

# Phenomenology: Understanding the ICT4D Experience

*Full Paper*

**Antonio Díaz Andrade**  
Auckland University of Technology  
[antonio.diaz@aut.ac.nz](mailto:antonio.diaz@aut.ac.nz)

**Angsana A. Techatassanasoontorn**  
Auckland University of Technology  
[angsana@aut.ac.nz](mailto:angsana@aut.ac.nz)

**Harminster Singh**  
Auckland University of Technology  
[harminster.singh@aut.ac.nz](mailto:harminster.singh@aut.ac.nz)

## Abstract

In this paper, we propose the use of phenomenology in ICT4D research. In keeping with the dominant tradition in information systems research, most ICT4D research recognizes the duality between ICT artifacts and users. We argue that a phenomenological perspective, focusing on the lived experiences of individuals, is a worthy complement to the existing approach, because it highlights the holistic interconnections between individuals, technology and society. We present an overview of the ICT4D literature to demonstrate that not much research has been conducted on individual experiences of ICT4D and underline the value of phenomenology in addressing this topic. We draw on prior phenomenological research to suggest methodological considerations for applying this approach in ICT4D. We also explore how concepts from prior phenomenological research in information systems could be relevant for ICT4D researchers.

## Keywords

ICT4D research, interpretive phenomenology, transcendental phenomenology, lived experience.

## Introduction

Information and communication technology for development (ICT4D) research aims at understanding the contribution of information and communication technology (ICT) to the betterment of individuals. Despite this noble aim, research has not paid much attention to the meaning of ICT use in people's life contexts. This paper makes a call for adopting phenomenology in ICT4D research, which opens up an opportunity to build in-depth knowledge of the personal ICT use experience for the betterment of the individual, henceforth, ICT4D experience. Understanding the ICT4D experience is important if we perceive development as the effort to release and realize human potential (Bingham and Mier 1993).

Understanding how ICT can contribute to the betterment of the individual requires being cognizant of their personal and intimate meaning of ICT4D experience. The term meaning, in phenomenological parlance, refers to the core element of the lived experience (van Manen, 2014), such as the feelings that displaced refugees have when interacting with their loved ones through video chat. Some researchers may argue that corroborating cause-effect relations or providing theoretical explanations may be good approaches for elucidating the consequences or the processual aspects of using ICT for personal betterment. However, neither of these approaches can explicate what the individual lived experience really is. Grounded on the assumption that "all acts share a deep structural similarity" (Hanseth and Monteiro 1994, p. 9), the ultimate goal of phenomenological research is to uncover the structure that constitutes the essence of the lived experience in the world (Husserl 1999; van Manen 1990). Thus, the research question that guides this manuscript is:

How can a phenomenological approach be applied to understand the meaning individuals ascribe to their ICT use aimed for their betterment?

This paper is organized as follows. Following this introduction, the next section presents an account of the ICT4D research trajectory. Then, we present an overview of the philosophical background of phenomenology and outline methodological considerations. We conclude with contributions and challenges of applying phenomenology in ICT4D research.

## **The trajectory of ICT4D research**

The field of ICT4D research aims at tackling the multidimensional aspects of ICT-enabled development. In the early days, the debate gravitated toward the lack of adequate infrastructure resulting in unequal access to technological resources. This problematic situation became known as the ‘digital divide’ issue – a term that was coined in 1996 by the experimental psychologist Lloyd Morrisett. The digital divide issue constituted a manifestation of underlying disparities and was just the reflection of income inequality between social groups (Bucy 2000; Hoffman et al. 2000) and differential levels of material progress among countries (Chen and Wellman 2004; Corrocher and Ordanini 2002) and regions (Hindman 2000; Quibria et al. 2003). Informed by the notion of the digital divide, a number of ICT4D initiatives were oriented to providing access to ICT in order to close the gap in access to technological infrastructure (Gómez and Ospina 2001; Rogers and Shukla 2001). This belief engendered the idea of the leapfrog approach, founded on the assumption that the increased affordability and availability of ICT would allow the less technologically advanced regions of the world to bypass huge expenses and catch up with the more technologically advanced nations (Davison et al. 2000; James 2001).

Indeed, the world has been experiencing a rapid growth in access to technological resources since the late 1990s. This reality gave rise to what Castells (2000) called the “networked society”, characterized by the almost absolute dependence on ICT among different types of organizations and social groups – not only financial institutions and government agencies but also criminal and terrorist groups – to produce and circulate information in the achievement of their goals. It is against this background that the debate shifted from the a-contextual emphasis on providing access to ICT toward a scrutiny of the complex interaction between ICT and the rather unique socioeconomic, political, and cultural characteristics of social groups (Avgerou and Madon 2005).

