

# Ontological Assumptions in Techno-Anthropological Explorations of Online Dialogue through Information Systems

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**Abstract:** With the widespread infusion of online technology there has been an increase in various studies investigating the practices in online communities including also philosophical perspectives. What those debates have in common is that they call for more critical thinking about the theory of online communication. Drawing on Techno-Anthropological research perspectives, our interest is placed on exploring and identifying human interactions and technology in intersectional spaces. This article explores information systems that allow for interchanges of different users. We discuss ontological assumptions that focus on understanding the kind of dialogue that can be captured between different expert groups when they utilize information systems. We present the notion of ‘dialogic’ by Mikhail Bakhtin and contextualize it through an analysis of online dialogue. Dialogic or ‘conversation and inquiry’ is discussed as being mediated through human relationships. Acknowledging the existence of at least two voices the underlying differences between dialogue partners are highlighted.

**Key words:** dialogic, Mikhail Bakhtin, online dialogue, Techno-Anthropology, interactional space

## Introduction

Modern technological realities of the digitally literate society have come about with increasing possibilities and expectations that old boundaries of communication and dialogue can be transgressed and that technology is omnipotent. However, critical voices are reminding us that the mediational affordances of digital technol-

ogy have limits and demand that an understanding “of how technologies shape us humans while we humans critically shape technologies” (European Commission 2013, 8) is needed, in particular considering the fast pace of technological development. It is not surprising therefore that researchers in a number of academic fields are taking a keen interest in the complex interplay that is generated, produced and results from digital technology and society interacting with each other. For instance, information system research is concerned with the study of complementary networks of hardware and software that people and organizations use to accumulate, select, process, produce, and/or share information (Chen and Hirschheim 2004). There have been debates, including ones on the philosophical perspectives on studying digital communication practices, by a number of interest groups dealing with expert knowledge and how this is or can be shared. Over the last 30 years research in this field was predominantly positivist in its focus (Orlikowski and Baroudi 1991), and not much has changed since then (Chen and Hirschheim 2004). What WenShin Chen and Rudy Hirschheim are particularly concerned about is that research on information system has focused primarily on empirical studies of online experiences. However, the study of online communities has become increasingly interesting to the research community. Those who are interested in studying online communities of practice (Lave and Wenger 1991) have explored social networking sites including MySpace, Facebook, Friendster and LinkedIn (Pfeil, Arjan and Zaphiris 2009), while those who have focused on educational applications of online communities and the use of Learning Management Systems (Martín-Blas and Serrano-Fernández 2009) such as Moodle or Blackboard have often directed their attention to participants’ discussions, both fully online or blended (Garrison and Arbaugh 2007). Much of this research has focused on empirical investigations exploring adoption, transition and online behavior.

A recent development has been to explore research that is reflexive in nature for example the works conducted by anthropologists and ethnographers to explore people’s engagement with or use of technology. It means that with an “interest in material culture, practices of representations, the interpretations of cultural texts and comprehending social relations and individual experience” (Pink 2007, 6) online environments are also now considered as sites of investigation for observations and the interpretation of socio-cultural phenomena (Sade-Beck 2008; Wilson and Peterson 2002). As a new and emerging field, Techno-Anthropology explores the nature of the interrelationships between human beings and technologies and positions this field as a culturally informed hybrid space that bridges among different disciplines and professions, technological artifacts and their users (Børsen

and Botin 2013). This move signifies the realization people's engagement with technology has become complex, in particular as a result of the digitization of information, and that this requires a careful and critical approach to technology. Techno-Anthropology as a field of study is also indicative of the debates that have come about on how to make meaningful, responsive, and responsible interpretations of technology design, use, and experiences including the interactions that are happening in cyberspace, which is the specific interest in this article. Taking a Techno-Anthropological perspective to question and further investigate the intersection between technology and people supports theory building to avoid closing down some perspectives in favor of one or a few selected ones (Wegerif 2008).

### **Dialogue as Ontology**

Paul Sullivan (2011, 4–5) writes that dialogue is not only an epistemology, a theory of knowledge but also an ontology, a theory of being that results from the need of people to engage with each other. This means that studying dialogue can not only be about constituting the validity of knowledge and how to obtain it but also about ascertaining what constitutes reality and how we understand existence.

