The Role of Practical Reasoning and Typification in Consumer Analytics Work: An

Ethnomethodological Study

by

Michael Clarke

A thesis

presented to the University of Waterloo

in fulfillment of the

thesis requirement for the degree of

Doctor of Philosophy

in

Sociology

Waterloo, Ontario, Canada, 2016

Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners. I understand that my thesis may be made electronically available to the public. Michael Clarke.

Abstract

Traditional scholarship views quantitative people-categorization in the workplace—i.e. the use of big data to group consumers and categorize their cultures—as primarily a problem of technical and statistical optimization. By contrast, my thesis emphasizes a very different research dimension: namely, the role that practical reasoning plays as workers organize themselves locally to categorize and apply data-based groups. Drawing on the ethnomethodological understanding of practical reasoning, I focus on the way the locally organized talk accomplishes people-categorization as a self-contained activity. Specifically, I will argue that practical reasoning shapes the way workers, through their talk, combine technology, conversation, and everyday practice to render scenes as reasonable and accountable in their attempt to anticipate, understand, and apply consumer preferences, behaviors, and so on. To do this, analysts should go beyond standard empirical methods to adopt a more radically reflexive stance toward workplace discourse. Next, I will argue that the benefits of adopting such an interpretive methodological stance in this setting are threefold: first, this approach will help market researchers and design professionals rethink how they conduct market segmentation and persona development, two important techniques debated in academia, but used extensively in professional settings to design products, processes, and marketing plans. I will show that "practical" actors, through their locally organized practices, make and find in ordinary taken-for-granted ways "market segmentation" and "persona development" as reasonable ways of assembling the world of people-categorization in the workplace. Second, this approach broadens arguments about the "social life of methods" to include professions outside of the academy that apply statistical methods to big data, and to radically consider our relationship with technology. Furthermore, I will argue that part of understanding practical reasoning in the workplace includes identifying the hold that the unquestioned commitment to expanding technology has on discourse. For the latter, I adopt a radical interpretive perspective in order to reveal the irony of our focus on expanding our human powers through technology.

To support my claims, I have divided my argument into four main sections, each one given its own chapter. Chapter 1 reviews how digital advertising workers combine big data about groups of people and their culture with other resources to build to a finished technical product. Chapter 2 outlines how these same workers rely on interpretive methods during the conceptual development of big data people segments.

Chapter 3 demonstrates how analysts rely on interpretive methods and background expectancies during the process of accessing, extracting, and analyzing big data about groups of people and their culture. These methods can help professionals achieve a richer understanding of consumer culture, and consequently, can help them make better big-data application decisions throughout the design cycle. Chapter 4 takes a radical interpretive case study format and demonstrates how treating digital advertising worker dialogue as discourse reveals important methods for designers, for workers and for social inquirers. In this final Chapter, I show how a very particular example of a stretch of talk about a piece of technology can be examined as a cultural expression of the desire to expand human powers, and I show how the abstract idea of the desire to expand human powers can be critically addressed as a possibility and actualization in its own right. The analysis in Chapter 4 reveals the seen but unnoticed assumption embedded in the culture concerning the unquestioned commitment to expanding technology, which, it can be argued, has undermined our capacity to talk about purpose or point; instead, the talk takes for granted the assumption that there is only one purpose: expanding our human powers. The principle of expanding our human powers through technology does not just have to be assumed; it can and should be critically engaged. This engagement is accomplished by drawing on radical interpretive approaches to modernity, including Grant (1969), and Arendt (1958).

Acknowledgements

This dissertation gave me the unique and unforgettable experience of integrating my professional career, community and the journey of my PhD. Much of the work involved building practical, professional and academic bridges to enable the collection of data and the development ideas. It also provided me with the wonderful combination of teaching and learning. It was undoubtedly a special and enriching experience.

First, I would like to thank my supervisor Kieran Bonner. Reflecting on my preliminary conversations with him during my course work, I laugh at how little I knew. Kieran was incredibly patient with me, and is a great mentor and friend. His flexibility, encouragement, pragmatism, and wisdom enabled me to navigate a very complex set of content and stakeholders to get to this point. I feel very lucky that he took me under his wing as his student and to have him as a friend.

I'd also like to thank my committee. Dave Goodwin was exactly what I needed to complement the academy "from inside the academy", and to push my writing abilities to the next level. Dave has put together a career that I admire and aspire to. Dave's work is a unique combination of industry, interdisciplinary academia, teaching and technology. He has developed incredible vision by combining these areas and is someone that I look up to. John McLevey joined midway through and instantly earned my admiration. John has pushed me in two very important areas: First, ensuring that my work speaks to contemporary interests and is accessible, and second, pushing me beyond the "routine" findings that students regularly cannot escape, toward producing unique insights.

I am grateful to John Goyder for inspiring me as an undergraduate, and for advocating for my acceptance as a part-time PhD student. Education and work have been two rewarding areas of my life, and John was able to convince the department that I should be accepted as a part-time student. This allowed me to embark on a fulfilling career, while satisfying the intellectual curiosity I desired.

Thank you to my "former" committee member Patrick Watson (who is still a major influence). Patrick introduced me to different corners of ethnomethodology and HCI that I would have never discovered on my

own. I am grateful to Patrick for his advice, friendship and the introductions he made to people in the "ethno" community. In particular Dave Randall who took me under his tutelage and helped me navigate the wonderful world of HCI and CSCW. One of the best decisions I made in my academic career was hopping on a train to Liverpool to spend an entire day on Dave's couch discussing tech, the trajectory of ethnomethodology, and academia in general.

My friends and colleagues at Google are owed special thanks for allowing me to "observe" and report on them in their natural work habitat. This was likely a "unique" experience to say the least. Lastly, I'd like to thank my long time manager Rania Succar who was supportive in this journey in so many ways.

To my classmates who gave me endless amounts of advice, shared invaluable knowledge, and gave me great feedback: Benjamin Watson, Stephen Svenson, Amelia Howard, and John Faichney.

Above all else, I'd like to thank my family. My wife Margaret made an enormous sacrifice by supporting my desire to work full time while completing my PhD. This sacrifice became even greater once my two sons arrived (Patrick and Andrew). I am forever grateful for her support. To my uncle John Stortini and my cousin Helen Stortini for spending hours with me during my undergraduate degree helping me improve my writing. Lastly, to my parents David and Helen for providing a household that encouraged life long learning and love and for the sacrifices they made to support my education.

Completing a part-time PhD would have been impossible without all of you, and I was able to overcome some significant odds stacked against me as a result.

Table of Contents

Introduction and overview

Introduction and workplace problem

Sociologists have long been fascinated with *types*. The anticipatory properties of groups of similar people have obvious industrial and occupational value to many in the workplace. That is, the assumption that like-minded people will do like-minded things allows for proactive organizational activities and their associated benefits, including the potential for economic value.

Whether a government agency wishes to learn about segments of its population to set policy, or a marketer wishes to sell his or her products efficiently, or an actuary wishes to set premiums, or a politician wants to understand and attract part of a voting base before a coming election, all these stakeholders place value on learning about types of people to satisfy a variety of workplace agendas.

Increasingly powerful and cost-effective computing resources, the maturation of the Internet, and the analytics borne from related activities have all enriched more traditional practices of learning about and addressing types of people (e.g. big data and consumer analytics). INFORMS (2015) defines analytics as "the scientific process of transforming data into insight for making better decisions." A well-known study from McKinsey defines big data as "datasets whose size is beyond the ability of typical database software tools to capture, store, manage, and analyze" (Manyika et al., 2011). Through big data and consumer analytics, we have witnessed the development of entire knowledge-based industries that enable commerce and administration predicated on understanding types, or profiles, of people.

Sociological interest in types dates back to Weber (1949: p.15 ; 1968, p.xxxii), and is taken up by Schutz (1962: p.7; 1966: p.100; 1972: p.188), and Garfinkel (1967) and associates. From this interpretive perspective of sociology, types are a concern of everyday members and sociologists alike. Drawing on Weber, Schutz's phenomenological sociology shows how previous sociological perspectives were trading on members' knowledge and methods, and he proposes a different approach. Schutz, and Garfinkel by extension,

show how theorists' problems are everyday people's problems and that these are best researched by examining how everyday people go about addressing and solving those problems. Thus, interpretive sociologists are interested in how members solve everyday social challenges using types. That is, people use the same methods of social inquiry to accomplish work that a sociologist uses.

The theoretical basis for interpretive sociology is Weber's theory of social action and the subjectively oriented social actor. From this theory, he formulates a comparative historical analytical tool: the ideal type. However, the ideal type is not a type in the abstract or universal sense, as in the work of knowledge by discovery-based sociological approaches; it is an analytical device for investigating concrete, yet fluid social action and relationships in empirical reality. Schutz extends Weber's work methodologically and epistemologically, showing that social scientists' methods for understanding human action in the midst of their experience are members' methods, and understandable by them as such. Schutz pays special attention to one of these practices: typification. Typification is an ideal archetypal device in language and interaction that allows individuals with unique biographies to intersubjectively select common ground and accomplish interaction.

Influenced by Schutz, Garfinkel (1967) developed a sociology grounded by describing ordinary practices as a method for achieving and constituting order, sense, and organization of people in everyday lives, including the workplace. For Garfinkel, typificatory practices are central to these accomplishments.

In interpretive sociology and ethnomethodology, the creation of types and theorizing about types of people is not the privileged domain of the sociologist. In this research, I turn to the practical methods that ordinary people, and consequently sociologists, use when faced with the challenge of constructing types of people, and how they use these methods in their everyday work environment. I investigate the practical social science work that employees use to formulate and revise their knowledge of types of people, and I analyze their workplace setting according to the tenets of ethnomethodology.

2

Grouping people: people segments

Given both academia and industry's depth and breadth of inquiry into the business practice of categorizing groups of people to generate economic value, a number of common labels for this practice have been developed and have matured within academic and occupational lexicons. Common industrial and organizational labels for these purposes include, but are not limited to: market segmentation, user segmentation, personas, user profiles, targets, and audiences.

Many organizational functions rely heavily upon understanding and subsequently trading on these archetypes, e.g. discovering the market most likely to purchase a product, building the right product for the right people, adjusting prices for different groups of people to maximize the sale of goods or services, or proactively recommending the right product or service to certain types of people. I am interested in investigating an organizational setting where workers engage in the practice of the last of these functions – recommending the products and services while using big data and consumer analytics. I am interested specifically in the practice of helping advertisers to identify types of people and then to serve digital advertisements to them. As I will show, much academic effort has focused on finding the best theoretical possibilities for categorizing people from a marketing and design perspective. Both bodies of work have foundational consequences for digital advertising. However, ethnomethodological attention to how workers reasonably construct, alter, and deploy these people segments in the workplace has been missing from literature dealing with personas and segmentation.

A recent and rapidly developing example of this desire to categorize people and take action with the findings can be seen at companies that offer Internet-based software products. In return for access to novel software, these companies model and package a variety of information to help advertisers present advertising messages to like groups of people. These groups can be niche or broad (e.g. people that put an

item in a shopping cart on a pizza shop's website, or males 18-34). While investigating this particular organizational setting, I will refer to these groups as *people segments.*

People segments are features of a digital workspace. By "people segments" I mean groups of people selected by an advertiser and the company providing the advertising to target advertising efforts. These segments may be agreed upon very broadly, or very specifically, and are determined by past or predicted behavior on the Internet. Advertising on the web according to users' historical behavior presupposes marketing goals can be met by presenting messages to those people in the future. These people segments are constructed according to big data that includes digital behavioral characteristics (past website visits, past web advertisement clicks, purchases), psychographics (website content consumption that suggests a particular psychological constitution), topic interest (categorizing past web consumption to suggest interest in a particular topic), and demographics (either declared through a user inputting profile information into a web service, or inferred through web behavior). Elements of people segments are "optimized" throughout the course of an advertising campaign, and realized, discovered, or confirmed through the analysis of different sources of "offline" data (e.g. aggregate paper coupon habits at a physical pizza store), online data (e.g. a pizza company's website behavior according to web analytics investigation), or data specific to a marketing campaign in any format (e.g. reaction to a television advertisement exposure captured by a survey, or performance of digital advertisements sent to users' mobile phones).

Workers in this setting treat people segments as technically valid. Workers assume a consistency in the characteristics and desires of the people in these segments, that is, the individual people comprising the segments of interest. Although people segments are typically built using aggregate, anonymized data, and workers rarely if ever look at individual cases (singular instances of anonymized web behavior), they could theoretically ask an individual off the street a number of questions and assign that individual to an appropriate segment. If an individual has a number of relevant characteristics, interests, and preferences, he or she is assumed to belong to a certain type of similar individuals and will be organized accordingly.

The research problem

Traditional scholarship views quantitative people-categorization in the workplace—i.e. the use of big data to group consumers and categorize their cultures—as primarily a problem of technical and statistical optimization. By contrast, my thesis emphasizes a very different research dimension: namely, the role that practical reasoning plays as workers organize themselves locally to categorize and apply data-based groups. Specifically, I will argue that practical reasoning shapes the way workers, through their talk, combine technology, conversation, and everyday practice to render scenes as reasonable and accountable in their attempt to anticipate, understand, and apply consumer preferences, behaviors, and so on. To do this, analysts should go beyond standard empirical methods to adopt a more radically reflexive stance toward workplace discourse.

The formal analytic sociologist would agree with the assumption that individuals with common characteristics can be mutually categorized for certain practical ends, and would seek to refine those categories to a degree of accuracy such that the models reflect some form of perceived social reality on the part of that sociologist. This option has received a great deal of attention in academia (c.f. Savage, Devine, Cunningham, Taylor, Li, Hjellbrekke, Le Roux, Friedman, and Miles, 2013). An alternative is for an ethnomethodologist to find someone who, as part of their occupation, works to categorize individuals into groups using some form of accountable structure: the ethnomethodologist would then closely examine those practices to provide a descriptive account of how they are used to produce the sought-after ends of the categorization exercise.

For the purposes of heuristics and comparison we can consider the latter as uniquely pursuing a *knowledge by interpretation* investigation of the phenomenon, as opposed to the knowledge by discovery-based social scientific approaches carried out in the past (and present). Knowledge by discovery-based investigations assume that phenomena under investigation exist separate from the social scientist, or investigator, and is "out there" awaiting objective, reliable, and valid observation (cf. Bonner, 1997). On the other hand, knowledge by interpretation-based investigations assumes that the mind and phenomena are

intertwined, and knowledge is experienced and shaped by perspective (cf. Bonner, 1997).

The intent here is not to choose which approach is right or wrong, nor to suggest that all knowledge by discovery approaches are the same. Instead, I want to show how an ethnomethodological, knowledge by interpretation investigation is unique and provides additional insight regarding the problem of working with data-based groups of people. That is, there is an alternative route to "knowledge" and I will use this "knowledge by discovery" heuristic when referring to the investigation.

Thus, this sociological investigation could be relevant in two different ways: one approached as an empirical problem to solve, another as a practical member's problem. The first is an effort to act as a practitioner, to find the best possible set of categories that people might reasonably fit into for whatever purposes. The second is a problem in the sociology of work: how are categories reasonably constructed and deployed as a feature of a particular workplace? I will engage in an investigation of the latter, of the situated practices and practical reasoning associated with building and using people segments for the purposes of Internet-based marketing. The technical practices referenced in the latter are language games, which in turn are grounded in a culture within which they find their intelligibility. That is, the members' practical reasoning in performing categorization within this workplace operates within the intelligibility of that work. The worksite is where members work out specific work problems in the context of being competent members of ordinary life, or as Schutz would say, as citizens of everyday life.

When describing these people segment practices, I adopt an ethnomethodological indifference (Garfinkel and Sacks, 1970: p.345). This indifference is closely related to the knowledge by discovery/interpretation heuristic discussion described above. This indifference involves choosing an unexplored analytical path for approaching this "people segment" problem, and choosing to conduct this investigation in the absence of formalized, pre-existing theories and a phenomenological commitment to describing phenomenon without presuppositions. Rather than supporting a descriptive method of an all knowing, idealized sociological observer, an ethnomethodological indifference means methodologically

speaking, the sociologist enters a setting for description without presumption. This requires holding no assumptions of formal analytic social science, in particular those compelling adherence to pre-determined criteria for how rationality operates behind the scenes of everyday methods (Lynch, 1993: p.8). Garfinkel and Sacks (1970) elaborate:

> Ethnomethodological studies of formal structures are directed to the study wherever and by whomever they are done, while abstaining from all judgements of their adequacy, value, importance, necessity, practicality, success, or consequentiality. We refer to this procedural policty as "ethnomethodological indifference" (p.345)

As Heritage (1984) says, talk and accounts of that talk are not an end point for social science investigation, but are a starting point. By this I mean I am not concerned with the reliability and validity of people segments and the statistical and technical methods by which they are conceived and implemented. The proficiency of a people segment is a matter of the goals of its deployment. In the setting I've chosen, the goal is to identify groups of participants in an economic exchange, and this group identification will be reliable and valid on different terms. Part of my work is describing how members orient themselves toward these terms and accomplish categorization for all practical purposes related to those goals.

Thus, my thesis emphasizes an underdeveloped research dimension: namely, the role that practical reasoning plays as workers organize themselves locally to categorize and apply data-based groups. Drawing on the ethnomethodological understanding of practical reasoning, I focus on the way the locally organized talk accomplishes people-categorization, accountably, as a self-contained activity. Specifically, I will argue that practical reasoning shapes the way workers, through their talk, reflexively combine technology, conversation, and everyday practice to render scenes as reasonable and accountable, in their attempt to anticipate, understand, and apply consumer preferences, behaviors, and so on. Furthermore, I will argue that to understand practical reasoning in the workplace, analysts should go beyond standard empirical methods to adopt a more radically reflexive stance toward workplace discourse. And finally, I will argue that the

benefits of adopting such an interpretive methodological stance in this setting are twofold: first, this approach broadens arguments about the "social life of methods" (Maynard and Schaeffer, 2000; Greiffenhagen, Mair, and Sharrock, 2011; Savage, 2009; 2013; Mair, Greiffenhagen, and Sharrock, 2015) to include professions outside of the academy that apply statistical methods and big data; second, this approach will help market researchers and design professionals rethink how they conduct market segmentation and persona development, two important techniques debated in academia, but used extensively in professional settings to design products, processes, and marketing plans. I will show that "practical" actors, through their locally organized practices, make and find in ordinary taken-for-granted ways "market segmentation" and "persona development" as reasonable ways of assembling the world of people-categorization in the workplace.

Given my ethnomethodological orientation, I am interested in how members establish the composition of these segments as representative of the underlying pattern of like-minded people doing like-minded things (whether positive or negative) and targeting them and tailoring advertising programs to them to generate more customers. In both cases, these archetypes, which are meant to represent thousands, if not millions of people, are unproblematically deployed to accomplish the goals of their work without them personally interviewing and categorizing the thousands or millions of people comprising the segments.

The setting

The setting of this work is Google, a large Internet company that provides free and paid web services to consumers, and Internet advertising for companies electing to advertise in a digital format. Google maintains a large Internet user base that allows them to anticipate favorable conditions for accomplishing the advertising goals of exposure, clicks, and video watches that may lead to an advertiser's website or shopping property. Google builds models of potential customers for the advertiser (segments), and adjusts them to maximize performance. This is applied sociological work in that engineers, analysts, and sales managers hypothesize the prospective future activities of social groups based on precedent advertising characteristics or performance indicators such as product purchases (categories of big data).

In a typical software company these activities can be divided into several functions, most prominently research and development (engineering and design) and business operations (sales, marketing, operations, market and customer research). The creation and commerce of people segments typically involves three divisions of labor:

1. Computer/software engineers developing the technology to enable potential models (people segments).
2. Sellers (client managers) that work on the proposal, planning, and optimization of custom advertising campaigns for advertisers.
3. Clients, who evaluate and co-optimize the people segment models used to deliver the advertising.

Workers operate according to a kind of people segment certainty. Workers reasonably assume membership to a people segment advertising model that reflects mutual practices, general interests, and brand interest or purchase behavior by co-constituents of that people segment category. Big data and consumer analytics, which have been subject to empirical observation and verification, inform this certainty . In effect, this work is a form of applied psychology, sociology, and/or marketing science. Client managers and advertisers will jointly plan which people segment model and conditions work best for brand exposure advertising, or sales-oriented advertising goals. Judging the success of the former involves assessing how many people of a particular "type" have seen their brand through these advertisements. Success for the latter requires attributing a click or view of an advertisement leading to a sale in a store or on an ecommerce-enabled website. The research and development organization enables what is available to offer advertisers (what type of people segment models are possible). The sales organization analyzes and assesses actual segment models in practice in conjunction with the advertiser, and optimizes by examining the performance of different segments with particular characteristics. For example, brand exposure advertisers may request sports fanatics aged 25-49 for a campaign and notice that there is a much higher advertisement click or engagement rate for 25-34-year-olds and will adjust their targeting accordingly. For sales-oriented

advertisers, the Internet marketing company and advertisers may find that pizza orders occur more frequently at 9pm on Saturdays, and thus increase the amount of web users, and the frequency by which those users are exposed to those ads.

From a workflow perspective, clients typically initiate the purchase of advertising from this Internet company after a joint discussion about objectives and specific tactics to satisfy those objectives (e.g. brand exposure advertising or sales-oriented advertising). This may be the first time that the companies have worked on an advertising campaign together, or on part of an ongoing relationship geared toward similar goals over several campaigns. Once the sales personnel of the Internet company and the purchaser agree on campaign goals, a process of selecting people-segment options for campaign implementation begins (see Appendix B for examples). These include but are not limited to: negotiating the price willing to pay per exposure or sales action (bidding); selecting the "type" of people to target; identifying interests (sports, cars, etc.);establishing behavioral attributes (visited the advertiser's web page previously); identifying demographic (age and gender), geographic (city or country of user location), and time (i.e. present the ads only 2:00pm onwards, etc.). The research and development organization enables these segment options as technical possibilities, which in turn facilitates the discourse of matching the Internet marketing company's technology and user base with the interests of the advertiser as a solution to their marketing objectives. Once the people segments have been agreed upon, the sales personnel work with sales team analysts and client managers to technically implement the campaign using an advertising software interface by selecting from the segment options (see Appendix B for examples). Once the settings are selected, the campaign is started from within the software. The client management team actively monitors the progress of the campaign against the advertisers' objectives, and this progress is discussed both internally and externally with the client. In many cases an analyst will monitor new people segment opportunities for the campaign and also provide an assessment of how to achieve the greatest success from the current campaign. This campaign may be a one-time exercise, or part of a broader relationship with a client.

I describe how workers in this setting reasonably and collaboratively deploy people segments as a

member's problem in practice. I do this while considering the workflow and tools being used. Given my ethnomethodological and radical interpretive sociological orientation to the research problem, my interest is directed toward describing how categories as knowledge are reasonably deployed as a feature of a digital marketing workplace. As mentioned, describing this practical reasoning requires an ethnomethodological indifference.

I go into more detail of the individual settings in each chapter. A glossary of business terms and roles is available in Appendix C.

Theory and methodology

Given my decision to adopt an *ethnomethodological indifference* for the noted challenges, I must contrast this perspective with how a knowledge by discovery perspective would approach the research problem. Here I expand on my brief introduction to this topic.

As mentioned, the decision to take an unconventional, ethnomethodological approach to this challenge requires a contrast to knowledge by discovery social sciences (a heuristic used for comparative purposes). An overview of the unique approach of interpretive sociology to types, and the methodological contributions of Garfinkel (1967) and their applicability to this research problem in this workplace setting are critical for demonstrating their merits for effectively dealing with my research problem. Specific work to highlight includes: Weber & Schutz's contributions to interpretive sociology and their work concerning types and typification, ethnomethodology, ethnomethodology at work, and radical interpretive sociology.

Theoretical foundations: Weber & Schutz

Interpretive sociology originates from Weber's conception of social action, and is the theoretical

basis for understanding my proposed research problem. For us to understand a "good people segment,"

theory must make room for experience and meaning, the lived experience of working with that people

segment (cf. Bonner, 1999). For Weber (1968), social action occurs when "the acting individual attaches a

subjective meaning to his behavior—be it covert, omission or acquiescence. Action is social insofar as its

subjective meaning takes account of the behavior of others and is thereby oriented in its course" (p.4). From

this conception of social action he formulates *idealtypen* (ideal type).

Schutz's introduction of Weber's *Verstehen* to phenomenological sociology provides the foundation

for Garfinkel's (1967) ethnomethodology in the process. Schutz (1966) attempts to traverse significant gaps

in Weber's interpretive work, namely, a lack of a theory of meaning and unsettled epistemological and

methodological issues. Schutz does so by focusing on the social distribution of knowledge (the sociology of

knowledge).

Schutz's work in the sociology of knowledge is influenced by Mannheim's (1936) foundational

contributions on the topic and Husserl's phenomenological philosophy. Armed with these philosophical,

phenomenological, and sociological assumptions, Schutz questions how there can be an organized, intelligible

social reality to theorize about, and how sociological work (theorizing) can develop during this structured

reality or "context." This work pays special attention to the life world and the commonsense methods the

member carries out in everyday life. These methods are incredibly important for examining the problem in

the manner I propose.

The importance of types

Here, I elaborate on sociology's fascination with types, specifically as it pertains to interpretive

sociology, to set the sociological context for my investigation. I pay extra attention to one element of practical

reasoning: members' "typification" processes. For interpretive sociology, practical reasoning is omni-relevant

to everyday life, the sociological study of everyday life, and thus the research problem of people segments that I have described. Weber and Schutz lay the theoretical and methodological foundation for investigating the practical work undertaken with people segments at worksites by employing the methods of members themselves. These are commonsense methods that operate within the intelligibility of that work.

Weber's ideal type is particularly relevant for the discussion of typification. The ideal type is a theoretical construct developed by an analyst or investigator for a specific purpose. It is a methodological device, and a specified organization of features derived from empirical reality, but it is not an exhaustive or a completely precise representation of reality. The analyst uses it to illuminate specific and meaningful elements of social action and relationships. It is employed as a comparative device pulled from a complex historical situation for use in the never-ending flow of particularities of events and activities in empirical reality. Theoretical significance of the ideal type is not derived from any abstract, general, or nomothetic qualities. For Weber, the ideal type provides the basis for a historical, comparative sociology that has general concepts, yet references notable, empirical social action and phenomena.

In developing the fundamental starting point for interpretive sociology, Weber emphasizes the importance of individual and subjective meaning, with the ideal type as an investigative construct critical to the endeavor. Schutz aligns with Weber's rejection of social science and natural science parity, but extends his line of inquiry to include evaluating ideal-typical phenomena for adequacy.

Schutz: types and methodological contributions

In *Phenomenology of the Social World,* Schutz (1972) extends several of Weber's methodological and epistemological contributions. He provides a phenomenological philosophical underpinning for Weber's work, while developing tools for analyzing human action and intended meaning. Schutz (1972) questions how there can be an organized, intelligible social reality to theorize about, and how sociological work

13

(theorizing) can begin in the midst of this structured reality or "context." Specifically, how does a member indicate an experience out of their stream of experience, or how is pure experience comprehended and articulated through a series of typifications? Schutz (1972) proposes that sociology is a second-order discipline, a scheme of typification and typified experience in addition to, but also closely related to, how a member carries out everyday life. Members orient toward the world through a "natural attitude" in a taken-for-granted, routine, and unproblematic fashion. Thus, methodologically, Schutz (1972) proposes we experience the world as ordinary members do. For Schutz, observing "thought objects," in the way that natural scientists view molecules and atoms, is not enough for social scientists. When sociologists consider a meaningful social world, they must conduct themselves differently, and experience the world as everyday members do (Schutz, 1977). The reality of everyday life that Schutz (1962a) describes is called the "paramount reality." This includes assumptions tantamount to the natural attitude, and is congruent with the notion that other realities exist (in my case practical social science work with, and theorizing about, groups of people), but these realities are derivatives of the paramount reality and require bracketing or suspension. Importantly, the paramount reality has a malleable but re-orienting and foundational character.

The lifeworld, an important concept and focus for Schutz's interpretive sociology, is the taken-for-granted meaning structure that can be examined by bracketing the natural attitude. Members are already interpreting the world that we wish to examine and interpret ourselves as sociologists. That is, we make sense of the everyday, mundane sense-making that the people we are observing undertake. We must make sense of those methods, taken for granted by the member but interesting to us. For this task we develop models focused on social action and meaning. Thus, methodologically, Schutz shows how theorist problems are members' problems, and are best researched by examining how members go about addressing and solving problems. In a deep sense, the theorist and member division within professional sociology is transformed as the member becomes the theorist solving practical problems in everyday life.

Weber implies that the sociologist can apply typical meaning to an ideal type. But for Schutz, social science is interested in "second order" constructs, derivatives of typifications of the paramount reality of

everyday life. This is an important extension and difference from Weber's ideal type. Schutz's first order

constructs are taken-for-granted strategies and techniques for the member to deal with social interaction,

whereas second order constructs are purpose-built for the social scientist, and relate to a taken-for-granted

stock of knowledge held by that social scientist. The social scientist moves from first to second order

constructs by choosing meaning and activities that are considered significant to the research at hand and

developing models of the social world for the task they are addressing. These models must deal with typical

social actors in typical social situations adhering to typical courses of social action. However, understanding is

not accomplished via direct knowledge. The social scientist cannot access individual consciousness, as it can

only be understood as ideal types through typification. These Schutzian ideal types are developed assuming

that social action is rational. If the ideal types adhere to the particularities and relevancies of the typified

action described by the social scientist, then the member can accomplish the suggested goals. Thus, ideal

types as models of social action can be compared with actual social action and can then contribute to

understanding that social action. In sum, these ideal types are testable theoretical systems of social action.

Descriptions of action and meaning accomplished through this process of typification are linked to

Schutz's assumptions of a reciprocity of perspectives and intersubjectivity. Intersubjectivity brings us back to

a point covered earlier, where I mention the particularity of the social lifeworld, and the ability to share that

world with others. Typification is central to this ability. Schutz (1966) suggests that each individual's

biography is unique, yet we can carry on in daily life as if our experiences are equivalent. Commonsense

typifications are used by the everyday member and built out dynamically and indefinitely, yet they are under

continuous evolution. Typifications are emblematic of Schutz's methodological transition from a socio-

historical focus (Weber) to a theoretical and structural analysis of social reality.

Typifications originate from social science work, including types of actions, actors, etc., and possess

the same characteristics for the social scientist as they do for the everyday member, yet they occur within the

lifeworld of the social scientist. This allows him or her to find, recognize, organize, and compare and contrast

social action, meaning, and interaction within the meaning of that research, while using the same tools as the

member for reflexively making sense of that reality. Typification is accomplished primarily through everyday language. The reciprocity of perspectives (Schutz, 1966) and its relationship with the typifications I have referenced is critically important to ethnomethodology. The reciprocity of perspectives involves the actors ability to orient to the same object in view, without occupying the "exact same" point of view at the same time (we should note the Wittgensteinian implications of using a term such as "exact same," while acknowledging that Schutz was referring to two individuals occupying the same physical space). When two individuals orient to the same object, they understand that their view of the object is practically equivalent of the other. In Schutz's (1966) discussion, two individuals may look at the same rock and although they do not have the precise same view of that rock, they operate with the knowledge that, if they were to exchange positions, each would adopt the other's view following that exchange: *we select common ground, through features, objects, and knowhow, to achieve a common perspective that allows us to interact and collectively move on. That is, members comprehend the social world as made up of types of things.* We share these typifications by acknowledging the relevance of the expressed experiences of others on our own conditions. This reciprocity provides an important structural focus for this exercise of observing and explicating how workplace order is accomplished from an ethnomethodological perspective, and also how people-segment knowledge is structured, validated, and negotiated among collaborative parties. The shared world that Schutz (1966) outlines is not guaranteed, and is dynamically maintained by the members participating in it. As mentioned, this is where ethnomethodology begins, looking at the structures and methods of achieving and sustaining what is typical and known in common, both practically and ordinarily. Typifications afford a common language of sorts, and the coordination of activity across collaboration settings is defined by their uniqueness and indexicality. Typifications also allow collaborators to sustain shared understanding and accomplish order without an exhaustive explication pertinent to the uniqueness of the situation, something that Garfinkel (1967) would consider impossible. This sharing is very important when considering people segments in an everyday, cross-functional digital work setting, and the convergence of unique perspectives from workers required to accomplish people segment-related tasks in unison.

To recap, typification is an interpretive, theoretical concept that enables the accomplishment of a variety of interrelated yet unique goals pertaining to social groups. Typification is a critical concept for the

examination of people who must accountably construct and manage people segments in the workplace. From the standpoint of the social scientist, typifications help illuminate the practices used to handle and share the knowledge required to achieve those goals. The ideal type for Schutz is observational, but arrived at by using the same methods of the everyday member, and part of the interpretive process of developing courses of action and personal typifications against which to compare social reality. These "homunculi or puppets" (Schutz, 1977: p.271) are deliberate, ideal typical constructs and are subject to Schutz's principles of logic, subjective interpretation (social science constructs refer to and built upon commonsense methods), and adequacy (the social actor can understand the constructs, and the ideal typical constructs of the social scientists are congruent with the commonsense, everyday experience of the social world). Homunculi or puppets are very fitting descriptors given the people segment phenomena I wish to study. Just as people segments stand in for typical groups of people to help develop new products or access new markets, from a sociological perspective, puppets and homunculi also stand in for typical types of situations, people, and those individuals' typical behavior in those situations, typified by commonsense methods in everyday life.

Ethnomethodology

I would like to expand on my methodological decision for this investigation by clarifying the relationship between the work of Garfinkel and Schutz, and elaborating on the former's important methodological contributions.

Schutz extends Weber's ideal type as something that is not the privileged domain of the social investigator. This work pushes the limits of interpretation of social action and meaning, suggesting interpretive work is conducted even when curating a particular experience out of the stream of everyday life. Schutz advocates for a social science that centers on the reality of the social world as already out there for investigation, undertaken using the commonsense typificatory methods members utilize to go about their daily lives. Garfinkel (1967) is heavily influenced by this methodological modification of Weber's ideal type, specifically the notion that sociology is made up of second order constructs, based on the typificatory

methods of the member. This practical sociological reasoning provides the starting point for ethnomethodology.