While it is difficult to establish a definite categorization in ICT4D studies, it is possible to identify certain patterns in ICT4D research. Besides paying attention to the challenges of scalability (Braa et al. 2007; Sæbø et al. 2014) and sustainability (Best and Maclay 2002; Pade-Khene et al. 2011) affecting ICT4D initiatives, the ICT4D literature emphasizes the need to understand the context where ICT is going to be implemented (Avgerou and Walsham 2000; Walsham 2001). This focus on contextual issues can reveal tensions between local users and foreign designers (Silva 2007), changes in both local organizational processes and features of imported applications (Pozzebon and van Heck 2006), or the cultural clash between organizations implementing locally developed technology (Gao 2007). Furthermore, Hayes and Westrup (2012) stress the need to conceptualize the ICT4D context not as a fixed entity but as dynamic and continuously shaped representation of the environment created by the participating actors. Simultaneously, other ICT4D studies focused on the role of ICT on specific areas of human development, such as health (Madon et al. 2010; Miscione 2007), education (Brunello 2010; Daniel et al. 2007), local content production (Scarf 2012; Tacchi 2011), civic engagement and activism (Kamel 2014; Selander and Jarvenpaa 2016). Similarly, other ICT4D researchers have focused on seemingly vulnerable groups: older people (Choudrie et al. 2013), individuals with disabilities (Babu et al. 2010), marginalized communities (Buskens and Webb 2014).

It is against this backdrop that we would like to go back to Mansell’s (2002) precursor call for studying how individuals can use ICT in an autonomous fashion “to make choices about how they wish to live their lives” (p. 408). This call signaled the need to understand the skills required to use digital technology (van Dijk and Hacker 2003) and the ability to interpret and use the ever increasingly available amount of digital content in a meaningful way (Warschauer 2003). Subsequently, ICT4D research adopted theoretical frameworks that could explain how individuals could derive value from ICT. For instance, Sen’s (1999) capability approach guided the work of researchers interested in understanding how ICT can expand the opportunities of the individuals to live the lives they have reason to value (Kleine 2011; 2013; Zheng 2009; Zheng and Walsham 2008). Other researchers have scrutinized how the goals individuals have in mind shape their engagement in and particular actions on ICT (Hatakka et al. 2016; Thapa and Hatakka 2017), relying on Gibson’s (1977) affordances theory. Engeström’s (2015) cultural-historical activity theory has also been used to reveal the intricacies of tool-mediated actions in collective systems (Karanasios 2014; Karanasios and Allen 2013).

However, in the quest for an explanation of how the individuals use and derive value from ICT, the meaning of the individual ICT4D experience has not received enough attention. The findings of the aforementioned ICT4D research remain in the domain of the observable actions and consequences of ICT use. The analytical efforts have been aimed at establishing cause-effect relationships or finding common patterns from the data instead of revealing the essential and intimate nature of the individual encounter with ICT. As a result, ICT4D research has usually privileged findings that

aggregate external manifestations of ICT use at the expense of presenting the essential meaning of the ICT experience for the betterment of individual lives. Answering issues of concern, such as “what are the improvements in the lives of people that enable them to lead the lives they value – while improving the communities around them?” (Qureshi 2013, p. 190), requires understanding what the individuals involved in ICT4D projects conceptualize ICT4D to be, and whether the structures that give meaning to their experiences with ICT4D are frustrated and modified when they interact with them (Hanseth and Monteiro 1994).

The ICT4D experience can be conceptualized as the profound interconnection between humans and technology, where the latter constitutes a tool not only supporting but also shaping the advancement of the former. The human-technology dyad constitutes what Stiegler (1998) calls the “prosthetic-being”:

Man invents, discovers, finds (*eurisko*), imagines (*mēkhanē*), and realizes what he imagines: prostheses, expedients. A prosthesis is what is placed in front, that is, what is outside, outside what it is placed in front of. However, if what is outside constitutes the very being of what it lies outside of, then, this being is *outside itself*. The being of humankind is to be outside itself (p. 193; emphasis in the original).

Individuals create technology but are also shaped by technology. ICT constitutes an external, crucial referent through which the ICT4D experience occurs. Without ICT, the individual cannot live the ICT4D experience, which occurs in the personal realm, not outside the individual. We call for studying the individual actors and their experience in using ICT for the betterment of their lives in ICT4D research. Phenomenology provides the philosophical foundation, conceptual vocabulary, and methodological tools that allow the exploration of what the meaning of the intimate ICT4D experience is.

## Phenomenology: Philosophical foundations

The reliance on qualitative techniques is abundant in ICT4D research. Ethnography, grounded theory, and thematic analysis have been used in ICT4D studies. While these methodological approaches are distinct, they all focus on the wholeness of the event under investigation and seek to provide a theoretically insightful explanation through a close interaction with participants. However, what sets phenomenology apart from conventional qualitative research is:

the emphasis on intuition, imagination, and universal structures in obtaining a picture of the dynamics that underlay the experience, account for, and provide an understanding of how it is that particular perceptions, feelings, thoughts, and sensual awarenesses are evoked in consciousness with reference to a specific experience (Moustakas 1994, p. 22).

Husserl (1999) set the foundations of phenomenological inquiry as a philosophical approach, from which phenomenological methods have been later derived. Fundamentally, phenomenology aims at examining human experience as it occurs by providing a thick description of “what one perceives, senses, and knows in one’s immediate awareness and experience... [that] provides the impetus for experience and generating new knowledge” (Moustakas 1994, p. 26). Acquiring knowledge about the world ultimately depends on understanding the lived experience, which presupposes a focus on subjectivity (Husserl 1999).