This article attempts to contribute to Techno-Anthropology by exploring ontological assumptions that can be made in the study of dialogue to identify truth or kinds of truth. We wish to focus on understanding dialogue that is captured when different experts talk to each other online using information systems. To begin with we need to clarify the terminology used here when we refer to online dialogue. We draw on Peter Lunenfeld (2000) who writes about the difficulty in coming up with suitable terms to talk about online communication media and that words such as 'new media,' 'digital,' 'cyber,' 'telematic' or 'electronic' are "more than technological nomenclature" because they are being "tested to serve as overarching descriptions of a moment" (XVI). With that he points to the difficulty at defining relatively new ideas and concepts that still need to be tested, a difficulty that leads him to see the aforementioned terms as placeholders of cultural productions. In this article we are particularly interested in written online communications among the members of self-defined communities. We decided to use the term 'online dialogue' because it implies the need to be *online* or connected through the Internet, *dialogue* pertains to the Greek *dia* (through) *logos* (the word). We will review the appropriateness of the term again at the end of this article.

We are here specifically interested in online dialogue as ontology. While ontologies have varied and continue to vary greatly, it is useful to start by addressing philosophical concerns in the online/virtual/cyber space from the generally ac-

cepted understanding that ontology constitutes “the study of variously: existence, being, reality and/or the meanings of each of these words” (Koepsell and Rapaport 1995, 6). Considering dialogue as ontology means to think of dialogue as a theory of knowing, because “people are born ‘needy’, as they depend on others for values or embodied ideas to give a clear sense of who they are” (Sullivan 2011, 5). Ontology, or the inquiry into ‘the nature of being’, may appear metaphysical and perhaps even of little relevance to the study of practice in online dialogue. However, Sullivan stresses, “language . . . involves a sensuous, touching exchange and a grammar through which it can take place” (2011, 5) and to neither question nor explore ontological assumptions about dialogue may lead to misunderstandings of the nature of exchanges and what can be learned from them.

Using our own example we are taking a particular interest in conceptualizing dialogue in online space as being *dialogic*. We are building this argument on the ideas of the Russian philosopher and literary critic Mikhail Mikhailovich Bakhtin, who looked for emotional signatures in dialogue, and for whom dialogic involves authoring and degrees of testing out ideas. While for Bakhtin the notion of dialogic referred primarily to literature and communication other scholars have broadened this concept. For instance, Rupert Wegerif developed a dialogic theory of education, by exploring the differences between dialogic and dialectic. His concern is that the concept behind the term ‘dialogic’ is oversimplified and he urges for careful and critical examination of dialogic or “conversation and inquiry” (Alexander 2000, 520 as cited in Wegerif 2008, 348). Building on Wegerif we want to expand this argument to online communities that are not framed by institutionalized educational intentions. While there are vast differences in the type of online communities that can be found, from small groups with very specific foci to online communities that have millions of members, online discussion groups usually have a common purpose, that is to use the networked online environment to exchange some kind of information or goods (Wilson and Peterson 2002).

Thinking about online dialogue as *dialogic* allows for the exploration of thinking through words (Toulmin 1992; Wertsch 2000). This focus highlights that the dialogic process is about exploring the coexistence of ideas and voices and is of particular interest to examining cooperative aspects of talk where value is placed on implicit intentionality. With a particular focus on the written dialogue in the online environment we will use an example of a community of individuals with a shared interest. This online community shared information through online dialogue that we examined. With a socio-cultural angle to Techno-Anthropology we intend to describe the process of interaction between them to explore traces of

multiple “voices.” We use the dialogic framework as an analytical tool to identify types of talk that are being characterized by intersubjectivity, meaning that people are responding to one another in dialogue in particular ways. Bakhtin (1984) writes that for discourse to be dialogic it must be embodied, to identify “a creator of the given utterance whose position it expresses” (84). This position implies the presence of ‘voice’ in dialogue. Sullivan (2011) reminds us, however, that ‘voice’ can be a difficult term because it implies subjectivity. He points out that this does not necessarily reflect ownership but rather can reflect both the otherness of voices—he refers here to an example where a person making an argument may defend the position of someone else—while authentically representing at other times one’s own thoughts and standpoints.

In his own exploration of discourse, Maurice Merleau-Ponty says that it is not only about speaking but also about thinking, and that speech does not only transmit thought but also realizes and finishes it (Merleau-Ponty 1968). For him speech is the embodiment of thought. He writes: “What if I took not only my own views of myself into account but also the other’s views of himself and of me? Already my body as stage director of my perception has shattered the illusion of a coinciding of my perception with the things themselves” (Merleau-Ponty 1968, 8). Merleau-Ponty is concerned with the relationship and the coming together of body and mind in speech to become both preserving and transformational. He views this as an indistinguishable duality that can only be separated when done so deliberately.

