

# *Mediated discourse analysis and the digital humanities*

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## Mediated Discourse Analysis and the Digital Humanities

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### Introduction

*Change the instruments, and you will change the entire social theory that goes with them.* - Latour (2009: 9).

The Japanese conceptual artist On Kawara (1932-2014) made an art of measuring his life. Among his most famous works is a collection of paintings which he made daily over the course of forty-eight years showing only the date. He called these timestamp pictures ‘self-portraits’. Other projects involved sending postcards to people every day telling them what time he got up, recording the path he took each day in red ink on a map of whatever city he happened to be in, and making meticulous lists of everyone he met as he went through his life. Kawara has become somewhat of a cult hero to a group of people who are also obsessed with recording and counting the minutiae of their daily lives: the loose configuration of self-trackers and ‘body hackers’ (Dembrosky 2011) that have come to be associated with the ‘Quantified Self Movement’ (Abend & Fuchs 2016; Wolf 2010).

One of them is Cristian Monterroza<sup>1</sup>, a student at NYU who shared his story in the form of a ‘show and tell talk’ at the New York City Quantified Self Meetup in November of 2012. A ‘show and tell talk’ is a genre particular to Quantified Self Meetups, a personal narrative which combines elements from confessional stories (such as those told at Alcoholics Anonymous meetings) with slick professional PowerPoint presentations (like those shown at *Ted Talks*) (Jones 2013a, 2018). Such talks are organised around three questions: What did I do? How did I do it? and What did I learn? ‘About a year ago,’ Monterroza begins, ‘I didn’t like the way my life was going. I felt like a gradual slip taking over. And I couldn’t quite put my finger on it. So this quote came to mind: Insanity is doing the same thing over and over again and expecting different results.’ He goes on to explain how, inspired by the work of On

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<sup>1</sup> <http://quantifiedself.com/2012/08/new-york-qs-showtell-17-recap/>

Kawara, he embarked on an ambitious project to track where he was and what he was doing every minute of his life, eventually developing an iPhone app which helped him to record where he went, when, and how long he stayed there and then convert these data into charts and graphs. All of this analysis, however, left him vaguely dissatisfied. Finally he realized that his real insights were not coming from aggregating and quantifying these moments, but from looking at them *one at a time*, from looking at particular timestamps and particular GPS locations and identifying in them ‘notable moments’, moments when he met someone, or tried something for the first time, or learnt something. ‘Just like On Kawara proved,’ he concludes, ‘a small timestamp can mean a lot more, I’ve started realising that quantification, it’s not all about the numbers, numbers are very important, but I think we can aspire to something higher. I think it’s also about the perspective that it allows you to gain.’

In this chapter, I will use the stories of self-quantifiers like Christian Monterroza to discuss how technology can affect our study of the humanities, and the way the humanities can offer insights into our encounters with technology. The theoretical framework that will form the basis of this discussion is *mediated discourse analysis* (Norris and Jones 2005; Scollon 2001), an approach to discourse which focuses on how the semiotic and technological tools we use to interact with the world serve to enable and constrain what we can know, and who we can be. Mediated discourse analysis sees the analysis of texts and technologies as occasions for understanding how human social life is constituted and how it might be constituted differently through the exercise of human agency that can come as a result of a heightened awareness of the *mediated* nature of our experience of reality. For self-quantifiers like Cristian Monterroza, mediated discourse analysis provides a way to examine how the timestamps and iPhone apps and ‘show and tell talks’ and social identities he uses to organise his search for his ‘real self’ act to determine the kind of self he is able to find and what he is able to find out about it. For researchers in the field of digital humanities who are likely to be readers of this book, it provides a way to reflect on how the tools we use to transform language, history and art into data also end up transforming what we consider language, history, and art to be, and who we consider ourselves to be as researchers. It reframes key questions about what we regard as knowledge and the nature of research as questions about the nature of *mediation*, and the ways in which tools affect our actions, our perspectives, our values and our identities, and it reframes the mission of scholars in the digital humanities as not just a matter of using software to analyze texts, but of analyzing *how people use software* and how it changes the way they interact with texts.

## **Mediation**

What distinguishes mediated discourse analysis from other approaches to discourse is its concern not with discourse per se, but with the social actions that discourse, and the technologies we use to produce it, make possible. Drawing on insights from Soviet psychologist Lev Vygotsky (1962), mediated discourse analysts see all social actions as mediated through one or more ‘cultural tools’. These tools might be physical tools, such as hammers or iPhones or laptop computers, or they might be semiotic tools, such as languages, images, charts and graphs, genres or styles of speaking or writing (including such ‘new’ genres as ‘databases’ and ‘corpora’). What we mean when we say actions are mediated through such tools is that when they are appropriated by particular social actors in particular situations, they make certain kinds of actions more possible (and other kinds of actions less possible). The reason for this is that different tools come with different ‘affordances’, a term which the psychologist James J. Gibson (1986) used to describe the potential that things in the environment, including technologies, have for serving as tools to perform certain actions.