Phenomenology begins in wonder that prompts the quest for uncovering the meaning of understanding everyday events (van Manen 2014). Phenomenology recognizes that lived experiences arise from existence. These lived experiences are incessantly happening as we go about our lives. Having dinner with friends, going to the movies with one’s partner, reading a book, doing grocery shopping are just examples of everyday experiences. Experiences can be as diverse and at the same time unique depending on the nature of the activities performed. In this sense, the experiences of flying a plane, manning a cruise ship or operating a forklift are no different from driving to office; however, their meaning can only be intimately understood by the person going through the experience. These experiences inevitably have a two-dimension temporal manifestation. One manifestation is at the time the events actually happen – i.e., “the living now” (van Manen 2014, p. 34). The second dimension is manifested upon the recollection of the experience – i.e., “the mediated now” (van Manen 2014, p. 34). In phenomenology, this temporal distinction has important implications on how the lived experience is captured and understood; the participant is prompted to reflect upon his/her pre-reflective experience. For instance, the reader may be experiencing the feeling of excitement – or boredom, perhaps – while reading this text. This experience is taking place now in a pre-reflective, subjective way that “lies at the proto-foundation of thought, of consciousness,

of the being of human being” (van Manen 2014, p. 15). However, if the reader is asked to describe his/her experience of reading this text, the mere question prompts a reflective process that results in objectivizing the experience that is no longer happening. In phenomenological research, objective reality only exists in mental representations; therefore, objective reality is nothing other than subjective reality (Moustakas 1994).

Phenomenologists endeavor to get access to the pre-reflective world as it was experienced to understand its meaning (Merleau-Ponty 2014). For instance, we use our senses to perceive a tree and make sense of it regardless of our relative position to that tree. Even if we are able to see only one fragment of that tree at each point in time, we do distinguish transcendental features that make possible to recognize the partial view of the object in front of us as a tree. As such, phenomenology can “be described as an effort to disclose the transcendental features or presuppositions of the world as given in ongoing experience” (Introna 2008, p. 44). The aim of phenomenology is to transform lived experience into a textual expression of its essence. Essence is a linguistic construction used as a tool to reveal the structure of experience as lived through in order to grasp the nature and significance of that whole experience. Put it in another way, essence captures “aspects or qualities that make a phenomenon what it is and without which the phenomenon could not be what it is” (van Manen 1990, p. 107). Therefore, the task of phenomenological research is to formulate a description of the nature of a certain human experience.

## **Phenomenology: Application in information systems research**

The use of phenomenology in information systems research has been limited. The dominant strand of research in information systems adopts a deterministic viewpoint, treating ICT as a tool and separating means from ends. Another large stream of research in information systems views ICT as a social construction, arguing that it results from a complicated process, influenced by cultural, economic and political forces. Information systems phenomenologists consider both these types of research, which privilege the artifact-user dualism (Riemer and Johnston 2014), as being limiting, because speaking about either immediately calls out the other (Introna 2009).

The focus of phenomenology is not on the impact of a certain technology or how it came to be but on how technology and people co-constitute each other, so the questions of which came first or which one should be given primacy are not relevant. Instead, technology is an occasion to reflect on how our understanding of the world is dynamically constituted and reconstituted through the social practices that emerge from human-technology interaction (Star 1990). Phenomenologists are not concerned with artifacts or technologies per se, but more so with the world that made these artifacts or technologies seem obvious and the ways in which technologies ‘frame’ or reveal us or our world as we draw on them: “technology has as its being the revealing of a way of being” (Introna 2008, p. 12).

For phenomenologists, the location and arrangement of technologies and their implicit references to other things make them ‘obvious’ things for a particular purpose. The ‘equipment whole’ refers to the idea that each technology is ready to be used for a certain purpose because it refers to other tools that are necessary to use that particular technology in an activity. Humans use technologies with reference to their existing projects or concerns, and the ‘involvement whole’ refers to the “recursively defining and necessary nexus of projects” (Introna 2009, p. 11). The equipment whole and involvement whole refer to each other and sustain each other, despite different ways in which technology and the world relate to each other. The relationship between humans, technology, and the world can be conceptualized in different ways, based on how the world is disclosed through technology, with each type of disclosure also indicating the concealment of other types of disclosures (Ihde, 1990).

In the study of technology, the perspective of phenomenology is grounded in the idea of enframing: technology does not answer any particular question, but instead, “enframes the world such that the question is changed along with the answer” (Arnold 2003, p. 236). The contemporary way of being is enframed in technology, since the widespread technological mood means that problems show up as requiring technical solutions in line with our projects and intentions. For example, the word processor is not just a more efficient way to write but also changes what writing is: from craft to system of production (Heim 1987; Lyman 1984). An intranet community is not merely a way for a community’s members to communicate with one another but changes our idea of what a community is and how interaction is performed (Arnold 2003). Riemer and Johnston (2014) espouse a phenomenological perspective in their re-examination of the concept of ICT implementation and argue how the focus should be on appropriation, instead of adoption. Studying appropriation reveals how individuals learn so they can use the ICT effectively, how they make sense of it socially, and how it becomes part of the social identity of their practice. Ironically, while the technological enframing of the world has

increased human agency, it has also made humans answerable to instrumental criteria and the logic of power and domination (Cooper 2002). One response to this is to give primacy to meditative thinking, instead of calculative thinking, so that we can embrace technology by releasing it (Arnold 2003).