Embodiment is also a strong element in Bakhtin’s work (1986). In addition to Merleau-Ponty, Bakhtin gives discourse relational dimensions. His philosophy is about morality with discourse as the central focus. Bakhtin’s argument is concerned with the location of those who speak or write and identifies them in a spatial and temporal context. Bakhtin sees being as a ‘unique and unified event’ while co-being is about the simultaneity of being with other beings (Wegerif 2008). Bakhtin’s notion of dialogic goes so far that he highlights that ideas passed through others sound differently, a phenomenon he describes as ‘polyphony.’ Sullivan (2011) identifies several parameters in Bakhtin’s ideas about dialogue. He distinguishes the ‘self’ and the ‘other’ to position them as “anticipative of each other” (14). He also highlights Bakhtin’s focus on language that encompasses intonation, anticipation, embodiment and aesthetics but also ‘truth’ (‘pravda’, as Bakhtin puts it)—or “a person’s investment in a belief that others may resist and/or dialogue with” (15). This means that Bakhtin’s ‘truth’ is not about whether positions are confirmed by the outside but rather represent transformations of par-

ticular experiences in space and time, and thus relate also to the genre in which they are being expressed. Bakhtin's interest in dialogue came from his concern over monologism as he saw it expressed in Stalinist Russia, where creative or regenerative exchanges were shut down (White 2009). For Bakhtin, dialogue does not simply imply a spatial or temporal closeness and balance, because "dialogue is born out of inequality between self and other, to use this inequality to enrich each other" (Sullivan 2011, 4). The spatial/temporal dimensions that can be identified in writing are what Bakhtin describes as chronotopes. Different chronotopes can emerge in different genres and through different actions. Bakhtin notes that the significance about chronotopes is that space and time are always linked because time can only be noticed in space.

In this article we will share the methodological issues resulting from Internet-based, Techno-Anthropological research to suggest pathways for thinking that can assist others with addressing the problematic challenges of such research. We will highlight qualitative data-gathering methods including online observations, interviews, and content analysis and analyzed it using a dialogic approach. The online environment we explored was collected from dialogue between the members of the Internet communities of the GNU Image Manipulation Program (GIMP). This analysis was undertaken using a dialogic analysis proposed by Sullivan (2011) influenced by Bakhtin's work, which we now turn to discuss.

### **Sullivan's Dialogic Analysis from a Bakhtinian Perspective**

In his *Qualitative Data Analysis Using a Dialogical Approach* (2011), Sullivan presents a synthesis of methodologies concerned with the qualitative analysis of dialogue. His main argument deals with theorizing dialogical subjectivity from a Bakhtinian perspective. Here, dialogue is about more than just "give and take" (2); it represents an exchange of lived ideas that are not abstract but full of personal values. Sullivan explains that through a Bakhtinian lens, truth can be both lived and abstract, because, to experience things, ideas are at times bestowed on us by others (2). Sullivan foregrounds Bakhtin's focus on and distinction between the *self* and the *other*, which allows a differentiation between the author (the self) and the hero (the other). This distinction is important for the analysis of dialogue because it highlights the anticipation the author has of those with whom he exchanges ideas or the reactions he expects from his writing.

To analyze discourse Sullivan proposes four categories:

1. *Genre and discourse*: Bakhtin's concept of genre relates to stylistic conventions that indicate intonations that give insight into emotions and aesthetics.

Jayne White (2009) writes that Bakhtin's aesthetics analysis represents an interactive evaluation of historically and socially located interpretations. Bakhtin (1984) distinguishes the genres epic, tragedy and lyric as so-called 'outside-in' discourses while irony, parody and the novel represent 'inside-out' discourses. 'Outside-in' and 'inside-out' describe the author's voice in relationship to that of the hero. Irony, parody and the novel are distinctively dialogic while epic, tragedy and lyric tend to be more monologic because they privilege one voice over another and keep the author and the hero at a distance (Sullivan, 2011). It is also important to note that some genres are very defined while others leave more space for the author. Writing a scholarly article, for example, requires following particular conventions and rules. Sullivan points out that genres are not always easy to define and he suggests looking for the presence and diversity of voices to establish whether the discourse is 'outside-in' or 'inside-out.' Discourse can however also struggle between the two and subsequently become doublevoiced; here "the voice of the other is considered to come into the shaping discourse of the author, almost against the author's will" (53). The 'word with a sideways glance' is a description used when an internal critic is detectable in the discourse and refers to the presence of weighing different positions while 'hidden dialogue' expresses the author's inability to explain some positions fully.