Affordances are, as (Gee, 2014, p. 16) puts it, ‘what things are good for, based on what a user can do with them.’ This notion of ‘what things are good for’, however, is quite complex. What makes Cristian Monterroza’s iPhone ‘good for’ tracking his location or the narrative structure of a ‘show and tell talk’ ‘good for’ explaining what he did and what he learned has to do not just with the technical or structural properties of these tools, but also with their histories, the various conventions of use that have built up around them, the ways they have come to be associated with particular social practices and particular ‘communities of practice’ (Lave and Wenger, 1991), and the way they have come to be part of Cristian Monterroza’s ‘historical body’ (Jones, 2007; Nishida, 1958; Scollon & Scollon 2004), the practices, beliefs, knowledge, competencies, and bodily dispositions that he has accumulated throughout his life.

Tools don’t just allow us to do certain things; they also channel us into particular *ways of being*, particular *ways of thinking*, and *particular ways of relating* to other people (Jones & Hafner 2012). Cristian Monterroza’s iPhone does not just allow him to track his location and movements, but also leads him to perceive his location and movements as somehow connected to his well-being. Apps that share his location with other people reinforce this thinking by helping to make ‘checking in’ a social practice and making Cristian’s friends with whom he shares his location feel that they are part of a ‘community’ of location trackers. The conventional structure of the ‘show and tell talk’ that Cristian gives at the New York Quantified Self Meetup— built around the three questions: What did I do? How did I do it? and What did I learn? — not only gives him a way to mentally organise what happened to him; it also gives him a way to ‘fit in’ with the other people in this community — other young, ‘tech-savvy’, financially secure people for whom ‘learning things’ and, more importantly, ‘talking about what you have learned’, are highly valued practices.

In other words, within the technological affordances of the various kinds of ‘equipment’ Cristian uses to ‘know himself’ there are already embedded certain *ways of knowing*, a certain kind of *self to be known*, and a certain kind of *social order* in which these ways of knowing and these selves can be traded as ‘symbolic capital’ (Bourdieu, 1992). The affordances of cultural tools have consequences, in that they don’t just allow us to do certain things, but they also shape the things that we do and that we *value* doing, and the ways that we enact our identities and our social relationships with others. As Father John Culkin (1967), in an oft quoted commentary on the work of Marshall McLuhan, puts it: ‘We become what we behold... We shape our tools and thereafter our tools shape us’ (see also Latour, 2009). This shaping occurs on at least three dimensions: Mediation is an *ontological* process, in that it shapes what we regard as real, how we divide up our world into concepts and categories, and the ‘mode of existence’ that we confer upon objects and ideas and that we claim for ourselves; it is an *epistemological* process, in that it shapes how we can know these objects and ideas and how we evaluate the validity of that knowledge; and it is an *axiological* process, in that it shapes what we value, what we consider ‘good’ or ‘moral’, and how we think societies should be organised and how people should treat one another.

But to say that tools shape their users, that for all of the benefits mediation brings it also brings limitations, that affordances are also always to some degree *constraints*, only tells half the story. At least it only represents half of the story that Cristian Monterroza tells, for the real point of his story is not what he learned from quantifying his daily movements, but what he learned about the *limits* of quantification. It was not enough, he concludes, to count how many times or how long he spent in different places or what he was doing there or how he felt when he was doing it. He also had to consider the *quality* of each individual moment as

unique, unrepeatable, and ‘notable’. What affords this ‘higher’ perspective is Cristian’s ability to combine quantification with *qualification*, to temper the objectivity of ‘hard data’ with a more subjective, hermeneutic perspective.

This, I would like to argue, is the really important thing about mediation; that as much as our tools shape us, this shaping is not determinative. It’s not determinative first because human beings have the ability to be reflective about their tool use and to *imagine* different kinds of outcomes under different circumstances, and second, because we almost always have more than one tool available to us, and are able to combine different tools in ways that allow us to play the constraints of one tool off against the affordances of another. To return to Gee’s formulation of Gibson’s theory of affordances which I cited above, affordances come not just from what tools allow us to do but also from what we are able to do with those tools. In what follows I will discuss ‘this’ double edged quality of mediation as it relates to self-quantifiers who are trying to find ‘self knowledge through numbers’, and, at the end of this chapter, relate this to the situation of scholars in the digital humanities, who are also involved in seeking knowledge about ‘humanity’ through numbers. I will consider, from the perspective of mediated discourse analysis, the ‘digital’ part of digital humanities: the potential of digital technologies to shape the ontological, epistemological, and axiological dimensions of our research. But I will also consider the ‘humanities’ part of digital humanities, the capacity that we as scholars — and as humans — have, as Cristian Monterroza puts it, to ‘aspire to ‘something higher’ by combining technologies in creative ways, and by making particular aspects of our data ‘notable’ through hermeneutic processes. Along with Hayles (2012) and other scholars in the field (see for example Burdick et al., 2016; Rosenbloom, 2012; Siminowski, 2016), I will argue that the digital humanities should not just be concerned with how technology can help us to understand the humanities, nor with how the humanities can help us to understand technology, but with the ‘relational architecture’ (Rosenbloom, 2012) between different ways of looking at and experiencing the world, and how we can begin to trace the contours of that architecture.

The data I will draw on in this discussion come from a three year long ethnographic study of the Quantified Self Movement, involving attending ‘Meetups’ and conferences in five different countries, collecting and analyzing 73 ‘show and tell talks’, interviewing ‘quantified-selfers’, and using various technologies to quantify my own behavior and physical responses (such as heart rate, weight, sleep patterns) (see Jones 2013a, b, c, 2015a, b, forthcoming). The study made use of the principles and methods of *nexus analysis* (Scollon & Scollon 2004), the methodological component of mediated discourse analysis which allows researchers to explore the complex ways that discourses and technologies circulate through communities through a combination of ethnographic observation and the close analysis of texts and interactions. In the final section of this chapter I will briefly describe the methodology of nexus analysis and discuss how it can be combined with other approaches to the digital humanities.