## **Phenomenology: Methodological considerations**

Phenomenological research is about discovering meaning and describing lived experiences. Researchers should approach a phenomenological inquiry by identifying a specific experience that they are deeply interested in with an intense desire to understand that experience. A phenomenological problem is generally formulated around “the lived experience of a human phenomenon that is experientially recognizable and experientially accessible” (van Manen 2014, p. 297): ‘What is the nature of the phenomenon as meaningfully experienced?’ In information systems research, a legitimate phenomenological question can be phrased as ‘What within our ongoing relationship with the world has allowed ICT to show up as a way to structure that relationship?’ This question illustrates that phenomenological research is not about understanding contextual conditions of the lived experience; its focus is on the lived experience itself.

It is important to emphasize that phenomenological research seeks to unveil the “*existential* empirical meaning structures of a certain phenomenon” (van Manen 2014, p. 348; emphasis in the original). Therefore, phenomenological research questions explore the ‘whatness of things’ instead of the ‘thatness of things’. Revealing the ‘whatness of things’ aims at presenting the pre-reflective, subjective experience, which ultimately constitutes the essence of the phenomenon. Conversely, understanding the ‘thatness of things’ provides an empirical explanation of the manifestation of the phenomenon without revealing its essence. Moreover, a focus on ‘thatness’ presupposes a removed, external observer.

Next, we offer methodological considerations to conduct phenomenological research. They are organized around three research activities: data gathering, data analysis, and writing. These considerations are not meant to be read as formal steps for a researcher to follow. This is because it is not possible to separate a phenomenological inquiry from its roots in various philosophical orientations (e.g., transcendental and hermeneutic traditions) that it draws from.

### **Data gathering**

Phenomenology looks into the lifeworld to find lived-experience materials. Data may come from interviews, daily accounts of stories, written responses, or diaries, among others. It is important to recognize that these data are experiential accounts of lived experiences and they are not the lived experience itself. Phenomenologists approach interviews with a conversational attitude where both the researcher and the participant perceive each other as peers. In other words, a phenomenological interview or series of interviews are similar to having open conversations with friends. Participants are not just informants or subjects; they become co-researchers (Moustakas 1994). It is a requisite for the phenomenologist to have a profound engagement with co-researchers and avoid asking for their opinions, beliefs, interpretations or explanations; questions should aim to obtain a rich description of the experience as it was lived by the co-researchers (van Manen, 2014).

During an interview, a researcher may follow the lead from a participant’s story without asking for justifications, interpretations, causal explanations, or generalizations. The goal of an interview is deceptively simple, which is to gain access to one’s lived experience. Useful interview materials are those with sufficient concreteness that can help a researcher construct an understanding of a lived experience. These concrete materials, which constitute methodological devices, may include stories, anecdotes, and an example of a particular event that stands out because of its vividness.

As in any other methodological approach, the research question guides the data collection in phenomenological ICT4D research. However, the research questions need to reflect the experience as the object of enquiry. Depending on the research setting, the following are examples of ICT4D research questions: ‘what is the ICT use experience like for a rural elder to videoconference with a healthcare professional?’, ‘what is it like for a farmer living in a mountainous area to use ICT to manage his livestock?’, and ‘what is it like for an illiterate person to learn to use a computer to access government services?’ While these illustrative questions explicitly refer to particular settings, phenomenological research is not about explaining how specific contextual factors influence the phenomenon; it is about understanding the essence of the phenomenon. An ICT4D phenomenologist should focus her attention, following on the previous examples, on the meaning of the experience of

accessing health services remotely, the experience of using ICT to go about one's life as a farmer, or the (rather unique) experience of overcoming illiteracy to access e-government services.

In some cases, phenomenologists may choose to use close observations to gather experiential materials when getting oral or written descriptions of participants' lived experiences is not possible – e.g., minors, elders. Close observations as the term is used in phenomenology are a way to get closer to participants by participating in their worlds such as playing with children to gain access to their experience. In a close observation, the researcher is both a participant and an observer who carries a reflective orientation of the meaning of what is observed.

### **Data analysis**

Phenomenological research can be broadly categorized into two streams: transcendental phenomenology and hermeneutic phenomenology. It is beyond the scope of this paper to explain the philosophical divergences between these two streams of phenomenology, we feel compelled to highlight their key differences. Transcendental phenomenology constitutes an epistemological project where perception shapes knowledge, while hermeneutic phenomenology focuses on the ontological objectification of the being as a direct engagement in the world (van Manen, 2014). The chosen phenomenological approach dictates how the gathered data are going to be analyzed.