2. *Emotional register*: The identification and emphasis of the emotional signature in discourse is of great importance to Bakhtin and can be identified in the accent or the intonation used. Emotions indicate the relationship to 'the other' and emphasize feelings and subjectivity. Sullivan (2011) explains that in the analysis of discourse one has to apply both levels of trust and levels of suspicion to identify the different sets of social/discursive relations, thus foregrounding the emotions that are expressed in the utterances of different voices.

3. *Time-space elaboration*: The relationship between time and space is conceptualized by Bakhtin as 'chronotope' and forms a central concept in his work. For Bakhtin, the chronotope fuses the spatial and temporal and defines the genre through artistic perceptions (Richardson 2002). Different genres have identifiable time-space elaborations. For example, the novel brings with it a future perspective albeit an open one because the author is aware of and vulnerable to different future possibilities (Sullivan 2011). The characteristics of the language used embody, shape and transform experiences.

4. *Context*: This category concerns locating and situating dialogue in history in order to identify the settings for the expectations of those participating in the dialogue and the relationship between the author with the hero. While this

category is necessary when different examples of discourse are presented, it is also useful to locate different authors who participate in online dialogue, when they construct a particular social reality in this space (Sade-Beck 2008).

We now will present our analysis of GIMP, starting with a brief background section:

### **The GIMP Example: Online Dialogue between Different Experts**

#### *Background of the GIMP image manipulation program*

GIMP (<http://www.gimp.org/>) is an image manipulation program that allows users to complete relatively sophisticated image editing tasks, including retouching, resizing, photo montage, cropping and others. Originating from a University of California, Berkeley project, GIMP is free software, program meaning it has been built and designed by volunteers as a freely available resource. GIMP is part of the GNOME project (<http://www.gnome.org/>) a platform that houses not only GIMP but also a range of other desktop applications that are likewise developed by a community of volunteers.

The fact that that the program is free to use intentionally opens up the design of the software product to the community of users who are invited to try out, write or develop new scripts or extend it. This makes it particularly appealing to the creative community including independent artists, computer graphic researchers, and programmers (van Gumster and Shimonski 2010). One of the key strategies used in Open Source software is user participation and feedback (Zhao and Elbaum 2003). Unconventional principles such as the distribution of free source codes and massive user participation is part of the Open Source movement (Andrule 2013). This level of interactivity allows the user community to write, test and find ‘bugs’, which are more likely to be found by them rather than the developers. This format of interactivity blurs the boundaries between who is a user and who is a product developer (Andrule 2013).

#### *Details on the GIMP Online Dialogue Investigation*

In this investigation, one of the authors who herself had used GIMP for approximately five years became a participant observer of the GIMP online community. The online observations involved the recording of observational and reflective notes over a period of three weeks about the GIMP online community forum, as well as conducting five interviews with community members that were conducted via email after contacting and asking the community for volunteers.

The GIMP online community has four forums:

- Help & Support—with the aim to help users with practical problems;
- Graphics, Design and GIMP art—where members would typically leave posts of user works created with the program;
- Off-topic—for topics not covered in other discussions;
- GIMP Development—a place to leave suggestions for developers, and where discussions with developers as well as with other contributors could take place.

After spending some time in all forums a decision was made to concentrate on the GIMP Development forum. Over the three week period 18 forum discussions were observed, both on-going and completed. In carrying out the analysis we followed Sullivan's descriptions on how to produce a dialogic analysis based on Bakhtin's ideas. This meant that texts were read, re-read and then examined to identify participants' voices from the way they responded to others and also echoed their own history, tradition and power (Sullivan 2011, 43).

The detailed research questions changed over the duration of the analysis in a hermeneutic circle. This means that we were trying to find meaning in the text through the process of considering the cultural, historical and literary context. We needed to revisit findings of individual parts and connect them back to the whole (Sullivan 2011) the overall broad research question was: What can be learned from the dialogue among different contributors to the GIMP development online forum?