### **Mediation as Ontology**

Not content with just using his mobile phone to track his location and movements as Cristian Monterroza did, Miles Klee (2014) put it to work tracking his sex life. One of the apps he used was called *Love Tracker*, which includes a function that allows users to measure the duration of their lovemaking. ‘Here’s the thing, though,’ he writes, ‘...figuring out when to start the timer is a nightmare. The app boasts a stopwatch function, but was I meant to flick it on as soon as I lunged toward my wife’s side of the couch and, by extension, reached second

base? Or should I start it when, after 20 seconds of making out, she realized that I wasn't going to leave her alone until she shut me down or acquiesced to my clumsy advances?' Another aspect of the app that unnerved Klee was the fact that it would not allow a user to claim to have had sex for longer than 23 minutes.

*Love Tracker* is just one of many apps that provide different ways of measuring lovemaking. Another one, *Blackbook*, allows you to rate your sexual partners on a scale of 1 to 10, and another, *Sex Stamina Tester* allows you to count how many sexual partners you have had and how many times you have had sex with them and allows you to compare your score with other users, and yet another, *Spreadsheets*, uses the sound and motion sensors in your phone to measure the intensity of your sexual encounters in terms of the volume of your groans and 'thrusters per minute'. What is common to all of these apps is that they do not just record and measure a particular phenomenon, but they also operate to *define* that phenomena in terms of what they are able to record and measure, whether it be frequency, duration, movement, or the intensity of sounds as captured by the microphone of an iPhone (Jones 2015b). In other words, these apps don't just 'count' different aspects of sexual behavior; they also shape 'what counts' as sex. Herein lies the crux of mediation as an ontological process: the fact that technologies serve to determine how we define the objects of our study, usually based on the aspects of those objects that are 'legible' to whatever mediational means we are using. In other words, any attempt to understand something ends up to some degree creating the thing that we wish to understand.

Linguistic anthropologists Charles Bauman and Charles Briggs (1990) capture this idea that we create a phenomenon by separating it out from surrounding phenomena with their concept of *entextualization*. 'Entextualization,' they write, is 'the process of rendering discourse extractable, of making a stretch of linguistic production into a unit--a text-- that can be lifted out of its interactional setting' (1990:73). Bauman and Briggs were mostly concerned with the process through which discursive phenomena – specifically, oral performances – are rendered 'decontextualizable'. As I have argued in previous work (Jones, 2009), however, entextualization can be seen not as just a way of lifting discourse (speech, written words, images) out of their original context, but as the primary mechanism through which we *capture* our actions and experiences and turn them into texts. This may be accomplished, for example, by describing a sexual encounter in a diary, filming or photographing it, logging it in a database based on a set of pre-set descriptors, or recording it using the sensors in an iPhone. In all of these instances we are performing what is essentially an ontological activity by choosing (via whatever mediational means happens to be available to us) which aspects of the phenomenon to capture and to assign the label 'sex'.

All forms of research make use of 'technologies of entextualization' (Jones, 2009: 286), mediational means which inevitably channel us into what Halpern (2014) refers to as 'object oriented thinking', the tendency to treat complex phenomena as more or less concrete objects. This is quite obvious when we employ instruments that 'operationalize' abstract concepts, such as when we use psychometric questionnaires to measure things like motivation or creativity. It may be less obvious when we observe things that seem already quite concrete, as when we use a microscope to peer at the wing of a fly, a telescope to gaze upon a planet, or a computer program to count lexical or grammatical features within a text. But in all of these cases the instruments that we are using are not just measuring wings and planets and texts, they are *creating* them by extracting them from some larger entity or stream of phenomena of which they are part. Latour (1999) makes a similar point in his examination of dirt in the Amazon, arguing that the only way to study soil is to extract and *abstract* it from the earth of

which it is a part. The digital artist John Cayley (2016:77) (see also Kitchen and Dodge, 2013) insists on referring to the information we gather through our technological instruments not as ‘data’ but as ‘capta’, because it represents only ‘the captured and abducted records’ of that portion of human life that we are able to record with our technologies rather than our ‘full (phenomenological or empirical) experience of the world.’

Mediation- and the processes of entextualization that it makes possible – does not just create the objects of our study, but it also creates *us* as certain kinds of observers or authors of those objects. In a focus group interview I conducted with self-quantifiers at a QS conference in Amsterdam, one participant mused:

There is something about every app that tries to paint you as a certain kind of person. So for example with Fitbit, the app already tells you that you’re an active person because it gives you numbers about your physical activity, and the Lift app tells you that you are someone who is social, who wants to share goals with friends, because it gives you graphs comparing you with them. So you need to decide if you want to accept the identity that the app creates.