For ethnomethodology, theory and method are intertwined, and it does not begin with the theoretical or methodological lens of professional sociology. *Ethnomethodology requires a dependence on local knowledge of the setting being investigated, rather than relying on direct observation alone.*

Thus, in my people segment endeavor, rather than confusing theoretical and conceptual matters with practical and empirical matters, I take on an ethnomethodological indifference. This indifference means *I will not challenge the practice of developing people segments in a remedial manner, nor am I generating sociological theory or generalizations about people segments. Instead I will be describing work with people segments in a business setting, a type of social science work carried out by relevant members, the dynamic, sequential accomplishment and organization of their activity, and the practical and mundane manner in which those members make sense of their work.*

Garfinkel (1967) builds on Schutz's work to show how theorists' problems are also members' problems that are best researched by the methods members undertake when solving those problems. However, Garfinkel focuses on the achievement and constitution of sense, organization, and patterns. Garfinkel proposes studying what Schutz takes for granted: a focused examination of the processes that underpin this constitution and achievement. Schutz's (1966) orientation toward the social distribution of knowledge is particularly influential for Garfinkel, specifically for his focus on epistemology, or how knowledge is verified and by what means. Garfinkel (1967) applies Schutz's phenomenological contributions in the sociology of knowledge to empirical research. Ethnomethodology explicitly looks to illuminate and explicate the active maintenance of social relationships, the role that shared commonsense knowledge plays in this maintenance, and the social structures produced by interaction (as opposed to being predetermined). This illumination involves highlighting the typifications referenced, and the practical reasoning used to

accomplish social action. In my case, the structures and everyday methods to negotiate, agree upon, and validate and authenticate people segment knowledge is a relevant focus for ethnomethodology.

Reaching consensus on people segments, and applying knowledge from this social process to other activities in the workplace, is accomplished through reflexive, intersubjective, practical reasoning about how to use those people segments at work, rather than by organizing principles or criteria ordained and distributed by formal analytic approaches. Other knowledge by discovery-based sociological approaches to this knowledge adhere to the same epistemological assumptions as the technical practice of producing those people segments. Ethnomethodology provides a different epistemological and empirical focus, one not achieved through the tenets of science and its skepticism. In other words, *ethnomethodology does not ask the world for proof that people segments exist in a particular way, but rather, it describes the practices upon which working with knowledge about people segments is accomplished.*

How ethnomethodology makes good empirically on Schutz's (1966) motivations in the social distribution of knowledge is critical for my investigation. Members' local achievements are where methods for producing order become visible, and indigenous sites of practical inquiry are where practical action illuminates rationality, organization, and action (Garfinkel, 1967). Accomplishing a variety of goals with people segment knowledge in the digital workplace is a collaborative endeavor. Thus, contrasting ethnomethodological approach to describing social order with more knowledge by discovery-oriented sociology is important. For the former, order involves topics introduced in the discussion of Schutz: intersubjectivity, reciprocity of perspectives, and commonsense knowledge.

Building on Schutz (1966), Garfinkel's (1967) articulation of the problem of order breaks with Parsons's assumption that social action is predicated on rational behavior defined by means and ends, and that through socialization, common culture, and mutual understanding, social action can be organized (Garfinkel, 1967). Instead, Garfinkel's (1967) orientation to order and rationality recommends a focus on mundane, everyday reality and rationality. Further, the commonsense methods for examining this reality are

both a topic and a resource for the inquirer

Garfinkel (1967) does not assume that rationality and shared meaning are intrinsic to activities. Thus, when people segment data is presented to a participant in a marketing initiative or shared between an analyst and a sales person, we do not automatically assume that the segment is applied, or next steps are agreed upon, in a uniform, programmatic fashion absent of local culture and situational deliberation. We assume that the meaning and knowledge of segments, and their relevance to activities and related practices involving those people segments (applying them to advertising work tasks, or two parties coming to terms with building a campaign for the "right person"), are produced locally and reflexively. And, for Garfinkel (1967), these people are not judgmental dopes, producing stable features of the workplace collaboration, according to pre-established norms or rules. Thus the technical methods of putting together people segment data in the first place, and the subsequent organizational recommendations for engagement, are complemented by seen but unnoticed, yet essential, situationally relevant work practices to accomplish "order." In other words, this order is not implicit to the activities set up to accomplish goals related to constructing people segments. Garfinkel (1967) is not comfortable with fixed order progressing simply and smoothly from social facts, and focuses instead on the practical work required for producing social order, and how that order is made to work. He suggests directly examining the situated social circumstances of action for those methods where stability is achieved and describing them in detail, instead of reporting a stable abstract order.

Garfinkel et al (1981) shows that objectivity is achieved rather than ordained, and accomplished by drawing on language as an indexical resource related to the circumstances of action, and mutual intelligibility is accomplished in each instance of action. The unproblematic nature of indexicality of language becomes apparent in situations when indexical expressions require explanation or defense. An example is multiple stakeholders working with people segments to deliver a business performance goal, with a specific client, for a particular objective where parties defend their use of a specific advertising tactic or segment construction. Thus, illuminating and describing workers' commonsense methods of carrying out collaborative people-

20

segment categorization activities requires paying attention to those strategies of defense and elaboration. This means showing that practical reasoning is inherently contextual by investigating situations where members treat that reasoning as problematic.

Treating the technical and operational people segment strategy in advertising client objectives or in the results of an advertising campaign as separate from the strategy's situatedness is common practice when members accomplish order in the Internet marketing workplace. Contextual attachment is treated as an issue to resolve, and people segment principles and business practices are treated as literal and transcendent, despite the irremediable presence of interpretation and the *ad hoc* nature of those practical workplace scenarios (as exemplified in Garfinkel's [1967] investigation of the administrative coding practices of a medical clinic).

Normative expectations and external rules governing social behavior are at odds with what is seen in Garfinkel's (1967) early experiments, where interaction carries on by extension, modification, and ignoring or applying what are perceived as codified rules on an *ad hoc* basis. The related questions I ask are: what are the basic and typified, taken-for-granted rules of crafting and applying people segments in a practical setting? How are people segments actually created and used, in relation to the processes that are set up to ensure their application? What happens once the specialized organizational processes are at odds with, or inevitably leave out, the detail required to interpret and collaboratively achieve the goals of those people segments? I move beyond rules as external, normative, and rigid a priori applications for a sociologist to develop first and then make available for observation in a separate population. I look past how a designer, marketer, analyst, client manager, or client should construct an effective segment using technical, context-free instruction, and instead look to how, within the sociocultural swarm of a cross-functional digital workplace, they come to agreement for how their working knowledge of people segments works for the practical purposes of their social activities.

Garfinkel (1967) describes Schutz's work in describing "seen but unnoticed background

expectancies" as making it "possible to pursue further the tasks of clarifying their nature and operation, of relating them to processes of concerted actions, and assigning them their place in an empirically imaginable society" (p.37). As I will show, limited attention has been directed toward this element of organizing knowledge of social groups in a cross-functional digital workplace. This is an especially interesting paradox given the backdrop of high technology's notions of precision and accuracy, and the commonsense work I wish to explicate. I ask: what are the background expectancies (scheme of interpretation) of collectively using segments to achieve economic goals in an advertising workplace setting? I look to illuminate these background expectancies as they relate to the familiar events of using information about groups of people to accomplish commonplace people segment goals.

Garfinkel (1967) suggests, that when dealing with how order is accomplished, you must first enter the setting of daily life before you can sufficiently articulate the social activity that comprises it. Garfinkel's (1967) documentary method of interpretation suggests that the sociological theorist does not generate the rules for a particular setting, but that they must be found within that setting by the researcher, and each instance of events or activities are evidence of an underlying organizational structure. Following Schutz's work, and the natural attitude, Garfinkel (1967) suggests that knowing the context under examination requires moving beyond relying solely on observation, and instead shows how we contingently ascribe rationale and motive (underlying structure) to make sense of "data" and the "intended event for which the actual observation is treated as its evidence" (Garfinkel, 1967: p.96). An important point to reinforce is this notion of contingency. Contingency implies reflexivity that does not assume a static contextual setting. The social actions, observations, and data we describe, and the setting that contextualizes it, are constantly shaping one another, and continuously open to revision. Garfinkel's (1967) "central recommendation is that the activities whereby members produce and manage settings of organized everyday affairs, are identical with members' procedures for making these settings accountable" (p.267).

We can ask about how workplace data and a people segment observation is treated as evidence of a structured people segment issue, and how it relates to everyday practical interpretive work to accomplish

people segment objectives: that is, the mutual elaboration of both that fact about a segment issue and the organizational structure it comes to represent. In the everyday work of identifying people segment strategies for serving advertising campaigns, and when analysts are looking for patterns, or sales personnel and clients are discussing objectives, what is the practical, interpretive work to treat the "data" in those exercises as representative of a structure? Or, with that data, how do technical workers find methods of grouping people and targeting them to generate more customers in the evidence and occurrences that present themselves? This may include the interpretive work to reconcile an advertiser request for targeting a particular person, or an analyst's observation of a data point as being part of a broader people segment structure. Accounts about people-segment events and observations in this everyday setting are not simply social actions responding to a static reality; they shape this social reality in return.

Lastly, I turn to Sharrock's (1974) *On Owning Knowledge* to help clarify my goals relating to an ethnomethodologically oriented take on the sociology of knowledge of segments in the workplace. For Sharrock (1974), membership to a category or community (*an organization working with people segments*) is tied to competent display of the corpus of knowledge that is owned by that particular community. Thus, methodologically, to analyze that community involves "interpreting the relationship between a collectivity's corpus of knowledge and the activities of its members" (p.5). This relationship is not meant as a deterministic or causal one in the way that the sciences would view it. The culture of that community is sustained through the everyday practical activities of its members. To work with people segments competently requires a working knowledge of the community and the collaborators in the setting. For ethnomethodology, members' practical reasoning is how knowledge is grounded and realized as a feature that is locally produced through their everyday work, in my case, workers in a cross-functional digital advertising setting. To explicate how that knowledge is "known" and validated about a people segment, my attention must be fixed on practical reasoning (more on this below). When pursuing the route of formal analytic social science, we risk characterizing action as foundational for a body of cultural and organizational knowledge that members may not relate to. Instead, attributions of knowledge are based on local workplace assumptions, claims, and commitments and are reflexively open to revision in the work setting(s) where people segment knowledge is relevant.

To recap what I have presented so far, Weber introduces a theory of social action that lays the foundation for my ethnomethodological approach to this segment research problem. His ideal type is an investigative tool for a comparative, historical interpretive sociology that references general concepts and empirical social phenomena that exist as a never-ending flow of particularities and events.

Schutz provides a phenomenological philosophical underpinning for Weber's work and the methodological tools that show how theorist problems are members' problems. Schutz advocates for sociology to use the same everyday methods as members (typificatory practices) when investigating everyday social reality.

Following Schutz, Garfinkel proposes studying the ways in which everyday social action is accomplished by examining the local context of that social action and describing the methods and commonsense categories through which members achieve order. This is something that knowledge by discovery perspectives previously investigated from stable a priori social categories. Alternatively, I propose to take an ethnomethodologically reflexive approach to those categories.

I extend these contributions to demonstrate the value of descriptive ethnomethodological analysis in the workplace.

A Note on ethnomethodology and practical reasoning

I would like to clarify how I treat practical reasoning in light of the literature I have covered and the perspective I am taking when approaching this people segment research problem. Winch (1958) suggests reasoning is connected to a specific practice, which can be contrasted with formal analytics or knowledge by discovery-oriented social science thinking. According to Winch (1958), comprehending and reporting on

human action isn't accomplished by simply understanding the intellectual concepts involved in that action, but by understanding the "practical orientations" of those involved, and it is necessary for those observed to make inferences that are entirely practical. This connection of reasoning to specific practice is also tied to Weber's notion of the ideal type discussed earlier, where he concedes that even perfect reasoning in bureaucratically or formally rational systems (such as laboratories, or "big data" labs discussed here) is oriented to and practically achieved against a situated backdrop of institutionally relevant criteria.

The knowledge by discovery social scientist is trained to view this mundane, ordinary, or practical action and reasoning as having no essential interest except as a resource for communicating abstract theoretical phenomena. Social scientists make observations, but in their case it is routine to transform these observations into theoretical frameworks for the purposes of articulating and generalizing phenomena such as ideology, social structure, culture, deviance, and *reasoning (e.g. cognitivism, etc.)*. For ethnomethodology, the recognizable, intelligible, and accountable features of social structure (including social action and reasoning), the features that make them "ordinary" to people engaged in them are reconceived as internally produced.

For ethnomethodology, ordinary action (including how people reason with one another) is a topic of inquiry "in its own right." This practicality or "ordinariness" lies in its mundane availability to those members of society. Thus, we treat members as knowing what they are doing, and the structure of oriented action and reasoning is accomplished by the members' engagement with that structure (internally produced), rather than located at the level of theoretical abstraction. This ethnomethodological indifference helps to ensure that the methods for investigating this practical reasoning are accomplished with mutual intelligibility. Typification is one of these commonsense methods, as outlined earlier.

In my case, the interactional work practices through which people work to segment knowledge, and through which technological people work to segment objects' accountable structure, is situationally organized. They assume that practical observability and objective status consists of a mundane or unexplained "vulgar

competence, ordinary expertise" (practical reasoning). This accountable structure is not covered in the

segmentation literature reviewed for this dissertation, and is treated as trivial to the recognition and production

of that knowledge despite being critical to its practical observability and objectivity.

Ethnomethodology at work, the laboratory, & theorizing to solve problems

Ethnomethodology's program of studying work is directed toward what Garfinkel (2002) labels the "missing what" of previous sociological studies of work, and this should be pursued with what Lynch (1993) calls vulgar competence of the discipline studied. This recommendation is influenced by Schutz's argument that social science methods are equivalent to commonsense members' methods.

A number of contributors provide significant developments and extensions to Garfinkel's ethnomethodological studies of work. Of note: Garfinkel, Lynch, and Livingston (1981) in their study of the work involved in scientific discovery, Suchman and her colleagues at Xerox Parc, the Lancaster School in the United Kingdom, and the work of Richard Harper, Wes Sharrock, Graham Button, Dave Randall, and their contemporaries. I elaborate on my theoretical and methodological choices by drawing comparisons to Garfinkel et al. (1981) and ethnomethodological work in the laboratory. I am interested in how this approach has been extended to quantitative, knowledge by discovery social science workplaces (e.g. survey research centers), the ethnomethodological studies in the sociology of social scientific knowledge. These contributions inspire the perspective I employ to understand an applied social science environment: constructing, modifying, and applying Internet people segments to capture economic value in a technical setting. An overview of influential and exemplary contributions in these areas follows, to focus and provide analogies for my research.

Ethnomethodological studies of work describe how members practically accomplish their working world. They move beyond tasks and theoretical commitments and toward work as an accountable and

cooperative social endeavor. The work of making the orderliness and organization of activities accountable and "observable-reportable" to one another applies very nicely to the working world and its interactional and collaborative character. Ethnomethodology turns to *how* this work takes place, and how people at work achieve social activity in concert, rather than describing *why* this work takes place. In other words, ethnomethodology looks to describe how the workplace and everyday social activities within it are a collective accomplishment, while holding no theoretical assumptions, and making no commitments to a particular view of the world. *Ethnomethodological investigation of the workplace is not shaped by theories about how that workplace really is.*

Thus, questioning the success or sufficiency of the output of a workplace setting is not the domain of ethnomethodology; *ethnomethodology examines and describes the standards or "yardstick" of what is good enough for all practical purposes for those carrying out that work*. Being able to memorize and communicate the training instructions or technical procedures to accomplish tasks in the workplace are not enough to know how to conduct oneself as a competent worker. I am not interested in the successful implementation of a segment, or in describing the formal processes to create and use that people segment, nor am I speculating on the reasons for working with segments.

Garfinkel et al. (1981) is prototypical of the ethnomethodology of work. They describe the course of social action occurring on the night of an astronomical discovery in the workplace, specifically the practical reasoning used in the optical discovery of a pulsar. The discovery concerns a specific field of the natural sciences, not ethnomethodology, and ethnomethodology is not concerned with "why" the pulsar was discovered. *Garfinkel et al. (1981) do not focus on the pulsar as an astronomical object, but on how it becomes clear that it was discovered as a pulsar to the team working in that setting.*

In describing the course of this local social action, Garfinkel et al. (1981) want to illustrate how this discovery is constituted sociologically in situated "local historicity." Formal scientific procedures found in lab manuals and textbooks are followed, but this discovery "run" is one the workers could not have anticipated.

27

Garfinkel et al. (1981) shows the run is unique to the researchers, time, and place as a situated social action. The lab workers are unable to describe exactly what processes make this discovery materially different from the processes they undertook in previous attempts. They explicate how this was a run that was done for the first time, how a shared competency in doing this type of work is assumed, and how the group engages in sense-making work for what the instruments were showing, synchronizing their realization and perceptions of witnessing the same discovery. Thus, the phenomenon emerged over time.

I do not attempt to prove "why" a particular segment is used or is successful, nor do I focus on the multivariate "discovery" of Internet data-based people segments for advertising as objects that are successful, failures, or sufficient as data-driven objects. Rather, I ethnomethodologically describe the practices, shared competencies, and sense-making that teams employ to collectively realize success, failure, or sufficiency with those people segments. Ethnomethodology is well-equipped to describe the production of order in a unique (work) culture, and to show how workplace interaction and talk is intelligible. I do not view workers as passively waiting for a general order of engagement for constructing and working with segments in the workplace, but I describe how these engagements are made sensible (primarily through talk), and the practical reasoning involved in formulating and evolving those human categories to capturing economic value.

Ethnomethodology's approach to work has proven valuable in the field of Human Computer Interaction (HCI) and Computer Supported Collaborative Work (CSCW), yet, as I show, little attention has been dedicated to investigating people segments using big data and consumer analytics from this perspective. Much influence in the domain draws from Suchman's *Plans and Situated Action.* Suchman (1987) offers an ethnomethodologically informed investigation of artificial intelligence. She attacks the cognitivist motivation of getting inside the minds of members in a workplace setting to report findings. In a foray into the design of technology at work, Suchman (1987) opposes the idea that humans follow a script or plan as a precursor to their action, resulting in a modular plan-and-action dichotomy. Suchman (1987), like Garfinkel et al. (1981), wants to show that objectivity is achieved rather than ordained, and accomplished by drawing on language as

an indexical resource related to the circumstances of action, and mutual intelligibility is accomplished in each instance of interaction. Thus, static bodies of knowledge, in this case plans and technology programmed for step-wise instructions, are not determinants of action, but are artifacts of situated action.

Like *Plans and Situated Action,* I encounter and describe situations where how to "do" a people segment according to organizational direction fails to accommodate the critical resources of human communication in performing the practical work of people segmentation in a digital workplace. As in the case of appropriate design decision-making, in asking how people segment work is achieved with technology through indexical expressions without the need for exhaustive clarification, I demonstrate how segment work order is accomplished in tandem with the software designed to aide that work.

Ethnomethodology at work: laboratory studies and the people segment problem

Ethnomethodologists and constructionists have both exhibited a desire to demonstrate how science is done. Laboratory studies (Latour and Woolger, 1979; Knorr-Cetina, 1981; Lynch, 1985; Alac, 2011) have prioritized the description of the seen-but-unnoticed social practices scientists possess in collaboration, and underscore the importance of describing this element of scientific work. Science is an inherently collaborative activity, and the situational and collaborative elements of that work are interesting in how they produce an understanding of empirical data. The relevance of the laboratory for my discussion lies in its general importance as a workplace in the ethnomethodology of work literature, and its similarities to technical, data-driven "social science" workplaces. This analogy is helpful departure point as nascent big data and consumer analytics-oriented workplaces appear to have been left unexamined from an ethnomethodological perspective.

Ethnomethodology does not draw boundaries around its subject matter. Looking at the workplace through an ethnomethodological lens does not show the external impact of circumstance on the discovery of a pulsar, or the production of a people segment: rather, it examines and describes these activities as socially

organized accomplishments. Lynch (1985) and others investigate how workers and the workplace organize

to constitute the actual practice of science. As I will show, this provides a foundation for examining

knowledge by discovery-oriented social science work, as well as applied "informal" social science work

conducted in the technical segment-oriented workplace. I ask: how does a product and sales organization

organize itself to constitute the practice of creating people segments for selling goods to groups of people?

Here I am looking at segments as a course of action, and asking: what does someone really have to undertake

to "do" segments successfully in the marketplace? How can we see this in marketing and technical employees'

activities, and what is it about these activities that make them instances of people segment work in the

workplace?

Before I draw on some important laboratory, science, and ethnomethodological analogies to

illustrate these points, I reinforce the appropriateness of ethnomethodology for investigating this workplace

research question. I do so through contrast with constructionist approaches.

For constructionist contributors in the Sociology of Scientific Knowledge (SSK) (e.g. Latour and

Woolgar, 1979), laboratory work is actually work with symbols, and scientists are participating in

constructing their world. This work does not look at how science in the laboratory is achieved in actuality,

and requires distance between the sociologist and the laboratory worker to preserve its sociological lens. The

former is where Lynch (1985) takes laboratory studies down a different ethnomethodological path. I am not

interested in a distant view of the social construction of the knowledge used to create and modify a people

segment, but in how those people segments are realized, shaped, deliberated over, and deployed in the

workplace from the perspective of the workers in that workplace. I engage with workers on their own terms

and take their perspective through learning their trade. Thus, the data illuminating work is very important.

Given these differences, I do not pursue a revolutionary path (e.g. questioning the "theory" that similar types

of people like to buy similar types of things) in the way that social constructionists would (Kuhn, 1970).

Instead I describe how work with people segments is accomplished in everyday life for successful business

operation. Epistemologically, I never question that advertisements perform well when targeting specific

groups of similar users (people segments), but I describe how this work is accomplished and how "micro-theories" for how to use these people segments are open to testing.

Ethnomethodology at work provides a clear and specific research program for investigating people segments. The science studies that follow are strong analogies to draw on (Alac, 2011; Lynch, 1985). However, despite convincing similarities, my research is not focused on scientific knowledge, but instead concerns technical and applied mathematical knowledge. Lynch (1985) and Alac (2011) provide excellent examples of the ethnomethodology of scientific work and articulate the practical reasoning employed to accomplish that work. In particular, they demonstrate how workers interact with their workplace "materials" and one another, beyond passively consuming the physical or digital scientific materials of the workplace and the local, practical methods behind the scientific and publication procedures laid out for them.

In *Art and Artifact in Laboratory Science,* Lynch (1985) argues that producing a detailed account of "brain plasticity" research does little to show the daily social work carried out by researchers to accomplish their scientific objectives. For Lynch (1985), scientific work and social work are inextricably intertwined. In his focus on the phenomenon of "artifacts," Lynch (1985) describes a lengthy and complicated process of isolating a particular brain tissue for use, one that involves baking the tissue in liquid plastic, staining it, and slicing it so precisely and delicately on a scale that could only be observed through a microscope. Similar to the way that every "run" was not successful in making an astronomical discovery (Garfinkel et al., 1981), when lab technicians attempt to isolate the matter required to carry out their neuroscience experiment, not every attempt is successful in producing what they need, despite the purity that science portrays. Local decisions are made about how to use these materials to accomplish neuroscience work. This is what Lynch (1985) describes, and what I will analyze in an Internet marketing environment.

For Lynch, artifacts of scientific work are a revelation of not only the process of scientific work, but also the reality being investigated through work. Knowledge of these material artifacts is not a social construction, but is the result of practical interaction between the laboratory materials and the work of the

lab technician. Lynch (1985) suggests scientists do not have privileged access to "objective features" of objects. He observes them re-categorizing and revising their descriptions of what they were seeing in electron microscope results of Axon Sprouting. Lynch (1985) contends that if we question the ability of the tools being used for any claim in the empirical work being conducted in the lab, related work could not proceed. He shows that through workers' local, practical methods in the laboratory, such as choosing which distortion and artifact-based issues are deemed acceptable for samples, work may carry on.

For people segment work, the same general principles can be adopted. Workers do not question whether advertising is effective when targeting specific groups of people for specific purposes. Nor do they question the existence of those groups and types of people when consuming and working with the abstract data and imagery regarding them. They undoubtedly engage in "practical methods" that make the "technical methods" of people segment targeting work. Thus, in the spirit of Lynch (1985), I describe the practical methods of accomplishing work in an Internet marketing workplace setting. Workers examine people segments in a situational fashion instead of taking a general view about each segment for every situation, respecting the ad-hocing Garfinkel (1967) introduced.

I now turn to a more contemporary example that helps clarify my methodological approach to the segment problem. Alac (2011) investigates how researchers use functional Magnetic Resonance Imaging (fMRI) and their digital outputs to make conclusions about brains and minds.

Alac (2011) builds on Lynch's (1985) work in the area of how people collectively accomplish "knowing" in a scientific workplace setting through her ethnography of researchers working with fMRI brain scans. Alac (2011) produces an ethnography investigating another instance of scientific research from an ethnomethodological lens, with attention paid to the practical, commonsense work undertaken to accomplish the scientific inquiry of working with brain imaging data, and how we collaboratively glean meaning from that data. For Alac (2011), the brain images do not stand statically as self-evident facts or meaning for the

member to consume and act on at work. Alac (2011) contends that researchers must use digital brain scans as a substitute for examining actual brains right before their eyes.

In my research problem, workers cannot examine groups of thousands or even millions of people for themselves, nor can clients or consumers. Instead, abstract representations are created in the form of people segments using big data and consumer analytics. Thus, in the same way that Alac (2011) displays how the constraints of "proxies" are managed, I show how workers deal with segment advertising targeting settings, or targeting "levers," and some of their incongruencies with the practical everyday work required to do competent, sufficient work in this business setting.

Further, analogous to the sorting of "lookers" and "users" described by Lynch (1985), Alac (2011) describes the social and professional process of shaping a brain scan to a publication standard in a day's work. In my case, the process of reconciling the communication of segments with an advertising objective to orient to a client or internal expectation undergoes a similar process of metaphorical adaptation. This adaptation can be captured through commonsense interpretive tools such as typification.

Alac's (2011) contribution provides another ethnomethodological example of how workplace materials are not necessarily "ready-made" for passive workers to act upon. Similarly, people segments for targeting ads and reaching the right customers will require interpretive work to prepare those segments for use in a technical business setting. That is, I do not examine individuals directly to access markets, but I want access to them. Technical people segments are fiats that exist to take the place of real individuals in aggregate.

Studies investigating knowledge by discovery social science work demonstrate a similar ethnomethodological attitude and provide a natural bridge to my people segment setting. In the latter, workers can be found engaging in applied social science work in an Internet marketing setting.

Ethnomethodology of social science work: the sociology of social scientific knowledge

Lynch (1985) inspires ethnomethodological work in the area of the sociology of social scientific knowledge (SSSK). Maynard and Schaeffer (2000) and Greiffenhagen et al (2011) show how an ethnomethodological attitude can be applied to formal social scientific workplaces in parallel to constructionist attention in the area. Greiffenhagen et al. (2011) call this a "sociological description of social science research methods in practice, i.e., in the application of sociology to sociological work."(p.93) There have been relatively few empirical studies of social science methods in practice, and to my knowledge, none that look at social science work in an applied, technical industry environment.

The SSSK literature transitions from the laboratory of the natural sciences to the laboratory of the social sciences. SSSK is unique: "a chance to study a rather elusive figure, the social scientist, in their ordinary working environment over an extended period of time" (Greiffenhagen et al., 2011: p.103). Maynard and Schaeffer (2000) investigate and describe "the situated tacit practices of investigators actually conducting SR [Survey Research] and survey interviews" (p.323) and suggest ethnomethodological and conversation analytical approaches to SR are "akin to the Sociology of Scientific Knowledge (SSK), which investigated practices in natural science laboratories" (Maynard and Schaeffer, 2000: p.323). Similarly, Greiffenhagen et al. (2011) examine the interpretive methods used to draw conclusions about qualitative methods (an interview transcript) and statistical models.

My work takes this one step further into a workplace focused on selling technological people groupings using big data and analytics (more on this later). This is a setting permeated with formal knowledge by discovery social science. The company does not explicitly state that social science methods are being employed, yet it relies on social science methods to capture market value. In fact, many job descriptions for companies such as Google, Facebook, and Twitter ask explicitly for an advanced social science background. I suggest that working with groups of individuals through segment proxies and methods to manipulate how we access them for market productivity is analogous to the procedures of working with the

brain through brain tissue or digital brain imagery in the lab to accomplish scientific research with the brain. When working with segments in a technical business setting, we do not directly look at individuals to access markets, but we want access to them. Descriptive work of social science workers drawing conclusions about survey research, statistical models, or qualitative social science research methods predicated on respondent input (Greiffenhagen et al., 2011) can be just as easily applied to the collaborative social science work of matching advertising opportunities with abstract categories of people and practically modifying them to accomplish work goals.

The ethnomethodology of work, specifically laboratory studies and the sociology of social scientific knowledge, provides an invaluable foundation for examining and describing the local, practical, commonsense, interpretive methods used to make people segment work for capturing economic value. Similar to how Lynch (1985) and Alac's (2011) work shows laboratory workers do not question that specimens or digital brain imagery stand in as metaphors for either a scientific subject under study or the scientific method, and how social scientists in Greiffenhagen et al. (2011) and Maynard and Schaeffer (2000) do not question the tenets of the methods of social science being conducted, I will show that workers in my technical space do not question the notion that technical people segments, and related analytics, stand in as a fiat for similar types of people who will purchase similar things. Just as these studies show that the methods for conducting science or social science with those metaphors are not under question, I show that using quantitative models and reasoning to accomplish associated people segment goals are also assumed. What I will do is describe how interpretive means are used to make the formal methods work, and how "micro-theories" related to these people segments are very much open for deliberation in the technical setting.

Radical interpretive sociology: rethinking reflexivity and implications for the technical construction of people segments

People segment construction is a design issue, and part of working through this from an ethnomethodological perspective is examining the phenomena in light of key debates within the ethnomethodological design literature. I am particularly interested in the argument that appropriating workplace and other social settings constitutes a critical contribution to the design and creative process, as opposed to ethnography being relegated to implications for design (Dourish, 2006). As covered in Dourish (2006), Button and Dourish (1996), and Dourish and Button (1998), the design community in HCI has called upon ethnomethodology to move beyond a critique of methodologies in design, and an evaluation of existing designs, to rethink design as a whole (Button and Sharrock, 2009). I suggest radical interpretive sociology can extend work similar to Dourish's (2006) by critically examining the grounds and epistemological commitments that are made through typical ethnomethodological analysis. Taking on this perspective, I argue that attention to the practical reasoning and collaborative knowledge management work of segmentation is in fact a constitutive design contribution.

The radical interpretive sociological tradition establishes the parameters for how ethnomethodology operates, and does so by pursuing a line of inquiry that redraws the boundary of reflexivity. Spencer argues that "Ethnomethodologically reflexive inquiry occurs within an anterior 'ontological' space" (cf. Pollner, 1991: p.377). In a more radically interpretive sociology, a "referentially" reflexive approach would focus on the examination of the development of this anterior space, and disclose the "assumptions and practices that make discourse about reality possible and intelligible" (Pollner, 1991: p.377). In my case this would include how the workplace, practices, and talk that reveal the collaborative orientation to segment development are made possible and intersubjectively workable themselves. For Bonner (2001) and McHugh, Raffel, Foss and Blum (1974), the empirical work of ethnomethodology is a superficial icon (output) of the grounding that hides the procedures that inform members of what is intelligible and achievable in the first place. Radical interpretive sociology suggests endogenous ethnomethodology focuses on methodological issues, and should instead draw on and explicate relationships, community, and authority as the framework for the problem, rather than theory and empiricism (Sharrock and Anderson, 1986).

Radical interpretive sociology's assumptions for social inquiry represent a step toward overcoming Dourish (2006), Button and Dourish (1996), and Dourish and Button's (1998) request for ethnomethodology to contribute to the process of creation. By revealing the deep, moral, authoritative, and community structure underlying empirical sociology, the radical interpretive perspective enables a step toward this "people segment" creation, *because once the empirical ethnomethodological research has started, creation and commitment may already be revealed.*

Radical interpretive sociology: a perspective for critically examining our relationship with technology

The advent of big data and all of its possible workplace applications are carried out within a technological culture. Invoking a radical interpretive sociological perspective gives us the methodological and theoretical tools to examine the hold that this culture has on talk. There is some irony here, as this escapes the gaze of my ethnomethodological focus on uncovering practical reasoning, and the "methods" that make people segment technology and analytical efforts work.

Following the theory and method introduced in the work of Blum and McHugh (1971; 1978) and Bonner (2013), Grant (1969), and Arendt (1958), I critique modernity, its methods, and the grip that our technology culture has on our discourse. These contributions afford us a wider frame of reference for considering practical reasoning or "phronesis."

Blum and McHugh help us reflexively ground this workplace phenomenon to reveal the auspices and commitments on which the question rests. Their objective is to reveal the deep structure that makes accounts in empirical sociology intelligible, and in the process they reflexively reveal the auspices (commitments and communities) for social inquiry, one framework for social inquiry that can be used by everyone. For Blum and McHugh (1978), the work of ethnomethodology is simply a reflection of what makes it intelligible. Moving from ethnomethodology, this type of social inquiry considers all analysis "as a constitutive setting" (Pollner, 1991: p.372) and "what escapes the gaze of the inquiry preoccupied with the world are the ontological

practices that create the rim (a life-world) and thereby shape the arena with which such spectacles and their observers occur" (Pollner, 1991: p.376). I ask, what are the ontological practices that make this ethnomethodology of people segmentation practices intelligible?