From the online discussions and interviews that were collected we selected key moments to analyze, thus reducing the data. 'Key moments' were identified as those that represented bounded narratives of an experience. We identified passages in the online dialogue that included emotional involvement and those that were also supported through the interviews.

These key moments were then analysed for five different participants: Sam, Brian, Harry, Dean and Sophie (all pseudonyms) under the four categories: genre and discourse, emotional register, time-space elaboration, and context. A dialogic analysis of three of the participants' online conversation is presented in the next section.

### *Analysis*

We start our analysis by providing a general overview in Table 1 and continue from there to selected examples and extracts that show how we applied dialogic

analysis to reveal different voices mediated by the online context. The selection of examples and their interpretation should according to Sullivan (2011) embrace both a bureaucratic as well as charismatic style. This means that while analytical interpretations benefit from an organised and structured process they only come to life through the intended placement of the author's voice. We aim to achieve this by emphasizing why and how the selected key passages stood out for us.

<b>Contributor</b>	<b>Genre and Discourses</b>	<b>Emotional Register</b>	<b>Time-Space Elaboration</b>	<b>Profile in the Online Context</b>
<b>Sam</b>	Novel, inside-out	Closeness to hero, double voiced; caring; admiration	Future perspective and future expectations	A developer; uses the program as a graphic tool; is interested in the online forum to see if there are new releases of the program
<b>Dean</b>	Novel, removal of authority	Diversity of voices, the other receives a significant place	Future perspective through high-level participation and contributions	Long-term user (25 years) of GIMP as image editing tool; uses the forum to find solutions
<b>Harry</b>	Irony, inside-out	Suspicion and expectation, internal critic	Future perspective, yet disrupted by doubts about the community	Writes scripts; interested in learning about and trying out new techniques

All three participants had a shared interest in GIMP development. However, as identified in Table 1, each person also had a very unique personal agenda and reasons for why they contributed to the forum. In the following, we present and analyze extracts from the e-mail interviews for these individuals.

### *Sam*

Sam, a software developer, seemed very helpful to everyone in the forum who had practical questions about the program. In his contributions he seemed competent in what he was talking about and the advice he gave. His writing intonations were framed by the professional field he represented. His writing genre can be described as taking a novelist approach, which means that he is interested in listening to others. He also makes his contribution in an 'anti-authoritative' way signaling his awareness of the existence of multiple truths. For example, in the e-mail interview Sam writes:

Free software is FAR from perfect—but the price tag is the least important of its advantages over commercial software.

Sam highlights the word FAR using emphatic speech to highlight the value he places on this word. Sullivan describes this as a “word with a loophole” (Sullivan 2011, 60), meaning a deliberate steering away from a definite stance. It symbolizes the author’s consciousness of more than one voice that he holds together in his writing—in what Bakhtin describes as polyphony (1984).

During the interview Sam explained that his interest in this community was based on having used the software since 1999. He was already very familiar with the range of drafting and graphic programs and explained that he was using the forum mainly to see if there are new releases of the program. From his responses in the forum it became apparent that he cared about promoting GIMP and the idea of open source programs. In this next example he is helping someone to figure out how to save a .pdf file. After posting his first response he tried out what he had posted. Realizing that what he had proposed does not always work, so he posted another comment to correct his own suggestion:

Tony: Is it possible to save files as PDF like photoshop?

Sam: Probably not “like Photoshop” but here are two ways:

1. Easy as in simple: Save your image as a .ps file. (That’s post-script.) Then convert the .ps file to .pdf via the ps2pdf terminal command, i.e.:

```
ps2pdf example.ps example.pdf
```

ps2pdf is part of the GhostScript package, versions should be available for most operating systems.

2. Easy as in all-gui on Windows: Install PDFCreator, and “print” your image to PDF—this will appear as an option when you select a printer from the ones installed on the system.

I believe MAC systems can natively print to PDF, but don’t quote me on that.

:o)

Sam

...

Um, on second thought, I have been playing with this and it is giving me cat fits. The GIMP's Postscript files are fine, but apparently ps2pdf, at least the version installed on my system, does not like "arbitrary" dimensions, and gives me an image cropped as IT dang well pleases as a pdf output.

So, here's another e-z gui option, probably better than any I suggested earlier:

Save your image as a .png file. Open it with Inkscape, making sure the "embed" option is selected. Do a Save As, select the PDF format, name the output file with the correct extension, and hit the go button.