This realization that the act of observing a particular phenomenon acts not just to construct the phenomenon, but also to construct us as observers is one of the reasons Miles Klee (2014) decided to give up his quest to quantify his sex life, concerned that, as he puts it, ‘Technology had transformed me from a considerate lover into a number-crunching monster.’ The problem here is not with number-crunching per se, but with the fact that an inevitable consequence of creating an object of study is that we assert our independence from that object. Sometimes such separation is enormously useful, providing a more objective perspective on the phenomenon we wish to study. In the context of the Quantified Self Movement, in fact, one of the aims of turning oneself into an object of study is to be able to see ‘a version’ of the self that we had not seen before. In the context of one’s sex life, however, such separation might turn out to be counterproductive, especially from the point of view of one’s partner. In the case of Miles Klee, he found himself beginning to orient less towards the phenomenon of sex or the person with which he was having it and more towards the technologies of entextualization he was using to define and measure his sex. ‘I noticed a funny anxiety emerging,’ he writes. ‘Somehow I wanted to impress the apps, these nonsentient pieces of haphazardly designed software... alarmingly, I felt that I had something to prove to the sex-tracking apps.’

Comments like this tell us as much about ontology as they do about quantification, reminding us that at its core ontology is essentially a matter of performativity (Butler, 1993): we call things into existence through entextualizing them, and after multiple iterative acts of entextualization, we come to regard the texts that we have produced as real. Belliger and Kreiger (2016:1) argue that ‘personal informatics and body tracking is a *performative enactment of the informational self*’ (emphasis mine), a way of bringing ourselves into existence as particular kinds of being, selves which are the product of particular historical circumstances and the ‘technologies of the self’ that they have made available to us (Foucault, 2003). This idea of the informational self, however, is not new. In his 1738 *Treatise of Human Nature*, David Hume (1985) took up the question of why it is so difficult for us to know ourselves. One answer he offered was our tendency to confuse our ideas about identity with actual identity, exemplified in the fact that when an object changes very quickly we are apt to assign it a new identity, while when it changes slowly we are apt to feel that its identity has not fundamentally changed. In other words, we rely on our sense of what Hume



calls ‘numerical identity’ to come to conclusions about what he refers to as our ‘specific’ (or qualitative) identity (see also Abend & Fuchs, 2016).

But the object oriented performativity evident in the practices of the Quantified Self Movement (or, for that matter, in the practices of biologists, computer scientists, or digital humanities scholars), harkens back to an even more fundamental ontological debate begun by Spinoza and Descartes almost a century before Hume about the nature of the self, specifically whether or not is possible to separate the body from the mind. In this debate, the dualistic ontology promoted by Descartes, in which a clear line is drawn between cognitive and corporeal selves, has seemingly won out, dominating social science (and increasingly, humanities) research. The more monastic view of Spinoza, however, which views corporeal and cognitive dimensions as inherently *entangled*, has also gained currency, especially in the work scholars such as Butler (1993), Irigaray (1985), and Deleuze and Guattari (1987). What mediated discourse analysis adds to this debate is the framing of this philosophical question is a question about *mediation* and the effect of technologies on the way we *entextualize* the world and draw boundaries between external objects and ourselves (Scollon 2001).

### Mediation as Epistemology

Not all of the members of the Quantified Self Movement use high-tech gadgets to mediate their search for self-knowledge. Some, like Amelia Greenhall<sup>2</sup>, make use of more analogue mediational means. Greenhall has made a star chart for herself of the type one sees on the walls of kindergarten classrooms; whenever she completes an activity which she thinks is beneficial to her well-being, she gives herself a gold star. By looking at the number of stars she has accumulated over certain period of time, she can get a sense of how she is doing. The most beneficial thing about creating data in this way, she reasons, is that it motivates her to improve by ‘making small progress visible’. This low-tech measurement of performance is really not so different from the more high-tech means employed by people like Sky Christopherson<sup>3</sup>, who uses digital sensors to measure things like movement, sleep, diet, and heart rate and turn them into charts and graphs to improve his athletic performance; these charts and graphs serve the same function as gold stars: they make Christopherson's progress visible, and once it is made visible, it is also made *actionable*: ‘If I can see a number attached to something, so I can break a record or something,’ he says, ‘then I can get behind it... If it can be measured, it can be improved.’

Greenhall and Christopherson’s experiences illustrate the epistemological dimension of mediation, the fact that the way we are able to know about the world depends upon the mediational means (whether they be gold stars or sophisticated graphs) that we use to represent it. From the point of view of mediated discourse analysis, just as ontology is essentially a discursive process of ‘capturing’ reality and turning it into a text, epistemology is a process of making phenomena ‘tangible’ (and thus ‘knowable’) by transforming it into different semiotic modes to which we give the name ‘data’. Understanding epistemology as a matter of the discursive processes which our technologies allow to engage in changes the way we think about ‘data’. Data do not exist independent of these processes; there is no such thing as ‘raw data’ (Gitelman ed., 2013). Data are, as Engel (2011:n.p.) puts it, ‘an epistemological alibi’, and excuse for adopting a particular way of knowing the world.