Looking to Ellul, Grant (1969) sees that technology has taken on a deterministic character and we have lost our ability to influence its direction. For Grant (1969), we are in a tight circle of technocratic rationality and efficiency and have lost our ability to truly act outside of this tight circle. Arendt's (1958) critique of modernity, in conjunction with phenomenological sociology, helps us to consider the research problem from a more radically interpretive sociology, and to consider this "work" in light of our relationship with technology. Arendt (1958) argues that technology plays a central role in modernity, and that science holds a privileged position in this era. The critique also contributes to the radical interpretive position that sees phenomenological sociology (Berger et al., 1974) and ethnomethodology as legitimizing "a political and ethical position *without offering any political or ethical justification*" (Bonner, 1997: p.172) and "[l]ike all theory, [implicitly] turns attention to a principle recommended for acceptance" (p.172).

The radical interpretive perspective, or a more reflexive ethnomethodology, provides a path to fill the creative design void Dourish (2006), Button and Dourish (1996), and Dourish and Button (1998) describe. This is a perspective in which inquirers "show a taking of responsibility for their own practice of inquiry, a responsibility which involves, at some point, raising the issue of point or purpose" (Bonner, 2001: p. 276). If we subscribe to this approach, descriptive accounts in ethnomethodology are actually the revelation of commitments of action (and also what is considered inaction) in our story that provide a reflexive beginning to the creative process. The next challenge is to fully navigate the transition from an endogenous ethnomethodology employed by technomethodology, to a referential one that takes advantage of a similar opportunity presented by two very different domains within the design world. I do this by examining the construction of people segments in the workplace, and critically reconsider the workplace's relationship with technology in the process.

Literature review

As outlined, the people segments I have described are features of a digital workplace, and treated with technical validity by workers in that workplace. The workers assume the characteristics, behavior, and intent of the people who make up those segments. Thus, workers in this digital workspace never examine individual cases to validate what "type" of person they are for the purposes of delivering them a message. They do not speak directly with people for whom products are designed, or those to whom their messages are directed, because this is not a practical or economic possibility given the sheer size of segments.

I put forth an ethnomethodological investigation that examines individual and collaborative cases where workers are responsible for categorizing and maintaining groups of people in an accountable structure, and in turn I provide a description of those practices using the same commonsense methods that those workers use. I ask, *how are these segments accountably constructed and deployed as a feature of the digital workplace?*

The literature dealing with design and marketing people segments treats segment group associations as a technical problem to improve: segmentation approaches are refined, becoming more accurate, and those techniques and models provided by the social scientist are meant to reflect some perceived reality. I do not take remedial measures for improving the latter. I also delineate between the theory work of people segmentation and the practice of building people segments. Adhering to an ethnomethodological indifference, *I suggest that you do not enter the literature to find a people segment. I do not reject the theory that similar people will do similar things, yet the focus of this research program is different.* In the spirit of this delineation, I provide a brief overview of this theory-oriented literature as it pertains to people segmentation. I follow the work of Sharrock and Anderson (1994) in the ethnomethodological CSCW/HCI tradition that took a similar approach to examining a design setting over two decades ago.

Past literature is comprised of the quest for creating and refining the knowledge by discovery-based theory of grouping similar people for economic, marketing, and design means, whether grouping by price sensitivity, socioeconomic indicators, psychological profiles, or interactional/user experience needs. A review of contributions to theory asserting that people with similar characteristics engage in similar behavior helps formulate the member's problem, and highlights the types of things that a business and its members take for granted as true in this research setting, and what they wish to accomplish technically in practice.

Market segmentation and persona development

Literature in the area of economics, and subsequently consumer behavior, provides much of this knowledge by discovery theory. The focus includes improving the theoretical and related methodological means for delivering the right message to the right type of person, and developing the right products for the right markets. The maturity of the market segmentation literature is a testament to the amount of attention paid to developing methods for identifying and serving segments with messages and products. Preliminary efforts originating from economic pricing theory and the theory of perfect competition involve subdividing a market using significant data sources. Segmentation work concerns finding segments of the population that could be served with different prices for identical products (Chamberlain, 1933; Robinson, 1938; Stigler, 1942). From here market segmentation becomes a more defined concept (Smith, 1956) and becomes a heavily researched, specialized endeavor organized around the debate of which bases are most appropriate for creating the most successful segments (Martineau, 1958; Cardozo and Wind, 1974; Haley, 1968), and include creating bases according to psychographic profiles, needs, and lifestyle groups (e.g. "achievers" or "societally conscious" individuals) (Mitchell, 1983). Inferred psychographics provide the methodological foundation for many of the people segments used in technological workplaces today, specifically in delivering improved advertising and product designs. From here, the contributors develop a strong discourse pertaining to validity, technique, and multivariate analysis innovation and optimization (Green and Wind, 1975; Wind, 1978; Kahle, Beatty, and Homer, 1986; Burns and Harrison, 1979; Lesser and Hughes, 1986). A more recent concentration is in managing and optimizing the effectiveness of implementing consumer segments in the

face of the increased complexity and granularity of available data (Dibb and Simkin, 1997; Green and Krieger, 1991; Dibb, 2001; Canhoto, Clark, and Fennemore, 2013).

It should be clear that significant academic resources have been dedicated to finding and establishing that similar groups of people respond favorably to similar stimuli concerned with consumption. From the marketing scientist and the economist's standpoint, groups of individuals can be subdivided into different socioeconomic, behavioral, and psychographic segments that are theoretically expected to respond in a similar fashion to marketing efforts such as price, promotional creative (the content of a message), and channel of distribution (the place in which the marketing initiative emerges). There is continual refinement of this effort, and workplaces that sell marketing services ply their trade with this as a major theoretical assumption and way of doing business.

A parallel exercise of theoretical categorization of people for industrial means continues to develop in the HCI and CSCW literature. The popularization of design segmentation begins with Cooper's (1998) personas. For Cooper (1998), grouping individuals is relevant for designing the right technology for the right person, and thus for capturing more economic value. Cooper (1998) wishes to reorient the practice of designing computer interfaces and other software through detailed profile descriptions of what potential users want to accomplish. He proposes a reorientation in conjunction with outside interaction design expertise to lead design efforts according to these personas, rather than relying on the engineers who traditionally lead design efforts. Cooper's (1998) influential work elicits a number of responses in the HCI and CSCW literature concerning objectivity and validity (Chapman and Milham, 2006; Chapman, Love, Milham, Elrif, and Alford, 2008); cognitive psychology implications (Pruitt and Grudin, 2003); and the proposal and operationalization of Cooper's (1998) original work (Long, 2009; Dotan, Maiden, Licthner, and Germanovitch, 2009; Nehru and Buruga, 2012; Laporte, Slegers, and De Grooff, 2012; Tu, He, and Zhang, 2012; Sinha, 2003; Castro and Singh, 2004; Lopez-Jaquero, Fernandez-Caballero, Montero, and Gonzalez, 2002; Triantafyllakos, Palaigeorgiou, and Tsoukalas, 2009; Faily and Flechais, 2012; Arnould and Wallendorff, 1994). Other contributions report postmodern macro-level changes to meta-narratives, meaning, norms, and values as

important considerations when developing people segments (Van Raaij, 1993; Firat and Venkash, 1993).

The common thread between both bodies of literature is the effort to establish preeminent social science theory and refine related techniques to capture maximum economic value through grouping individuals in a particular way. All of this is premised on the theory that similar people are interested in and respond to similar things, whether it be responses to prices of goods, responses to marketing messages, or responses to a type of user interface or user experience. This formulates the problem for workers who provide marketing services in a software and services setting, one that I suggest they orient to, and represents a reality that is not questioned in practice. My focus is not theoretical, but is the practical accomplishment of working with people segments.

The importance of the user as a scenic feature of the design space: Sharrock and Anderson (1994)

Without the use of commonsense investigatory practices for working with people segments, the object of the knowledge by discovery-based investigations (people segments) would be unavailable, because people segments as knowledge are established by the application of those everyday practices. Thus, instead of focusing on the theory of people segmentation in the manner of knowledge by discovery contributors, as if theory is a transcendental, epistemologically static entity, I focus on the commonsense practices and membership knowledge used to accomplish everyday work with segments. From an ethnomethodological point of view, I'd like to see how these commonsense methods and typificatory practices can lose their status as an unexamined "resource" and become a topic of analysis.

Previous literature leaves uninvestigated the resources for both making sense of people segments and for how collaborative order is accomplished in relation to those segments. My research describes the unexamined and largely ignored resources that workers draw upon to "do social science," namely, formulating segments and making sense of those segments to accomplish work. I am less interested in the

way that the social sciences would examine segments as a theoretical construct, and instead focus on the commonsense methods, or practical investigative techniques that both the workers and the sociologist (see Schutz) employ in order to formulate segment scenes, make sense of segments as knowledge, and achieve typical workplace order related to those segments.

Sharrock and Anderson (1994) is a good example of describing the typificatory practices used to reason about people ("users") in a design setting. It deserves extra attention because of its methodological and topical relevance. Sharrock and Anderson (1994) emphasize the taken-for-granted practices (typifications) employed about the user while examining the internal configuration of the design process at work. This is contrasted with the topological approaches employed previously by design researchers. Sharrock and Anderson (1994) implement an ethnomethodological approach, where the user is "introduced into design through the use of typificatory structures" (p.17).

I move beyond knowledge by discovery theoretical social science segmentation practices while examining and describing the practice of working with people segments. Sharrock and Anderson (1994) describe the previous concerns of design researchers, and their topological view of design organization:

it is much more common for studies of the design process to concern themselves with the "external configuration" of that process. That is, they seek to achieve a formal and abstract representation of the structure of design, and analyse the component activities making up the overall organization of the design task. Thus their methodological strategy is to examine the design process with the eyes of an "outside observer" (p.5).

My strategy draws similarities to Sharrock and Anderson (1994). I take an internal view of the people segment problem. However, instead of diverging from component activities that make up the structure of design, I depart from the component activities that make up the creation and successful use of a

segment. Thus, instead of the locally organized, negotiated order and the typificatory practices used to introduce the user into the design world, I look at the negotiated order and typificatory practices used to introduce the "user" into a people segment based-advertising engagement.

Sharrock and Anderson (1994) show that introducing users as scenic features of design problems is accomplished through two types of typificatory structures: users as social types, and users as course of action types. These typificatory structures can be introduced in the midst of the design process, enabling the intersubjectivity required to collectively accomplish design reasoning amongst the stakeholders in that project. They are commonly known by the parties involved in design, and deployed without issue in design decision-making. Although I am orienting to a different workplace problem—the problem of people segment categorization and integrating and maintaining those groups of people in an accountable structure to capture economic value—I will also be identifying and describing typificatory structures used to accomplish this workplace goal. Types of "users," or people comprising people segments, are typificatory resources that workers orient to in order to collectively accomplish their workplace goals.

Sharrock and Anderson (1994) is an important resource that examines the problems of users or segments from a unique, ethnomethodologically indifferent, perspective. Just as Sharrock and Anderson (1994) provide an internal view of a problem typically looked at topologically, I will examine and describe how people segment work is conducted and people segment goals are accomplished in practice, rather than generate or contest theory for creating better people segments.

I have clarified that I am primarily pursuing a descriptive ethnomethodological investigation of the question of *how people segments are reasonably constructed and deployed as a feature of the digital workplace.* Past literature in the area adheres to a knowledge by discovery orientation, where people segments are treated as a technical problem in which accuracy must be increased, rather than examining the practical reasoning undertaken by someone who actually does the work. I take a new approach, one that I believe contributes to a unique perspective for understanding people segment practices in the workplace. This work

44

also pushes the limits of ethnomethodological description by reflexively accounting for the conditions that make this work intelligible in the first place, and in the process reveals the commitments made in that constitutive process.

Method and field results summary

Data and methods

Embarking on a project that examines a high profile corporate workplace, and tackling a problem in an unconventional way, requires careful consideration of access and methods. I briefly describe:

1. Access: How I gained access to the workplace to collect data.
2. Analysis: How I analyze the data while adhering to an ethnomethodological perspective.
3. Ethnomethodology: My decision for selecting ethnomethodology (in addition to what I have described up until this point).
4. Data collection techniques: How I achieve vulgar competence (immersion) in talk-while-you-work exercises, interviews, meetings.

Note: each individual chapter includes details specific to that portion of the analysis.

Data collection and analysis

In addition to the ethics proposal submitted to and approved by the University of Waterloo, a number of practical considerations were critical to the process and are worth mentioning. These include access-related challenges and strategies: what Randall et al. (2007) call practical problems of ethnographic inquiries and data reduction, analysis, and management.

Access

Securing access to conduct an ethnography in a corporation is a sensitive endeavor, particularly when it involves a company that is followed closely by the news media. Thus, the management of a complex set of gatekeepers (from both academia and the company) was critical for this research. I briefly describe the challenges of managing these gatekeepers, and my strategy for success.

When describing access issues for ethnography in design, Randall et al. (2007) suggest: "Organisations are complex and this is often manifested in the sheer difficulty of finding someone who is able to take responsibility for a decision about access. There is absolutely no general solution to this kind of problem when it arises" (p.171). This could not be truer in my case. In addition to the University of Waterloo's ethics and committee approval processes that are essential for any dissertation, I submitted material for external publishing approval at Google, which is approved by Google research reviewers (typically an individual in the user experience design space with an academic and technical background). My manager was also required to approve the content.

While it took me some time to navigate this hierarchy, I developed a thorough understanding for the proper channels to satisfy the company, while producing ethically compliant and relevant research for my dissertation. After establishing the appropriate channels, I had to diligently maintain an open working relationship with the research committee. This included reasonable lead times for review, and constant dialogue about the nature of my research and analysis.

This was by far the biggest challenge for this research project. To ensure the longevity of these corporate approvals, I followed a sandwich thesis format that allowed me to put my papers into the public domain. I did so by securing approval for publication-ready versions of my papers through Google approvals (Chapters 1-3 went through external review, and Chapter 2 was published in Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems). Chapters 1-3 all received feedback that was incorporated into the chapters presented in this dissertation. Chapter 4 has not been submitted, but contains no new confidential data.

Data reduction and analysis

As part of this process of analysis I had to extract salient and notable material and practices from my field work (more nuanced points on this topic below). I habitually wrote memos, alongside hand-written coding of my field work. Memos drove much of the coding direction. I wrote these regularly to facilitate the build-up of the broader narratives about the people segment building setting. Memos were particularly important in my setting, given that I was deeply immersed in the environment and needed to regularly step back, reflect, and focus on the sociological phenomena in a disciplined manner (more on this immersion later).

I made the choice to do this manually, reinforced by previous experience and Luker's (2010) suggestion: "I feel farther away from the data than I do when I am coding on hard copy" (p.201). Through this manual process of coding, I was able to identify variation from the major themes that develop within my ethnographic field work. There are obvious drawbacks to manual coding, but I found the tradeoff in "richness" was too great.

A note on ethnomethodological generalization

Some interpretive sociologists may consider coding as some form of quantification, however, the process of simple coding afforded me a set of heuristics to undertake ethnomethodological generalization, which I describe in more detail here.

Randall et al. (2007) suggest that "concepts should be used as 'illuminating' devices and that the process of building concepts is linked to empirical enquiry in some complex ways" (p.7) and that there is a route to navigate sitting somewhere between "starting from nowhere" (p.7) and enquiry that is predicated on "highly organized concepts and theories in a highly organised and deterministic way" (p.7).

47

Ethnomethodological work in CSCW celebrates context, but the way that ethnomethodology interprets this context is to "assert and celebrate the uniqueness of every event." (p.6-7) This is important when considering the analytical tactics I employ.

The way ethnomethodology uses concepts as illuminating devices, its starting point, and its relationship between describing events, and their context are important to remember when considering tactical recommendations from other qualitative authorities on the topic (e.g. Lukers, 2010 and Miles and Huberman, 1994), whose approaches for memos and coding tactics call for moving from the particular to the general.

Why ethnomethodology?

I chose an ethnomethodological analysis because of its insistence on eliminating the distinction between the natural attitude and the scientific attitude and its track record in contributing to design work involving new collaborative technologies.

The former is critical for the work here, given the lack of attention toward "practical reasoning" in previous literature concerning consumer analytics. Describing this practical reasoning and the policy of taking on "membership" versus getting in the heads of those who carry out the work has proven to be an effective strategy in analogous cases (Alac, 2011; Lynch, 1985; Greiffenhagen et al., 2011). For the latter, this method has also proven effective for appropriating local practices for systems design direction and product development (Randall et al., 2007).

Ethnomethodology explains how work takes place and workers achieve social activity in concert, rather than describing why the work takes place (Garfinkel, 1967). In sum, this approach complements previous literature where contributors practice technical segmentation themselves and is an effective method for uncovering the social character of creating, understanding, and working with people segments.

Data collection

In total I attended over 20 internal Google meetings over the course of 15 months (most were formal, scheduled internal business meetings). Meeting sizes ranged from 2-10 participants. This ethnographic work was complemented by 3.5 years of non-academic immersion in the workplace. The ethnographic work involved 52 participants over the course of one year. The setting included a mix of engineers, client-facing sales staff, analysts, and marketing personnel.

Typical meeting times ranged from 30 minutes to one hour and covered a multitude of topics. This ethnographic approach involved observation, interviews, and "talk-while-you-work" exercises. Successfully executing data collection using these tactics required vulgar competence, which came in the form of workplace immersion through employment. My data included transcripts of conversations and field notes from the meetings I attended, the talk-while-you-work exercises, and interviews.

Vulgar competence and employee immersion

Garfinkel routinely encouraged his students to train themselves in the professions they wished to study, and become fully embedded in their worlds. Ethnomethodology's concern with unique adequacy requires that I become a "member" of the community and workplace setting of Google advertising. This allowed me (the ethnomethodologist) to describe how ordinary workers orient themselves to work with big data and Google advertising, rather than describing the situation according to knowledge by discovery sociological theories and concepts.

I was hired by Google in October 2011, and worked at a regional sales office that was growing rapidly. At the time of data collection, I had worked as a client manager, and in a number of other roles working with both development teams, analysts, and other functions supporting sales in the work at the center of this ethnomethodological analysis. My specific domain expertise in these roles included:

1. Helping advertisers understand the effectiveness of video advertising in relation to television and other forms of traditional media.
2. Helping advertisers and sales teams develop marketing plans around new "audience" technology.
3. Consumer technology advertising clients.

My deep immersion in the workplace created two challenges: 1. the tendency to focus on the goals of the work rather than ethnomethodological description, and 2. confusion amongst co-workers regarding my role in the meetings. For the former, significant effort was required to bring me closer to the ethnomethodological literature (aided in part by the coding and memo writing process). For the latter, a lengthy explanation was required to help meeting attendees understand my approach, and clarify that I was not a participant in the meeting in the same way I was for Google employment work. Both of these challenges were remedied quite easily. I am describing them to give the reader an appreciation for my place in the Google setting.

Talk-while-you-work exercises

The talk-while-you-work exercises involved sitting at an analyst's work-station and having them describe their actions. Analysts sit in an open concept setting with their client sales team. Their workstations include a desktop computer or laptop and are connected to multiple monitors. Here analysts access several systems for their analyses, including statistical packages, internal Google analytical tools, and survey platforms (examples and descriptions are contained in the chapters and the appendix).

These exercises occurred over the duration of the 15 months with five analysts for a total of 20 short sessions lasting 5 to 15 minutes depending on the analysis. Analysts were primarily probed on why they were completing their tasks, and how they transitioned from "clues" or anecdotes to objective, quantitative sources of data (e.g. an insight from a website inspiring the analyst to go deep into a keyword database).

I had to be considerate and mindful of the work the analysts were completing while conducting these exercises. Much of what they do requires deep concentration. Previous personal experience doing this type of work, and familiarity with the systems, allowed me to appropriately time and prioritize any probing questions.

Meetings

I attended 20 internal Google meetings totaling approximately 17 hours over 15 months involving 52 participants. Occasionally, meetings were followed up with interviews, and a review of advertising proposals or analytical outputs (charts, spreadsheets, powerpoint/Google Docs summaries, survey results, etc.). Field notes and transcriptions were stored in a Google Doc (in Google Drive) on site. Audio and video recording was not allowed.

Given that I had worked with many of the individuals involved in the meetings in the past, access was quite easy and teams were very willing to include me in their conversations. In fact, feedback from my corporate expertise was routinely invited, and I was treated as a member of the team.

Google offices follow an "open concept" layout, but contain several rooms that may be reserved using an internal Google calendaring system. Rooms were required when large groups needed to interact and project meeting content. These rooms were partially for privacy, and partially to reduce noise for teams working outside the room. Rooms were outfitted with video conference units that allowed us to meet with teams remotely from headquarters in Mountain View, or other offices in Canada, the United States, Asia, and Europe. Most meetings involved discussion focused on content projected on the screen in the meeting room.

Most meetings involved a range of employees from Google, including technical advertising product specialists, brand campaign specialists, and advertising client management personnel. My relationship with members in the office allowed me to examine colleague's calendars to find appropriate meetings to attend. Calendar entries display meeting participants and topics, unless they are marked private.

I routinely asked key contacts about upcoming group analyses and preparations for client meetings and then "booked" myself in their calendars. Having these relationships was critical for making these meetings work.

Interviews

Interviews were both ad hoc "drive-bys" (my rapport in the office allowed me to drop by an individual's desk and ask when my colleagues had "down time" at work) and scheduled as follow-ups from meetings where interesting topics or insights emerged.

Ad hoc interviews were typically used for clarification and in some cases to secure additional materials referenced in the meeting. The ad hoc nature of these interviews, and the open concept of the Google offices, meant that other members would routinely join in on my interview conversations and add additional, unexpected color.

Chapter introduction

Next, I embark on a four-part analysis of the role that practical reasoning plays as Google staff work with big data. Specifically, the role that practical reasoning plays as workers organize themselves locally to categorize and apply data-based groups.

To support my claims, I have divided my argument into four main sections, each one given its own chapter. Chapter 1 reviews how digital advertising workers combine big data about groups of people and their culture with other resources to build to a finished technical product. Chapter 2 outlines how these same workers rely on interpretive methods during the conceptual development of big data people segments.

Chapter 3 demonstrates how analysts rely on interpretive methods and background expectancies during the process of accessing, extracting, and analyzing big data about groups of people and their culture. These methods can help professionals achieve a richer understanding of consumer culture, and consequently, can help them make better big data application decisions throughout the design cycle. Chapter 4 takes a radical interpretive case study format and demonstrates how treating digital advertising worker dialogue as discourse reveals important methods for designers, for workers and for social inquirers. In this final Chapter, I show how a very particular example of a stretch of talk about a piece of technology can be examined as a cultural expression of the desire to expand human powers, and I show how the abstract idea of the desire to expand human powers can be critically addressed as a possibility and actualization in its own right. The analysis in Chapter 4 reveals the seen-but-unnoticed assumption embedded in the culture concerning the unquestioned commitment to expanding technology, which, it can be argued, has undermined our capacity to talk about purpose or point; instead, the talk takes for granted the assumption that there is only one purpose: expanding our human powers. The principle of expanding our human powers through technology does not just have to be assumed; it can and should be critically engaged. This is accomplished by drawing on radical interpretive approaches to modernity, including Grant (1969), and Arendt (1958).

Chapter 1: Doing digital advertising campaign conceptualization

Abstract

The development of digital advertising capabilities has drawn attention toward the benefits of advertising automation and digital consumer analytics, including the appropriate skills to support those capabilities. By focusing on constraint and provocation in otherwise innocuous requests from advertisers, I uncover collaborative practices undertaken by digital advertising workers when conceptualizing digital branding campaigns. The findings highlight some of the interpretive methods these workers use to marshal a variety of technical and non-technical resources to develop successful campaign plans from these requests. Outcomes can be used to improve the technology used to plan and launch digital advertising campaigns by helping teams better consider the user and advertiser, and enable better communication of campaign differentiation.

Introduction

Industry discussions regarding successful brand marketing initiatives are increasingly focused on the advantages afforded by digital technology and analytics. This includes skills and job functions best suited to take advantage of changes in the space. A popular digital advertising blog highlights this technical focus: "we use thousands of computers around the world crunching nearly 40 billion opportunities a day to serve an ad to someone online, whether that's in traditional Web banners, mobile apps, video prerolls or social ads. The goal of the machine is to understand potentially every advertising opportunity" (Kantrowitz, 2015). This discourse also includes commentary on how brand advertisers have embraced automated advertising purchasing and delivery technology. Traditionally, brand advertisers would routinely purchase ad placements according to television show timeslots, pages in a particular magazine, or spots on billboards in a particular locale, and fill them with analog creative. This practice contrasts with purchasing ads automatically through an auction system according to digital consumer profiles comprised of a variety of web usage signals and algorithms, followed by presenting ads in interactive formats to those profiles (a practice called programmatic advertising using digital consumer profiles). Many commentators have confirmed the

prevalence of these new digital advertising habits: "Clients have already begun asking how they can spend more brand money through programmatic … The IAB predicts programmatic will account for 46% of display this year, including video and mobile, up from 28% in 2013" (Jakab, 2014). Recently, some industry participants have suggested practices of advertising once considered exclusive to "human touch" are more effective as technical, quantitative, automated exercises. A recent article titled "Programmatic Goes Beyond Display Ads, Opening Up New Creative Possibilities: Home Page Takeovers, Pushdowns Will Soon Be Automated" (Kantrowitz, 2015) insinuates automated advertising practices are evolving from basic "scalable" formats such as banner "display ads" to bespoke formats normally reserved for purpose-built creative messaging executions.

Technology aside, advertising providers have long grappled with the problem of creating the most effective advertising campaigns for the right types of people while taking advantage of the human and technical resources at their disposal. Marketers have openly discussed the division of labor and skills required to most effectively embrace the technology available for brand advertising: "Hegarty complained of a 'creative deficit' in marketing caused by an over-reliance on new technology"(Barnett, 2013), while others have taken a more technical, data-oriented stance: "We start with the opportunity, which is led by the data … if there is an opportunity there, we look at how big it is and how much creative we need to put into play" (Barnett, 2013).

I argue this technical focus risks glossing the everyday, interpretive work that advertisers undertake to accomplish an effective brand advertising campaign, work that connects the quantifiable with the non-quantifiable, and that connects technical with non-technical resources to realize a plausible advertising campaign. I support this claim by examining the work an advertising provider undertakes to respond to a request from an advertiser with an effective plan. I highlight the assumed, mundane elements illuminated by provocations in these requests. I show that a number of matters are strictly local to advertising work, and that these workers have developed a common stock of knowledge. These local matters include methods

shared amongst a team of these workers for marshaling these resources and discursive ways of deploying them (Martin, O'Neill, and Randall, 2009).

Related work

Next, I will briefly touch on work in the following related areas: advertising effectiveness, advertising design, and advertising workplace research and design.

Advertising effectiveness literature examines the veracity of advertising tactics and can be traced to Chamberlain (1933) who established links between advertising and sales. Related work includes studying effectiveness caused by media amount, messaging, and outcomes beyond sales (e.g. psychological and cognitive constructs) (Bergkvist, 2000). Developments in digital advertising have resulted in new areas of investigation, including the impact of new formats/media, interface, and distribution design. Lastly, behavioral and other digitally enabled segment targeting work (e.g. Dong, Manchanda, and Chintagunta, 2006), have added a new digital focus to the body of design, economics, and marketing literature that dealt with finding, evaluating, and constructing optimal groups of people for business performance. Only recently has there been an effort to examine the practical reasoning involved in creating and deploying these segments (Clarke, 2015).

The malleability of digital technology has blurred the line between advertising effectiveness and design work. Human Computer Interaction (HCI) has dealt with designing technology to facilitate advertising performance, and Computer-Supported Cooperative Work (CSCW) has examined workplace technologies to help advertising performance. Examples include designing for personalization (Kobsa, Knijnenburg, and Livshits, 1998), designing for interactivity (Bayles, 2002), and accounting for mobile contexts and content (Fischer, Yee, Bellotti, Good, Benford, and Greenlagh, 2010).

A few have examined media work, but have treated advertising as a side issue. This included

workflow mechanism recommendations for a radio station (Kensing, Simonsen, and Bodker, 1998) and

collaboration in audio-visual production (Moeran, 2006). Ethnographies focused exclusively on advertising

work practices are rare (Morais, 2007) and include an examination of a large ad agency (Moeran, 2006),

agency-client meetings (Morais, 2007), and segment design practices (Clarke, 2015). Advertising efforts

dedicated to increasing the relevance and interest in a brand with end users (as opposed to simply increasing

online transactions) is routinely described as creative design work. Thus, Martin et al.'s (2009) work

regarding the discursive use of material and digital resources in a creative design setting is relevant here.

To my knowledge, there is a distinct absence of research into how digital brand advertising

campaigns are created in the workplace, and of how workers use practical reasoning and local knowledge to

actually undertake work that is increasingly portrayed as a solely data-driven, technological endeavor.

Setting

The purpose of my study was to observe the Advertising Client Services department at a Google

office that employs a range of sales staff and technical advertising product experts. Their work involves

conceptualizing branding campaigns for advertisers. The process starts when Google responds to a "Request

for Proposal" (RFP) from an advertising customer, which is a document that invites advertising providers like

Google to present plans for campaigns according to a set of specifications. These requirements include

business objectives and a variety of advertising campaign goals, including consumer segments (groups of

people an advertiser wants to influence). The campaign plan in the RFP response typically includes desired

storylines and supporting technical specifications. Campaign plan descriptions also include a range of

consumer profile targeting capabilities and video advertising formats. These "consumers" (referred to here

on in as "users" or "audiences" in the context of advertising recipients, and "consumers" when referring to the

purchase and use of a brand's products) should not be confused with advertising customers. Users are groups

of people exposed to advertisements on the web, and advertising customers are representatives of brands who purchase advertising in order to deliver ads to users (referred to as "advertisers").

Client Managers oversee advertiser accounts. They define objectives with advertisers and help conceptualize, launch, and optimize campaigns.

Brand advertising campaign specialists (Brand Leads) and technical advertising product specialists (Product Leads) are shared resources available to Client Managers. The former helps client teams, and ultimately advertisers, conceptualize advertising campaigns with a brand development goal (versus an online sales goal) and draw on brand marketing expertise and knowledge of branding-focused digital products (YouTube Video Advertisements in this case). Technical advertising product specialists may include engineers with highly technical backgrounds and, typically, past experience working with advertisers. These Product Leads are responsible for a technical advertising product area and act as a bridge between Engineering and Sales.

All are heavily trained in digital marketing technologies—for conceptualization, implementation, and optimization. The Google team's technical working knowledge consists of two major areas: consumer people segment or "audience" products such as affinity audiences and remarketing, and YouTube advertising formats. Affinity audiences are digital consumer profiles that consist of a set of web users who demonstrate a qualified interest in a particular topic (such as a number of visits or time spent on a category of sites). Examples of affinity audiences include Savvy Parents and Green Living Enthusiasts. Remarketing helps advertisers reach people who previously visited sections of their website. These remarketing consumer profiles allow advertisers to deliver tailored advertisements according to past interactions with their digital properties. Remarketing is referred to as storyboarding when used to present users with successive advertisements based on past exposure (the next part of the "story"). YouTube advertising formats appear on YouTube.com and are used in conjunction with consumer profiles for different advertising tactics. Formats include desktop computer or mobile ads, skippable or non-skippable video ads, and banners appearing beside

videos. Successful brand campaigns are created in the *Google Adwords* online service. Adwords allows advertisers, or Google teams on their behalf, to select groups of users for ad exposure by configuring parameters in the interface, including when to deliver ads, how much to deliver, which digital properties to deliver them to (e.g. Google.com/YouTube.com), and which formats to use (banner ads, video ads, mobile application ads, etc.).

After receipt of an RFP, typical Google activities include: a) an internal Google meeting to conceive a campaign plan; b) preparing documents (routinely a slide presentation) for evaluation by the advertiser and sending them to the advertiser for approval; c) implementing the campaign.

The method

This ethnomethodologically informed ethnographic account was produced to explicate the practical ways that employees combine their technical and non-technical practical knowledge to build a brand campaign. This method is well suited for complex environments where multiple technologies are deployed and utilized at work, and in this case, how new advertising technologies are used in brand advertising. I adhere to the tradition of work in CSCW that treats knowledge as contained in practices that are tacit or local (Randall, Harper, and Rouncefield, 2007). Thus, I draw attention to "expertise" sharing (Ackermann, Pipek, and Wulf, 2003) practices in advertising, and suggest ways to better support an area overlooked in the advertising technology space, including the role of local knowledge in this work.

I report on these work practices to use as novel design direction. I attended 20 internal Google meetings totaling approximately 17 hours over 15 months involving 52 participants. Occasionally, meetings were followed up with interviews, and a review of RFP materials. Most meetings involved a range of employees from Google, including technical advertising product specialists, brand campaign specialists, and advertising client management personnel responding to RFPs, which resulted in detailed blueprints for YouTube video campaigns. These RFPs are received a) directly from the advertiser, b) via an intermediary ad

agency on behalf of the advertiser, or c) a combination of both. I transcribed the meetings on site, and reviewed the submission materials during analysis.

RFPs as provocations

I focus on two cases involving RFPs, and treat them as provocations naturally occurring within a day's advertising work..Crabtree (2004a) employed a similar perspective when releasing unseen technology into the wild to call forth users' "ad hoc practices devised on the fly to make the technology work 'here and now'"(p.60). I employ elements of this approach by examining technically-oriented friction occurring naturally when RFPs are submitted, and the socially contingent formulation of "good" campaigns by workers.

Creating digital advertising involves a kind of technical design work. RFPs and their "formal" responses are advertising artifacts, representing the beginning, or inspiration, for this work. I show how initial RFP immersion by the responding team acts as a naturally occurring provocation in this design process, particularly in how it calls forth technical working knowledge and other types of local knowledge to satisfy advertising tasks. The process of responding to an RFP is iterative prototyping work that involves marshaling a collection of diverse resources. Teams do not perform this prototype work without bringing their particular, localized expertise to bear. I suggest we treat the status of two critical stakeholders, advertisers and users (Martin, Rooksby, and Rouncefield, 2007,) as reflexive. Thus, this work involves concurrent revelation and construction of needs and digital advertising possibilities (Suchman, Trigg, and Blomberg, 2002) rather than objective, positivist discoveries.

