corporate body", as an alternative to the tainted word "society" (Latour 1999: 193). The use of collective and actant support each other,

¹"...someone who speaks for others who, or which, do not speak" (Latour 1987: 71). The web designer can be a spokesperson for themselves or for the website they have created.

as both terms avoid the subject-object distinction and provide all actants equal time and relevance in whatever system they exist.

Actants can be composed of a number of other actants and relations which work together to build successful scientific facts or machines (e.g. design methods or websites). However, in order to function, the interests of certain number of “allies” must be translated. Allies are the necessary actants that ensure the success or failure of a piece of science in the making and their translation requires a shifting of interests to reach a single goal. Once these allies are “enrolled”, meaning their interests are aligned in a way that is also aligned with the goals of the artifact and its allies, a “black box” can be created (Latour 1987: 108)². “The word black box is used by cyberneticians whenever a piece of machinery or a set of commands is too complex. In its place they draw a little box about which they need to know nothing but its input and output” (1987: 3). This is not acceptable for Latour, who advocates for the unpacking of these black boxes, which can be machines or scientific facts, exposing the network of relations that ensure their creation and perpetuation.

For this thesis, the importance of ANT and the unpacking of supposed “unproblematic black boxes” rests in the fact that that web designers and nonprofits must align with and enroll Wordpress and design ethnography for the creation of a single website. More specifically, small nonprofits who desire a website they can themselves maintain also have to acknowledge the series of actants, from the web designer’s methods to specific computer software, and their necessity in the creation of their website.

Throughout this thesis I provide a variety of examples based on Latour’s idea of “unpacking the black box”, as ANT is best conceptualized through specific examples for its ability to clearly map relations. Additionally, providing the details of how technology can be put together with its various actants for successful or unsuccessful implementation. You can find these examples in the

² For a more detailed example of allies and translation of interests please see Chapter 5.

following chapters: *Web designer, Nonprofit, Design Ethnography and Wordpress* or Chapters 3-6.

CONCLUSION

Niklas Luhmann's systems theory provides us the capability to define the overarching systems of web design and nonprofits in terms of their own created meaning. The web design system's meaning is based upon the production of technological artifacts and workflows prescribed by the design industry. Nonprofit boundaries are defined by the resolution of greater societal issues as defined by their individual missions. Therefore technology access is a means to their end goal, not a deliverable within itself (i.e. the production of a website is not the resolution of an issue, but for web designers the process can be considered complete). What this study proposes is the introduction of design ethnography and Wordpress software as options for pushing these boundaries and changing the meaning of nonprofit and web design systems. This requires the production of technology as a collaborative, educational and sustainable endeavour to both help web designers and nonprofits who seek technological self-sustenance, and to build relationships that promote greater technological access and inclusion. The details of these processes are outlined via ANT, through the discussion of specific examples from my own research that highlight the impact of both design ethnography and Wordpress on client - web designer relationships in the nonprofit sector.