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<sup>2</sup> <http://quantifiedself.com/2012/12/amelia-greenhall-on-gold-star-experiments/>

<sup>3</sup> <http://quantifiedself.com/2012/05/sky-christopherson-on-the-quantified-athlete/>

Whereas the main discursive process implicated in the ontological dimension of mediation is entextualisation, the extraction of phenomena from the stream of existence, the discursive process implicated in its epistemological dimension is that of *semiotization*, or, as Iedema (2001) refers to it, *resemiotization*. Semiotization is the process of ‘translating’ whatever has been extracted through our instruments into different forms of semiosis (words, numbers, shapes, colours) in order to render it ‘meaningful’. Just as different technologies bring with them different affordances in terms of what aspects of reality they are able to capture and extract, different semiotic modes bring with them different affordances and constraints when it comes to the different kinds of meanings that can be made with them (Kress, 2009). In other words, different semiotic modes fundamentally embody different *theories of knowledge* (Latour, 2009). We might, for example, resemiotize a collection of ‘capta’ as a bar graph, or a pie chart, or a table of numbers, or a written narrative, or a painting, each of these different forms of semiosis making it possible to know the phenomenon in different ways.

Resemiotization is not just a valuable tool to think with; it also affects the ways we are able to *invest* in the knowledge that we create and what we are able to use that knowledge to do, a fact evidenced in the above examples of Amelia Greenhall’s gold stars and Sky Cristopherson’s high-tech charts and graphs. In an earlier article on the different ways self-tracking operates by *semiotizing* phenomena (Jones 2015a), I discussed how self-tracking apps like Nike+ and Hydrate (an app for keeping track of how much water you drink) make use of different semiotic modes to construct both knowledge and ‘ways of knowing’ for their users. These processes of (re)semiotization are extremely useful when it comes to monitoring our health and attempting to alter our behaviour, because they afford new ways of *experiencing* that behaviour. Numerous studies (see for example DiClemente et al. 2000; Frost & Smith 2003) have shown that presenting information about their health to patients in different modes, or on different timescales, or in different contexts can help them to think (and act) differently about things like diet, smoking and exercise by making available to them new practices of ‘reading their bodies’ (Jones 2013a:143). The benefits of reading one’s body through self-tracking apps are, in many ways, similar to the benefits of the new practices of ‘distant reading’ (Moretti, 2013) that have been applied to corpora of literary works, historical documents and linguistic behaviour in the digital humanities. Being able to aggregate large amounts of data and analyse it using computational tools and processes has enabled us to read texts in whole new ways and find patterns and connections that we would not otherwise have been able to discern.

At the same time, there are also drawbacks associated with these processes of semiotization. First, they inevitably constrain the way users think about health and health behaviour within the semiotic parameters of whatever modes the mediational means they are using are able to produce. Phenomena like well-being, sexual pleasure, and ‘health’ — which are basically ‘topological’ phenomena — subject to all sorts of subtle gradations — are often reduced to ‘typological’ phenomena — expressed as discrete measurements or categories (Lemke 1999). While this reductionism serves the purpose of making phenomena more ‘legible’, it also inevitably distorts them. Another drawback is that semiotization has a tendency to lead us to reify knowledge: knowledge comes to take on a more and more solid material existence. Iedema (2001) uses the example of a building project to discuss how processes of resemiotization involve not just changing meanings from one semiotic mode to another, but often involve the progressive materialization of those meanings: ideas about a new hospital wing spoken in the context of a meeting are resemiotized in written form in minutes of the meeting, and later in graphic form in architects’ blueprints, and finally in the form of bricks and mortar after the hospital wing has actually been built. We do the same thing with the

phenomena the study— whether they be linguistic phenomena, or bodily phenomena; we build edifices out of them through processes of entextualization and resemiotization and then sometimes mistake these edifices for the phenomena themselves.

This capacity for reification seems to be particularly strong when it comes to the affordances of digital technologies that help us to turn data into visualizations (charts, graphs, infographics, etc.). Data visualization has become a central part of many contemporary scientific endeavours, as well as contemporary journalistic practices, and has more recently been enthusiastically taken up by scholars in the humanities (Manovich, 2013; Wouters et al., 2012). In all of these fields, visualizations have been praised for their ability to make new relationships between data visible and to produce new spaces for speculation. At the same time, as Halpern (2014: 22-23) points out, visualization ‘invokes a specific technical and temporal condition and encourages particular practices of measurement, design, and experimentation.’ Visualizations bias their readers to pay attention to certain meanings over other meanings, and gradually train them in particular ways of paying attention to the world and information about it (Jones, 2010). The most dramatic effect of the rise of visualization as a way of experiencing data, according to Halpern, has been a shift in dominant ways of knowing from more discursive processes of ‘reason’, exemplified in written arguments, to more quantitative processes of ‘rationality’ in which knowledge is a matter of ‘facts’ derived from measurement and comparison. Drucker (2016: 63-64) argues that the difference between representing data verbally and visually is essentially an epistemological difference, writing:

When you realize that language has many modalities—interrogative and conditional, for instance—but that images are almost always declarative, you begin to see the problems of representation inherent in information visualizations. They are statements, representations (i.e. Highly complex constructions and mediations) that offer themselves as presentation (self-evident statements). This is an error of epistemology, not an error of judgment or method.

Another dramatic effect of the new popularity of data visualization has been to create new ways for people to emotionally ‘invest’ in knowledge by highlighting its ‘aesthetic’ dimension. Data has become more and more ‘beautiful’ (Halpern, 2014), especially in the popular press, but also in the humanities where the ‘beauty’ of data visualizations has come to act as a surrogate for the beauty of the literary or artworks which they represent. Data visualizations allow scholars in the digital humanities to make their endeavours seem simultaneously more aesthetic and more ‘scientific’. The notion of ‘beauty’ has come to imply value, usefulness, and even ‘credibility’.