#### **Transcendental phenomenology**

Husserl (1999) conceived transcendental phenomenology as going back to the things themselves to discover the essence of the phenomenon (Moustakas 1994). Transcendental phenomenological analysis proceeds by describing the essence of a lived experience, which represents the true nature of the phenomenon being studied (Creswell 2009). In transcendental phenomenology, knowledge is derived “from first-person reports of life experiences” (Moustakas 1994, p. 84). Discovering the essence of the phenomenon entails four analytical processes: epoché, eidetic reduction, imaginative variation, and synthesis. Practicing the epoché involves abstaining from imposing preconceived ideas or frameworks on the phenomenon under study (Moustakas 1994). Eidetic reduction entails deriving a “textural description of the meanings and essences of the phenomenon, the constituents that comprise the experience in consciousness” (Moustakas 1994, p. 34). Imaginative variation is aimed at producing a portrayal of the structural descriptions, that is, the essences of the experience. In the synthesis stage, the textural descriptions and structural descriptions are integrated. These four analytical processes are aimed at unveiling the meaning of the lived experience, which in the particular case of ICT4D, can lead to the discovery of the issues – and the possible solutions – in the ICT-mediated experience.

#### **Hermeneutic phenomenology**

For hermeneutic phenomenology, data analysis involves a process of discovering themes that serve as the structures of meaning of the lived experience. Thematic analysis is not only a methodological procedure but also a philosophical endeavor that involves an act of seeing meaning in text through phenomenological reflection. It is important to emphasize that themes are not conceptual formulations or categorical statements. Instead, themes are aptly described by van Manen (1990) as “more like knots in the webs of our experiences, around which certain lived experiences are spun and thus lived through as meaningful wholes” (p. 90). Typically, the thematic analysis starts with initial noting, where the researcher makes descriptive comments, linguistic comments and conceptual comments as well as follows a de-contextualization strategy to focus on the meanings. Thematization follows the initial noting, where the researcher explores the themes that describe the lived experience. The analysis concludes by establishing connections across themes, where findings are consolidated (Smith et al. 2009).

The hermeneutic phenomenologist relies on a combination of a holistic mode (e.g., reading the text as a whole) and detailed approach (e.g., reading each sentence or a group of sentences) to identify essential themes. For instance, if the ICT4D researcher is investigating the videoconference use experience of a rural elder with a healthcare professional, some useful questions to ask oneself during the reading of interview text are: ‘what is the fundamental meaning or significance of this experience?’, ‘are there any phrases or sentences that signify this ICT use experience?’ and ‘what does this sentence reveal about the ICT use experience of the rural elder?’ Phenomenological thematic analysis is a collaborative process between a researcher and a participant. After themes have been identified by the researcher, they are used as materials of reflection in follow-up conversations

between the researcher and the participant by asking the question and reflecting together on the question, “Is this what the experience really like?”

## **Writing**

Writing phenomenological research can be the most challenging dimension of the research process. Analysis and writing have a close connection in phenomenological research. Phenomenological inquiry does not aim to develop propositions, causal explanations, or empirical generalizations (van Manen 2014). In contrast, phenomenological research aims to convey a specific lived experience through writing to lead the reader to wonder. Although one may argue that the abstractness of language can create the distance between the writing and the lived experience, great writing can generate a compelling and emotionally moving account of a lived experience that produces a deep understanding of lived experience. As van Manen (2014) articulates: “In the reflective process of writing, the researcher not only engages in analysis but also aims to express the noncognitive, ineffable, and pathic aspects of meaning that belong to the phenomenon” (p. 240). In this sense, phenomenological writing is simultaneously rational and nonrational. While the writing presents a systematic account of the lived experience, it also resorts to expressive mechanisms that evoke on the reader the pre-reflective experience as lived by the participant (van Manen 2014).

How can a phenomenologist make a lived experience understandable to the reader? To some extent, the answer lies in the use of an anecdote or story as a tool in phenomenological writing. Because anecdote is concrete, it can be “a methodological device ... to make comprehensible some notion that easily eludes us” (van Manen 1990, p. 116). Buytendijk, as quoted by van Manen (1990), has described phenomenology as the science of examples. Phenomenological description of a lived experience is only an example of that experience. Writing can give power to the description by enabling the reader to see the nature and significance of the lived experience it tries to describe.

## **Phenomenological inquiry in ICT4D research**

We invite ICT4D researchers to draw inspiration from the application of phenomenology in the broader information systems field to study ICT4D experiences through two illustrative topics: paradoxical ICT4D experiences and ICT4D experiences and ways of doing and being.

One can imagine several paradoxical experiences in the ICT4D context. For example, an elder living in a rural location may experience uneasiness to show her bodily problematic areas to a doctor through video chat yet at the same time experience delight in the magical power of technology that allows her to converse with a young doctor afar. The concept of technological enframing (Arnold 2003) may be useful to approach a study of paradoxical ICT4D experiences. For example, several ICT innovations (e.g., social media) may create a state of what Heidegger calls ‘un-distance’ in which “all people and places are uniformly and simultaneously near and far” (Arnold 2003, p. 236). In addition, Ihde (1990) reminds us that technology simultaneously amplifies and reduces our capacity to engage with the world. A phenomenological approach has the potential to help us develop a concrete understanding of what it means to have paradoxical ICT4D experiences in various contexts.