I build on ethnomethodological examinations of complex workplaces that have contributed novel designs within CSCW (Randall, Harper, and Rouncefield, 2007). Following Dourish (2006), I see digital marketing campaigns not as constructions of compartmentalized technical practices, but as "local adaptations and appropriations in particular social and cultural contexts." Thus, I question the idea of brand campaigns as constitutive of the nexus of technology and the practical accomplishment of the working world. Instead I

show how types of local knowledge or "expertise" is "built up" through talk to construct campaigns. I also show how it is artfully combined with drawing on "common sense," through typifications or types. The latter enables a coordination of activity through mutual understanding, and involves collaborators selecting common objects and know-how to realize a shared perspective (Schutz, 1972). We must support these critical resources and requisite interpretive practices, including how they are negotiated and interactionally contingent. As designing a brand campaign becomes less "analog," and more like designing a piece of interactive, "usable" technology, it's natural to borrow from more established areas of design.

Artful management of constraint

In the first RFP case, an advertiser outlined objectives that did not perfectly match the available technology. This friction between the advertiser's goals and the user's experience was critical in realizing the advertising object and highlighting interpretive campaign practices. That is, audience constraints in RFPs introduce unanticipated possibilities for campaign creation. Previous work on innovation, creativity, and practical workplace methods emphasizes the notion of constraint (Crabtree, 2004a). The provocations in digital RFPs can be thought of as both a constraint and a resource, utilizable by practices local to digital advertising work. Audiences are an essential part of advertising, yet matching the multitude of technical options in software platforms like Google Adwords to nuanced advertiser requests can be challenging, particularly when they appear to hold a precarious relationship with an advertiser's business objectives. User combinations of age and gender, as well as layering on web behavior filters, are responsible for some of these challenges. We examined Google's reaction to an RFP that wanted to target a younger audience that the advertiser considered lucrative for its business, but that did not appear to be the audience the advertiser needed to accomplish its core objective: bringing families together. Despite this contradiction, the Google team arrived at a solution in an artful, context-dependent manner while making use of local knowledge and ad hoc considerations. The RFP asked that advertisements appear before recently uploaded holiday videos containing "how to" themes, that they deliver a message portraying the advertiser brand as thoughtful, and that they target younger users (aged 18-34). The advertiser changed this audience request several times.

61

The Google team drew on several resources, including working technical knowledge of Google products that requires some explanation here. YouTube TrueView is a video advertising format that plays before a YouTube video a user intends to watch, and is skippable after five seconds. The advertiser only pays for "engaged views" (or "engagers"). These views occur when the YouTube user chooses to watch the advertisement, rather than pressing the "skip ad" button. This YouTube view contrasts with an "impression," which occurs when an advertisement is technically displayed in an environment viewable by a user. The group referred to Google+ (G+), which is a service that allows users to share digital content with select "circles" of their social network. When discussing audiences and the technical means to target them, the Google team interchangeably referred to the affinity audiences introduced earlier as "affinity targeting" and "affinity segments." When looking for "trends" or "insights," the team commonly relied upon a public tool called Google Trends, which allows its users to explore categories of aggregate search behaviors on Google properties (in this case on YouTube specifically). The team used other public tools, Google Adwords and YouTube Analytics, to understand characteristics (web interests, age, gender, etc.) about users that have engaged with advertisements and videos the advertiser had uploaded on to their YouTube Channel. A YouTube Channel is a place for an advertiser brand or independent content creator to house all of their YouTube content for users to consume.

Product Lead: "*So we're going to have a call to action to do the G+ application and use the engagement to sustain it out to the call to action. Remarketing, tag the site where they are going. We'll figure out how often they engaged, and assign a value to it. We are going to run this with affinity segments but we don't need to tell them that.*"

Client Manager: "*No, he won't care anyways*" [*referring to advertiser].*

Product Lead: "*He's going to understand impressions more so than engaged views, and TrueView etc.*"

Client Manager: *"What I find is you just tell them we are doing an engagement, don't need to add the complexity of we're using the Affinity Segments."*

Product Lead: "*So for TrueView targeting in one sense they get very targeted but I don't know if we can even do it, they want to target new videos that are holiday-related, run against the content. The messaging is that [the brand] cares, and we're connecting people during the holidays.*"

Client Manager: "*And 'how to,' how do you make a turkey, how do you put up a Christmas tree … these types of how to's related to the holiday season. This is two levels of targeting.*"

Product Lead: "*We need to look for trends and insights from YouTube to help answer the 'target people who uploaded videos' question.*"

Client Manager: "*They moved around quite a bit for targets, they want to target 18-34, not sure why they want to if it's about families connecting, but this whole video content, they specifically asked for it, and we do this by making a connection back to the holiday targets.*"

The provocation in the RFP (friction between user and advertiser goals) is highlighted by the final utterance from the Client Manager. The situational reasoning employed by this team cannot be characterized through generalizable representational theorizing: it was found *in situ* through their everyday work practices. They methodically and unproblematically employed common sense typifications, working technical knowledge of YouTube technology, and local advertising workplace knowledge to find a solution. YouTube audience software products technically equip the advertisers with priority audiences. Software options are available to Google and advertisers in the Google Adwords interface to implement, monitor, and adjust these audiences, thus, each stakeholder can control who receives ads from YouTube. Finding a reasonable solution for the advertiser requires collaborative audience and business goal work. The audience work was comprised of the provisional conversational articulation of advertising solution strategies, within which the technical audiences are embedded. The conditional nature of the scenario was bound up in the matters of the advertiser and their audience-oriented business goal.

The team used practical reasoning to manage the gap between the advertiser's desire to target younger audiences through YouTube views and the technical impossibility of targeting uploaded videos with ads. The team did not treat incompatibility as an insurmountable problem, but as a case-specific resource to

inform the contingent formulation of those strategies. As the passage showed us, the working knowledge of audience technology and YouTube was used to inform decisions for what makes a good audience solution for connecting families that are currently customers of a brand, and therefore what strategies are appropriate to formulate. For example, the combination of a) curating YouTube holiday content to target using quantitative insight tools ("*We need to look for trends and insights from YouTube to help answer the 'target people who uploaded videos' question*"), b) selecting the most prominent Affinity Audience profiles of 18-34-year-old users that typically interact with their website by examining Remarketing audiences, and c) surfacing the ads to people from the Affinity Audiences of b) was a good advertising strategy in that it increased the likelihood of connecting with favorable 18-34-year-olds while also satisfying that younger segment's desire to connect with their families. The Google team also collectively invoked typifications of users and made the assumption that the particular types of people that like to watch holiday videos on YouTube are people that would like to connect with their families during the holidays. They also assumed the 18-34 audience of the people that have engaged with the brand's content in the past (their Remarketing list) are the types of people likely to respond favorably to advertisements running before the holiday videos. There was no technical product offered that stored profiles of millions of 18-34-year-olds explicitly asked if they would want to connect with their families during the holidays, nor their brand affinity. Despite an imperfect "fit," the team was able to unproblematically deliver a "good enough" solution. This work was not exclusive to engineers, nor delivered automatically with pre-existing products. Relevant knowledge was contingently combined to form a solution.

The friction or perceived incompatibility between the request and available technology sent the team on a locally dependent campaign creation exercise. They developed a novel solution by charting a path between advertiser and advertising product constraints, the latter of which are only intelligible to workers possessing requisite advertising workplace knowledge, and they artfully married this with audience typifications. If the advertiser had instead requested the pre-existing "Savvy Parents" Affinity Audience, or simply asked Google to remarket to visitors of their website, this contingent reasoning and reflexive invocation of local knowledge wouldn't have been as salient.

Crabtree (2004b) suggests innovation is best facilitated when we allow designers (advertising workers) to "be creative and build initial versions of potential futures as they and others see them" (p.202), or to install technology in real world settings and conduct ethnomethodological analyses of related practices to iterate. Step 1 of Crabtree's (2004b) model is: "designers build whatever they want with whomever they want, subject to their own constraints" (p.207). Martin et al. (2009) show how design context both inspires and constrains and is a natural, essential part of client-based design work, and that designers find the relevance of constraints in talk.

The provocation contained in the RFP happened much earlier in the design process and had more profound consequences on the outcome vis-à-vis Crabtree (2004a). The provocation transpired before consumer technology was "deployed" (released to the advertiser and then the user). Design ethnography can influence innovation through identifying more acute design provocations and enriching the creative practices and technology used to address them.

Provocative features

Advertisers routinely face the challenge of communicating novel products or technology to untouched users. This is not a formulaic exercise with a predetermined conclusion. In this next case, the goal was to sell an electric appliance to consumers who would normally purchase one with gasoline technology. Friction emerged between a novel consumer product feature (of the appliance the advertiser is marketing) and the Google team's conception of what would attract a typical person interested in that product category. I describe how the team navigated this tension to methodically and artfully build to a recommendation. The advertiser provided campaign specifications and requested a specific advertising technology (YouTube), yet the end solution was not simply an answer "out there" for discovery. The campaign is a *potter's object*. Advertisers work like potters, gradually working up from a ball of clay to a finished clay pot, without an objective, predetermined outcome out there waiting for realization, and "practical observability and practical objectivity is bound up with the interactional work-practices that make them visible and available to human

knowledge" (Crabtree, 2004a: p.60). The provocation illuminates collective resources drawn upon to reconcile tension and build to a solution within the constraints and possibilities of YouTube ad products (Crabtree, 2004a). Technology is necessary yet not sufficient for the RFP response (Suchman et al., 2002).

A team of three Brand Leads and a Client Manager address the RFP, which includes electric appliance product specifications (priority features to include), the demographic audience the advertiser wants to target, and the desired "amounts" of advertising and timeframe to launch. It also requested Google build a concept around a virtual product "challenge" of gas vs. electric appliances.

Brand Lead 1: *"For me, you gave up, before when you had batteries, you gave up gas, but when you gave up gas, you lost simplicity."*

Brand Lead 2: *"Power makes it different."*

Client Manager: *"Local Johnny is using the [appliance]."*

Brand Lead 1: *"Coming from the quintessential [nationality]."*

Client Manager: *"Maybe you're not an urban homeowner with [with a large property]."*

Brand Lead 2: *"Well, who else needs to [do this work]? The kid isn't the target demo."*

Brand Lead 3: *"Well, men want to [do this work]."*

Brand Lead 2: *"We could do the guy's wife, teenage daughter, 'oh I don't want to do it,' was easy just turned it on and done. I just want to see other people take the challenge, this is the core here."*

Brand Lead 1: *"The first [appliance] I bought [brand a], it broke. It was because it was overworked."*

Brand Lead 2: *"Well [doing this work in a research environment] doesn't mean anything."*

Client Manager: *"Another thing they called out, was [electric technology], but if you're looking at [gas technology]. So when a dude walks in, a thing like voltage actually stands out."*

Brand Lead 2: *"Just because if you're doing a shelf comparison, you're making decisions between two."*

Brand Lead 1: *"I don't know if I have a …"*

Brand Lead 2: *"You've got the additional video on YouTube challenge spot. It's either the same guy using different machinery, or others using others, do you want the morose daughter using this type of equipment or a little kid [doing the work]."*

Client Manager: *"We do some type of sequential option, boom-boom-boom."*

Brand Lead 2: *"What happens to Johnny? He gets 160 [currency] so does he invest in another [brand a?"*

Brand Lead 1: *"And he has the [companion appliance from the same brand]."*

Brand Lead 2: *"You see this 11-year-old kid building this empire. They could build it on his empire."*

Brand Lead 1: *"… utilizing TrueView and storyboarding, Johnny [is doing the work], and it's just Johnny [doing the work], we remarket to that person, we know that they've seen that one, and say Johnny is still going. Short little five-second tips. Then you see Johnny drinking lemonade."*

Brand Lead 2: *"And then Johnny comes up to lemonade stand with daughter and makes it rain."*

Client Manager: *"This is mind blowing."*

Here they interactionally and discursively accomplish storytelling work for particular groups of people. The team drew on technical, typificatory, and local workplace knowledge to match the right story with the audience. They did this to attract new appliance users and the effort was furnished by the appliance's voltage feature and its alternatives, and the targeting and messaging capabilities YouTube employs to deliver on the voltage utility "story." They created a plan to deliver messages in a specific order through storyboarding/remarketing. Neither voltage nor YouTube stood alone as objective technological objects; they were actioned through a variety of knowledge and practices local to the workplace. That is, advertising and product technology was not the exclusive domain of the engineer. Campaign concept development was not treated as separate from technical capability development undertaken "behind the curtain" by research and development.

To build to a solution, the group contingently drew on typifications, bodies of non-empirically verifiable resources, oriented to "scenic features," or professional technical working knowledge, and subtly presented their proposals to one another for evaluation through talk. Drawing on Sharrock and Anderson (1994) and Martin et al. (2007), I see that these resources were called upon through references to a broad swath of consumer types and habits with varying degrees of granularity. This includes local knowledge (specific to nationality), personal experience within that user type, idealized gender role typification, broad consumer user type knowledge, the advertiser as a scenic feature, and knowledge of the "target" as specifically requested by the client. These mundane, discursive orientations were contextually bound to the advertising scenario, and had a tangible impact on the outcome.

Poly-accountability of consumer types

The RFP response is analogous to a prototype that will "speak in different voices for different audiences" (Suchman et al., 2002: p.174) and thus a case of a "performative artefact that works to align multiple, discontinuous social worlds" (p.175). A set of ingredient-like requirements was communicated to Google, and the response was expected to take the same form. Product features, target audiences, message essentials, and a desired advertising environment (YouTube) are communicated separately and then intricately combined via artful practices. Or as Suchman et al. (2002) says, the proposal "does not work on its own, but as part of a dynamic assemblage of interests, fantasies and practical actions, out of which new socio-material arrangements arise" (p.175).

First, I show how the Google team discursively oscillates between a consumer telescope and microscope lens, introducing consumer types and related competencies to consider "voltage" technology and related campaign ideas. Next, I will show how the group marshals a different set of resources and practices to make the digital advertising campaign an objective RFP response. The contingency in both instances is the explicitly acknowledged and assumed position of each stakeholder on whether the campaign is "good

enough" for all practical purposes while building to a "Eureka" moment (when the team feels they have arrived at a desired outcome).

Communicating voltage utility was not considered an insurmountable challenge for the group, and was accomplished without directly consulting users. We needn't look further than a sampling of the use of "*you*" to see how the group routinely invokes advertising competencies. I treat these indexical expressions (Garfinkel, 1967) as contextually bound to the brand advertising workplace. These expressions seem innocuous if taken as absolute statements. Investigating this context reveals some of the assumed but critical practices the group uses to build to a plausible advertising solution, most notably the technical possibilities of YouTube, consumer products (appliance technology), and instantiations of the user. Here we see several layers of user practices invoked in conjunction with technical working knowledge of "voltage" and "YouTube." These perspectives are used to both validate the feature and develop a persona to depict in the campaign's messaging.

"For me, you gave up, before when you had batteries, you gave up gas, but when you gave up gas, you lost simplicity." (Broad reference to advertiser brand, and prospective users.)

"But if you're looking at [gas technology]. So when a dude walks in, a thing like voltage actually stands out." (What any typical consumer would do, transitions to gender specific reference.)

"You've got the additional video on YouTube challenge spot. It's either the same guy using different machinery, or others using others, do you want the morose daughter using this type of equipment or a little kid [doing the work]." (Transition back to Google team and advertiser reference.)

As Martin et al. (2007) demonstrated in software development work, this example shows the fluidity of user typifications and workers' ability and drive to negotiate. Personal experience (as hegemonic experience) was invoked as part of the deliberation on the utility of the voltage: "*the first [appliance] I bought [Brand a], it broke. It was because it was overworked.*" Invoking this experience with the appliance, along with

working knowledge of the electric feature and its possibilities was subtly self-affirmed as the valid experience with that feature: "*[doing this work in a research environment] doesn't mean anything*." These practices were critical to make "voltage" as an embedded technology "work" for the campaign. A response to a recommendation from a group member with a different nationality about the perception of voltage was met with *"Coming from the quintessential [nationality]*," typifying what any reasonable national would think about voltage as the basis for resistance. This last position was debated, when the Client Manager questioned whether the resistant Brand Lead 1 was in fact the target "*homeowner*" himself. This was all part of the negotiation, and the contingent unfolding of a good enough campaign, and transition to a discussion of the target demographic.

One passage stands out as particularly demonstrative of how the advertiser's knowledge ("*they*") converges with a generalized consumer "type" preference knowledge and practices ("*you're*"), despite the absence of the latter. This emerges while the group deliberated the form that consumer appliance technology would take in the messaging before transitioning to more technical YouTube delivery options:

Client Manager: *"Another thing they called out, was [electric technology], but if you're looking at [gas technology]. So when a dude walks in, a thing like voltage actually stands out."*

Brand Lead 2: *"Just because if you're doing a shelf comparison, you're making decisions between two."*

Work to determine the right story, for the right consumers (urban homeowners) while considering new product technology from the perspective of a variety of user profiles unfolds according to the confines and possibilities of YouTube and in light of advertiser and user/consumer typifications. In the advertising itself, the team devised a plan to sequentially demonstrate different consumer personas using the appliance in part through their technical working knowledge of "storyboarding" technology, and did so discursively. In other words, a novel product feature did not simply translate into an advertising solution without invoking these typifications, knowledge local to the workplace and advertiser, and the ability for the other team members to reciprocate and collectively reach a solution.

70

From the Eureka moment to objective RFP

An critical source of interpretive campaign work involves preparing communication materials for the plan and its eventual evaluation by advertisers. At the end of the second case, the Client Manager blurts out "*This is mind-blowing*," and is met by agreement, closure that the team has arrived at a plan. This statement is the equivalent of a laboratory "Eureka" moment in the course of producing a campaign. From here, the Google team must prepare communications for the advertiser who requested the advertising plan. As part of this work, they undergo a seen-but-unnoticed process of glossing the interactional details of how they arrived at the plan. Later I discuss how illuminating elements of this routinely unarticulated work could benefit Google, the advertiser, and the user.

In both cases we saw how assuming campaign creation is an automatable, "turn-key" procedure is problematic. Brand campaigns are "potter's" objects built up from RFP receipt to an object held up for evaluation by clients. The Google team made their way to their "Eureka" moment through time- and place-bound, concerted action (Garfinkel, Lynch, and Livingston, 1981). They did not simply progress through procedural and technical scoping steps of something done before. I describe how they collaboratively came to see their practice had produced a plausible plan for the advertiser. I also show how the group introduced and oriented to techniques of producing "virtual" production accounts as opposed to Garfinkel's "actual" production accounts (cf. Greiffenhagen, Mair, and Sharrock, 2011) of advertising. A virtual production account describes what literally occurred, with just enough detail that the person reviewing the account can understand what constitutes the phenomenon. Actual production accounts articulate the nitty-gritty details of how that virtual happening is accomplished. Here this would include the details of how the advertising recommendation acquires its characteristics.

Communications are crafted to ensure an adequate understanding of the commercial offering. The amount of advertising space required, the formats, audiences, and the messaging proposed, and the rationale

for these decisions are presented as the essential information, in summary form, to advertisers. Techniques for producing this virtual production account include quantitative research for validation, and glossing of situational, interactional detail.

At the team's "Eureka" moment, "*this is mind blowing*," the equivalent of its publishable, scientific representation was developed for sharing with the outside world (Lynch, 1985). This representation included a slide document response to the RFP comprised of a set of stock advertising images and line items describing the contents of the proposal. The particulars of the day's work that made this available as an objective solution were all but forgotten after that "discovery" moment.

The RFP's original call for a set of "ingredients" was responded to in a positivist light, as if a "correct" answer was "out there" to discover. When the response to the RFP is viewed as an independent virtual account, the program's local, socially accomplished qualities are marginalized, despite their criticality in building to a solution. I argue these are important to advertisers in working with their partners and suppliers.

Brand Lead 2: *"They have a brief, we read it through, then we get in a room and brainstorm around it, then the account team will write up a response, and then we'll review the [presentation] before it goes out, and help them with the story and the narrative. Sometimes we'll be in the meeting."*

Interviewer: *"Did they see the process you went through?"*

Brand Lead 2: *"No, we just say this is the solution basically."*

Client Manager: *"[The client] gave us a brief, we pulled ideas together and we co-presented to the [advertiser]. We said here is the solution, and then they take it back and do [time-based ad delivery time planning]. For any campaigns below [a certain size] we'll do an RFP response."*

An important consideration for producing virtual production accounts is the advertiser's evaluation of the technical specifications and expected performance outcomes of the campaign. Its ultimate execution is

not independent of the local, discursive, situated practices from which it was conceptualized. Prior to

evaluation by the advertising client, the campaign was an available, malleable, negotiable object. It was

intertwined with the context of the group's collective, situated practice and working knowledge of the

technology the advertising both represented (voltage) and brought to life (YouTube). YouTube campaigns are

not exclusive to engineers or ad technology, but are established in discourse. Within this discourse, we can

see how an ad campaign accomplishes its objective status because social order at work is constantly

developed and reconstructed. This work was glossed over when documents and presentations were passed

to the advertiser. The beginnings of campaign "solution" defense can be seen in both cases. Indicative of this

defense were the communication of audiences and the metrics used to evaluate the campaign's performance.

For the audiences, this included how the team described them, e.g. the glossing over of Affinity Audiences,

referring to them as "hand-raisers" (users expressing qualified interest in an advertiser's product or brand).

For the metrics, deciding to communicate "impressions" vs. "engaged views." The communication decisions

(gloss) were not intended to conceal, but were rather tailored to the advertiser's focus, aptitude, and goals.

Client Manager: *"Usually we show how [the typical consumer path] relates back to [typical product launch*

scenarios]. We don't really talk about how these things work. They just talk about objectives. Not too technical."

Interviewer: *"How did you guys actually pinpoint these people?"*

Client Manager: *"In that case, we would probably do two buckets of targeting—affinity targeting, targeting*

hand-raisers, we can't target exactly who they are. In order to do volume, we'd take psychographics and then

target hand-raisers. Then we'd re-target hand-raisers and put sales message in front of them."

The "actual" production accounts of developing an advertising campaign, and the related

interactional, practical methods are at odds with more accepted technically-oriented accounts of

understanding and evaluating advertising campaigns as a set of proverbial "ingredients." By contrast, these

"virtual" accounts may unfairly propagate an environment of choosing between commodities, where the

artfulness of the solution may not shine through. As part of the process of building to an objective response,

the Google team relied on ad hoc "research" instead of empirical research as validation. Research is a major

part of preparing campaigns for evaluation. Local knowledge is deemphasized and campaign decisions are validated "post hoc" by quantitative research.

Brand Lead 2: *"Depending on what I'm trying to solve far. Find some piece of data that gives validity to what I'm speaking to. I try and collect and curate data and insights as I go along. Sometimes we'll do a creative exercise, moments that matter. And then we will see if there is any data that backs it up."*

I don't suggest quantitative market research is superfluous to campaign work: the point is to illustrate how research was turned to as part of the gloss of everyday, practical reasoning invoked to accomplish "good" advertising campaigns. This example reinforces Husserl's observation of the scientific method's post hoc relationship with knowledge (Crabtree, Rouncefield, and Tolmie, 2012). Virtual account work happens after the campaign "discovery." Campaigns are presented as technical, worldly objects. RFPs are treated as a question to address with quantitative, technically describable answers, independent of their construction. Just as Garfinkel et al. (1981) showed how Cocke and Disney's scientific work to discover the optical pulsar progressed from a hazy recognition of a "something" to a worldly entity that eclipses and detaches itself from the local work leading up to that "something," the RFP response is made objective in similar ways.

Discussion

I show some of the ways digital advertising campaigns are constructed as a feature of an advertising workplace. Starting with the provocations embedded in RFPs I show how working technical knowledge of advertising technology and software, consumer segments, consumer products, and other knowledge local to the digital advertising setting are bound up and artfully employed to arrive at a campaign solution. These findings are additive, yet complementary to previous work on ad effectiveness and design, and provide a healthy skepticism to a singular focus on automation, and a potential path to avoid unfair evaluation of unique digital marketing campaigns as commodities.

These findings also direct us to a number of collaborative technical and organizational design avenues. A policy of rigid, full-scale automation, and trying to account for all combinations of business objectives and audience types would set advertisers up for an infinite session of design and data "whack-a-mole." Instead, we should use emerging assets to better facilitate a shared knowledge graph for campaign creation. We should design this in a way that complements the sensemaking capabilities of campaign workers who have varied proximity to users. Notably, the Google team did not have access to the intelligence built up about previous advertiser preferences and interactions, nor did they have access to ultra-granular knowledge about consumers (e.g. to understand if consuming holiday content increases the likelihood for feelings of connectedness with family members). In the RFP response work, advertiser contact was intermittent, which made immediate feedback practically impossible, and direct user contact was absent. This is an important but frequently overlooked opportunity for developing shared technology for improving advertising campaign conceptualization.

Considerable advances in collaborative software in digital marketing have focused on web services for implementing and managing campaigns (e.g. the popular Google Adwords software). Yet there is little collaborative software for the earlier formative stages of brand campaigns, where creative concepts in RFPs are developed into technical plans. This software void extends to RFP response communication use cases. Expanding the scope of Customer Relationship Management software to include stakeholder views of consumer audiences, as in Clarke (2015), and better integrating rich insights into audience decisions can help make both advertisers and consumers more actively present early on in the advertising process. These insights must be connected to the same audiences used when assessing inventory, implementation, delivery, and measurement. How we consider audiences should technically reflect the broader scope of audience decision-making by advertisers and providers alike. Further, despite countless stunning, jointly developed digital campaigns, incommensurate development focus is dedicated to assisting cooperative conceptualization. Similar to what Lynch (1985) experienced, we observed how processes and interactional knowledge are stripped away like artifacts on a laboratory sample. The glossing of interactional knowledge in the RFP response, and the momentum toward automation and uniformity of consumer segments and

advertising formats (the foundation for programmatic buying platforms) can result in an unintentionally disingenuous homogeneity in the end product. Thus, campaign plans may masquerade as commodities.

These findings suggest we reintroduce the user in a more intimate fashion. I question the dichotomy of relying on typifications on one side, and audience analytics on the other, and believe intervening with richer user contact could be beneficial. Combining video conferencing technology such as Google Hangouts with existing algorithms for selecting whom to reach (e.g. Google audience technology) would be useful for selectively and practically generating real-time user feedback, and would ultimately give everyone involved a better understanding of the people involved in the advertising goal.

RFP response practices and technology have remained relatively static as advertising has undergone a revolution. We may rethink how we communicate RFP responses by utilizing a broad suite of digital signals derived from proposed advertiser and user feedback technology in the conceptualization phase. Using these signals, we would better articulate the dynamism that goes into campaign conceptualization through selectively including elements of the actual production accounts, and communicating them through interactive digital presentations. The RFP response should embody the symphony of work that goes into it. Responses should be interactive and shaped dynamically by advertiser interest points. The "front end" of the advertising process should be equipped with the requisite amount of intelligence from advertiser and user signals to accomplish this prioritization and detail.

Button and Dourish (1996) addressed the challenge of moving from design criticism to design practice. Crabtree (2004a) explored the role of the designer-delivered friction of novel technology released in the wild and its role in helping articulate the social conditions on which new technologies rely. Similarly, this work shows that ethnomethodological principles can play an important role in the "prototyping" of digital campaigns.

Chapter 2: The work of Mad Men that makes the methods of Math Men work: practically occasioned segment design.

Abstract

This study concerns the practical methods used to design segmentation models for digital advertising. I illuminate some of the collaborative activities workers rely on to create these web analytics-based groupings. This work remains overlooked as the popularity of automation and statistical methods for segmenting customers continues to grow. I explain some of the ways the advertising customer is present as a background expectancy while workers make segment composition decisions. This approach is meant to complement established evaluative, technical, and statistical methods used to create segments and personas in design and marketing. This may inspire similar approaches to designing for specific groups of people while working with large data sets. Incorporating these customer-orienting practices in design and advertising processes could lead to novel approaches for both segment targeting and customer relationship management (CRM) software.

Introduction

"Until now the province of nerds, the automated buying and selling of online ads is hitting the advertising industry mainstream"(Hof, 2014) … "Forget Mad Men, advertising now belongs to the Math Men'" (Barter and DeChambeau, 2012). These excerpts reflect a new sentiment in the advertising industry, which is that stakeholders desire an efficient path from the conception of an advertising idea to reaching a target market with a campaign. This desire is increasingly satisfied by mathematics and technology. Contemporary advertising has welcomed technocrats from mathematics and engineering with open arms. Many in the

industry have substituted their faith in human sensory ability (interpretation and intuition) for algorithms, automation, and programmatic execution.

Digital advertisements are created, launched to segments of the population, and optimized for performance. This is achieved in part through selective computer algorithms that operate with speed and scale. This phenomenon, and its impact on advertising organizations, was recently described by advertising executive Jay Sears in an Adweek Magazine interview:

> It used to be that—and still, in many parts of the business, it is—that inventory was sold in gigantic blocks, and when you broke the block down, you'd find that part of it really worked for the situation you were in and part of it didn't. The magic of programmatic is that it's about de-averaging and it's about data. … The automation of the buying and selling of advertising is inevitable. You only need to look at history. Look at the stock market and the evolution of trading—look where it started. It started with over-the-counter stocks, and now every blue-chip name is automated (Thielman, 2013).

Specialists managing these efforts are increasingly prevalent in key areas of advertising: "Well, when you look at a holding company, you're talking about tens upon tens and maybe hundreds of thousands of people around the world, and if you listen to how some of the trading desk people talk, they're organizing businesses around this march to automation" (Thielman, 2013).

Advertising technology has enabled granular capabilities for crafting segments that are addressable and revisable. It has also provided opportunities for real-time performance feedback. These capabilities were traditionally the privilege of specialized professions such as actuaries and demographers. Professionally, these developments may be as significant as ubiquitous computing was for the workplace, when it became the catalyst for changing how we work with one another: "moving out of the control room" (Hughes, King, Rodden, and Anderson, 1994). Here, ubiquitous computing and connectivity are combined and result in a unique form of data science applicability for everyday work.

I argue this rise of advertising technology, which in many ways flies in the face of more intuitive practices, is not a zero sum game. Despite clear changes since the days of Mad Men, advertising workers and the clients they serve are not simply whisked away in a technocratic ocean of automation, left to passively consume recommendations and reports from the ad technology they invest in. The relationship between the corpus of advertising specialist workplace knowledge and their collaborative activities deserves close attention. I am interested in the local practices workers use to build up and deploy segments of users as a feature of a digital workplace while orienting to customer issues. I argue this must not be hidden by the gloss of automation and describe how the sociocultural constitution of segments progresses through technical workplace talk. I recommend accounting for interpretive, customer-orienting practices when designing segment targeting and CRM software.

Related work

The design literature (Chapman, Love, Milham, ElRif and Alford, 2008; Chapman and Milham, 2006); Cooper, 1999; Pruitt and Grudin, 2003) and economics literature and marketing literature (Chamberlain, 1933; Mitchell, 1983; Robinson, 1938; Smith, 1956; Stigler, 1946) has dealt extensively with finding, evaluating, and constructing optimal groups of people for business performance. Frequently the latter is accomplished tactically through advertising. Common descriptions of groupings include: audiences, personas, and market segments. Highly developed topics in the space include optimal attribute or base selection frameworks and techniques (pricing, psychological, demographic, lifestyle, likelihood to purchase, product usage and consumption), the objectivity and validity of a broad swath of segmentation techniques, and segment-driven meta-narratives on consumption (Firat and Venkatesh, 1993; van Raaij, 1993). However, no one has examined the practical reasoning involved in creating and deploying segments based on digital analytics for the purposes of advertising, or as in CSCW, "the work that make the methods work" (Greiffenhagen et al., 2011: p.104). Nor has anyone applied those methods to design better advertiser workplace technology and practices. Much of the previous literature treats segmenting the population as a technical problem, of selecting the optimal techniques and statistical methods for product, pricing, and

advertising success and the best way of placing users into categories. My approach seeks people working together in their everyday advertising environment to construct and deploy segments as features of an advertising workplace, and learning from this process to better design technology and organizations to support this work.

The study

The study describes how an advertising provider's workplace organizes itself to design, manage, and advertise to digital segments. I look at segments as a course of action and ask: what does someone really have to undertake to "do" segmentation successfully? I describe some seen but unnoticed ways diverse teams discuss and validate segments together. This includes how they organize their knowledge and "talk" about segments in a particular way, while systematically orienting to the customer as a scenic feature. In other words, customers are referred to, and work concerns them, not for their own sake, but for their importance to the work in progress (Lynch, 1997). This lens enables teams with diverse skillsets and perspectives to use segment talk as a method to achieve common ground. Revealing some of the ways this work is achieved cross-functionally provides useful design direction.

To understand how workers accomplish segmentation, we need to understand the local analytic practices they employ. In the midst of algorithms and automation I consider segmentation work "as a practically occasioned form of everyday activity" (Greiffenhagen et al., 2011: p.104) rather than work driven by abstract, predetermined facts and processes passively consumed by the customers and publishers creating the segments.

In short, I described some of the practical methods that typically go unnoticed when advertising specialists undertake technical segmentation work is undertaken, and how those methods are found in the mundane shared talk between specialists in the workplace. That is, the "off script" methods of doing this work. Specifically, I showed that what professionals collectively say about the composition of a segment,

while drawing on a corpus of specialized workplace knowledge, in turn contextualizes how they discursively orient to those segments.

Theory

I employ an ethnomethodologically informed ethnography to describe these practices. This method is effective for appropriating local practices for systems design direction and product development, and has been influential in HCI and CSCW (Randall et al., 2007).

Ethnomethodology turns to *how* work takes place and workers achieve social activity in concert, rather than describing *why* the work takes place (Garfinkel, 1967). This approach complements previous literature where contributors practice segmentation themselves.