### **Mediation as Axiology**

Jon Cousins<sup>4</sup> was depressed. After weeks of battling the bureaucracy of the mental health system in Britain, he decided to take matters into his own hands by developing a website which he used to record his mood on a daily basis and share his measurements with his friends. ‘When I first started measuring’, he says, ‘my mood went up and down, up and down, but then when I started to share with my friends, look...’ and he draws his finger across a sustained line at the top of his graph. What he learned from this, he said was, ‘if you share your mood with friends, your mood goes up...It’s the sharing bit that seems to be the

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<sup>4</sup> <https://vimeo.com/16691352>

powerful bit.’

J. Paul Neely<sup>5</sup> was also interested in using quantification to optimize his happiness, but he went about it in a different way. He decided to try an experiment during a gathering of his family over Thanksgiving weekend. For as long as he could remember, his family members enjoyed making puns, mostly hackneyed and groan-inducing plays on words which nevertheless served to brighten family gatherings. So Neely decided to recruit his family members in keeping track and rating all of the puns they produced during the weekend. Not only did he find that as the weekend progressed both the frequency and the quality of the puns went up, but he also found that this new way of engaging with their punning made his family members feel even closer and more convivial. What he realized from this experiment was the value of group tracking, the positive effect that having a shared metric can have on people.

One of the most important aspects of the practices of self-quantification engaged in by the people I studied is the opportunity it created for them to *share* information with others. Members of the Quantified Self Movement meet up regularly to share their experiences and narratives, and many of the technologies that they use include functions that allow them to share and compare their measurements with friends and followers. The Withering wifi body scale, for example, includes a function that allows users to automatically tweet their weight and BMI to their followers on Twitter, and the Nike+ app allows users to share their runs in real time so their friends can send them encouragement in the form of ‘cheers’. This social dimension of mediation, however, is not unique to quantified-selfers. All mediation is inherently social. Whenever we appropriate a particular tool to take action, we connect ourselves to communities associated with that tool and reproduce the interaction orders and forms of social organization that that tool helps to make possible.

The term axiology is usually used to refer to the ways we assign *value* to different things, people, and happenings in our world: our theories about how the world ‘ought to be’ (Ladd, 2015). Value, however, is ultimately a matter of the kinds of social relationships we build, and the kinds of agreements we make with one another about what will be regarded as good and bad, right and wrong, normal and abnormal. When I consider the axiological dimension of mediation, then, what I am interested in is the way the technologies we use affect the kinds of societies we create and how we think we ought to treat one another. I am interested in what kinds of social beings are produced when people engage in practices like measuring, comparing, evaluating, and storytelling (Abend and Fuchs, 2016).

In the last two sections I talked about particular discursive processes associated with the ontological and epistemological dimensions of mediation, namely, entextualization and semiotization. The discursive process associated with the axiological dimension of mediation is *contextualization*, the process through which people work together to create and negotiate the *social contexts* of their actions, and how these contexts end up affecting how they value different kinds of knowledge and different kinds of social identities. Older versions of the idea of context tended to see it as a kind of ‘container’ in which our interactions occur or as a function of the physical conditions of a particular situation or the rules and norms of a particular culture. Later researchers, however, especially in the fields of interactional sociolinguistics (Gumperz, 1982; Tannen, 1993), began to view context as more dynamic and negotiated, something that we create moment by moment in interaction. More recent work in

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<sup>5</sup> <https://vimeo.com/56193255>

technologically mediated communication, such that of Tagg and her colleagues (2017), discusses the way mediational means like social media sites introduce different affordances and constraints for users to 'design' different kinds of contexts for their interactions, affordances and constraints which ultimately reflect particular ideas about what sorts of social relationships are 'normal', 'reasonable', or 'polite'. The process of contextualization has to do with how different technologies help to create and reproduce particular kinds of social relationships and 'cultural storylines' (Davies and Harré, 1990), and how these social relationships and storylines come to constitute moral claims (Christians, 2007).

The effect technologies have on creating social relationships and community norms can be seen not just in the examples above, where technologies of measuring and sharing data (about such things as moods and puns) can bring people together by giving them a shared purpose and a 'shared metric' to talk about it. It can also be seen in phenomena like Quantified Self 'Meetups', where the mastery of the genre of the 'show and tell story' becomes main emblem of membership in the Quantified Self community. This effect is as evident in the 'professional sciences' as it is in the 'amateur' experiments quantified-selfers. Scientists (as well as social scientists and humanities scholars) operate in 'communities of practice' (Lave & Wenger, 1991) which share conventions about tool use, standards of measurement, and ways of communicating findings. While such conventions, as I mentioned above, can constrain ways of experiencing and representing the world, they are also indispensable *interfaces* for social interaction between scholars (Fujimura 1991).