This should work on all platforms. If it does not, make sure you have GhostScript installed—you also need it to import .pdf files to the GIMP.

If you do not already have Inkscape, congratulations, now you can play with vector files! Don't miss Inkscape's File > Import from Open Clip Art Library command—tons of free images that are flexible and adaptable in every sense of the word.

:o)

Sam

This example shows he is considering the community but more specifically the needs of the community member Tony, so much so that he decides to test out and subsequently correct his earlier suggestion. In his response he takes a responsible approach to the technology, and is in a sense full of admiration but also uses disclaimers again—"but don't quote me on that"—indicating how seriously he takes giving advice to other community members. Again using emphatic speech Sam uses emoticons—:o)—to highlight the connection with Tony and to indicate the connection with the wider community.

#### *Dean*

Dean, an amateur photographer and science teacher, has been using GIMP since 2004. He explained in the interview that he skims the titles of forum posts nearly every day but that he doesn't post that often. In his messages in the GIMP forum he acts similarly to Sam by taking on responsibility to try to find solutions for other community members' problems. He too uses emphatic speech such as emoticons

to underpin his commitment and make a connection to the other in his writing. In the following example he reassures the reader to emphasize a shared destiny.

Dean: It's really easy. The main problem is to get the script into the right directory with the right permissions. ;-)

In Dean's postings the other is always worth listening to, so much so that he allows his own voice at times to become unstable in recognition of the voices of others. In this next example Dean helps someone who has a problem printing in color. The two community members have several exchanges.

Helen: I've been trying for days to print a small 4x6" picture that I drew in gimp. I've even spent quite a bit of \$ putting new print cartridges in my printer, even though they were not empty. Just trying to cover everything I can think of. The picture just comes out pink. There should be no pink in this picture. I have lots of trashed pages printed with Gimp, one with LibreOffice tex [LaTeX], one with LibreOffice Draw. There are also thin vertical white lines on the print. It looks fine if Print Preview. All settings on both file and printer are set to "Best". RGB color. Using Linux, Suse 12, gimp 2.6.11, printer Epson Stylus 1400. Thanks for any ideas.

Dean: Hi Helen, There are a lot of possibilities—it can be GIMP, Linux, your printer or other stuff. I would try this:

—export the image as a JPEG, in the original size and good quality.

—import that image into a Libre Office text document with the size of your paper as the document size

—print that from Libre Office.

If this comes out OK, GIMP is the culprit, if not, then it's Linux or your printer. These white stripes can be caused by a not properly aligned print head.

I hope this helps!

Helen: Thanks Dean, I'm not sure whether you overlooked that I'd already done that, or whether what you're suggesting is somehow different from what I did.

Dean: I had not understood what you did with LibreOffice, I assume they came out OK. Hmm.

What happens when you print from GIMP into a file instead of the printer? Is the output file looking right?

Dean's writings with Helen are of a nature where he engages with her technical issues. He takes an outside-in approach when he responds by saying: 'I had not understood what you did'. When he writes 'Hmmm' he puts bodily qualities into his dialogue with Helen as if he was sitting next to her and sounding out a moment of reflection and thought.

*Harry*

Harry explained in the interview that he had found out about GIMP and its community through his girlfriend, who is a photographer. He explained that he helped her writing scripts and trying out new techniques for working with photographs. He said that he loves to explore the site, and that the main reason he participates in the forum and uses GIMP was to test, look at plugins, and do computer programming in general. He explained that he himself does not use the program very much and that he is not really interested in the community but rather in what he can gain from it.

Harry writes specifically:

I some times have questions about how to do things, mostly I lurk and read threads that seem interesting, once in a blue moon I'll try to answer other people's questions.

This is an interesting comment because he refers to his presence as 'lurking,' indicating that he stays deliberately hidden and waits for a suitable moment to participate.

Even though he identifies himself in this way, his contributions went back seven years at the time of this research, several of his contributions followed up on those of others and he posted quite regularly at the time the data were collected for this study.

Here is an example where Harry asked the community a specific question and received a response from Stan, another community member:

Harry: I installed Gimp 2.8.2.0 and UFRaw-0.18 on that machine. I copied and merged 'bin', 'lib' and 'share' folders from UFRaw to the same folders in the directory and GIMP, as advised. After starting Gimp I got 'Can't find entrance procedure BZ2\_bzRead in DLL-file bzip2.dll. Starting UFRaw resulte in 'libgdk-win32-2.0-0.dll.