Another topic worthy of investigation is ICT4D experiences and ways of doing and being. Heidegger uses the phrase, ‘being-in-the-world’, to describe the intimate relation between humans and world, which suggests that the self and the world forms a unity as an ongoing way of acting and being (Introna 2008). For instance, an illiterate person using e-government services undoubtedly requires a reconstitution of the relation between this individual and her new technologically-mediated world. The reconstitution of being-in-the-world through ICT4D experiences requires an understanding of her way of relating to the world and how she identifies herself in terms of her illiteracy and being a citizen.

## **Conclusion**

Boland’s (1985) early invitation to adopt a phenomenological approach remains current:

Phenomenology is a preferred approach for the study of information systems ... because it offers the best prospect for helping us understand their actual operation and significance ... Data becoming information is what information systems are. Data becomes information in the consciousness of a human subject, and that is where we must look if we are to understand information systems (p. 200).

ICT4D researchers have done well in explaining the adoption and impact of ICT on communities and individuals at the aggregate level. What has been less well understood is the lived experiences of the individuals taking up ICT in an ICT4D context. Part of the reason for this absence is the dominance of the Cartesian worldview of dualism, with ICT artifacts (objects) and users (subjects). This perspective influences the problems researched most frequently: instead of viewing the holistic experience as the center of our studies, more attention is paid to testing relationships between constructs (Riemer and Johnston 2014). The phenomenological perspective presented in this paper offers an avenue for contributing to the ICT4D literature by studying the experiences of individuals. Instead of examining separate artifacts and users, a phenomenological approach to ICT4D will encourage researchers to explore the world that made these artifacts necessary, and how these artifacts frame the world by revealing or concealing certain aspects of it. Only the individual who engages in using ICT for the betterment of his/her life can intimately understand and reveal the meaning of the ICT4D experience.

Unlike other methodological approaches (either quantitative or qualitative), phenomenological research aims neither at empirical generalizations nor replicability. Instead of deriving verifiable propositions, the goal is to offer a phenomenological account of the meaning of the lived experience. Phenomenologists need to be prepared to suspend their pre-conceived ideas and engage with the data as it flows with an open mind. More importantly, they need to manage the surfacing doubts while applying intuition in the data analysis. Two challenges associated with phenomenological research are its essentialism, or the lack of rich situated accounts, and the absence of an explanation as to why some technologies are accepted, while others are not. Introna (2008) argues that these issues are not of concern to phenomenology: society and technology co-constitute each other, instead of one 'constructing' the other, and the transcendental features of the world lead to certain possibilities of acting and perceiving not being worthy of consideration. This underlines the goal of phenomenology in an ICT4D context: not to explain impacts or adoption, but the interconnected relationships that individuals have with their world and technology.

## REFERENCES

- Arnold, M. 2003. "On the Phenomenology of Technology: The "Janus-Faces" of Mobile Phones," *Information and Organization* (13:4), pp. 231-256.
- Avgerou, C., and Madon, S. 2005. "Information Society and the Digital Divide Problem in Developing Countries," in *Perspectives and Policies on ICT in Society*, J. Berleur and C. Avgerou (eds.). New York, NY: Springer, pp. 205-217.
- Avgerou, C., and Walsham, G. 2000. *Information Technology in Context: Studies from the Perspective of Developing Countries*. Aldershot, UK: Ashgate.
- Babu, R., Singh, R., and Ganesh, J. 2010. "Understanding Blind Users' Web Accessibility and Usability Problems," *AIS Transactions on Human-Computer Interaction* (2:3), pp. 73-94.
- Best, M. L., and Maclay, C. M. 2002. "Community Internet Access in Rural Areas: Solving the Economic Sustainability Puzzle," in *The Global Information Technology Report 2001-2002: Readiness for the Networked World*, G.S. Kirkman, J.D. Sachs, K. Schawb and P.K. Cornelius (eds.). Oxford, UK: Oxford University Press.
- Bingham, R. D., and Mier, R. (eds.). 1993. *Theories of Local Economic Development: Perspectives from across the Disciplines*. Newbury Park, CA: Sage.
- Boland Jr, R. J. 1985. "Phenomenology: A Preferred Approach to Research in Information Systems," in *Research Methods in Information Systems*, E. Mumford, R.A. Hirscheim, G. Fitzgerald and A.T. Wood-Harper (eds.). pp. 193-201.
- Braa, J., Hanseth, O., Heywood, A., Mohammed, W., and Shaw, V. 2007. "Developing Health Information Systems in Developing Countries: The Flexible Standards Strategy," *MIS Quarterly* (31:2), pp. 381-402.
- Brunello, P. 2010. "ICT for Education Projects: A Look from Behind the Scenes," *Information Technology for Development* (16:3), pp. 232-239.
- Bucy, E. P. 2000. "Social Access to the Internet," *Harvard International Journal of Press/Politics* (5:1), pp. 50-61.
- Buskens, I., and Webb, A. (eds.). 2014. *Women and ICT in Africa and the Middle East*. London, UK: Zed Books.
- Castells, M. 2000. *The Rise of the Network Society - the Information Age: Economy, Society and Culture*, (2nd ed.). Malden, MA: Blackwell Publishers.
- Chen, W., and Wellman, B. 2004. "The Global Digital Divide –within and between Countries," *IT & Society* (1:7), pp. 18-25.