At the same time, technologies (and the standards they promote) also have a way of dividing and excluding people. One of the most famous examples of how technologies create (and constrain) the conditions for certain kinds of social interactions, and so impose a certain 'moral order' onto society, is the story of the low-hanging overpasses on the parkways of Long Island told by Langdon Winner (1980) in his famous essay, 'Do Artifacts have Politics?' The underpasses, according to Winner, were designed intentionally by city planner Robert Moses to make them inhospitable to public busses, thus restricting access to Jones Beach and other leisure spots to low income (mostly African American) residents of New York City who did not own cars. Another example is Bruno Latour's study of the sociology of a door closer, told in the voice of a fictional engineer named Jim Johnson (Johnson, 1988), in which he examines how humans and technologies work together to regulate social relationships through determining 'what gets in and what gets out' of particular social spaces (299). Even a device as simple as a door closer, Latour argues, is a highly moral social actor. A more recent example can be seen in the work of archivist Todd Presner (2014) on the role of algorithms in processing data for a visual history archive of Holocaust testimonies. Mediation, he argues, always has the effect of creating 'information architectures' which end up including and excluding not just certain kinds of information, but also certain kinds of social actors. Like Latour's door closer, algorithms, he says, have a tendency to 'let in some people, and not others,' resulting in a situation where 'our analysis of the 'not others' can't be very important, certainly not central' (n.p.).

When it comes to research, the distancing or exclusionary effects of mediation can be seen most clearly in the way technologies mediate the relationship between the researcher and the 'subjects' of his or her research, but it can also be seen in the stories of quantified-selfers, like Miles Klee (see above), who found that attempts to quantify his sex life had a dramatic, and not particularly positive, effect on his relationship with his partner, and Alexandra

Carmichael<sup>6</sup>, who came to understand, after years of self tracking, that her obsessive quest to understand herself was actually alienating herself from herself, making her feel like she was never quite good enough, that she always came up short of reaching her elusive goals.

All technologies, whether they be door stoppers, sex tracking apps, or text analysis programs are ideological, and one of the main ways they exercise their ideology is by channeling their users into particular kinds of relationships with other people, and by constructing for these other people certain social roles such as intruders, partners, colleagues, or subjects. To use Foucault's (1988:18) terminology, all technologies are to some degree 'technologies of power, which determine the conduct of individuals and submit them to certain ends.'

The exercise of power that technology makes possible includes, of course, economic power. Whenever we engage in inquiry, whether in a laboratory or with an app on our iPhones, we are participating in and helping to maintain a particular economic system. When it comes to self-trackers using commercial apps, they are not just contributing to what has come to be called 'surveillance capitalism' (Zuboff, 2015) by making available their personal data to be sold to data brokers, advertisers, pharmaceutical companies, and other concerns, they are also helping to advance a certain approach to 'health' and 'selfhood' which emphasizes individual responsibility and notions of entrepreneurial citizenship over collective responsibility and notions of social welfare (Lupton, 2016, Rose, 1999). In other words, through the kinds of 'selves' and the kinds of relationships they encourage, self-tracking apps contribute to advancing a neoliberal economic agenda.

Similarly, scholars who engage in the digital humanities, or any other academic endeavour for that matter, are wittingly or unwittingly advancing particular economic agendas designed to distribute resources and knowledge in particular ways. Much of the work in digital humanities, for example, feeds into industry-driven agendas about what constitutes valuable ('objective', 'impactful') research and what doesn't, agendas which are reproduced by university administrators and funding authorities. The movement to 'modernize' the humanities through the use of digital technologies also plays into a narrative that the only way to make a humanities education beneficial to jobseekers is to transform it into 'a course of training in the advanced use of information technology' (Allington et al. 2016, n.p.). Daniel Allington, Sarah Brouillette, David Golumbia (2016) all themselves respected scholars in the field of digital humanities, portray the ideological agenda of the field in this way:

For enthusiasts, Digital Humanities is "open" and "collaborative" and committed to making the "traditional" humanities rethink "outdated" tendencies: all Silicon Valley buzzwords that cast other approaches in a remarkably negative light, much as does the venture capitalist's contempt for "incumbents." Yet being taken seriously as a Digital Humanities scholar seems to require that one stake one's claim as a builder and maker, become adept at the management and visualization of data, and conceive of the study of literature as now fundamentally about the promotion of new technologies. We have presented these tendencies as signs that the Digital Humanities as social and institutional movement is a reactionary force in literary studies, pushing the discipline toward post-interpretative, non-suspicious, technocratic, conservative, managerial, lab-based practice.

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<sup>6</sup> <http://quantifiedself.com/2010/04/why-i-stopped-tracking/>

Whether one agrees with this description or not, the important point is that all forms of research are also forms of political economy, and that the technological tools we use to engage an inquiry are never value free; they are always somehow tied up with the distribution of economic and social capital and the sorting of social subjects into winners and losers.

### **Conclusion and Suggestions for Further Research**

In his essay 'The End of Theory', Chris Anderson, Editor-in-Chief of *Wired*, argues that digital technology and big data have made theory obsolete. He writes:

This is a world where massive amounts of data and applied mathematics replace every other tool that might be brought to bear. Out with every theory of human behavior, from linguistics to sociology. Forget taxonomy, ontology, and psychology. Who knows why people do what they do? The point is they do it, and we can track and measure it with unprecedented fidelity. With enough data, the numbers speak for themselves.  
(2008)

The argument I have been trying to make in this chapter is that numbers do *not* 'speak for themselves', that they are always part of a *nexus of practice* formed by complex interactions between human, institutional, and technological actors, mediated through cultural tools (as diverse as computers, smart phones, 'show and tell talks', and gold stars) and dependent on the processes of *entextualization*, *(re)semiotization* and *(re)contextualization* that these tools make possible. The aim of mediated discourse analysis is not to undermine the disciplinary practices, forms of knowledge or possibilities for social action that arise from technologically mediated forms of inquiry, whether they be practices of self-tracking engaged in by quantified selfers or practices of 'distant reading' or 'data visualization' practiced by scholars in the humanities and social sciences. Rather, its aim is to highlight the fact that all forms of inquiry take place within and help to strengthen particular *socio-technical networks* (Star 1990: 32) which inevitably promote particular ways of knowing the world, experiencing it, and valuing it, and to offer a method for untangling these networks and reflexively critiquing what we do as scholars.