The practice of constructing segments for digital advertising is as much a design issue as a research issue. Following Dourish (2006) and Randall et al. (2007), I produce a description of the workplace that informs design "by identifying the problems and concerns which a system has to accommodate if it is to effectively support work activities" (Randall et al., 2007: p.147). This approach pays particular attention to the challenge of how key players in the workplace collaboratively orient to a segmentation setting and to one another to produce successful advertising programs. It does not draw off of a social theory: rather, it helps describe the practical reasoning occurring between the workplace members *in situ*. Thus, I produce a description of local segmentation work and the resultant organizational and technical design direction driven by that action. Here, the work *is* the design, and ethnomethodology provides a description of that work.

Aligning with Dourish (2006), I do not assume that designers and engineers work in a domain as deterministic, autonomous bodies. This fluid advertising setting is an example of how design need not be a separate entity. Instead, I subscribe to the notion that segment designs are "local adaptations and

appropriations in particular social and cultural contexts" (Dourish, 2006: p.545). Thus, the direction for segment design is an outcome of the advertising setting under examination, not a constitutive nexus of advertising technology and ethnographic studies. I presume that this ethnomethodologically informed ethnography of doing segment work allows us to adapt to an organizational context and work practices that have been left unexamined.

Ethnomethodologically informed ethnography is well suited for complex work settings where the decision of who and what to study is confounded. This setting is complicated by workers' widespread reliance on technology. This includes ubicomp, connectivity, and most importantly digital analytics applications enabling employees with diverse technical aptitudes to do data science work.

Previous workplace studies literature has focused on adjacent themes with a similar methodological approach. This work includes: Sharrock and Anderson's (1994) description of the taken-for-granted, systematic ways users are discussed and used as a resource to create "design worlds" (p.8); Martin et al.'s (2009) description of the artful accomplishment of creativity in design; and Greiffenhagen et al.'s (2011) "methodography" of the working practices of statistical modeling within a group of social scientists.

The unique setting I describe draws on two elements of previous work: *First, examining social science work outside of the academic and institutional domain and the undocumented practices of developing statistical models to accomplish this work*: similar to Greiffenhagen et al. (2011), I describe a cross section of (pseudo) social scientists plying their trade with previously inaccessible types and amounts of analytics, now ubiquitous in their everyday working world (instead of being in the privileged domain of demographers, actuaries, or social scientists and their institutions). These workers are not officially referred to as social scientists, they possess different skills, and they have different responsibilities from social scientists.

Second, describing technical design work (segmentation) undertaken in light of both user and customer concerns: Martin et al. (2009) show how creative designers orient to the customer to accomplish their work and Sharrock and Anderson (1994) describe how designers invoke the user as a scenic feature. I demonstrate how technical design work reflexively occurs between both a subject and a party to design.

Method

The ethnographic observation for this study occurred during 20 internal Google meetings at a regional office. The study involved 52 participants over the course of 15 months. The setting included a mix of engineers, client-facing sales staff, analysts, and marketing personnel.

Typical meeting times ranged from 30 minutes to one hour. The topics of the meetings were either preparations for client meetings or brainstorming sessions for developing advertising programs. I transcribed conversations and held interviews for clarification purposes. Next, I conducted an ethnomethodological analysis.

Setting

I studied an organization within Google responsible for packaging and selling Internet advertising and related consulting services. The work I observed involved employees using various algorithms and related technology to deliver advertising to segments of users according to a diverse set of attributes. The work involved two functions: 1. analysis, construction, and optimization of segments and targeting, and 2. advertising client management.

In the first category, technical workers are located organizationally between client work and engineering work. Client Management personnel call upon them when they require deeper technical product

expertise for an advertiser project. Periodically, these Analysts have direct client contact, however, they most frequently work with Product Management and Client Management teams internally. They advise on selecting and refining attributes to deliver advertising to particular groups of people and in highly technical cases they help the Client Management team implement solutions. Much of this work involves "translating" advertiser requirements into technical capabilities, analytical models, and associated recommendations. The teams have several technologies at their disposal to reach groups of consumers with video, banner, application, and search advertisements. For example, if an advertiser asks to display their brand to loyalists who use their mobile device to purchase televisions, an Analyst could take those requirements and construct a plan to reach those users online by configuring the tools at their disposal. The Analyst would select from a myriad of technical targeting options (e.g. sports lovers), advertising inventory options, and format options (video advertisements in the mobile YouTube application). These were features enabled en masse by engineers, however, they require a significant amount of technical working knowledge to combine and execute. Thus, it is not uncommon for Analysts to hold engineering or advanced mathematics degrees. In many cases segmentation recommendations occur prior to an advertiser request, where the Analyst proactively constructs a model for consideration. These analytical models are prepared using various Google services and databases related to the advertiser's business:

1. *Google Adwords or DoubleClick for Advertisers:* online advertising services that allow advertisers to place and manage advertising according to a multitude of targeting options.

2. *Analytical tools including Google Analytics:* a web analytics and reporting service for an advertiser's digital properties.

3. *Google Trends:* a tool for analyzing trending search queries.

4. *Other bespoke analytical and data visualization services:* developed and accessed internally to help teams demonstrate data-driven opportunities for advertising partners.

When consumers visit and interact with digital properties, signals may be generated and interpreted. These allow Google to meaningfully categorize segments into "people segments." Specific interactions include

searching, browsing websites, watching videos, and interacting with social networks. People segments range from a group of preset "Affinity Audiences" based on lifestyle interests, to customized remarketing audience segments based on specific actions taken on an advertiser's website. However, more generic audiences can be customized through filtering by criteria including (but not limited to) location, device type, campaign performance, age and gender, topic of content consumed, and even time of day. All of this equips items 1 and 2 with a diverse set of digital segment capabilities and items 1-4 with opportunities to analyze them.

In the second work function, Advertising Client Management was responsible for overseeing the accounts of advertisers interested in working with Google on campaigns. Client account management work concerns helping one or more advertisers grow their business, which is tied to growth of advertising revenue for Google. These workers facilitate the purchase, creation, launch, and optimization of advertising and provide general reviews of the advertiser's business objectives in relation to that advertising. In all cases advertiser objectives include influencing a set of target segments to take a specific action. Thus, Client Managers, in conjunction with Analysts, strive to derive the highest value of analytics through theorizing what is represented within those analytics. In many cases Client Managers met weekly with their advertisers, including a quarterly review of advertising performance against client objectives. Given Client Management teams' high level of domain expertise and the general accessibility of the Google platform, in many cases the team acts as a virtually autonomous Google unit and spends most of their time working exclusively with external advertisers on their campaigns.

Beneplacitus segment construction practices

Workers systematically orient to advertisers while referring to, and acting upon, segment tasks. Customers are not referred to for their own sake, but for their applicability to the work at hand. In this case, applicability can be found in advertisers' receptivity to a segmentation recommendation. Decisions related to analytical segment recommendations are discursively determined separately from the technical steps required to create the model. I call these *beneplacitus segmentation construction practices.* Part of these

construction practices involves attending to client desires for segment authenticity. Workers turn to new

analytical options in light of this desire. These segmentation construction methods are not validated through

empirical analysis, or from polling clients. Objectivity for these model decisions is realized through these

discursive methods. These practical methods are not passed down as predetermined self-contained

mathematical and organizing principles, Google Analytics output, or Google Adwords training instructions.

Observing the locally dependent, practical reasoning between employees in this setting reveals the

socio-historical composition of a segmentation model. This occurs in a realm that often suggests analyst-

constructed models and the decisions behind them are an objective, singular source of self-contained truth.

In the following example, two Google Analysts and a Google Client Manager discuss a recently

constructed mobile device usage segmentation model based on the consumption of categories of site content.

It was built to better address smartphone behaviors with advertising. In this case, the Analyst was

responsible for developing mobile segmentation models from analytical tools and working with the Client

Management teams to prepare them for presentation to clients. Here Analysts, who weren't assigned to

specific clients, test the model by discussing "real world" client scenarios with a Client Manager. The Analysts

suspect this Client Manager's accounts would benefit from the model. They do not question or debate the

assumption that similar types of people will respond to similar types of advertising, however, "micro-

theories" are up for debate and revision. They are resolved through beneplacitus segmentation construction

practices.

Analyst 1: *"We can help with their mobile audiences. [So, I decided] to compare content consumed. So, someone*

who lands, what percentage viewed the main categories they have on their homepage? All of the major

categories will be put into pipes. I'd click through to the major categories. And basically did segments. For

example, give me all the visits that went to product [category a or b] to research those products. And if you look

at this, here is what you find for the weekends. [X] percent of every mobile visitor does a store locate, compared

to desktop and very highly correlated with the weekend. I don't know if it's worth it, but it really stood out for

me. They are stereotypical, and something we can use next year. But for someone that is very online-focused it could be hard."

Client Manager: *"There is a lot of interest. They say we understand mobile is important, but have no real understanding of what it does for us. I think your info is important to some."*

Analyst 1: *"Who are you talking to?"*

Client Manager: *"A lot of people. They have a good app that works quite well, once you have the application and you're signed in, I believe that helps conversion, they do as well. It's either a mobile site or their app for actual purchasing."*

Analyst 2: *"What is the main objection?"*

Client Manager: *"The multiplier."*

Analyst 2: *"What's the [Return on Advertising Spend]? [X]:1?"*

Client Manager: *"If this is what you're tracking so be it, we'll help you get the best result."*

Analyst 2: *"But if you look at last click, the audience model will not work, though. Can we figure something else out?"*

Client Manager: *"Yes, but they want to see the results they can get, and next year we can craft strategies for mobile rather than m.commerce."*

Analyst 1: *"I'm hoping the insight stretches across all the weekend stuff. I'd like a content overview, and then tell them why I think that is. You have to make concessions somewhere, but here is what is happening for a reason."*

The group does not attempt to observe and extract knowledge from advertisers to construct and optimize the model. They accomplish this through discourse. The group is able to unproblematically determine if their segmentation model is a fit for a particular customer. This is a pragmatic, yet undocumented move in the process of segment configuration. The customer is referred to for their significance in accommodating (or not) a segment solution and helps the team make decisions about the mobile segmentation model.

Specifically, the group acts on an opportunity presented using segmentation data and deliberates over model utility for the client, including the client's understanding of that utility: *"They say we understand mobile is important, but have no real understanding of what it does for us."* They also categorize the customer in question in relation to "customers in general," and their relative receptivity to a type of technology: *"They are stereotypical"; "They say we understand mobile is important … I think your info is important to some",;"I'm hoping the insight stretches across all the weekend stuff. I'd like a content overview, and then tell them why I think that is. You have to make concessions somewhere, but here is what is happening for a reason."* They reference clients with varying degrees of generality when deciding whether to share a segment concept with a particular client or go back to the metaphorical drawing board and change the approach.

These deliberations do not change the statistical legitimacy of the discovery. Nor do the workers question the statistical principles or digital data collection capabilities by which segments were built. They do not determine segment viability and importance, or decide to "*figure something else out*" through empirical observation or direct conversation with either "*stereotypical*" advertisers or "*some*" advertisers.

The Analyst begins with an approximate idea for an effective mobile-focused segment. The group's decision-focused talk concerns customer-oriented projections of model changes, future applicability of the model, and pronouncements of extensibility of the model. This talk demonstrates how a segmentation model is gradually and practically constituted through the course of the segment work. It is built up through workers' mundane, commonsense, non-empirically verifiable methods of reasoning with one another.

The members of this work group demonstrate some of the everyday collaborative methods that contribute to a segment in progress. These practices occur despite the perception that quantitative statistical models stand on their own, possessing intrinsic objective properties (Greiffenhagen et al., 2011). This group at Google had to see the customer sensibility in the model to communicate that model, even if there is no discernable difference in statistical methods or efficacy.

Garfinkel (1967) suggests that you must first enter the setting of daily life before you can sufficiently articulate the social activity that comprises it. Considering Garfinkel's (1967) notion of the documentary method of interpretation, we should ask how workplace data and a segment observation are treated as evidence of a structured segment issue, and how they relate to everyday practical interpretive work to accomplish segment objectives. That is, the mutual elaboration of both that fact about a segment issue, and the organizational structure it comes to represent.

In the everyday work of identifying segment strategies for serving advertising campaigns, what practical, interpretive work is employed to treat the "data" in those exercises as representative of an underlying structure? Examples include Analysts looking for patterns, or Client Managers and Advertisers discussing objectives.. In this case, the interpretive work is organized around a significant scenic feature: customer palatability. How do technical workers interpretively see the customer-oriented system of practices of grouping people and targeting them to generate more mobile customers in the evidence and occurrences that present themselves in that work? Accounts about segment events and observations in this everyday setting are not simply social actions responding to a static reality; they shape this reality in turn.

Here we see that the rationality of finding and communicating a mobile segmentation model data point resides in its intelligibility to others (advertisers) as showing mobile shopping habits. They do not inhabit some static structure of meaning that existed before it. This was part of the commonsense, practical work required to make the more formal statistical process of advertising using a segment work.

Further, practical everyday workplace talk and strategies between workers about the advertiser intelligibility of how to capture "mobile jeans buyers," "mobile television purchasers," or "mobile education seekers" are constitutive of how to target those segments. This is regardless of their inclusion in the set of "best practices" or technical targeting parameters set up for these purposes to begin with. The interpretive process of moving from data to data as evidence of that underlying segment order is paramount for

illuminating the practice of "doing segmentation." In this case, the pattern of store locator clicks (occurring after exposure to Internet advertising in a mobile buyer model) is seen to fit a particular agreed upon model for capturing those sales. This is in part through the group's orientation to the customer as a scenic feature. These everyday practical segment matters are what workers are concerned with, and not either stable organizational structures of workplace interaction or a grand theory about how segments are created.

Another example of this interpretive work and "palatable" customer orientation is illustrative of Lynch's (1985) notion of artifacts in scientific data. Lynch shows how natural science (neuroscience) laboratory personnel treat the byproducts of obtaining data as methodological realities to be remedied, or risk interpretation "as evidentiary features of purportedly natural phenomena" (Lynch, 1985: p.81). In rare cases Lynch (1985) describes brain tissue samples confirmed as "fit" for conferences and refereed journals. Here workers sort the samples into "lookers" and "users," describing some as looking technically superior and others as more practical for their procedure. As ethnomethodologists we topicalize the relationship between formulations and activities in what are other than "truth-conditional terms" (Lynch, 1993: p.190). This can apply to methods for constructing segments just as easily as an "assay" in neuroscience: "that is they do not treat formulations as exclusively true or false statements; instead they investigate how they act as pragmatic moves in temporal orders of actions" (Lynch, 1993: p.190). All of this laboratory work is not captured in the external sociological gloss of science (or, in our case, pronouncements effusing the magic of advertising segment automation), or by the documented textbook procedure of this particular neuroscience activity.

In this case, while these segmentation workers orient to the customer, they treat the discussion of misunderstandings, alternate conflicting business models, and ad effectiveness measures as "artifacts" to remedy. These are segmentation phenomena that adversely affect the team's ability to produce and communicate a "palatable" model for the customer. That is, ad effectiveness logic in planning is analogous to scientific procedures for collecting data in the laboratory. Artifacts are imperfections resulting from this planning. The result can be changes in the model, or representation of the data set they have access to: *"But if*

you look at last click, the segmentation model will not work, though. Can we figure something else out?" These "artifacts" are not treated as negative occurrences, but as routine yet critical realities of successful segmentation work, and are demonstrative of the team's orientation to the advertising customer and the palatability of the segment.

In sum, I show that segmentation models do not simply stand free or denote an objective reality in isolation. Instead, they are part of the routine, reflexive, give and take of segments that orient to a significant contextual element of a set of advertisers. This example reveals the tacit but essential interpretive work required for internal and external working relationships with segments.

Next, I demonstrate how the specific base or lens by which these segments are considered are reflexively discussed, and how programs are accomplished while orienting to the customer and vice versa.

Dividuus scheme of interpretation

In addition to orienting to advertising customer palatability, workers draw on practical reasoning to select bases for defining segments. These discursive methods cannot be defined formally, nor applied generally in advance of the segmentation work that occurs.

Workers decide how to define a segment and which resources to draw upon to accomplish that definition, through talk. They make choices between defining a segment by psychographics, demographics, web preferences, likelihood to purchase, engagement with an advertiser's website, device usage, etc. This is artfully accomplished despite a consideration set that includes limitless human attributes to implement in the advertising software. Teams are challenged by a lack of clear specification for the requested segments. This means they need to make a recommendation with imperfect information. Workers are able to collaboratively and unproblematically select a "good enough" segmentation lens to be evaluated as part of an advertising

purchase decision by the client. The criteria for that decision includes whether the ads would further the advertiser's business interests, and consequently Google's business interests. This is accomplished despite the physical absence of the customer and the impracticality of empirically testing each decision. Past academic contributions in the area of segment base selection consist of practitioner efforts to find the best possible set of categories that people might reasonably fit into. Instead, I embedded myself in a setting where the work is actually taking place, and describe *how* categories reasonably constructed and deployed as a feature of the advertising workplace. I find that workers employ the customer as a seen-but-unnoticed scheme of interpretation when selecting these bases. In turn they reflexively consider the customer in light of successive base selections and past segment engagements. These constructions do not rely solely on worker observations, namely, direct contact with customers and users. I call this collaborative process of drawing on interpretive customer and user resources to fit users into categories the *dividuus scheme of interpretation*.

Workers employ the customer as a non-empirically verifiable scheme of interpretation to decide upon the technical lens most appropriate for considering users. That is, when conceptualizing, constructing, and deploying segments according to these bases, workers orient to this advertiser expectancy. They reference segment bases in light of this context with varying degrees of abstractness. They rely on typification to accomplish mutual intelligibility amongst colleagues and proceed with the segment work (Schutz, 1972). Typification is the notion that, while two individuals cannot occupy the "exact same" point of view at the same time, they select common ground through talk, and through features, objects, and know-how, to achieve a common perspective that allows them to interact and collectively move on. Typifications afford a common language of sorts, and the coordination of activity across collaborative settings. Typifications allow collaborators to sustain shared understanding and accomplish order without exhaustive explication pertinent to the uniqueness of the situation (something that Garfinkel [1967] would consider impossible). Here, the impossibility of exhaustively determining the customer perspective, and empirically evaluating all permutations of segment base decisions according to those customer tastes (due to practical workplace distance), suggests to me that something else is at play in the setting. Instead, workers use the mundane typificatory devices that are mutually available to their group to figure out the customer perspective. This orientation shapes workers' references and collective comprehension of segments, and contributes to the

92

finished segment as a technical advertising device. Thus, these finished segments are not automated outputs that stand on their own, separate from their sociocultural surroundings. This is a myth we should move past when designing software to support work in this setting.

Typificatory practices are essential for accomplishing segmentation work in a setting with a diverse division of labor. These practices are relied upon to facilitate communication across diverse personalities with differing technical aptitudes. Segment work proceeds unproblematically despite workers' inability to experience those segment decision points exactly as their colleagues and customers experience them. Situational segment discourse and reasoning reflects the implicit presence of the customer, and is interpretive work that complements the empirical, statistical categorization work used to create a mathematical model for the segment(s). Segment base decisions are validated reflexively through talk between the workers in this setting while orienting to the customer. To understand how the action of a segment fits its context, we need to incorporate Sacks, Schegloff, and Jefferson's recipient design (Sacks, Schegloff, and Jefferson, 1974) into our analysis, whereby communication is adjusted for the recipient in that setting. This talk cannot be determined by predefined, a priori analysis, with segment data standing alone for passive consumption by the account teams and clients.

In the next scenario, a Google team constructs a segment model in preparation for a client presentation. An Analyst creates an initial model to illustrate the quantitative opportunity according to an advertiser's key performance indicators. The Analyst uses a customizable version of Google Trends called "Google Trends for Marketers" to categorize branded keyword searches into a number of relevant categories for the advertiser (e.g. customer service, innovation, etc.), and uses the output to examine aggregate consumer relationship between the brand and those categories to develop advertising strategies from them. The team intended to show the advertiser opportunities within segments that would enable the latter to sell product units and associated services. The analysis is shared with the Client Manager as part of an iterative editing process. The Client Manager integrates the segment models into a presentation that includes broader

93

client relationship items: past performance, partnership status and opportunities, and service level discussions.

Client Manager: *"It's tough to see."*

Analyst: *"Good point, mark em' out. Look at share of voice."*

Client Manager: *"Is that [x company division]?"*

Analyst: *"Yes, basically they are staying stagnant. We can help them grow. What I'm going to do is kill 2011. I know we like to show back there."*

Client Manager: *"So there is nothing happening in this market is what you're saying."*

Analyst: *"Nobody is gaining or losing anything. Volume is the same. Positioning moves a little bit. How can we help you grow that bubble? So the story is when you're looking for company x you care about product [x] and [y], is that a shocker? [Product y] includes [features x and y], these are the two highest categories of interest. We looked at innovation, etc., why would we show things that aren't very important? Then we look at what people are looking to but … This is a conversation cloud. What are some of the things people are looking for? Understanding what they are looking for will help us understand what we need to do to build that bubble for them. For [product y] how can we grow it?"*

Client Manager: *"For a different example. I was doing it for [company x], they're obviously smaller. I took [product category x]. Maybe I did three because that's what mattered. You can see that [company y] really owned that time frame. See quarter over quarter. What will move the needle for you is product launches. Product launches work, they matter. You have a slide like that. Say [company x, company y], share of voice. Increased the quarter that it launched. Then you get [3rd party sales data], that shows your incremental year over year for units sold. If you're able to show company y's share and increase in [company x]. Show share of voice and sales."*

Analyst: *"Who has access to [3rd party data source]?"*

Client Manager: *"Somebody does."*

Analyst: *"So for 2013 I have this. [3rd party data] shows quarter data? So for 2013 performance. This is showing their interest in the brand versus the category. Telling them to focus on people x% interested in brand and*

maybe x% of the way for people interested in the category. X% are choosing company y before feature x, I'm hoping the number will be more for current data. Even if it's a lower number, the message stays the same."

Client Manager: *"Keep tying back to product launch."*

Analyst: *"Tie them back to interest in the category? When shopping for a [new product x]? Best product in the category, best customer service, etc."*

Client Manager: *"My issue with this, is just because it's trending high, why should I care about it? So this data before makes sense to me. So maybe only show three categories instead of four. What's the user action? Maybe customer service I wouldn't use. Because if I was in the room, I would probably question that. What does that mean? If you remove it, then you have a more logical story."*

Analyst: *"Ensure strong messaging during product launches. And when we look at [company y], [region x] is really strong. Category interest targeting should be over [x]%, with competition rising."*

Client Manager: *"What's the so what here?"*

Analyst: *"Also, [Analyst 2] and I are putting together an [additional analytical view], and seeing what the results are."*

Client Manager: *"It will be good, but these guys never get interested in this. It doesn't flow. There are so many more factors."*

Analyst: *"Ok so basically these three points then?"*

The Analyst and Client Specialist decide to organize their proposal and data according to the segment's likelihood to purchase. They debate organizing it by users' interest in the brand, category, and other attributes such as a customer service within this broader "likelihood to purchase" framework. These segmentation bases are a subset derived from a much larger universe of possibilities. They validate this decision/orient to the perceived interest of their clients based on past experience with advertisers and a typified customer in this space. This work reflexively shapes the constitution of the customer and the segment base decision.

They work with large sets of information about the customer and potential user segments to understand and communicate the opportunity. They continuously orient to the customer in order to understand how to select segment bases to fit with a typical company in that industry, and their typical advertising goals.

They do not rely exclusively on quantitative data about those segments to make this final decision. Instead, discourse and the members' scheme of interpretation in that setting are critical. They do not discuss the company as a topic for its own sake, but they draw on it as an orienting resource for putting together the segment proposal and how they consider advertisers collectively over time. Significant utterances in this example are representative of an underlying structure that reference past cases to form an orientation toward *"these guys"* (a set of companies). The Client Manager explains: *"If I was in the room, I would probably question that,"* asks *"what's the so what here,"* and suggests *"these guys never get interested in this stuff."* Rationale is contingently afforded to these decisions without speaking to the types of customers the employees are orienting to. Both employees enter the situation with different workplace and life experiences, yet are able to make decisions about segments collaboratively, achieved in part through this orientation.

The Analyst and Client Manager focus on the product behaviors of the segments. The focus allows them to supplement, eliminate, and reposition the lenses for organizing and communicating the segmentation model. The customer is referred to in a typified way with degrees of generality according to their needs. The way the segment model is discussed and considered is reflexively shaped by this orientation: *"Keep tying back to product launch."* User actions are reconciled while projecting customer scenarios and fitting the model to those background expectancies: *"What's the user action? Maybe customer service I wouldn't use. Because if I was in the room, I would probably question that. What does that mean? If you remove it, then you have a more logical story."*

The customer is used for comparative justification and construction of the segment's specific product interest characteristics: *"For a different example. I was doing it for [company x], they're obviously smaller. I took*

96

[product category x]. Maybe I did three because that's what mattered. You can see that [company y] really

owned that time frame. See quarter over quarter. What will move the needle for you is product launches. Product

launches work, they matter." These comparisons (Martin et al., 2009) demonstrate a decision-making process

influenced by a distinct orientation to a typified set of customers and the introduction of a customer

constraint. They act as a catalyst for the construction of a segment through a particular lens. Here that lens is

grouping people by forecasted demand for a category of products during a launch in that category. The team

fit the segmentation model to its discursive context. This exemplifies the interpretive constitution of

segmentation models that are frequently positioned as automated, standalone mathematical entities and

decisions subject to empirical verification.

The Client Manager does not identify mathematical problems or discrepancies with the model or

changes that would substantially modify its makeup, yet they are oriented to the constraint of a tacit, scenic

feature (Greiffenhagen et al., 2011). This orientation to customers and related data involves an interpretation

of the statistical model to fit the case at hand, and is accomplished situationally through talk. This occurs

whether or not the employees consciously recognize it as a mundane process. Segments are crafted and

subdivided according to the advertising customer as a scenic feature, and their identity is shaped according to

that historical segment talk.

Discursively selecting perspectives to view and talk about these segments is critical for expressing

and optimizing the model. Although this does not materially change the characteristics of the people available

for inclusion in the model, it has important ramifications for how the advertiser and Client Team engage with

those segments and seemingly how they will orient to future customers in their work.

Discussion and design direction

Analogous to past approaches to creativity (Martin et al., 2009), users in design (Sharrock and

Anderson, 1994), and quantitative model research in the institutionalized social sciences (Greiffenhagen et

al., 2011), I demonstrate how language is used and workers organize themselves to design segments through

talk. I highlight the mundane and interpretive work beyond the mathematical and technical practices of segmentation (Greiffenhagen et al., 2011). This work is not determined a priori as a static corpus of organizing principles for all segmentation work. Workers do not make the choice between the "archaic" sensory world of Mad Men and the modern world of statistically grounded advertising. The intelligibility of segments in light of the omnipresence of the advertiser requires practically occasioned interpretation in both of these advertising worlds: this is as critical for workers doing segmentation as are statistical capabilities.

I demonstrate some of the ways that workers prepare segmentation/targeting work for clients, and the mundane ways they configure and treat the model to make it work for that context. Segmentation models are not passively consumed and automatically passed from a statistical package to advertising production. Reasoning through these findings requires unique, local knowledge and interpretive work to determine what particular statistical output is appropriate for a particular type of advertiser.

I describe some of the choices, deliberation, and practical techniques that are relied upon to do segment work. This work is in addition to following advertising and analytics software training manuals to choose the right segment for the right advertiser. To be successful, these segments need to "fit" the expectations of the advertiser, and the customer must see those segments as reasonable. This is an alternative perspective to the belief that segments emerge ready-made from analytical software. Statistical output is not sufficient: workers need to see the customer in the model without having the customer in the room for every decision.

Thus, I recommend rethinking design strategies for integrating the advertiser and provider through collaborative software. When compared to consumer segmentation technology, less has been done to map disparate sources of analytics to support the B2B function and stakeholders of advertising engagements (although this is not limited to advertising). CRM systems provide a bi-directional opportunity to support some of the interpretive resources and practices observed here. I recommend building CRM and segment buying technology in a way that improves the efficiency of orienting to the customer when designing segment

models. This would be a design that makes customers more "considerable" for segment decisions and enables subsequent segment decisions to produce signals to contribute to that "considerability." I do not suggest interpretive work will be automated, but advocate for improved mechanisms to deliver intelligence that mitigates some of the economics of information challenges that naturally prevents customer contact (Sharrock and Anderson, 1994). The system would illuminate stakeholders' segment *dividuus* scheme of interpretation and segment *beneplacitus* background expectancies as segmentation design unfolds. It would help parties mutually "see" segments in light of these phenomena rather than simply acting on a segment-driven Request for Proposal from the advertiser. Beyond software design, this principle should also influence the engagement strategy between all parties.

CRM interfaces are dominated by account tasks and revenue. I recommend incorporating mechanisms to intelligently contextualize segments by drawing on the typificatory language and their ties to local context and scenic features. For example, displaying anticipated receptivity by a "type" of customer to a segment base option (e.g. positive response types of advertisers to mobile store locators). These "intelligibility views" should be introduced early and dynamically updated as campaigns, relationships, and related segments are built up. In simpler terms, show the chronological evolution of customer segments and their attributes. This intelligibility should be shown in light of previous sentiment. Part of this involves a segment artifact remedy system that allows the advertising provider to identify and track currently undocumented, but discursively identified, customer-oriented imperfections from the segment model. The system should do this on a customer-by-customer basis. These changes concern the advertising provider's ability to monitor customer receptivity: model worthiness, client understanding, relative receptivity to technology, and priority bases for the purposes of both building and communicating segments.

Meaningfully integrating this work into software would facilitate the collaboration of customers and publisher alike. This assumes that schemes of interpretation, such as how the customer is considered and referred to, are changing and dynamically updated. Who the user is, and how the client and service is typified and interpreted is expected to change, *and cannot be facilitated by statistics alone.* Part of this design work

requires more attention to segments in the workplace. Focus should be diverted from statistical and technical

methods and put toward the underlying structures used to construct and communicate segments and the

reflexive impact on the reality of client and future segments.

Chapter 3: Designing for ubiquitous insights in non-research settings

Abstract

Growth of digital technology has afforded advertising workers widespread access to a set of consumer research tools rapidly return insights via user-friendly interfaces. The tools referred to in this paper (*Google Consumer Surveys* [GCS] and *Trends for Marketers* [T4M]) have been introduced into consumer research as a means to deal with non-traditional delivery times and industry specific divisions of labor. This study examines the presence of these tools in an advertising workplace and the way that *Google* workers organize themselves in relation to them while doing consumer research work. I describe how workers orient themselves to a shared sense of the economics of consumer information and employ mundane reasoning to access and make sense of the data produced by these tools. I discuss how advertising workers develop and sustain a mutual understanding of "insights" and how this class of tools is artfully combined with disconnected office tools and "small data" to develop client proposals. This paper describes how advertising workers use interpretive work to make sense of large data sets derived from online tools and hence contributes to our understanding of how such data sets can be used and how tools can be further refined in order to make their use more relevant.

Introduction

Consumer research has traditionally been tied to specialized workers, tools, processes, and departments and its character has arguably remained relatively static in relation to other areas of work and computing. However, a small but growing group of research tools (which I call "ubi-insight tools") can rapidly derive rich consumer information from digital signals and are built to provide fast and universally accessible market research. These tools, I suggest, represent a "democratization" of research and open new possibilities for learning about the market segmentation of consumers (among other things). Their most notable advantages include: 1. a capacity to cut research time dramatically (in many cases from weeks to moments); 2. an ability to easily collate and report on large data sets; 3. new possibilities for the division of labor and

specialization (e.g. advertising worker as researcher); and 4. cost effective availability to non-market researchers (referred to as non-specialists).

Non-specialists and the general public have increasingly been granted access to simple graphical user interfaces that can query and display information from databases updated in real time (or near real time). The information in these databases include search query information, web browsing behavior, location, demographics and survey response data (see Appendix A, Google Trends, Google Correlate, Google Consumer Surveys etc.). In each case these tools rapidly access millions or billions of pieces of data to display results and would traditionally require a highly technical worker (e.g. data scientist) and software tools requiring special skills or access. Shifting data extraction, analysis, and insight derivation work away from specialized third party research firms and internal technical research department workers to non-specialists is possible with ubi-insights tools. Thus, rather than relying on technical colleagues or research suppliers to design research studies, obtain the data for them, and generate and report on insights, non-specialist practitioners can conveniently, quickly and cost effectively do this from the comfort of their own work station. In many cases, these tools are free (e.g. Google Trends, Google Correlate) or cost a fraction of traditionally outsourced market research (Google Consumer Surveys). Traditional survey work would regularly take a matter of weeks, or even months, whereas a survey using this new class of survey tool can normally be designed, launched, and analyzed in a matter of days. Further, insights regarding consumer intent typically derived from interviews or surveys commissioned by these same traditional research firms or internal research specialists, can now be instantly accessed using search queries as a proxy for their product desires.

I describe these "ubi-insight" tools and their usage in the workplace and, more specifically, the movement of tools based on specialized consumer research techniques into non-research environments for use by non-specialists (digital advertising workers). These tools assist non-specialists with core research activities. As access to these implements grows in the non-research workplace we will be confronted with the challenge of deliberately integrating them into product development and design plans. To assess their potential impact, I examine their part in the social organization of consumer research work, including their

collaborative use in the workplace, in conjunction with other office technology, digital information sources, and shared sources of workplace knowledge.

Evidence for the pending omnipresence of tools traditionally confined to market research functions can be found in a number of online sources. An article titled "Google Surveys Can Make Anyone a Professional Pollster" suggests universities should teach students survey methods "so they can all start adding more objective evidence to their stories … thanks to Google, all of them have the capacity to be pollsters" (Ferenstein, 2013). A news source targeting entrepreneurs, a profession requiring participants to take on a multitude of roles, points to the advantages of ubi-insights: "The digital world is your biggest resource. Use Google Trends to uncover the search words that exist around your particular solution. … Get into the weeds a bit. And get to know your audience fully" (Gibson, 2015) . A popular marketing blog references the growing analytical expectations of non-specialists in advertising in an age of more flexible tools for capturing and analyzing consumer data: "the new account manager has to have analytical skills, synthesis skills and leadership skills to translate disparate inputs and facts into creative strategies to grow brands and not just focus on 'counting'" (Chickowski, 2014). Lastly, the GreenBook Research Industry Trends Report (GRIT), which reports on market research trends, points to individual ubi-insight type tools as the most likely to grow rapidly (AMA Communications Services, 2014).