- Choudrie, J., Ghinea, G., and Songonuga, V. N. 2013. "Silver Surfers, E-Government and the Digital Divide: An Exploratory Study of Uk Local Authority Websites and Older Citizens," *Interacting with Computers* (25:6), pp. 417-442.
- Cooper, S. 2002. *Technoculture and Critical Theory: In the Service of the Machine?* London, UK: Routledge.
- Corrocher, N., and Ordanini, A. 2002. "Measuring the Digital Divide: A Framework for the Analysis of Cross-Country Differences," *Journal of Information Technology* (17:1), pp. 9-19.
- Creswell, J. W. 2009. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, (3rd ed.). Los Angeles, CA: Sage.
- Daniel, J., West, P., and Mackintosh, W. 2007. "Exploring the Role of ICTs in Addressing Educational Needs: Identifying the Myths and the Miracles," *South African Journal of Higher Education* (21:6), pp. 632-642.
- Davison, R., Vogel, D., Harris, R., and Jones, N. 2000. "Technology Leapfrogging in Developing Countries - an Inevitable Luxury?," *Electronic Journal of Information Systems in Developing Countries* (1:5), pp. 1-10.
- Engeström, Y. 2015. *Learning by Expanding: An Activity-Theoretical Approach to Developmental Research*, (2nd ed.). New York, NY: Cambridge University Press.
- Gao, P. 2007. "Counter-Networks in Standardization: A Perspective of Developing Countries," *Information Systems Journal* (17:4), pp. 391-420.
- Gibson, J. J. 1977. "The Theory of Affordances," in *Perceiving, Acting and Knowing: Toward an Ecological Psychology*, R. Shaw and J. Bransford (eds.). Hillsdale, NJ: Lawrence Erlbaum Associates, pp. 67-82.
- Gómez, R., and Ospina, A. 2001. "The Lamp without a Genie: Using Telecentres for Development without Expecting Miracles," *Journal of Development Communication* (12:2), pp. 16-25.
- Hanseth, O., and Monteiro, E. 1994. "Modelling and the Representation of Reality: Some Implications of Philosophy on Practical Systems Development," *Scandinavian Journal of Information Systems* (6:1), pp. 1-22.
- Hatakka, M., Thapa, D., and Sæbø, Ø. 2016. "A Framework for Understanding the Link between ICT and Development: How Affordances Influence Capabilities," *Proceedings of the SIG GlobDev Workshop*, Dublin, Ireland.
- Hayes, N., and Westrup, C. 2012. "Context and the Process of ICT for Development," *Information and Organization* (22:1), pp. 23-36.
- Heim, M. 1987. *Electric Language: A Philosophical Study of Word Processing*. New Haven, CT: Yale University Press.
- Hindman, D. B. 2000. "The Rural-Urban Digital Divide," *Journalism & Mass Communication Quarterly* (77:3), pp. 549-560.
- Hoffman, D. L., Novak, T. P., and Schlosser, A. 2000. "The Evolution of the Digital Divide: How Gaps in Internet Access May Impact Electronic Commerce," *Journal of Computer-Mediated Communication* (5:3).
- Husserl, E. 1999. *Cartesian Meditations: An Introduction to Phenomenology [1950]*. Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Ihde, D. 1990. *Technology and the Lifeworld: From the Garden to Earth*. Bloomington and Indianapolis, IN: Indiana University Press.
- Introna, L. D. 2008. "Understanding Phenomenology: The Use of Phenomenology in the Social Study of Technology," in *Phenomenology, Organisation and Technology*, L.D. Introna, F.M. Ilharco and E. Faÿ (eds.). Lisbon, Portugal: Universidade Católica Editora.
- Introna, L. D. 2009. "Making Sense of ICT, New Media, and Ethics," in *The Oxford Handbook of Information and Communication Technologies*, C. Avgerou, R. Mansell, D. Quah and R. Silverstone (eds.). Oxford, UK: Oxford University Press, pp. 1-24.
- James, J. 2001. "Bridging the Digital Divide with Low-Cost Information Technologies," *Journal of Information Science* (27:4), pp. 211-217.
- Kamel, S. H. 2014. "Egypt's Ongoing Uprising and the Role of Social Media: Is There Development?," *Information Technology for Development* (20:1), pp. 78-91.
- Karanasios, S. 2014. "Framing ICT4D Research Using Activity Theory: A Match between the ICT4D Field and Theory?," *Information Technologies & International Development* (10:2), pp. 1-17.
- Karanasios, S., and Allen, D. 2013. "ICT for Development in the Context of the Closure of Chernobyl Nuclear Power Plant: An Activity Theory Perspective," *Information Systems Journal* (23:4), pp. 287-306.
- Kleine, D. 2011. "The Capability Approach and the 'Medium of Choice': Steps Towards Conceptualising Information and Communication Technologies for Development," *Ethics and Information Technology* (13:2), pp. 119-130.