Any suggestion to proceed welcome.

Stan: Hi,

UFRAW is incompatible with GIMP 2.8.2. You might have missed the answers to a very similar question lately and can find them at [1].

Kind regards and good luck,

Harry shared his experiences and explained their technical details. When he wrote “any suggestions to proceed” he put trust and expectation into the community. The response he received is one in which Stan, another community member, informs him about other resources and information, establishing a relationship of mutual kinship, wishing him good luck with using this information.

In the interview Harry reflected on his commitment to the community and wrote:

I don't think anyone should feel responsible. . . . I've donated money to the project because I want to give some encouragement, and want the project to succeed, but I can't say I feel in any way responsible. If I contributed code, I would do it because I wanted to, perhaps had something I cared about that I wanted to fix, but not because of any sense of duty (that would just be demotivating).

Harry's statement seems like a contradiction; on the one hand he says that he does not care about the community and development but only about his own development, while he also points out that he donated some money. His dialogue carries temporal dimension of expectations yet also suspicion that he has developed. In his writing however he presents a degree of attachment to the community even though he uses disclaimers to distance himself.

Harry also talks about the strengths and weaknesses of the forum and has organized contributors into his own categories.

Harry: Strengths: very “open” (only requires an email account, hardly even that, no need for a Google account or an App or whatever.), has some “hard core” users who respond very helpfully.

Weaknesses: trolls accumulate and unfortunately bring some noise. And people never learn to stop replying to them.

Harry uses the word ‘troll’ and highlights his suspicions about certain contributors who in his opinion make ‘noise’—he is suspicious of them and how they impact and shape the GIMP online community. Sullivan (2011), referring to Bakhtin's (1984) work on Dostoyevsky, describes this as ‘hidden dialogue’, where the relationship to others is signified by constant anticipation—in this case

an unwritten but still present wish that the others would ignore ‘trolls’ and that he finds them irritating. Harry is unable to fully articulate this but clearly introduces his reservations about trolls. He also foregrounds this position only at certain times and specific levels, but the example highlights the important role of intonations because it shifts authority in dialogue.

## Conclusion

Our intention here has been to explore the ontologies, the realities, and the truths that can be identified through studying dialogue using a Bakhtinian perspective. We found that taking a dialogic perspective to discourse analysis identifies the neediness of the author who is shaping the ‘other’ through his dialogue and points out the importance of personal participation, perspectives, evaluations or positions.

Assuming dialogic as ontology for Techno-Anthropology, we see possibilities for understanding virtualization as a process in the “third dimension of the domestication process in which we transfer life, actions and objects from the physical world into the virtual environment” (Sade-Beck 2008, 48) through the deeper identification within the space of dialogue between experts. Dialogue is “particularly suited to understanding lived experiences, authorship and subjectivity” (Sullivan 2011, 62) and in the context of a Techno-Anthropological investigation such a focus allows for the exploration of societal challenges related to the human-technology interface (Børsen and Botin 2013). In the examples used here we were able to see how a focus on dialogue with a Bakhtinian perspective allows subjectivity to be identified, because, as Sullivan puts it, “subjectivity from a dialogical point of view is conscious. It anticipates ideas and judgments of others” (2011, 43).

We explored online dialogue and found that *online* conversations still contain traces of embodiment that are sometimes hidden or concealed in online utterances that reflect commitment, emotional investment, but also detachment.

In this article we aimed to unpack the theories and related issues of philosophy and methodology associated with conducting Techno-Anthropological research. We have emphasized that by carefully questioning and analyzing dialogue and its theoretical foundations using a Bakhtinian perspective, a researcher will be able to highlight nuances and conflicts, as well as make interpretations and judgments that are based on rhetoric and ambivalent experiences.

We were interested in exploring an ontology or theory of knowing for online dialogue by looking at our own methodological practices. Conceptualizing dialogue in the online space as being *dialogic*, we looked for emotional signatures, not

to simplify and imply spatial equality, but to draw attention to inequalities between the ‘self and other’ in a Bakhtinian sense. Taken this way, dialogue as dialogic is about the exploration of engagement through language to identify thoughts, feelings and sometimes only weakly expressed social constructions. Bakhtin’s theories support researchers looking for the aesthetical potentials of qualitative methodologies because of the emphasis on emotional markers and signs of ambivalence. This perspective lends itself to Techno-Anthropological investigations that seek to problematize interactional spaces.

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