Despite their growth, the current limited presence of these tools presents a closing window of opportunity for a unique look into the social organization of consumer research for non-specialists and might help us better support tool introduction. I show that, despite the proliferation of new technology, everyday sociological work is required to move from quantitative data provided by ubi-insight tools to useful insights in the workplace.

A natural place to begin this description is a digital advertising work setting. This work occurs in a fast-paced environment and companies are expected to have access to cutting edge consumer insights to serve advertisements to relevant groups of people (or market segments). Their employees are expected to

have a deep expertise in multiple areas, including analytical skills related to consumer behavior, which particularly helps to segment consumers for the purposes of effective advertising.

The goal here is to examine how ubi-insight tools fit into everyday "non-research" work and describe some of the ways they are transformed from a new technological product into a consumer research instrument (Harper, Hughes, and Shapiro, 1989). More simply, I want to show how advertising work involving ubi-insight tools is socially organized.

Related work

Literature focusing on how workers use digital consumer research technology in a non-specialist environment is sparse. Much of the existing work focuses on optimization, methodology, and statistical veracity, and to my knowledge, none focus on the class of ubi-insight tools described here. Work adjacent to designing for ubi-insight tools in the non-research workplace includes: 1. using large data sets at work; 2. collaborating and training on specialized digital research tools at work; and 3. examining ubi-insight tool applicability for specialized researchers.

First, in the literature examining large data set tool use in the workplace, contributors analyze data sets and recommend the best methods to extract, analyze, and deploy insights from these tools (Berman, 2013; Alspaugh, Chen, Lin, Ganapathi, Hearst, and Katz, 2014) rather than enter the workplace and describe how these tools are used in *situ*. Second, examinations of cooperative work involving digital consumer research tools prioritize a better understanding of data science and ethnographer collaboration on large data sets and of training non-specialists on new techniques, such as usability research (Bruun and Stage, 2012). Third, survey technology has advanced quite significantly in the past decade. Digitization has brought down the barriers of cost and time, facilitating research work outside of its typical domain. Several contributors have examined surveys focusing primarily on potential improvements to tool or method rather than describing their *in situ* use. A developing body of literature concerns designing and deploying surveys on the

Internet (Couper, 2008). The growth of connected devices was followed by mobile survey technology and research. This work includes dealing with issues such as data quality (Couper, 2013), and optimizing design (Mavletova and Couper, 2014). Some have assessed survey research applicability for specialized research functions. For example, Schwanda-Sosik et al. (2014) evaluate a digital "micro-survey" tool fit for user experience research.

Ethnographies of advertising workplace settings are also rare (Morais, 2007) and market research matters within this setting have typically been handled as a side issue (Clarke, 2015; Mayleft, 2003). A number of ethnomethodological contributions have examined everyday work in adjacent areas and influence this study. These include the practices of mathematics (Livingston, 1986; Greiffenhagen et al., 2011), social scientific knowledge and related methods (Maynard and Schaeffer, 2000; Greiffenhagen et al., 2011), and how collaborative statistical inference and understanding "come to have a social life" (Mair et al, 2015: p.1).

Method

The topic of ubi-insight tools and how they are used collectively in a non-research setting remains largely unexplored. An ethnomethodologically oriented "first look" at these tools can be considered a sub-domain inquiry within ubiquitous computing. It forms a distinctive part of the "ethnographic turn" sparked by the recognition that previous methods are ill-equipped to deal with the challenges posed by ubiquitous computing at work (Randall et al., 2007) and at home (Crabtree, Rodden, Hemmings, and Benford, 2003). Ubi-insight tools present a similar democratization of information technology and the associated challenges of effectively integrating them into work activities.

Thus, I employ an ethnomethodologically informed ethnographic approach, including "talk while you work" exercises at workstations, and follow-up interviews. The ethnographic work occurred over 17 hours of internal *Google* meetings. This was complemented by 3.5 years of non-academic immersion in the workplace.

The ethnographic study involved 52 participants over the course of one year. Typical meeting times ranged from 30 minutes to one hour and covered a multitude of topics.

This type of approach to design has proven a good fit for better understanding complex work environments where new classes of technology have been deployed. A non-traditional division of labor for conducting consumer research compounds the complexity of introducing new ubi-insight technology. Ethnomethodology has consistently uncovered useful design insights by examining how people collectively accomplish the work they deem important and germane, instead of looking to reveal motives or explanations of why work occurs. By drawing attention to the challenges and pertinent phenomena of work, this type of ethnography becomes useful for designing collaborative workplace technology and its use in context (Randall et al., 2007). Thus, we have an effective method for uncovering the social character of ubi-insight tool use, and how we can better integrate them into the workplace through design.

The setting

This study describes how *Google* workers, through their use of ubi-insight tools, organize themselves to access and interpret research to build advertising recommendations. The work involves two areas of specialization at a *Google* advertising sales office: 1. Analysts (ALs), who are responsible for developing advertising opportunity analyses for advertisers by using advertiser account data and other industry information; and 2. Client Managers, who manage relationships with advertisers. ALs are primarily responsible for creating market and consumer people segment-driven business recommendations for advertising clients. Advertising products include search advertisements on *Google.com* and video advertisements on *YouTube*. This analysis can include (but is not limited to) people segmentation recommendations, optimization direction from reporting tools such as *Google Analytics* and *Google Adwords,* and broader industry insights. Client Managers are responsible for managing advertiser sales accounts. This includes working with marketing representatives from clients to develop and improve advertising programs.

This work often requires that they develop recommendations using consumer research. Thus, Client Managers work very closely with ALs to develop advertising stories through quantitative analysis.

The lengthy interaction between Client Managers and Analysts in the consumer segment fact-finding process is where the work with ubi-insight tools is most clearly observed. Here non-specialists undertake work typically confined to research firms, departments, and institutions. Traditional research or behavioral data analysis for advertising client teams routinely involves either a specialized department internal to that company or an external agency. This is especially true for the preparation, management, and analysis of survey data. Both survey and behavioral data work can involve weeks of process, preparation, and analysis from start to finish. In contrast, the ubi-insight tool work I observed at *Google* lasted no longer than seven days from initiation to inclusion in client presentations. The entire process was covered end-to-end by an advertising client services team rather than an internal/external research team (although many initiatives at *Google* involve internal research specialists).

The ubi-insight tools examined include *Google Consumer Surveys* (GCS) and Google Trends (and a derivative tool called *Trends for Marketers* [T4M]). *Google* Engineering groups make these tools available to the public. Because *Google* develops these tools, its advertising staff has unique access and training. Thus, many Analysts and Client Managers are familiar with how to use the tools and interpret results. They can be considered "early adopters" of ubi-insight tools.

GCS allows users to easily create online surveys. Respondents fill out survey questions before "paywalls" on websites with premium content. *Google* automatically analyzes responses as they are collected. Analysis includes categorization and visualization of demographic and other consumer segment results in a simple interface. These surveys complete comparatively fast (as fast as one to two days depending upon audiences requested, number of questions, etc.), are low cost, and do not require working with a third party firm specializing in research. *Google* teams have access to GCS studies to work on business challenges with clients. *Google Trends* is a free public tool that allows users to explore the vast, rapidly updated *Google* web

search database. The tool reports on trends in search terms for individual or grouped queries. A related tool, T4M, allows users to further categorize searches by brands and products and analyze relationships between them. This tool is typically used to compare both quantity of searches and the relationship between branded searches over time. *Google* has open access to T4M, and there is some limited availability for advertisers. Comparable behavioral data tools are traditionally the exclusive domain of data scientists.

Contemporary research assumptions

Where ubi-insight tools are available, workers orient to the economics of consumer information in particular ways. The cost effective, rapid, and simple accessibility of this updated, granular consumer data by non-data scientists or market researchers contrasts with traditional conditions of consumer research in the workplace. Over two decades ago, Sharrock and Anderson (1994) showed how design workers systematically reason about users, and orient to them as a scenic feature in their workplace. Part of their argument was that the realities of the "economics of information" (p.11) prevented designers from practical, direct consultation of users in certain situations: ubi-insight tools appear to have eroded several feasibility barriers present in traditional research practices, such as by improving contact with subjects. However, new challenges have emerged. Innovations such as templatized survey design, relatively simple self-serve access to consumer panels, and the ability to rapidly update or refine queries about users, arguably produce a new economy, an economy which nevertheless poses challenges. These challenges are again addressed by artful, interpretive collaborative practices at work. Later I will show how the interpretive invocation of users persists in this research work.

In the following examples, I show how the economics of consumer information *itself* is present as a significant background expectancy or "scenic feature" and drawn on as a shared knowledge resource in different nuanced ways to accomplish consumer research work. Specifically, I show how groups collectively refer to that knowledge as part of consumer research tradeoff decision-making: deliberating whether to go back to the proverbial consumer data "well" with a particular ubi-insight tool. This was consistently present

in one discernable form and used as a scheme of interpretation (Garfinkel, 1967) to make consumer research and, ultimately, advertising decisions.

Hypotheses: prospects and risks of data abundancy

Google workers collectively consider the implications of ubi-insight data for the hypotheses that underpin their advertising recommendations. In the following passage an Analyst and two Client Managers prepare for a technological services client meeting. Their preparation includes a focus on brand and product category user trends and an exploration of future data capture methods and related advertising opportunities. The group gathers around multiple laptops in a conference room with one screen projected on a large wall display. They alternate between views of the *Google Adwords* advertising reporting interface, presentation software, and T4M data.

Client Manager 1*: Next one goes into key insights.*

Client Manager 2: *So what comprises [service plan a] category?*

Analyst: *[Product category a], [product category b], [product category c] .*

Client Manager 2: *Ok I didn't think [competitor brand].*

Analyst: *They just want to know they have a brand, let me see if [brand a] is on. Maybe 15-16%? Maybe you need to be in.*

Client Manager 2: *Maybe the story is, opportunity to drive more competitive subscriptions if you do more with YouTube, etc.? Have they implemented [Google Analytics]? Maybe they need a smart pixel?*

Client Manager 1: *Use pixel.*

Client Manager 2: *They have a [Google Analytics] tag but not remarketing.*

Analyst: *This one is maintaining as opposed to gaining.*

Client Manager 2: *So I think the story there is competitive strategy.*

Analyst: *Here we can align our strategy to the reason, and we can get info? Why if you have more than 50% because you aren't converting people then? Either way it's a story.*

Client Manager 1: *Yes!*

Client Manager 2: *[nods in agreement]*

Analyst: *We talk about [product category b] because it's so small. Put by product and see which one they have most affinity.*

Client Manager 2: *Does [brand b] even provide [product category c]? So yeah no surprise? Yeah so the story is how can we … I guess [brand c], why didn't you put?*

Analyst: *Because [brand c] is a brand. If you put [product category d] then it puts [product category a] (from the query). And I didn't put because I don't think they offer [product category d]. I think for this type of slide, we open, maybe it doesn't make sense, want to use one example of how we can help you.*

Client Manager 1: *If they are bundling you can just bring it in.*

Analyst: *In the end this is the strategy, we provide the analysis without the input. Maybe they will say you are totally off. But that's ok.*

The group orients to assumptions about the nature of consumer data without specific reference, and interpretively makes decisions about the client recommendation. This negotiation includes the data's fit with the hypothesis-driven *"story,"* and the likelihood that future data provided by the client will validate the ubi-insight data-backed analysis and the hypothesis. They subtly make their positions accountable to one another, selecting between two trivial ubi-insight activities: additional analysis of current data—*"why didn't you put?"*—and relying on future data pulls—*"if they are bundling then you can just bring it in"*—yet each are tied to a particular version of a "story." These decisions would not have been possible before the advent of ubi-insight tools. Without saying so, the group concurrently treats ubi-insight tool data as a beneficial resource and a potential risk. Easy access to future data enables the flexibility of trial and error, yet increases the possibility the data will instantly undermine projects and storylines built on hypotheses. The credibility of a "story" for an advertiser depends on a hypothesis arrived at by the group: *"here we can align our strategy to*

the reason, and we can get info?". The requirement of conducting a future analysis (after meeting with the client) is considered a comparatively trivial investment and a worthwhile cost of investing in a "*reason*"-based hunch of what the client's data will look like once/if shared. Thus, we can see that ubi-insight data is treated as a reusable resource, and something that can be worked through in a sort of trial and error type fashion: "*Maybe they will say you're totally off but that's ok,*" followed by enthusiastic agreement from the group: "*Yes!*". The account shows the discursive development and preservation of a hypothesis informed by the economics of consumer information background expectancies.

These expectancies are relied upon in additional ways during data access work. Here the Analyst pulls data from T4M for a technological product advertiser at his workstation:

"Normally I put the keywords that I used in the notes section. Just because if they want to ... and that's it. So I have to replicate this for the whole three [business units]" [looks at his other monitor to compare with past work for comparable clients and units within the same company].

While Analysts engage in data extraction, their practices are deferential to hypothesis preservation. A hypothesis is treated as a labor-intensive resource to protect, and once formed, can be refreshed and replicated by abundant, renewable ubi-insight data resources. These anticipatory data/hypothesis assumptions persist from individual data access by the Analyst, becoming a resource for consumer research work and continually referenced once the findings are introduced and evaluated as a broader group (as in the first example) (Randall et al., 2007). This hypothesis preservation orientation was reinforced during GCS survey creation where the "create a copy of this survey" feature was used to rapidly replicate surveys in a research category. These copies were routinely set to run regularly with the same questions to support the same hypotheses for the same advertiser by selecting their "frequency." Without specifically addressing the issue, data access work is informed by the economics of consumer information as a scenic feature. The Analyst considers data as a refreshing resource, and the related hypotheses as entities for preserving and

reusing, providing a path to story development. This reasoning counters the notion that abundant data simply generates more options and requisite management.

Ubi-insight tools are not simply applied to this work setting in a prescriptive, deterministic fashion. Rather, advertising work is provisionally and collectively built up while drawing on these tools as a resource in different ways. This work and tool usage unfolds contingently, and is assisted by teams individually and collaboratively drawing on the economics of consumer information possibilities and risks when deciding what to do next.

Building stories using ubi-insight tools

Lay sociological methods, including interpretively invoking "small" data sources, help make ubi-insight tools work. Building on previous ethnomethodological work in neighboring domains (Mair et al., 2015), I begin to demonstrate that the *Google* team's consumer research work with ubi-insight tools is a highly interpretive process. This demonstration includes how groups draw on background expectancies of a new consumer research era and use lay sociological reasoning in conjunction with ubi-insight output to accomplish workplace goals. This lay reasoning is easily overlooked but is deeply relevant to future consumer research and the tools that inform it.

I now turn to examine additional ways workers employ practical reasoning in order to build to advertising recommendations. Specifically, I demonstrate how workers rely on commonsense typifications or types of consumers, in conjunction with "small data" sources and disconnected office tools, to make ubi-insight tools work for their advertising purposes. Commonsense typification enables a coordination of activity through mutual understanding, and involves collaborators selecting common objects and know-how to realize a shared perspective (Schutz, 1972; Sharrock and Anderson, 1994).

Digital canary in the coal mine: using "small data"

As workers begin to gain unfettered, user-friendly access to vast, affordable consumer data sets for business application, some may conclude that the role of "hunch"based small data becomes increasingly irrelevant. Why employ interpretative means when you have rapid access to rich consumer information? It turns out that, although data capabilities and assumptions regarding the economics of information appear to have changed dramatically, using ubi-insight tools effectively requires relying on interpretive methods and the "sociality" of small data sources.

In this example, an Analyst is preparing data from T4M at his desk for an upcoming proposal to a technological hardware advertiser. Alternating between T4M, spreadsheets, and presentations, the Analyst works to segment the population according to how they search for products and associate brands with one another. The Analyst does this by entering brand name keywords and sets of product features and keywords into the T4M tool to understand relationships between consumer segments in aggregate. In this case, the Analyst departs from the tools that access large data sets to reference web content to direct his analysis, treating this small data as a kind of digital canary in the coalmine.

Analyst: Yeah they don't have like a … sub-brand. I was going to put [brand c], but the problem is that [brand d] is too broad. And now [brand b] … alright cool. Let's go to [parent brand] website … this [product category a] is professional right??? [checks company website, Wikipedia, adds that it's semi-professional in keyword categorization]. It's semi-professional [checks keyword categorization, doesn't change it] yeah that's it." [checks attribute rankings]. "Pretty much the same."[sighs, annoyed].

Interviewer: *How do you know what attributes are important?*

Analyst: *Normally we take a look at the site. For [product category b there's no difference]. When it's a category I don't know, see what they promote. [Feature a, feature b], this kind of stuff.*

Despite access to vast volumes of real time, granular, malleable data, the Analyst turns to "small data" as evidence of an underlying pattern of consumer behavior, and resultant category selection within a ubi-insight tool. The Analyst makes the assumption that the categories of interest and their structure for the analysis can be found in the website and crowd-sourced *Wikipedia* page. The Analyst also assumes that this web content is indicative of advertiser interests (presumably the company website content was the responsibility of a brand manager, and the *Wikipedia* entry was crowd-sourced from experts in the domain).

Garfinkel's (1967) take on order, and the documentary method of interpretation, helps explain how work with ubi-insight tools requires drawing on inferences from small data. *Google* workers draw on small data as evidence of an assumed structure about those consumer groups and their hypothetical search behaviors. The Analyst interpretively finds methods of seeing the system of practices of grouping people for advertising purposes in the evidence and occurrences that present themselves, and these accounts actively shape the structure of that analysis.

Traversing gaps in data with local knowledge

Google workers rely on local knowledge to fill gaps between data from ubi-insight tools and the "story" they want to develop. Real-time data and rapid insights do not preclude, nor displace, the local, lay sociological work employed when undertaking consumer research activities. Non-specialists organize themselves to work with ubi-insight tools in ways that suggest a purposeful and directed division of labor relative to specialized research work. Tools can be located close to, and even intimately tied to, a commercial application (e.g. a sales presentation). If this trend of ubi-insight tool adoption continues, findings from ethnomethodological studies of social science, specifically survey research (Maynard and Schaeffer, 2000) and statistical practice (Greiffenhagen and Sharrock, 2011; Mair et al., 2015), become relevant when designing for impacted industrial settings.

In the next example an Analyst and Client Manager review the results of a GCS survey for a technological services client aimed at understanding consumer behavior of users of both the brand's service and alternatives. The survey was co-created by the Analyst and Client Manager, launched at the Analyst's workstation with results collected and automatically analyzed within a four-day period. In the following passage, the Analyst and Client Manager book a meeting room, and project the screen to examine the results of the survey in preparation for a client presentation and recommendation. We see the Analyst and Client Manager inquiring about a particular demographic segment view of the results:

Client Manager: *What's the age demo split, [looks at alternate view of data], huh?*

Analyst: *It's very hard to get age.*

Client Manager: *Yeah, there is 94 people in that group, it's not significant. Do you have the "no" in there?*

Analyst: *Probably performing better in the millennials.*

Client Manager: *Yeah, the younger demo.*

Analyst: *We can compare, let me look at the thing for the non-customers.*

Client Manager: *So that's exactly, this is non-customers? [switching between word clouds, other questions] And then discuss the importance of service attributes by customer segment (customers vs. non-customers) ...*

Analyst: *Ok.*

Client Manager*: Let's go back to the customers.*

Analyst: *This is customers, right?*

Client Manager*: The plan.*

Analyst: *Plan is very important, and price is very important.*

Client Manager*: I didn't expect to hear that because that is never in their messaging. It's all about [hardware]. And customer service is really low?*

Analyst: *Price plan.*

Client Manager*: This is why they chose their current one. We had a similar one for no customers. No we took it.*

Analyst: *11%.*

Client Manager*: Oh right right, we were trying to figure out …*

Analyst: *Um.*

Analyst: *Ok.*

[Both look at bar chart for "Why did you choose your current [service provider]?"]

Client Manager*: Does this answer our question of why chose [brand a] because they DO offer bundling, or do not? Look at customer service is the lowest one.*

Analyst: *Yes for non-customers.*

Analyst: *Ok … I wonder if we can create a little story around this. Can you go back to customer service? [both look at the "primary reason you chose service" chart].*

Here we see that the Analyst and Client Manager encounter a gap between the data provided from the survey tool output and the advertiser hypotheses they are investigating. They rely on ad hoc considerations (Garfinkel, 1967) as a feature of consumer research work. Workers employ ad hoc considerations to identify and agree upon a segmented consumer society and confirm hypotheses for their analysis within the ubi-insight results at hand. Analogous to Garfinkel's (1967) work with coding, following the "letter" of the research in its current form is augmented by *practical* consumer research work. The research results in their current form in the UI, and related statistical rules (e.g. "significant" results), are necessary but not sufficient for doing good work. These ad hoc considerations form the grounds for extending from a digital ubi-insight tool (GCS) to the ultimate "story" delivered to the advertising client.

Relevant to this example, Mair et al. (2015) investigated how statisticians use interpretive means when preparing data sets for statistical work. They showed how statisticians categorize internationally incongruent scales of educational attainment by employing interpretations of what would comprise high,

medium, and low scores. They accomplish this while taking the perspective of domain experts and end up using their model. In similar ways, ubi-insight tools do not stand up on their own. The Analyst and Client Manager collaboratively rely on typifications and local workplace knowledge to see a sociocultural category (millennials) and consumer behavior (consumers equating product bundles to pricing). They see them from the point of view of their customer hypotheses: insights about a young segment, and a configuration of a particular set of service attributes.

What is unique to ubi-insight tools (especially in large companies) is that the same group of people both draft the survey questions and craft the "offer" communications to the customer. The group subscribes to the micro-theory that the younger demo and millennial demographic represents similar interest groups, existing as like-minded individuals for the purposes of the hypothesis they are testing. The Analyst and Client Manager switch back and forth between multiple demographic views in the interface before moving on. They hold on to this assumption, comparing millennials with "directional" results of a group that was not statistically sound. They collaboratively build to "seeing" this insight. They introduce and confirm these micro-theories about consumer groups without significant attention to overcoming the shortcomings of the data, and move to a final segment "design" recommendation (millennials). They do not reach this outcome by running additional surveys to achieve statistically significant results for a specific age category, nor do they poll consumers on whether they equate bundling with pricing and promotions. Instead, they make interpretive inferences through typification and a reciprocity of perspectives (Schutz, 1972; Sharrock and Anderson, 1994).

This example is interesting from the perspective of the hypothesis preservation work covered earlier. Despite the low barrier of time, cost, and effort required to conduct a rapid follow-up analysis, the group organizes its efforts around completing the "story" for the advertiser within the confines of a defined hypothesis. By treating these routine practices as problematic, we can begin to see how workers organize themselves for "insights work" with ubi-insight tools, and then design technology for these everyday practices.

Disconnected tools and hypotheses

When ubi-insight tools are introduced to a technology company's workplace they join an environment inundated with incumbent technology use and related sources of shared knowledge, biographies, and histories. Workers artfully work toward consumer research-driven stories by accessing elements that make up the "flow of work" (Randall et al., 2007). Part of designing for provisional ubi-insight tools requires understanding their integration with traditional disconnected office technology in consumer research work.

As shown, previous studies in CSCW have underscored the importance of traditional "low-tech" tools for accomplishing collaborative work, lauding paper medical records for their flexibility and "micro-mobility" (Luff and Heath, 1998: p.306) and the paper flight strip's importance to high stakes, collaborative activities (Harper et al., 1989). In a similar way, erasable whiteboards, company websites, document software, and calculator applications are taken-for-granted tools that have found a home in the advertising workplace and beyond. They can be considered a set of what Luff et al. (2010) call "mundane artifacts" (p.287) when referring to the "pervasive nature" (p.287) of paper as a collaborative tool. Below, I look more closely at the role of a set of these mundane artifacts in conjunction with ubi-insight tools in the social organization of consumer research development. I take into account the affordances of disconnected office tools, in particular their structuring characteristics (Harper and Sellen, 1995).

Earlier I described the special position of hypotheses in this work. Here I show how the negotiation, build-up, and movement of consumer research hypotheses requires contingently navigating the features and limitations of both ubi-insight tools and incumbent (disconnected) workplace software through talk. I show how collaborators make specific types of consumer research hypotheses accountable and intelligible to one another. Specific themes include: 1. showing simple calculation to resolve analytical uncertainty; 2. writing to

initiate insight "harvesting"; and 3. standing up and drawing on an erasable whiteboard as a means of initiating hypothesis closure.

Showing simple calculation to resolve uncertainty

I return to the GCS technological service analysis case to illustrate how workers show "calculation" as a means to resolve analytical uncertainty. After spending significant time in GCS charts, the Analyst is spurred by Client Manager doubt ("*Mmhmm*") and downloads a CSV file exported from GCS to make some quick calculations. The Analyst does this to further examine the assumption that service price and configuration is equivalent to a "bundle." The disconnected spreadsheet was introduced in support of the Analyst's hypothesis of pricing and plan as equivalent to bundling, without returning to respondents to ask them the question directly.

Analyst: *But it's not high … [mumbles numbers].I think something very important here. Plan is more important than price … but price is more important …*

Client Manager*: Mmhmm.*

Analyst: *If you are [brand c] or a carrier you are not …*

Client Manager*: Yeah they're competing on price and you're not competing.*

Analyst: *Yeah vs. [brand a] and [brand b] [Downloads the data in a CSV file, creates a pivot table, selects specific competitor brands] … [brand a] and [brand b] … [toggles between answer choices and creates charts in spreadsheet]. Basically price information is the same between …*

Client Manager*: Wasn't it only 11%? So they do care about bundling more. Ohhh interesting.*

Analyst: *It's weighted [mumbles … working with data].*

Client Manager*: Could it be other [competitors], your [brand d's], etc. But we are only looking at [brand a] and. Ok so [brand a] and [brand b] over index on bundling … that makes sense [looks at ranking for answer in charts].*

Analyst: *[Changes things around].*

Client Manager*: So it's still. I thought those numbers would be higher [talking about price].*

Analyst: *It's 43% for price or bundling for [brand b] ... For [brand a] it's [does calculations between price and bundling separately]. For [brand a] it's 39.*

Client Manager*: For me that doesn't seem like huge numbers. So if they offer plans they're obviously going to over index. But 11% is not a big number. But 18% for all that's not a big number.*

Analyst: *Doesn't surprise that almost double for [brand a] and [brand b]? [shifts from CSV to GCS chart and back].*

Client Manager*: No I'm not surprised by it. What about one where [brand b] and [brand a] are very high?*

Continuing with the same case, we see another example of the Analyst relying on simple calculation in the face of doubt, this time conceding that an assumption about a type of "plan" may be unjustifiable and requires the collection of new data (something possible in general, but not in this particularly time sensitive case).

Analyst: *[opens calculator] Of this percent. 15% so 45%.*

Client Manager*: Oh 15% of [brand c] plans. Because we don't know what percentage is [service plan a].*

Analyst: *We can run another GCS.*

Doubt prompts the basic use of disconnected tools and demonstrative displays of "back of the napkin" math. This demonstrates the seriousness of preserving a hypothesis, and the effort to resolve doubt is oriented to by the group. Despite multiple rich, intuitive views of responses available in the GCS interface, the Analyst introduces a simple calculation that draws the attention of the Client Manager. Pulling from this complementary technical resource the Analyst initiates negotiation of a previously reasonable, agreed upon assumption. The reconsideration is taken seriously without additional mathematical rigor or new data.

Write to harvest insights, draw for hypothesis closure

In several instances workers become engaged in and switch to projected views of writing implements, namely, word processing documents, note entries, and presentation slides, in order to collectively pursue a hypothesis further. These tools are routinely invoked as an accountable signal that a hypothesis is sufficiently supported, leading to a call for rapid refinement and closure by the group. For one particularly salient example we return to the technological service GCS case. The Client Manager signals that they are moving from data digestion to a harvestable hypothesis-driven story by transitioning from chart views to a kind of "scribe mode."

Client Manager*: [switches charts in GCS, opens and begins typing in slides] However only 11% chose because of this … non-customers. What was that number for non-customers? [Scrolls to bottom of GCS chart].*

Analyst: *Six.*

Client Manager*: [types more in-slides]. However only 11% chose because of this … non-customers.*

Analyst: *Uh six. No I think it's that we … customer service is never going to be the most important factor. But once they have this they SEE that you have a good service. So when you offer a good service you see this increase. But as soon as you become [brand c] customers it increases from 6-11%.*

Client Manager*: So the portion increases … but that's not how we phrased the question. So are we extrapolating that? … [tries more word variations] … I think we need to dig deeper and see how important it is.*

Analyst: *If you want to capture these people it's not through customer service … because it's not important to them.*

Client Manager*: Ok so this is the slide. Customer service is not the important factor—always on messaging so that even non-[brand c] associates it with customer service … but it seems to be the one thing people think about [brand c]. But it's not what non-customers think about [brand c]. So maybe it's not an acquisition strategy but it's a brand strategy. Not for customer service, however, it is crucial for non-customers and then … we can add*

for a new customer acquisition ... focus on plan messaging, which is a primary reason customers chose [brand c].

And that fits nicely with our product launch strategy.

Analyst: *I think it's acquisition and retention strategy.*

Client Manager*: Oh yeah, that's a good idea.*

Analyst: *So it's a price and promotion.*

Client Manager*: And plan.*

Analyst: *Yeah, because that's customer service.*

Client Manager*: Yes! (finishes in-slides).*

The Analyst and Client Manager finish one another's sentences, orienting to the focusing action of word processing and related closure of the insights exercise. They refine one another's interpretation and perspective on the data through talk and by writing in presentation software until the story is ready.

While disconnected "scribe" tools are regularly used as an invitation to further develop a hypothesis, standing up and drawing on an erasable whiteboard is a much more declarative action that a conclusion should be, and has been, reached. We see this in the T4M technological services client meeting preparation case:

Client Manager 2: *You should just show ...*

Analyst: *[interrupts Client Manager 2] But that's the problem, we don't want to show zero point something.*

Client Manager 2: *But if there is more searches for [brand a] you show .... it's almost three panels like this [stands and draws on erasable whiteboard].*

Analyst: *So you have 4.3 ...*

Client Manager 1: *How is that possible?*

Client Manager 2: *[voice rising] Ok so that's completely opposite … ok for every search shown!*

Analyst: *My brain is melt …*

Client Manager 1: *We don't want to show it at zero point.*

Analyst: *Ok yeah for this … go back-back-back. For every search … go back to slide. Assume [brand a] is …*

Client Manager 2: *[speaks to Client Manager 1] We can just make this prettier right?? [Points to chart visuals and boxes on the slide] You can just get rid of this and get rid of that.*

Analyst: *Maybe you don't put negative, you just put percentage change. It's 59 divided by … no put 6% in positive [showing Client Manager 1, gestures at the screen].*

Client Manager 2 gradually builds to a declaration of the desired outcome, and the conversation quickly shifts from deliberation of a particular hypothesis in the T4M tool results to aesthetics and packaging of what will be shown to the advertiser. Client Manager 2's move from the ubi-insight tool output to standing at the whiteboard and speaking loudly is intelligible to the group as invoking focus. It is responded to as a demand to move to certainty, packaging, and polish and it inspires cooperation to move to this goal (changing decimal points to "*make this prettier*").

These examples demonstrate some of the ways ubi-insight tools integrate with the broader ecology of the advertising workplace and are drawn upon and intricately intertwined with practice and talk to accomplish consumer research work in an advertising setting.

Conclusion and design direction

As suggested above, the increasing use of data analytics, including large data sets, through ubi-insight tools of the kind discussed above, might lead one to suppose that interpretive work is less necessary, or even insignificant, under this new market research regime. This supposition turns out not to be the case. Previous

ubicomp experiences suggest they will eventually become taken-for-granted technologies that fade into the social fabric of the workplace, and as Sacks (1992) suggested, technology will be "made at home in the world" (p.549). This normalization, however, is contingent on the existing understandings of markets, the consumers that populate them, and the work that goes into making data relevant to purpose. Deriving design direction in the midst of this growth is important for the effective further development of both ubi-insight tools and adjacent workplace technologies.

This work is yet another demonstration of how workers rely on interpretive means while working with quantitative methods and tools in the workplace. More importantly, it shows how workers organize themselves to contemporary notions of the economics of consumer information, and exhibit less of an irreversible, singular focus on the automated collection and algorithmic analysis of a tsunami of digital data than some prognosticators have suggested.

These accounts point to a number of design themes that can help ensure that the social organization of work around ubi-insight tools is accounted for. I argue that at least three themes will inform further development: 1. proactive recommendation of new data collection opportunities to researchers; 2. hypotheses tracking for recommendations to researchers; and 3. attention to the connective tissue between disconnected office technology and ubi-insight tools.

In the first category, GCS could mine customer archives for "follow-up" audiences that use the same or similar questions and analyze chart view analytics from current surveys to proactively recommend follow-up audiences. It could then present new functionality within the interface allowing researchers to instantly launch a new survey with a specific "follow-up audience". This would include pricing options that allow users to "skip the line." These options are feasible with existing technology and could conceivably contribute to the evolution of an economics of consumer information. In a similar vein, T4M and *Google Trends* technology could recommend adjacent "like" categories of brand or attribute searches and allow for an automated analysis and an export option without having to start a new research project.

Second, these tools would benefit from interface configurations that prioritize hypothesis preservation. Currently, both *Google Trends* and GCS follow a traditional linear process of inputting a query or series of individual research questions, which is followed by data returned for each inquiry. Users could be given the option of hypotheses-dominant views populated in advance by the user. GCS currently offers automatically generated insights on its "insights tab." The goal of the insights tab is to report proactively on interactions it uncovers in the survey data. The ability of users to direct these insights according to hypotheses instead of individual questions would require rethinking how research tools are typically structured.