- Kleine, D. 2013. *Technologies of Choice? ICTs, Development, and the Capabilities Approach*. Cambridge, MA: MIT Press.
- Lyman, P. 1984. "Reading, Writing and Word Processing: Toward a Phenomenology of the Computer Age," *Ethics and Information Technology* (7:1/2), pp. 75-89.
- Madon, S., Krishna, S., and Michael, E. 2010. "Health Information Systems, Decentralisation and Democratic Accountability," *Public Administration and Development* (30:4), pp. 247-260.
- Mansell, R. 2002. "From Digital Divides to Digital Entitlements in Knowledge Societies," *Current Sociology* (50:3), pp. 407-426.
- Merleau-Ponty, M. 2014. *Phenomenology of Perception*. London, UK: Routledge.
- Miscione, G. 2007. "Telemedicine in the Upper Amazon: Interplay with Local Health Care Practices," *MIS Quarterly* (31:2), pp. 403-425.
- Moustakas, C. 1994. *Phenomenological Research Methods*. Thousand Oaks, CA: Sage.
- Pade-Khene, C., Mallison, B., and Sewry, D. 2011. "Sustainable Rural ICT Project Management Practice for Developing Countries: Investigating the Dwesa and Rumepe Projects," *Information Technology for Development* (17:3), pp. 187-212.
- Pozzebon, M., and van Heck, E. 2006. "Local Adaptations of Generic Application Systems: The Case of Veiling Holambra in Brazil," *Journal of Information Technology* (21:2), pp. 73-85.
- Quibria, M. G., Ahmed, S. N., Tschang, T., and Reyes-Macasaquit, M. L. 2003. "Digital Divide: Determinants and Policies with Special Reference to Asia," *Journal of Asian Economics* (13:6), pp. 811-825.
- Qureshi, S. 2013. "Information and Communication Technologies in the Midst of Global Change: How Do We Know When Development Takes Place?," *Information Technology for Development* (19:3), pp. 189-192.
- Riemer, K., and Johnston, R. B. 2014. "Rethinking the Place of the Artefact in Is Using Heidegger's Analysis of Equipment," *European Journal of Information Systems* (23:3), pp. 273-288.
- Rogers, E. M., and Shukla, P. 2001. "The Role of Telecenters in Development Communication and the Digital Divide," *Journal of Development Communication* (2:12), pp. 26-31.
- Sæbø, Ø., Sein, M. K., and Thapa, D. 2014. "Nepal Wireless Networking Project: Building Infrastructure in the Mountains from Ground Up," *Communications of the Association for Information Systems* (34).
- Scarf, C. 2012. "Using ICT to Strengthen the Voices of the 'Poor' without Asking Who Will Listen," *International Journal of E-Politics* (3:3), pp. 21-39.
- Selander, L., and Jarvenpaa, S. L. 2016. "Digital Action Repertoires and Transforming a Social Movement Organization," *MIS Quarterly* (40:2), pp. 331-352.
- Sen, A. K. 1999. *Development as Freedom*. New York, NY: Alfred A. Knopf.
- Silva, L. 2007. "Institutionalization Does Not Occur by Decree: Institutional Obstacles in Implementing a Land Administration System in a Developing Country," *Information Technology for Development* (13:1), pp. 27-48.
- Smith, J. A., Flowers, P., and Larkin, M. 2009. *Interpretative Phenomenological Analysis: Theory, Method and Research*. London, UK: Sage.
- Star, S. L. 1990. "Power, Technology and the Phenomenology of Conventions: On Being Allergic to Onions," *The Sociological Review* (38:S1), pp. 26-56.
- Stiegler, B. 1998. *Technics and Time: The Fault of Epimetheus*. Stanford, CA: Stanford University Press.
- Tacchi, J. 2011. "Open Content Creation: The Issues of Voice and the Challenges of Listening," *New Media & Society* (14:4), pp. 652-668.
- Thapa, D., and Hatakka, M. 2017. "Understanding ICT in ICT4D: An Affordance Perspective," *Proceedings of the 50th Hawaii International Conference on System Sciences*, Hawaii, HI.
- van Dijk, J., and Hacker, K. 2003. "The Digital Divide as a Complex and Dynamic Phenomenon," *The Information Society* (19:4), pp. 315-326.
- van Manen, M. 1990. *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy*. Albany, NY: SUNY Press.
- van Manen, M. 2014. *Phenomenology of Practice: Meaning-Giving Methods in Phenomenological Research and Writing*. London, UK: Routledge.
- Walsham, G. 2001. *Making a World of Difference: It in a Global Context*. Chichester, UK: Wiley.
- Warschauer, M. 2003. *Technology and Social Inclusion: Rethinking the Digital Divide*. Cambridge, MA: The MIT Press.
- Zheng, Y. 2009. "Different Spaces for E-Development: What Can We Learn from the Capability Approach?," *Information Technology for Development* (15:2), pp. 66-82.
- Zheng, Y., and Walsham, G. 2008. "Inequality of What? Social Exclusion in the E-Society as Capability Deprivation," *Information Technology & People* (21:3), pp. 222-243.