What the examples and analysis I have offered demonstrate is that mediation and disciplinary paradigms are rarely as simple as they seem. Quantifying the self is always situated within a complex nexus of different kinds of practices which make use of different kinds of technologies. As Belliger and Kreiger (2016: 25) point out, 'Quantifying the self is not enough; numbers and statistics must be interpreted, that is, integrated into networks of identity, society, and meaning.' The same might be said about the digital humanities: quantification, rather than making more traditional forms of humanistic interpretation obsolete, in many ways make them even more relevant.

The methodological toolkit of mediated discourse analysis is called *nexus analysis* (Scollon & Scollon, 2004). It involves attempting to understand this complex nexus of people practices and technologies through staged ethnographic research which involves 1) identifying the key actions and the key technologies which are mediating those actions in a particular social situation, 2) exploring the kinds of affordances and constraints introduced by these technologies and considering how they make certain kinds of actions more possible than others; 3) examining the ways in which mediated actions help to construct certain kinds of social identities, certain kinds of social relationships, and ultimately, certain kinds of societies, 4) understanding how altering social actors' awareness of their use of technology

and the way it affects how they experience, know, and value the world can introduce the potential to empower them to change the nexus of practice for their own benefit or for the benefit of others. All of these stages involve practices appropriated from a range of disciplines, from participant observation to ethnographic interviews, to the collection of discursive artifacts, and make use of a range of analytical paradigms from conversation analysis, to narrative analysis, to the ethnography of speaking. In this way, mediated discourse analysis itself is a nexus of practice, a kind of remix cobbled together to address the contingencies of whatever combination of practices, actors, technologies, and social relationships it is presented with. The last stage— changing the nexus of practice— reveals the underlying activist agenda of mediated discourse analysis, its commitment not just to studying the world but also to changing it, and its unabashed admission that the researcher can never really position him or herself apart from the people or phenomena that he or she is researching.

What nexus analysis can contribute to our study of digital humanities is a reflective stance which compels us to consider the ways the tools that we use, whether they be computer programs, information visualizations, statistical methods, analytical frameworks, or the genres through which we report our results, impact the epistemological, ontological, and axiological stances that we promote through our research activities. A nexus analysis can be performed as a standalone study in which the mediated actions of other people as they construct knowledge in the world are studied, as with the study of self-quantifiers which I presented above, or it can be performed alongside nearly any other research project we are involved in by making our own research and the means through which we conduct it the secondary object of study. In the latter case, nexus analysis can serve as a way of ‘keeping us honest’ by reminding us that whenever we do research we are always positioned within a complex nexus of beliefs and values and technologies, and that no ‘objective’ appraisal of our findings is possible without some effort to untangle this nexus and to account for how we are positioned within it.

Advances in both digital technologies and in the theorizing around digital humanities present a range of new challenges and opportunities for scholars engaged in mediated discourse analysis. New ways of using technology to capture data from ethnographic sites, for example, make available to researchers access to settings and interactions which they normally would not be able to observe. (Kjær, & Larsen, 2015). At the same time, these technologies add even more layers of mediation between researchers and the phenomena they are studying. Similarly, the increasing embeddedness of digital technologies into our everyday lives presents researchers with a double-edged sword, dramatically highlighting the ethical dimensions of mediation. The 2018 scandal involving Cambridge Analytica using data acquired in the context of a scholarly study to influence political campaigns, (Grasseger & Krogerus, 2017, Jones, forthcoming), for example, showed how scholarly institutions, funding bodies, and researchers are increasingly implicated in a nexus of practice in which *value* (both economic and scholarly) is derived from extracting more and more information from people based on questionable models of consent. In her 2010 plenary to the Digital Humanities Conference in London, Melissa Terras introduced an open participatory initiative to explore the life and writings of Jeremy Bentham, inventor of the notion of the ‘panopticon’, and then used the metaphor of the panopticon to interrogate various issues arising in the digital humanities such as digital identity, professionalism and funding. But the panopticon is also in some ways an apt metaphor for the digital humanities itself, which more and more is involved the harvesting of ‘big data’ or engaging individuals in ‘crowdsourcing’ projects like the one she described, while still struggling with formulating ethical frameworks



around how to handle such data or protect the rights of individuals within the ‘crowd’. Perhaps the key challenge for the digital humanities, and for mediated discourse analysts seeking to contribute to it, does not so much involve the digitization of the humanities, but the digitization of *humanity*, the increasing transformation of humans into data by algorithms, and the political and social consequences of this datification (Cheeny-Lippold, 2017).

Both the Quantified Self Movement and the digital humanities are best thought of not as disciplines or schools of thought, but rather as metaphors for complex socio-technical networks of people and machines, policies and institutions that produce particular ontologies, epistemologies, and moral orders. And like all metaphors, they should be seen as carrying in them the power to both reveal and conceal, the power to promote affinity or alienation, conflict or cooperation (Star, 1990).

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