Third, product development and design efforts should seriously consider how users collaboratively look to disconnected tools when building to insights, beyond common CSV output options (a common file used to store data, typically used in spreadsheet software). Simple pre-population of prominent views of hypotheses into writing and presentation tools, combined with the ability to better synthesize and dissect results and display them for the room to see, would better support the collaborative experience for arriving at insights. Digital signals, in particular real-time search and web habits, could allow lay researchers to contextualize "small data" such as conducting quick brand website audits with broader consumer trends. Two specific changes would support the interactions observed: 1. the option to import brand attributes and categories into GCS or T4M directly from web content in their browser, and 2. contextualized views with organized search trends and browser behavior for brand attributes or categories selected. The tool could provide the ability to launch instant (search queries) or rapid (survey) analysis related to those categories through a singular gesture from a web page.

Last, integration of GCS, *Google Trends*, T4M, and other ubi-insight tools with interactive displays focused on hypothesis closure and the ability to publish these in word processing and presentation tools would support disconnected office software practices.

Rather than acting as deterministic applications, ubi-insight tools are a resource for workers to collectively draw upon while conducting consumer research work in non-research environments. We have an early opportunity to focus ubi-insight research, design, and product development efforts on the interpretive work undertaken to introduce these tools into the everyday work of non-specialist environments. This would be a departure from an exclusive focus on the veracity and optimization of the tool or method, and treating those tools as separate from the everyday research work they are used for.

Chapter 4: Discourse and data: consumer culture in everyday discourse

Abstract

Much of the literature concerning work with big data and analytics treats knowledge of groups of people and their culture as external, manipulable, and quantifiable resources that are digitized, captured, and made actionable by high technology. Recent work by Clarke (2015) describes some of the taken-for-granted, interpretive means that workers use to both conceptualize and apply their knowledge of groups of people in ways that can't be quantified by statistical methods and technical optimization techniques. Here ethnomethodological work describes the seen but unnoticed practices of identifying user or consumer culture. However, radical interpretive sociological theory and method pushes this further through exploring the implication of noticing these practices. This paper engages with an ethnomethodological case study that looks at ethnographic materials covering a digital advertising team accounting for the motive behind a key target consumer segment noticing advertising materials. This analysis shows what is involved in treating the dialogue as discourse. Through this case study, the analysis will demonstrate that if we narrowly focus on the empirical admissibility of consumer intent (compounded by the advent of big data and consumer analytics technology), then we miss the way accounts as discourse are in fact methods for accessing how "social phenomena emerge as objects in the world" (Bonner, 2013: p.21). Revisiting this case helps establish a more foundational understanding of consumer culture.

Using Blum and McHugh (1971) and Bonner's (2011; 2013) analysis of motive talk and reason giving, the analysis will show the unique insight into the culture of technological consumption that this approach to reflexivity can achieve. I show how a very particular example of a stretch of talk about a piece of technology can be examined as a cultural expression of the desire to expand human powers, and how the abstract idea of the desire to expand human powers can be critically addressed as a possibility and actualization in its own right. This analysis reveals the seen but unnoticed assumption embedded in the culture concerning the unquestioned commitment to expanding technology, which in turn has undermined our capacity to talk about purpose or point. Instead, there is only one purpose: expanding our human powers.

Introduction

In many lines of modern work, big data is the lifeblood of business. Employees work with big data and are expected to act as pseudo-sociologists with the analytical fruits of that data. One common challenge for employees in this work is addressing the tension of what they know, and what they don't know, about a group of people central to a workplace task. This task and group of people are regularly involved in consumption and its purveyance. These efforts are heavily supported by relevant consumer analytics and associated technologies. Early ethnomethodological work questions the illusion that big data and analytics technology act unaided: by examining the everyday methods of persona and segmentation work involving this technology. This method was unequipped to critically analyze the deeper seen but unnoticed issues, and the grip that they have on our discourse. A more radical interpretive sociology gives us the tools to critique these unaddressed assumptions.

Specifically, previous work by Clarke (2015) extends the ethnomethodological tradition of examining how methods "come to have a social life" (Mair, Greiffenhagen, and Sharrock, 2015: p.1), by describing the undocumented ways statistical work is accomplished outside of the laboratory and in consumer settings, and in light of new technology for that work. Workers collectively use digital consumer analytics and audience development tools in taken-for-granted ways to conduct the business of consumption. These tools give workers access to quantitative and dynamically updated data on the behavioral, demographic, and psychographic characteristics of people they wish to address, influence, and learn about in their work. Workers are expected to use this data to guide their decisions pertaining to a set of consumers. As Clarke (2015) shows, in many cases using these tools does not constitute statistical work, yet, the notion of technical automation and the aura of algorithms dominates HCI, Economics and Marketing literature, and industry conversation (cf. Clarke, 2015). This phenomenon makes it difficult to see the social character of the everyday methods used to make the tools work.

I now return to an advertising workplace for another case study. However, radical interpretive sociological theory and method approaches this problem quite differently. These grouping and communication practices have an interpretive, social character, and previous analysis focusing on these

practices portrays a set of natural choices that take moral distinctions for granted, including questions of purpose or point. Uncovering and articulating these moral distinctions requires that the reflexive boundaries of Clarke's (2015) ethnomethodological analysis be pushed further. This case moves beyond examining the taken-for-granted practices of doing consumer analytics work and moves toward engaging in the interpretive work that makes these choices natural or taken-for-granted, and in the process reveals those choices as hidden in the discourse. It will show that members go about organizing their work in intelligible ways, and that they are able to accomplish advertising work pertaining to consumer patterns by virtue of their commonsense membership, not their technical skills and specialization. A particularly important theme here is examining this discourse in relation to Arendt's (1958) notion of action and production. I show how a very particular example of a stretch of talk about a piece of technology can be examined as a cultural expression of the desire to expand human powers through technology, and how the abstract idea of the desire to expand human powers can be critically addressed as a possibility and actualization in its own right.

This chapter takes a radical interpretive case study format and demonstrates how treating digital advertising worker dialogue as discourse reveals important methods for designers and workers. These methods can help professionals achieve a richer understanding of consumer culture, and consequently, can help them make better big data application decisions through the design cycle. To accomplish this, I turn to the work of Blum and McHugh (1971), Bonner (2013), Grant (1969), and Arendt (1958). The theory and method introduced by Blum and McHugh (1971) and Bonner (2013) allows us to take a step back from a seemingly production-oriented relationship with technology in order to highlight critical cultural issues that transcend the economics of advertising and the cycles of technology. This approach provides a unique sociological perspective for the social life of methods, and one that is timely given the influx of digital consumer analytics in the workplace. This will also help practitioners develop a broader view of the issues they confront when using analytics.

Reframing the problem

In Chapters 1 and 3 of this dissertation (cf. Clarke, 2015) I provide a wider frame for thinking about how consumer culture is collectively understood with digital analytics, and how to develop effective communications for this consumer culture. This work demonstrates that by examining taken-for-granted workplace practices we can uncover some of the local, interpretive practices used to group these consumers, and we can see how workers marshal technical and non-technical resources to develop successful communications. Ethnomethodology enables us to notice the seen-but-unnoticed practices of identifying consumer culture, but what is the implication of this noticing? What is interesting about looking at the uninteresting but essential reflexivity in these cases? We can move to this larger problem of culture by challenging ethnomethodological boundaries of reflexivity. Pollner (1991) describes this as a transition from an endogenous to a radical or referential reflexivity.

The more endogenous, ethnomethodological approach to the workplace material in Chapters 1-3 shows that we don't simply comply to either internalized, shared norms or to math alone when looking to understand and act on our knowledge of groups of consumers, their behavior, and their culture. This descriptive, ethnomethodological analysis does not treat the action and language of members as simple responses to a reality existing before that action. Instead, action and language contribute to that reality, including the knowledge and characterizations of the advertising setting.

The radical reframing of the consumer analytics problem

Pollner (1991) describes referential or radical reflexivity as critical to the vitality of ethnomethodology and a deepened sociological imagination. Introducing this type of reflexivity requires that we consider the "'accomplished' character of all social activity" (p.370). Referentially reflexive sociological analysis is concerned with the constitution or grounding of practices and discourse. This unique perspective on social practice allows me to move beyond simply rethinking how we "do" user research, communication, and design, and affords a connection to deeper sociological issues. The approach helps us discover reflexive practices that reveal much about the sociological processes underlying understanding and building for the "consumer." How is making a claim about consumers even possible? In what way are the ontological

practices, and "grammatical" structure (Bonner, 2013), responsible for allowing these engagements in the first place?

> With their backs to the wall of the arena of discourse and practice, ethnomethodologists (like practitioners of any discipline concerned with "reality") are involved with, enticed by, and directed toward the "things"—structures, practices and processes—that constitute the center of their domain. What escapes the gaze of inquiry preoccupied with the world are the ontological practices that create the rim and thereby shape the arena within which such spectacles and their observers occur (Pollner, 1991: p.376).

Bonner (2013) and Blum and McHugh (1971) demonstrate how concentrating exclusively on the empirical character of talk in ethnographic and interview work (e.g. Clarke 2015) misses telling the entire story. It represents a focus on the "factual" vs. the "grammatical," which neglects to highlight the "ways of accessing how social phenomena emerge as objects in the world" (Bonner, 2013: p.21), or the "meta-breaching" that Pollner (1991) refers to. That is, the ethnomethodological accounts provided in Chapters 1-3 (cf. Clarke 2015), while useful, are a surface representation of a deeper "grammatical" structure that provides ways of accessing the development of these deeper issues, namely, *how consumer culture emerges as an object in the world for members and theorists.* This approach to knowledge and technology aims to reveal the assumptions and commitments that make possible the empirical accounts of ethnomethodology and social science work (on categorizing people and understanding their needs): along the way it raises for examination deep issues about, and uncovers the deep needs residing behind, these assumptions and commitments. In this case reflexivity is "the courage to make the truth of our own presuppositions and the realm of our own goals into the things that most deserve to be called into question" (Heidegger, 1977: p.116, as cited in Bonner, 1997: p.9).

The data

INFORMS (2015) defines analytics as "the scientific process of transforming data into insight for making better decisions." A well-known study from McKinsey defines big data as "datasets whose size is

beyond the ability of typical database software tools to capture, store, manage, and analyze" (Manyika et al., 2011).

Accounts: unique ways of accessing culture

Much of the big data gathered through the analytics process to address the problem of what we know, and what we don't know, about groups of people follows a "knowledge by discovery" social scientific perspective. Chapters 1-3 (cf. Clarke 2015) demonstrates the additional, interpretive, taken-for-granted work required to both understand and apply knowledge of groups of people by observing and describing the interactions of workers using analytics as part of their profession. I now ask how the advertising worker (as a kind of pseudo-social scientist) gains admittance to the culture of a group of consumers (men) who are potential users of products (a yard work product). As dynamic groups, with infinite ways of being talked about, categorized, considered, and approached, and with supposed needs that change over time, how are these groups of people captured by both by "big data," but more importantly, by workplace talk? How does their culture appear in workplace talk? More specifically, how does the transcript of the ethnomethodological account provide us access to this user culture?

The case

A group of Google advertising workers, through their daily work of gaining consensus on what consumers want, and determining how to satisfy their needs through effective communication, discuss the best method (technical and otherwise) to digitally advertise to consumers looking to buy a leaf blower powered by novel electric technology (*the actual product has been replaced by another, and the brand has been concealed)*. Chapter 1 shows that these workers draw on a number of technical and non-technical, statistical and non-statistical, resources to accomplish this work. As a follow-up analysis to Chapter 1, this study involves the Advertising Client Services department at a Google office that employs a range of sales staff and technical advertising product experts. From a radical interpretive perspective, we now ask how a researcher gains admittance to the culture of consumer culture, more specifically technological consumer culture. As Bonner (2013) asks, how is this culture open to theorizing? How does this appear in everyday work discourse and how can we access it, methodologically speaking?

The following provides a recap of the advertiser setting. The purpose of the work observed is a branding advertising campaign conceptualization for advertising clients.

Google workers respond to "Request for Proposals" (RFPs) from advertising customers, which are documents inviting advertising providers like Google to present plans for brand advertising campaigns according to a set of specifications. These requirements include business objectives and a variety of advertising campaign goals, including consumer segments (groups of people an advertiser wants to influence). The campaign plan in the RFP response typically includes desired storylines and supporting technical specifications. This involves working knowledge of a range of consumer profile targeting capabilities and video advertising formats. These "consumers" (referred to here on in as users or audiences in the context of advertising recipients, and consumers when referring to the purchase and use of a brand's products) should not be confused with advertising customers. Users are groups of people exposed to advertisements on the web, and advertising customers are representatives of brands who purchase advertising in order to deliver ads to users (referred to as advertisers).

Client Managers oversee advertiser accounts. They define objectives with advertisers and help conceptualize, launch, and improve the performance of advertising campaigns. Brand advertising campaign specialists (Brand Leads) and technical advertising product specialists (Product Leads) are shared resources available to Client Managers. The former helps client teams, and ultimately advertisers, conceptualize advertising campaigns with a brand development goal (improving the perception of a brand versus a strict online sales transaction goal) and draw on brand marketing expertise and knowledge of branding-focused digital products (YouTube video advertisements in this case). Technical advertising product specialists can be as technical as engineers, and have typically held advertiser-facing roles in the past. These Product Leads are responsible for a technical advertising product area and act as a bridge between Engineering and Sales. All are heavily trained in digital marketing technologies—for conceptualization, implementation, and optimization.

The Google team's technical working knowledge consists of two major areas: consumer profile or "audience" products, such as affinity audiences and remarketing, and YouTube advertising formats. Affinity audiences are digital consumer profiles that consist of a set of web users who demonstrate a qualified interest in a particular topic (such as the number of visits or time spent on a category of sites). Examples of affinity audiences include Savvy Parents and Green Living Enthusiasts. Remarketing helps advertisers reach people who previously visited sections of their website. These remarketing consumer profiles allow advertisers to deliver tailored advertisements according to past interactions with their digital properties. Remarketing is referred to as storyboarding when used to present users with successive advertisements based on past exposure (the next part of the "story").

YouTube advertising formats appear on YouTube.com and are used in conjunction with consumer profiles for different advertising tactics. Formats include desktop computer or mobile ads, skippable or non-skippable video ads, and banners appearing beside videos. Successful brand campaign plans (responses) "win" the RFP and are created in the Google Adwords online service. Adwords allows advertisers, or Google teams on their behalf, to select groups of users for ad exposure by configuring parameters in the interface, including when to deliver ads, how much to deliver, which digital properties to deliver them to (e.g. Google.com/YouTube.com), and which formats to use (banner ads, video ads, mobile application ads, etc.). After receipt of an RFP, typical Google activities include: a) an internal Google meeting to conceive a campaign plan; b) preparing documents (routinely a slide presentation) for evaluation by the advertiser and sending them to the advertiser for approval; and c) advertiser acceptance and technically implementing the campaign.

Chapter 1 provides transcript snippets from this ethnographic data collection and analysis of this setting and work.

In the following interview extract, the advertising team are presented with target consumer segments to work with. These segments are validated by digital analytics and commercial quantitative "knowledge by discovery" market research. One participant describes the information they receive before they undertake their specific advertising work.

"They have people that crunch analytics on their end, people that they do surveys in market … They share the basic brief with us, and from that research they pull the target audience that they send on to us."

Another participant describes how the Google team proceeds following receipt of the consumer segment data from an advertiser.

"Normally we're not going super deep, at that point we assume the data supports that this is a product they should be pushing."

The workers take the brief (which includes the analytics and quantitative research findings referenced) and work to create a specific advertising program that includes creative recommendations (messaging and other creative elements to include), and a consumer-targeting plan for the advertising creative to run on Google/YouTube sites using additional big data and analytics.

In one particular stretch of talk, the workers discuss how to craft an effective advertising message. This work includes deciding on which elements of the messaging (the story, and the depiction of people using the product) would be most successful in attracting that target consumer segment to buy a product. In this case, the consumer target includes adult males who are homeowners in a Western country. The advertising team works to both shape the advertising and bring relevancy to its messages for the consumer segment. Success for the Google advertising workers means delivering an agreed upon a plan that successfully satisfies the advertiser's RFP so that Google is subsequently awarded the project. This requires demonstrating competency in the consumer segment the advertiser is targeting, applying that understanding to Google advertising capabilities in order to build a successful campaign, and ultimately, proving to the advertiser that their plan will lead to better business outcomes. In this case, that means improving the perception of the advertiser's brand in the lawn care category, and selling more leaf blowers to the advertiser's male consumer segment.

Brand Lead 2: "Well, who else needs to do leaf blowing? The kid isn't the target demo."

Brand Lead 3: "Well, men want to do leaf blowing."

Brand Lead 2: "We could do the guy's wife, teenage daughter 'oh I don't want to do it', was easy just turned it on and done. I just want to see other people take the challenge, this is the core here."

Brand Lead 1: "The first leaf blower I bought [from this brand], it broke. It was because it was overworked."

Brand Lead 2: "Well [doing this work in a lab environment] doesn't mean anything."

Client Manager: "Another thing they called out, was voltage, but if you're looking at gas power. So when a dude walks in, a thing like voltage actually stands out."

Brand Lead 2: "Just because if you're doing a shelf comparison, you're making decisions between two."

Brand Lead 1: "I don't know if I have a ..."

Brand Lead 2: "You've got the additional video on YouTube challenge spot. It's either the same guy using different machinery, or others using others, do you want the morose daughter using this type of equipment or a little kid doing the yardwork?"

(See Chapter 1 for the extended exchange).

We can see how culture emerges through discourse by paying attention to how the observer (the Client Manager) ascribes a motive or reason for a hypothetical motivated object (the "dude") for noticing voltage.

The Client Manager suggests the dude notices voltage because he's interested in leaf blowers that have electrical features that stand out.

Neither the ethnographic account, nor the Client Manager, claim that this is an objective, empirical representation of how we determine the consumer needs or desires of dudes en masse. This statement is admissible from the radical interpretive perspective as data when it is viewed against the "conditions of knowledge that make the statement possible" (Bonner, 2013, p.24). The Client Manager's claim about the dude's attention being drawn to voltage is a "recognizably intelligible way of account for the attention" (p.24)

and its recognizability submits to a culture, and a taken-for-granted ground that allows for its intelligibility in the first place.

This differs greatly from how practitioners (market researchers) and professional social scientists consider data and its admissibility.

How different perspectives treat this data

Next, I demonstrate some of the ways that other perspectives approach consumer culture, and contrast them with a case examined through the perspective of Bonner (2013) and Blum and McHugh (1971). I do this for three reasons:

1. To show how these accounts demonstrate ways to gain access to a very specific technological consumer culture.
2. To make a transition from the factual to the grammatical of consumer reason-giving practices.
3. To provide alternative technological orientations for consumer groups and people involved in advertising.

Following Bonner's (2013) analysis, this case will demonstrate that focusing on whether this type of workplace talk is an empirically accurate representation of consumer culture and how workers come together to understand that consumer culture is a narrow view of Weber's social action. From here, this investigation will reveal some of the "insights into culture" that a radical interpretive perspective (theory and method) can make.

As Bonner (2013) shows, discussing this transcript's status as data through the eyes of dominant perspectives that attempt to understand "consumer" culture is important. The radical interpretive perspective views the status of data much differently from the knowledge by discovery (Bonner, 1997) paradigm mentioned earlier, e.g. away from distinguishing "objective" from "subjective" data, or primary from secondary data.

The knowledge by discovery paradigm, where the mind and the phenomenon under examination are treated as separate, would view the stretch of advertising talk as an invalid avenue for understanding user culture. It would be described as anecdotal, hearsay, or biased. Social scientists who subscribe to a knowledge by discovery paradigm would treat the Client Manager's description of the dude's reason for noticing voltage technology as opinion, and potentially vulnerable to self-service. Instead, followers of this perspective would invoke the privileged position as an ordained observer of primary data, across a group of respondents/subjects. Similar to the quantitative analysis passed from the advertiser to the Google team, social scientists (and "big data" scientists) would aggregate their observations of many dudes' responses to consumer culture and then use them to create representations of consumer culture.

Ethnomethodology and consumer culture

Ethnomethodology, in particular in Clarke (2015) and Chapters 1-3, brings a different, knowledge by interpretation perspective to this problem of accessing and managing consumer culture. It accomplishes this through describing the cooperative work undertaken to understand consumers. It moves beyond quantitative, technical work and instead offers descriptions of the taken-for-granted "documentary" methods deployed to work through this categorization. Ethnomethodology is no stranger to tackling epistemological issues, and is equipped to provide frank analysis that runs counter to the clean and exhaustive dominance of objective social science work, whether describing the detailed social practices and structure of mathematical work (Livingston, 1986), social scientific practice (Maynard and Schaeffer, 2000), or how statistical methods, through locally produced structures, come to have a social life (Mair et al., 2015).

As shown in Clarke (2015), an ethnomethodological perspective treats behavior and culture as inextricably intertwined, and shows that you must first enter the setting of daily life before you can sufficiently articulate the social activity that comprises it. Clarke (2015) suggests we treat data, such as the Client Manager's assertion of consumer desire and purchase motive (accessed in this case through analytics technology), as evidence of a broader consumer culture issue.

For the specific stretch of talk introduced earlier, Chapter 1 asks what interpretive work is employed by advertiser collaborators to treat the Client Manager's "data" as evidence of a structured user culture issue, and how do both that fact about the consumer and the organizational (advertising program) structure it comes to represent inform one another? How is this insight treated as part of an underlying structure? That is, these are not simply actions responding to a static reality, but are actions that shape this reality in turn.

The Client Manager and his colleagues who react in agreement provide a technological, gender-specific motive for a group of people acting on consumption desires. The motive is treated as part of some underlying structure or pattern of consumption for men, including how advertising will perform if the team caters to that rationale. The common culture here is male communication and consumption culture, a culture thought to respond to standout characteristics of products ("voltage"). This male communication is something that the team takes for granted, and that the ethnomethodological perspective calls attention to in the analysis. Garfinkel (1967) would claim that social scientists, and the "pseudo" social science undertaken in advertising work, requires that we use this documentary method of interpretation. The ethnomethodological account of this work in Chapter 1 describes the way this document helps the group point to an underlying pattern of gendered technological consumption.

Ethnomethodology is useful to contrast knowledge by discovery and knowledge by interpretation approaches to data. The perspective has consistently been a key participant in the ongoing debate between qualitative and quantitative research, and what counts as "good" research. Mair et al. (2015) note that the recent embrace of digital analytics has reignited the debate in this arena. In true ethnomethodological fashion, Mair et al. (2015) redirect the conversation to examine the taken-for-granted practices of this research, in this case, statistical methods, and how they come to have a social life. This perspective is particularly unique when extended to applied digital analytics work outside of the academy (again, as seen in Chapters 1-3).

While emerging from many of the same roots, the radical interpretive perspective radicalizes ethnomethodology. Like ethnomethodology, radical interpretive sociological theory and method are

equipped to demonstrate the value of the types of data that the knowledge by discovery paradigm would consider anecdotal. Thus, a conversational workplace reaction or elaboration upon analytics-based research can be treated as sufficient "data." Through showing how this talk can be treated as sufficient data, the radical interpretive perspective illuminates the social conditions of knowledge embedded in motive discourse. This in turn helps us reveal deeper, more fundamental sociological issues in that discourse.

Further on, I will outline the virtues of the radical interpretive perspective, in particular, those incremental to ethnomethodological insight.

Discovery research and consumer culture

For discovery research, this instance of talk would be treated as invalid for accessing and understanding the phenomenon of interest. Psychology and consumer behavior approaches are two popular disciplines used to examine consumer culture in advertising. They typically adhere to the knowledge by discovery paradigm in their approach. That is, they routinely privilege primary data, such as behavioral and survey data, and employ the suspicion required to adhere to the scientific method (Berger, 1963). For example, in the *Journal of Advertising Research*, Rodgers and Harris (2003) draw on survey shoppers to consider the role of gender in ecommerce. They deploy a survey of 227 respondents from a small midwestern community, and operationalize the concepts of emotion, trust, and convenience in order to measure whether they predict consumers' satisfaction with online shopping (an emerging technology at the time). They go on to recommend that advertisers develop strong emotional bonds with female advertisers. For another example, Darley and Smith (1995), also in the *Journal of Advertising Research*, create an experiment to test the predictions of an information-processing model called the "selectivity model." Females are hypothesized to process information comprehensively (thus considering both subjective and objective product attributes), whereas males use heuristics and miss subtle cues. The model supports the female hypothesis, but men didn't respond as positively as predicted to the objective product attributes.

If we wanted more detail beyond the consumer segment analytics provided for the case at hand, psychologists and consumer behavior experts could set up an experiment in the vein of these *Journal of*

Advertising Research articles. The advertising client's research department could, and routinely does, produce this type of work. They could operationalize and measure elements of consumer culture and whether they correlate or have a causal relationship with the success of different message configurations to see whether males "notice.". This would mitigate reliance on anecdotal statements about consumer orientation to technology in the advertising workplace and help workers learn how to create better messaging for the priority consumer segment. That is, psychologists and consumer behavior experts would advise on the gendered reason for noticing marketing (voltage).

These knowledge-by-discovery proponents take their orientation to data for granted. They believe knowledge is objective and independent from the observer. This assumption denies the conditions and structure or "grammar" that allows us to ask these questions about consumer culture and technology in the first place. In contrast, ethnomethodology disagrees with the notion that human action and interaction can be spoken for through mental processes and predicates. Radical interpretive sociology pushes this ethnomethodological move a step further by moving from a focus on the factual to a focus on the grammatical (Wittgenstein) and identifying the commitments the discovery paradigm has made.

Using our advertising case, I will move beyond the superficial, surface representation of consumer group motives, and past answering the factual question of "why" (or, in our earlier cases, "how"). Instead, I will formulate the "socially organized conditions" (McHugh et al., 1974: p.31) that ground this stretch of talk—those raising (advertiser), responding (Google), and reacting (the entire group) to the question (Bonner, 2013).

Transition to radical interpretive sociology

Bonner (2011) suggests we radicalize an endogenous reflexivity predicated on the documentary method of interpretation. This radicalization is accomplished according to the "analysis" work of Blum and McHugh and the dialectical hermeneutics of Gadamer: "how does the theorist reflexively account for the method of finding a method, as they say, the theorist needs to account for why she finds such an interest in

description interesting" (Bonner, 2011: p.5). In other words, what is it about the Client Manager's account of social action, and my previous analysis as an ethnomethodologist, that I, as a referentially reflexive sociologist, need to take into account?

Ethnomethodologists articulate the interpretive structures and work that both everyday members and professional social scientists take for granted, whereas analysis suggests workers and researchers are "showing themselves" by demonstrating the kind of world that is beneficial, or valuable, as a topic worth researching. This perspective proposes to provide a deeper sociological view that helps with understanding factual and grammatical distinction. What Bonner (2011) argues is that for every research claim made, a researcher is also demonstrating the requirements or criteria for that truth claim, which is a "display of the ground for who we are as researchers" (p.10). Thus, what needs to be shown in this case is not whether the advertiser, or the Client Manager, is right or wrong (in their suggestions regarding the way a certain type of consumer responds to a particular message, has certain technology needs as a group, or whether or not this is the most advantageous group to message to). Instead the analysis needs to demonstrate the way consumer claims acquire their status as knowledge (Blum and McHugh, 1984), and how this claim as "truth is completely and deeply a procedural affair" (McHugh, 1971: p.332-333). That is, we need to show how members, in going about organizing their work in intelligible ways, reproduce the social conditions of knowledge production. Going to the store and examining a product or advertisement is an ordinary, commonsense, intelligible activity, and both the workers and consumers get it by virtue of their membership and not their specialization (e.g. technical skills and expertise as advertising workers).

Sacks (1974) suggests that formal analytic sociology ignores the critical "problem of members' knowledge and problem of relevance" (p.216). "Sociology and anthropology need not await developments in botany or genetics or analyses of the light spectra to gain a secure position from which members' knowledge, and the activities for which it is relevant, might be investigated. What one seeks to build is an apparatus which will provide for how it is that any activities, which members do in such a way as to be recognizable as such to members, are done, and done recognizably" (Sacks, 1974: p.218). In previous work, Clarke (2015)

embraces this problem, specifically in relation to members' knowledge and its relevance in relation to big data and consumer analytics.

This approach is possible based on what Sacks (1974) calls "the fine power of a culture" (p.218), which "does not so to speak fill brains in roughly the same way, it fills them so that they are alike in fine detail" (p.218). One of the means for navigating this culture, for both analysts and everyday members, is Sacks' Membership Category Analysis: the identification of people as types, which are utilized as a resource in dealing with others. Membership categories are a sensemaking tool for our social world and are used by everyday members and analysts alike. Membership categories are used to describe the practical reasoning we rely on to recognize and act in our social world. In Sacks' famous example of membership categorization and the ability for infinite ways to understand the sentence "The baby cried. The mommy picked it up" (Sacks, 1974: p.216), hearers assume a particular context (the mother is the mother of that particular baby) without the specific circumstances of the situation (e.g. where did this happen, when did it happen, etc.) needing to be known. Mother and child are two examples of membership categories, however, as members of society we all belong to a multitude of membership categories, and for Sacks those categories are only "operationally relevant" in the particular situation and context of an interaction. In the mother-baby example, the membership categories and the situation are mundanely discernable, and Sacks tries to account for the way it is recognized through articulating a member's mechanism (membership categorization and other rules) for dealing with abstractness and lack of infinite detail in conversation/reading. This can be contrasted with the formal analytic social sciences, where the social scientists assumes relevance, in absence of determining this operational relevance for the interaction those people find themselves in. Ethnomethodology promises to help empirically find and describe this relevance by entering the situation members find themselves in, and closely examining the data (talk) that grounds that interaction. This is one way to determine the local character and relevance of these membership categories.

In his extension of Blum and McHugh's (1971) motive talk work, Bonner (2013) takes this notion of "the fine power of a culture" and applies a radical interpretive reflexivity to push it further, showing that "the discourse of reason giving is so pervasively mundane and so fine grained in our culture (Sacks, 1974) that it is

difficult to recognize the activity" (p.25). Just as ethnomethodology introduces breaching experiments to demonstrate what we assume in our engagements, Bonner (2013) encourages us to illuminate the hold that the discourse of reason-giving has on our culture, by thinking of a reason for a consumer noticing a standout feature that is so bizarre, "it points to members' inability formulate themselves and their environment" (p.25). (We will take up this idea later on in the paper).

The claim of the Client Manager shows itself as one of the productive responses to the everyday culture of technological consumption. And according to Sacks, Garfinkel, and Bonner, the work here for the theorist is neither to suggest an alternative opinion to the Client Manager's reason that a feature was noticed, nor to validate the response. Rather, the theorist's job is "to formulate the grounds" that make the Client Manager's speech possible, and show how the culture of technological consumption shows itself and "comes into being" in talk. In this vein, I must reinforce that the goal is not to dismiss the merits of looking at this problem from the perspective of economics, engineering, or psychology, nor to question the relevance of a particular orientation to technology. Rather, I engage in an analysis that reveals its foundational structure in order to see what is at the core of these engagements: the grammar upon which facts are built. The Client Manager's claim is an intelligible way of thinking about a consumer group reacting positively to a message.

Ascribing consumer motive: motive talk

Brand Lead 2: "Well, who else needs to do leaf blowing? The kid isn't the target demo."

Brand Lead 3: "Well, men want to do leaf blowing."

Brand Lead 2: "We could do the guy's wife, teenage daughter 'oh I don't want to do it,' was easy just turned it on and done. I just want to see other people take the challenge, this is the core here."

Brand Lead 1: "The first leaf blower I bought [from this brand], it broke. It was because it was overworked."

Brand Lead 2: "Well [doing this work in a lab environment] doesn't mean anything."

Client Manager: "Another thing they called out, was voltage, but if you're looking at gas power. So when a dude walks in, a thing like voltage actually stands out."

Brand Lead 2: "Just because if you're doing a shelf comparison, you're making decisions between two."

Brand Lead 1: "I don't know if I have a ..."

Brand Lead 2: "You've got the additional video on YouTube challenge spot. It's either the same guy using different machinery, or others using others, do you want the morose daughter using this type of equipment or a little kid doing the yardwork?"

Now I propose to use the Client Manager's reason-giving ("*So when a dude walks in, a thing like voltage actually stands out")* and show how it can be examined through the lens of Blum and McHugh's (1971) and Bonner's (2011; 2013) analysis of motive talk. Like Bonner (2011; 2013), I provide an example of how examining the treatment of data from a radical interpretive perspective, in a setting highly dependent on quantitative, behavioral, digital analytics technology, can be fruitful. I propose to illuminate the criteria of the conditions of discourse and knowledge for intelligible reason-giving that the Client Manager's talk satisfies. This helps to hold up for examination the essential issue or principle contained in this stretch of talk. Is it about Persuasion? Seduction? Appeal? Human Power? Recovering these deep issues embedded in the taken-for-granted grounds of the talk are complementary to the dominant, incumbent perspectives typically relied upon for evaluating consumer culture.

The Client Manager presents the "dude" as an oriented consumer in the context of a set of oriented colleagues at Google, and an oriented advertiser. The intelligibility of this talk, as being oriented to the request of the advertiser, is taken for granted by ethnomethodological analysis and the analytics presumed as passed along by the advertiser in the RFP. The case shows how a stretch of talk can be considered as sufficient data, because "it is, in an obvious and taken for granted way, understood to fulfill the conditions of discourse for intelligible reason giving" (Bonner, 2013: p.24). Referring back to the section of the workplace interview, we see that big data and consumer analytics technology are treated as leading the Google workers to an obvious place to start making these distinctions. Here we have *an observer* (the Client Manager), *an object* (the dude), *an event* (noticing voltage), and *a reason* for the event (he's interested in leaf blowers that have standout technical features).

Stage 1: Motives are observers' rules

The first step of motive talk assumes the action is neither arbitrary nor an accident. What is it about this workplace talk that shows how an observer of advertising and consumer culture (the Client Manager) expresses him or herself as recognizing and adhering to the rules that govern the dialogue of the mundane, commonsense, assumed request for an account when an event (taking notice of a feature, e.g. voltage) occurs? The Client Manager's claim is a response to a litany of contributors in the advertising industry, many professionally laying claim to motivations behind consumer behavior. The talk assumes a "dude" who knows what he is doing and is oriented to his environment. The Client Manager's statement illustrates the way members of an intersubjective community, through mundane, routine, commonsense methods, develop both their environment and themselves. Part of the criteria of belonging to a commonsense community is to develop these events according to the order of knowledge for giving an acceptable account. The Client Manager is telling us that noticing a technical feature is an occurrence that the regular, mundane, assumed action of giving a reason can make sense of. The utterance is an achievement of the requirements for accomplishing reason-giving, and thus also needs to be a focus for the analysis of this talk. In this case, the act of noticing is treated as oriented action and the reason for noticing (voltage) is an intelligible reason within leaf-blowing culture.

Reason-giving talk is so deeply integrated and mundane in our culture that it becomes challenging to notice. In order to reveal and recognize this behavior, we need to move beyond an ethnomethodological breach and toward the "meta-breach" of ontological foundations, as Pollner (1991) suggests. For this, we need to conceive of a possible "breach-type" answer to the question of why the dude noticed the voltage "that is so absurd that it points to members' inability to formulate themselves and their environment" (Bonner, 2013: p. 25). If the observer (the Client Manager) had instead said that the dude noticed the leaf blower as an outcome of an intergalactic alien game, then the Client Manager is suggesting the rules of reason-giving cannot be drawn upon, which would call into question the observer's competency as a commonsense member of this community. The ordinary intelligibility of offering a reason for noticing a machine, as was seen in this stretch of talk, formulates the dude/consumer as an instance of Weberian social action (Bonner, 2013; Weber, 1978). When the Client Manager conceives of voltage being noticed because of a connection between a product and an interest, he demonstrates his competency and commonsense membership. The concern here

is not the dude as an empirical being out in the "real" world, but rather the intelligibility of the talk—noticing a leaf blower because of voltage. The role of the radical interpretive researcher here is not to contribute additional opinions or to validate the data (or deem it inadmissible); it is to articulate the foundation that makes the talk by the Client Manager possible in the first place. By doing this, the radical interpretive perspective can show the way that the culture of technological consumption comes into being through discourse (Bonner, 2013).

This talk serves as an example of how members of a commonsense community establish themselves and their environment, and does so in accordance with the rules of knowledge for motive talk. Through this process, it develops the possibility of noticing consumer technology features as an instance of Weber's social action. The Client Manager puts forward the dude as an oriented actor, as one who is competent in the ordinary commonsense way Garfinkel has described. Noticing a feature in a product is an oriented action according to Weberian oriented action. "Weber defines social action as action that takes into account the behavior of the other and is oriented in its course" (cf. Bonner, 2013: p.26). For the Client Manager's claim to be intelligible, the conversation requires the dude to be considered as an oriented actor. The dude, who is articulated in this usage as an actor processing information in a consumer psychology sense, can take into account the machine presented to him in the story, and orient his actions accordingly (stop and notice the product). The discourse establishes the dude as a commonsense member when a reason is provided for explaining the event of him noticing the machine, but it must also formulate this as part of the everyday culture of technological consumption. The dude is not noticing the technology because a sinister advertising spy implanted a shopping brainwashing device into his mind to control his every purchase action, or because he checked the results of the intergalactic alien game. In summary, the talk about the dude noticing a leaf-blowing machine because of its voltage is ordinary intelligible talk and so follows the rules of ordinary intelligible talk. The observer (the Client Manager) formulates the noticing of a machine as noticing for a reason (voltage) and so the action can be formulated according to the rules for "reason-giving."

Stage 2: Motivated objects are theorizers

From the radical interpretive perspective, motivated objects are theorizers, or in the idiom of

ethnomethodology, practical reasoners. The dude is a consumer who is formulated as noticing things for a

reason. The conversation in question depicts an onlooker, the Client Manager, as someone who can recognize

oriented action. I (the ethnographer), the Client Manager, the Client Manager's colleagues, the advertiser, and

male consumers have membership in a commonsense community "that is collected by a deep agreement on

shared intersubjective understandings, an agreement that makes possible their disagreement" (Bonner,

2011: p.18). As Bonner (2011) says, the Client Manager, through initiating a motive "as a way to account for

an event in the world" (p.18), is to claim that dudes, as constituted by this talk, are members of an ordinary

commonsense community, and to belong to this community requires that noticing things is done for

intelligible practical reasons. The talk formulates the dude as a reasonable, competent commonsense member

of the world of everyday Western consumer life. Membership in this sense is not ordained as a designation,

but is established by the grounds of the discourse. Membership of this kind excludes those not able to be

oriented in the Weberian sense, those incapable of oriented action, those whose actions are formulated as

being externally caused (e.g. animals, those who are severely mentally incapacitated, babies). The act of

noticing "voltage" is formulated as a reasonable action for an actor interested in purchasing a leaf blower. The

Client Manager's talk assumes a competent consumer (who notices voltage and not the accompanying rake

beside it, etc.), so the talk assumes a competent consumer of a technological product.

The Client Manager's claim establishes motivated objects (dude) as practical reasoners in the world,

which, as Blum and McHugh (1971) and Bonner (2013) point out, is a requirement for recognizable reason-

giving or motive talk. As a researcher who adheres to a radical interpretive perspective, I am also an oriented

actor, as established by this discourse. I will not offer an additional reason for the consumer to react to

technology messaging positively or negatively. Instead, my task is to recover the ground that makes the Client

Manager's understanding and account of that understanding an intelligible (or as Garfinkel calls it, an

"empirically imaginable") possibility.

Stage 3: Consumer motives have a grammar

Motives have a grammar, and the grammar collects the event with a biography. Following Bonner (2013), the Client Manager's motive provision becomes an intelligible, everyday activity through the way he "collects the event with 'the available corpus of designations'" (Blum and McHugh, 1971: p.105), that is, it shows a grammar. This move helps the reflexive theorist reveal the core community the discourse is rooted in. Blum and McHugh's (1971) reflexive concept of grammar is based on Garfinkel's documentary method of interpretation and Schutz's (1953) common stocks of knowledge. Everyday actors presume this stock of knowledge as they organize social action. The Client Manager's motive ascription establishes male consumers as social actors with owned experiences (a homeowner, a male, an adult, a consumer of digital media, someone with a job that provides them with disposable income to consume nonessential goods, someone who enjoys working around their property, someone with an interest in lawn care technology with standout features, etc.). These owned experiences are accessible to the intersubjective community of ordinary members as part of this common stock of knowledge of actors in a modern technological society.

The Client Manager's reason-giving illustrates that he is a commonsense member of a technological consumption community. The Client Manager, as an observer, draws on the common stock of knowledge (Schutz, 1953) of these owned experiences to connect the event of noticing the voltage feature to a precise group of oriented social actors who comprise technological consumer society. Making this event-biography connection has no bearing on whether this "dude" has many or just a few friends, is a Liberal or a Conservative voter, is a Protestant or a Catholic, or on which type of college he attended. These characteristics are not seen as relevant for explaining the event of noticing the voltage feature. If the event to be explained was attending a particular church, then a group of owned experiences developed as a biography would instead select a religious or spiritual person rather than a lawn care consumer as a membership category. That this dude is a potential consumer of lawn care products is considered relevant for connecting the event (noticing) with biography (interest in voltage), as my deep structure of this reason-giving talk shows.

As Bonner (2013) points out, these are examples of Sacks' (1974) membership categories that display their relevance through the talk: "adequate reason giving shows awareness of the culture's rules of relevance; that is, it shows what designations are relevant to connect with what events" (p.27). The Client

Manager and the Advertiser talk can be analyzed with the help of Sacks' (1974) membership categorization, which demonstrates the competency of these speakers as everyday members of an intersubjective, commonsense community. This competency is demonstrated by showing how the talk adheres to the conditions of discourse, which is in turn demonstrated by doing a deep structure analysis showing how events are connected with biographies.

This discourse, reflexive work, and uncovering relevant membership categories, help reveal the subtleties of a particular culture. In this case, I focus on the manner in which interpretations are accomplished (Blum, 2003), which is in stark contrast to lay and professional sociological work objectives. The culture of the modern, westernized, gendered consumption of technological products, including the culture of how people react to advertising such products, as revealed through this analysis, is both unique and subtle. Orientation toward certain products and technology, consuming a particular way because you are an adult male, or a homeowner/renter, are all relevant membership categories for this situation, and are inextricably intertwined. We can imagine that for alternate cultures, other membership categories would be accessible within the conditions of discourse. For example, when set against cultures where home ownership is rare (say, Germany or Hong Kong), where adult males make all of the purchase decisions, or conversely where there is a keen sense of gender equality in all aspects of life, or where new technology is not a consideration such as in some Old Order Mennonite communities, a completely different set of membership categories in relation to a different example of reason-giving talk becomes relevant and accessible. As Bonner says, "the authoritative community" or culture of this discourse provides for the empirically possible responses. In this case the response is the provision of a reason to satisfy a query, which in the process excludes alternative avenues (as demonstrated when describing relevant membership categories).

Stage 4: Consumer motives formulate a type of person

The intelligibility of the discourse of any motive talk rests on a deep structure that draws on taken-for-granted commonsense understandings, including relevant membership categorization: this in turn reveals a culture where these categories are relevant. Here the idea of male demand for lawn care products,

the practice of advertising to entice demand from male homeowners for those products, and male consumer choice in selecting those products are seen as assumed but unnoticed and appropriate lenses through which to make sense of the event of noticing a voltage feature. These deep structure features are not empirical categories but are rather what empirical categories (the factual) rest on. In applying these deep structure features (e.g. motives have a grammar), we begin to see that the talk of the Client Manager is embedded in a specific culture with its own common stocks of knowledge and methods for accomplishing sensible talk.

The deep structure of all intelligible motive talk is that motives not only have a grammar but they formulate a type of person. Applying the deep structure to this stretch of talk shows an actor as the type of person who would notice voltage (rather than the type of person who would notice aesthetics, or price, etc.). Thus, the talk formulates the dude as the type of person who, when faced with the variety of features and attributes that a leaf blower has (such as color, shape, price, packaging, brand, etc.), notices "voltage." The talk formulates a consumer who is knowledgeable about the leaf blower's electric power and is attracted by that. The dude wants power and in particular technological power to get the job done. The end is taken for granted and the means is the efficiency (more on this later). This type is a recognizable actor in modern technological consumer culture, in this case a male who wants products that are powerful, the type who wants horsepower, powerful tools, and powerful toys. The talk treats as a necessary resource this very recognizability. The culture in which the intelligibility of the talk is accomplished is now becoming more specific. This deep structural element of all motive talk rests on the cultural recognizability of a type of person who is attracted to tools because of the way they enhance human power.

Unlike methods originating from the social sciences, this analysis is neither supporting nor denying the validity of the Client Manager's claims. Nor does it seek to describe empirical employees called client managers. Instead, it recovers the necessary ground (deep structure) that makes all motive discourse intelligible talk, and in this case recovers the specificity of the culture that allows for this specific example of motive discourse.

The Client Manager is engaging in intelligible reason-giving talk, an intelligibility granted by his ordinary competent membership in everyday life. This talk rests on the deep structure on which all motive talk rests (Blum and McHugh, 1971). In this specific case, the Client Manager formulates an object (male product-consumers) as an ordinary oriented actor (motivated objects are theorizers) who acts for a reason, rather than randomly. The Client Manager, as observer of an action (noticing a leaf blower), and through the deep structure of motive talk, engages in ordinary reason-giving talk that formulates the object of the talk as a type of person who would notice a leaf blower. While there are many empirically imaginable reasons for noticing leaf blowers, the reason-giving talk formulates the dude as the type of person who notices voltage. Given what we've seen here (and built up from work in the previous three chapters), when professional social scientists, statisticians, typical market researchers, engineers, and statisticians explain that a group of consumers consume in way that reflects their web usage profile, they draw on the methods by which "common sense members construct and sustain a world where that is seen as one possible reasonable explanation" (Bonner, 2013: p.29).

Stage 5: Consumer motives formulate actors' methods

The fifth deep structural element of all motive talk is that motives formulate actors' methods. The mundane, taken-for-granted discourse of reason-giving establishes actors who, as types of people, have means for showing their reasons for action. In this case, noticing voltage is the actor's method for making his desire for expanding his human power through technology available as a cultural object. That is, this motive talk formulates the actor as having a method for making available his interest in voltage and power—noticing leaf blowers: noticing leaf blowers is the dude's method for making the interest in technological power available as an ordinary course of social action. The deep structure analysis of motive talk shows how seemingly abstract ideas (technological power) become recognizable as ordinary social action engaged in by competent commonsense members. Technological consumer culture includes as part of the common stock of knowledge home ownership, technology and media usage, advertisers, and how gender and technology usage are bound up with one another. It illustrates how consumer culture deals with the event of presenting enticing advertising to a potential group of consumers, and the uncertainty of how they will respond and whether the desires of expanding their human power through technology will be fulfilled. We are now

beginning to see how the talk rests on particular cognitive and normative assumptions that are embedded in a very particular contemporary culture. The Client Manager demonstrates this by his reason-giving discourse, which establishes the dude as a type of person. His commentary is an entrance into everyday technological consumer culture, and constitutes consumers as oriented actors who have the opportunity to either notice technology or not. This analysis shows the way the reason-giving talk constitutes the Client Manager and his colleagues as recognizing the instrumental relationship that tools have with the world, an instrumental relationship that also grounds the interest in preliminary big data analytics that establishes his starting point for addressing male consumers, as seen in the interview quotation at the beginning of the paper, and the pre-eminent psychology and consumer behavior "knowledge by discovery" perspectives that underpin these analytics:

> *"They have people that crunch analytics on their end, people that they do surveys in market … They share the basic brief with us, and from that research they pull the target audience that they send on to us … Normally we're not going super deep, at that point we assume the data supports that this is a product they should be pushing."*

That is, the instrumental orientation to the world that tools pre-suppose is deeply shared by the interest in big data analytics and the dude who notices a leaf blower because of voltage. In both cases the interest is in enhancing one's power, whether blowing leaves or successfully targeting a consumer through an advertisement. The Client Manager formulates himself and his advertising colleagues in the same way he formulates the reason-giving for the dude's action of noticing: if it enhances our power, even if we don't know exactly how it works (leaf blower, analytics), that is sufficient reason for acting and moving on. The talk, in ordinary ways, assumes no choice but to accept and act on the technologically produced consumer data given to them. Thus, male consumers are relegated to the position of a technical, quantifiable group to be acted upon and manipulated in order to perpetuate a consumer goal (as seen in previous work in relation to big data in Chapters 1-3).

Of course, this tool-focused relation to the world rests on cognitive and normative assumptions that are specifically arguable and contestable. To appeal to male technological consumer culture habits and the male interest in technological power is to ironically mirror the appeal to the scientific certainty of big data and analytics in identifying the group whose needs must be fulfilled. The Client Manager and the Advertiser make the natural choice to act on the big data derived from the Advertiser's researchers and passed on to the Client Manager. Other talk from other stakeholders in male consumer culture would contest this assertion, and we thus have a cultural tension.

Conclusion

The analysis in this study is accomplished through the lens of radical interpretive sociology. Here, radical interpretive theory and method seek to demonstrate that finding speech within a discourse is one way of approaching this workplace talk as usable data, but in this case the interest is in specifying a culture. This approach helps extend previous work (Clarke, 2015; Chapters 1-3) that demonstrate how members go about forming their work together in mundanely recognizable ways, and how they accomplish advertising work pertaining to consumer patterns through their commonsense membership, as opposed to exclusively relying on technical tools, skills, and specialization. This chapter demonstrates that we can approach discourse as data in a reflexive way, and that a very particular example of a stretch of talk about a piece of technology can, through a deep structure analysis of motive talk, serve as an access point to a very specific technological consumer culture, specifically the desire to expand human powers. This abstract idea of expanding human powers can be critically addressed as a possibility and actualization in its own right, as contestable normatively and cognitively. In turn, this raises a reflexive issue for the analysis: what is its relation to the principle underlying the intelligibility of the talk?

The principle embedded in this talk is the discourse of expanding powers, and the seduction undertaken to enable those seeking the power. The Client Manager, the Brand Lead, YouTube as an advertising platform, all assume that there is a fickle consumer "out there" whose attention can be captured in order to begin the process of a relationship (ultimately ending in a purchase) that will benefit all involved, including the consumer. That is, if the consumer is "seduced" to pay for the product he wants and that will

benefit him by expanding his powers through technology, then the advertiser will pay for more advertising. While adhering to the radical interpretive sociological theory and method, the sociologist may hold up for examination the seemingly natural dominance and structure that the hazy concepts of "expanding power" and "seduction" have on everyday discourse. This case demonstrates that these concepts, as in the discovery paradigm and work covered in Chapters 1-3, are not an abstract structure operating behind the scenes. This vague structure is "drawn on in ordinary, taken for granted ways in everyday discourse" (Bonner, 2013: p.30). The discourse of power expansion and seduction are omnipresent resources and occasionally the topics of consumer advertising. Consumer advertising relies on these topics, but not in a way that masters that discourse. The analysis here allows this omni-relevant resource to become a topic of analysis. Thus, the deep problem contained in the Client Manager's reason-giving is not just an example of how we can overcome the tension of what we know and what we don't know about groups of people, and of how we can entice certain groups of oriented actors to take action by appealing to their desires. It also rests on certain normative and cognitive assumptions that the reflexive sociologist needs to take into account.

The motive talk exercise helps broaden previous ethnomethodological work by revealing the ambiguous concepts of power and seduction and analyzing the grip they have on language. By demonstrating the problem of what culture is for a group of people, and how it can begin to appear in everyday life, and by identifying the hold that an instrumental relationship with technology has on our discourse (both the technical data provided for understanding consumer needs and the choices consumers make when selecting technological products via features), we can begin to critically examine a relationship with technology that Arendt (1952) and Grant (1969) call for.

The reason-giving of the observer, through a deep structural analysis, shows that the dude's method of noticing a leaf blower because of its voltage makes the interest of expanding human powers through technology available as a feature of ordinary conversation. In this sense, client managers, as big data technicians, are ironically seeing versions of themselves. Without reflexively submitting the hold that these interests have to critical analysis, we leave other forms of analysis to privilege what Arendt calls the production paradigm of power (cf. Bonner, 1998). The insight here is that the commitment to expanding

technology is assumed to be absolute and unquestioned, which, as Grant has argued, ironically undermines our capacity to talk about purpose or point of technological expansion. Without critically analyzing the hold that these desires have on discourse (cf. Bonner, 1998), the notion that humans are outside and above the power they exercise is perpetuated.

Arendt (1958) and Grant (1969) offer an ontological critique of social inquiry in modernity, both suggesting that social scientific methods (including the methods for creating better big data and analytics) "treat themselves as messengers and neutral instruments" (Bonner, 2001: p.279), which renders the "question of the authority for speech and its appearance as a socio-historical action … invisible" (p.279). Blum and McHugh and Bonner's analysis allows us to raise this issue by examining talk and beginning to take it on in a more critical way.

From the perspective of the human condition, if not from recent experience of the danger of expanding technological power, assuming that humans are outside and above the power they exercise is a deep illusion, as can be seen by the unintended consequences of information technology, in particular the ethical crises of who has access to what information, which parties take or use that information for sinister purposes, and the variety of economic, environmental, and geopolitical consequences catalyzed by the disposable gadgets connected to the Internet or otherwise.

Looking to Ellul, Grant (1969) saw that technology had taken on a deterministic character and we had lost our ability to to influence its direction. For Grant (1969), we are in a tight circle of technocratic rationality and efficiency and have lost our ability to truly act outside of this tight circle. Arendt (1958) offers as a contrast to the production paradigm the "praxis paradigm," where humans are formulated as part of, and tied to, the power they exercise. Both Blum and McHugh and Bonner's analysis, and Arendt and Grant's critique of modernity and its methods, provide an opportunity for us to identify this interest in technological power, and the technical means used to embolden the pursuit for that power, to put them into a wider frame of reference for the exercise of phronesis. Here we would pursue a "wisdom which is not abstractly theoretical but rather is a wisdom which discloses itself through action" (Bonner, 1998: p.56).

Thus, an insight into the principle that grounds ordinary talk is not simply an additional piece of data to add to a base of information about consumers or a business. This insight also helps make possible the development of a relationship between knowledge of people and power. There is an irony here, as the interest in expanding human power through technology and using technology (big data) to further the desires to do this through marketing, appears to lock us in this tight circle of technology that misses the "end" and favors "the means."

Now we have two illusions about big data and algorithms pertaining to groups of people and consumption:

Illusion 1: They operate by themselves without the aid of practical reasoning (which the ethnomethodological work in previous chapters shows to be an illusion).

Illusion 2: Technological power and the pursuit of perpetuating that power through seduction is an unexamined hold on discourse and, hermeneutically speaking, can trap us in the "production paradigm."

Thus, the radical interpretive perspective brings a productive and unique element to the sociological debate around what counts as consumer data in a world that has embraced digital consumer analytics, particularly data focused on consumer interest and intent.

Ethnomethodology (Mair et al., 2015; Clarke, 2015) begins to describe the undocumented methods of accomplishing work with analytics technology outside of statistical institutions. This work has been timely, as these big data capabilities have begun to permeate every corner of work, consumption, and our methods of communication. Analogous to setting ethnomethodology against technical and mathematical methods, radical interpretive sociology can provide a broader frame to enlighten sociologists and practitioners studying analytics and the knowledge they provide. Lynch (1991) points to the vulnerability of reflexivity in the absence of contextual applications. He would suggest that the "meta-breach" of the ontological foundations of

157

data analytics work that Pollner (1991) and Bonner (2013) advocate for lacks this contextual application. However, the case outlined above shows the way this approach can reveal a very specific culture, something deeply contextual and relevant to understanding groups of people. In fact, the incremental, methodological advantage of this kind of reflexivity is in revealing a broader context of a problem and contradiction that is reinforced by legacy methods.

Mair et al. (2015) highlight the threat of an overwhelming wave of new digital analytics entrenching an epistemological divide between qualitative and quantitative data. Considering this threat, and building on the promise Bonner (2013) provides, two initiatives for broadening our sociological understanding of big data and analytics for the purposes of categorizing groups of people would be productive:

1. An examination that reveals the practical, local revelations of ethnomethodology, and the unarticulated structures those insights point to.

2. Making visible the pervasive cultural grounds of engagements that involve big data.

Sociology is not the only beneficiary of treating this data as a discourse. Practical benefits exist as well. These benefits are primarily related to unpacking hidden commitments, determining how knowledge is established, and identifying the seemingly natural choices consumer groups are committed to making.

First, the work of showing how a very specific culture emerges in the world and acquires its status as knowledge can provide a much broader and richer view of the culture of a consumer group, including its deep ties to the workplace responsible for attracting it. As mentioned, the type of talk in the case is considered invalid data from the view of knowledge by discovery research methods (professional quantitative research, big data and analytics), and thus escapes consideration from the dominant perspective in consumer business affairs. Here, the specificity of this culture and the methods it unveils are lost, along with insights of how people in the organization work together and are tied to the group of consumers in question.

Second, making visible the pervasive cultural grounds of these workplace scenes can help identify elements of the "unconscious bias" many employers are seeking to counter in their organizations, specifically, how workers can become more inclusive in their day-to-day dealings with different cultures, genders, ages, and others with competing points of view. By moving beyond big data and analytics in identifying these very specific cultural grounds ascribed to the company's consumers, and their methods of ascription (and what this excludes), companies can identify themes for becoming a more inclusive work environment. This is timely given an increased focus on big data to tackle these organizational problems: "Big data for Human Resources (known as predictive analytics, talent analytics, workforce analytics, HR analytics, and human capital analytics) may be the next frontier for cutting discrimination and bias" (Loehr, 2015).

Radical interpretive methods, while identifying commitments made in discourse and revealing the fallacy of natural choices, afford a broader perspective in engaging with consumer culture and its related challenges. It accomplishes this in part by detailing the specific images of culture as they appear. Embracing these radical interpretive principles provides a unique opportunity for developing more specificity in consumer marketing work, and can provide creative alternatives in an occupation where success is often defined by unique propositions.

Conclusion

Ethnomethodological discovery and contribution

Discoveries:

This thesis demonstrates the role that practical reasoning plays as workers organize themselves locally to categorize and apply data-based groups. Drawing on the ethnomethodological understanding of practical reasoning, the work focuses on the way that locally organized talk accomplishes people categorization as a self-contained activity. "The earmark of practical reasoning, wherever it occurs, is that it seeks to remedy the indexical properties of members' talk and conduct" (Garfinkel, 1967: pp.10-11). This practical reasoning shapes the way workers, through their talk, combine technology, conversation, and everyday practice to render their workplace as reasonable and accountable in their quest to predict, comprehend, and ply consumer interests and behaviors. For example, in every situation of practical action, "Ad hocing is required if the researcher is to grasp the relevance of the instructions to the particular and actual situation they are intended to apply" (Garfinkel, 1967: p.22).

Further on, I will elaborate on how adopting a radical interpretive perspective helps reveal the seen-but-unnoticed assumption embedded in the culture concerning the unquestioned commitment to expanding technology in both ethnomethodological and previous scholarly work with big data. The latter allows us to address an issue that goes deeper than the design of data technology, pointing to what this says about our relationship with technology itself. To conclude, I will introduce critiques of modernity and technology in more detail in order to address this deeper issue.

Specifically this work discovered:

1. How digital advertising workers combine big data about groups of people and their culture with other resources to build to a technical finished product.

2. How these same workers rely on interpretive methods during the conceptual development of big data people segments.

3. How analysts rely on interpretive methods and background expectancies during the process of accessing, extracting, and analyzing big data about groups of people and their culture.

I will then describe how changing frames of investigation to a radical interpretive perspective leads to an analysis that reveals the way the preceding discourse rests on a commitment to expanding technology, which has undermined our capacity to talk about purpose or point, and instead redirects purpose toward expanding our human powers.

First, we saw how workers "build up" to a completed digital marketing campaign. This does not happen automatically according to a priori organizing principles. Artful practices and shared knowledge are employed locally to build this world. Boundaries in this work introduce unanticipated possibilities for creation and innovation involving "groups of people." Constraints play a significant role in workers' knowledge of the groups of people they are considering for the campaign, including how that knowledge contributes to the final product. In other words, these constraints are utilizable as a resource by practices local to digital advertising work involving big data. Examining these practices reveals the assumed, commonsense resources that workers draw upon to make big data, consumer analytics, and related technology function adequately. These include typifications concerning nationality, personal experience with a group, idealized gender roles, broad consumer knowledge, and stakeholders as scenic features, i.e. seen but unnoticed by members. These mundane, discursive orientations are contextually bound to the advertising scenario and have a tangible impact on the outcome. Workers draw on their necessarily taken-for-granted practical reasoning skills as a "contingent ongoing accomplishment of the organized artful practices" (Garfinkel. 1967: p. 11) of the local workplace to build to "objective" advertising outcomes. Previous literature views this type of work as an automated, strictly scientific process, leaving the members' resources unexamined. Here, workers undertake a seen but unnoticed process of glossing the interactional detail of how they arrive at a big data and consumer analytics-driven advertising plan. This work shows that *big data and*

consumer analytics work is bound up with other sources of knowledge and resources. Technical and non-technical resources are marshaled to build to work outcomes.

Second, we saw how workers cooperatively conceptualize segments of people, which the professional social sciences literature typically views as a highly technical exercise. That is, *technical, quantitative data about groups of people do not stand free or denote an objective reality in isolation.* In this examination, members' interpretive resources are required to make the quantitative segment development methods preceding them intelligible and relevant to the scenario being developed. Decisions concerning grouping work are discursively determined separately from the technical steps required to create the conceptual model. That is, "micro-theories" are tested interpretively, and collaboratively. These discursive methods could not be defined formally, nor applied generally in advance of big data work, and discussion in this regard is constitutive to developing the model.

Third, I describe how analysts interpretively develop and sustain a mutual understanding about groups of people during what is normally considered scientific work (mining data from big data tools). This work involves a new class of big data research tools that I call "ubiquitous insight tools." These tools are widely accessible in the workplace and provide an abundance of real-time consumer data to use at work. I describe some of the ways these workers use these "ubi-insight tools" to produce analyses. *Collaborators don't simply follow a set of explicit steps in their data extraction and insights work. They orient to significant background expectancies related to a very particular understanding of the economics of consumer information.* This quantitative data is not applied in a prescriptive, deterministic fashion. Instead, work pertaining to tool output and knowledge about groups of people is provisionally and collectively built up. These accomplishments require adhering to the practical possibilities and risks of accessing, organizing, discarding, and building consensus around quantitative data about groups of people. This again means that workers do not rely on quantitative (scientific) processes alone, but they need to rely on local knowledge to fill gaps between data from ubiquitous insights tools and the "story" they want to develop. They also artfully work toward consumer research-driven stories by accessing elements that make up the "flow of work." That is, ubi-insight tools are artfully integrated with the broader ecology of the advertising workplace, and are drawn

162

upon and intricately intertwined with practice and talk to accomplish "people" categorization analyst work. This includes practices such as pairing big data techniques with legacy office tools, and orienting to physical communication implements to direct and complete their analyses. These practices significantly affect what counts as consumer knowledge. These tools will continue to grow in acceptance and application, thus, *we must be mindful of interpretive, local, and practical knowledge considerations when designing ubi-insights tools for both workplace and consumer use.*

Design contributions

A keen eye toward *designing the people to design for* becomes essential as applying big data to work and consumer tasks becomes more common. It is clear that design efforts should support the practical reasoning that occurs in even the most technocratic, automated, process-oriented settings, including settings that account for an evolving notion of the economics of consumer information.

Design academics and practitioners alike should consider the implications of some of the mundane but critical integration points between big data work and creative processes. This study provides several examples of how creative work, conceptual segmentation, and data analysis work are deeply integrated. This work should be assumed even if not explicitly stated within a corporate hierarchy or an employee's job description. On the consumer front, the interplay between data analysis and practical reasoning becomes relevant as end users increasingly have access to big data for personal and domestic purposes. Examples include making investment decisions, analyzing energy usage and personal shopping habits, and considering and acting on trends in social media, in particular when end users situate their information in relation to "typical" big data profiles or benchmarks. Designing systems and features to account for these assumed behaviors should improve experience.

Further, this work presents an opportunity for non-traditional pedagogy. The most immediate opportunity here involves the practitioners responsible for generating insights and applying big data and

163

consumer analytics. A parallel example of this is described by Livingston and Garfinkel (unpublished manuscripts: cf. Crabtree, 2004a: p.15):

> [We want] to find out if it is possible to teach mathematical theorem proving and mathematical discovery as practical action [in contrast to an abstract body of formal operations] ... If it is possible to teach naturally accountable proving [i.e. proving in details of its lived orderliness] ... it will inhabit the room of instruction; it will be the thing that students and teachers will be increasingly elaborating and making available in increasing technical detail to one another ... [so the aim of the hybrid programme in mathematics will be to] develop an increasingly effective pedagogy ... [thatstands] against rival and traditional pedagogies ... The radical consequence of this work is not only that high school students are capable of being instructed in the lived work of mathematical discovery and theorem proving, but that it is possible to teach discovering work in a natural science—that is, to teach discovering science as a science of practical action.

Thus, in the realm of technical insights generation and the application of those insights, how do we move beyond a culture of step-by-step intranet documents and training on formal processes? How can the practical reasoning and interpretive work we have illuminated help train the workforce better for these tasks?

Ethnomethodological contributions

Behind these discoveries and design implications, there are three main ethnomethodological contributions emerging from this work.

The emergence of big data, in particular data about collectivities of people, calls for a related look at sociology's fascination with types. This work explores and describes some of the social-structural features of how people collaborate to establish knowledge about groups of people and apply them in their everyday

lives. That is, while drawing on the ethnomethodological understanding of practical reasoning, I show how locally organized talk accomplishes people-categorization as a self-contained activity.

This approach broadens arguments about the "social life of methods" to include professions outside of the academy that apply statistical methods to large data sets. Following the tradition of the Sociology of Science and the Sociology of Scientific Knowledge, this work carries an ethnomethodological (and radical interpretive) attitude to a setting where the practical reasoning methods by which people organize themselves have been overlooked. I have applied this approach to an "early adopter" setting, one where workers routinely and unproblematically incorporate big data and consumer analytics about groups of people into their everyday work. This analysis gives us early insight into a rapidly growing sociological phenomenon. Working with big data and consumer analytics in some capacity as both a consumer and a worker is poised to become as common as working with computers and smartphones. The availability, applicability, and malleability of large data sets outside of academic, government, and other specialized institutions promises to continue, and is a stark deviation from a world where the job description of a social scientist is reserved for a role in a university. This will continue to present unique organizational and technical design challenges, and the interpretive perspective employed here provides a unique focus away from conventional data science methods and their optimizations. The situational organization of ordinary work practices involving big data and consumer analytics is a topic in its own right.

Staying true to Garfinkel's (1967) recommendation, I avoid emulating formal analytic, or knowledge by discovery, social science approaches by broadly adopting the ethnomethodological programme. This work contributes toward a *"hybrid discipline."* Thus, in the spirit of Garfinkel's vision, this work helps develop an occupational practice in the same way that Lynch (1985) and Alac (2011) have done in neuroscience, Garfinkel (1967) in mathematics, law, etc., and Greiffenhagen et al. (2011) for social science research centers and contributions in information technology and computer science. Formal analytic social science efforts have focused on improving methodological tactics for big data about groups of people, finding the best technical or mathematical ways to use tools to access and analyze this data and introducing better ways to technically and mathematically apply this data for results (e.g. in advertising). However, there has been no

known academic progress toward developing a "hybrid discipline" focused on the practical methods workers use to accomplish their working world with big data about groups of people. I begin to fill this gap by demonstrating how members interactionally came to see knowledge about groups of people as just that, and in turn organize this knowledge into their everyday working world. This is a *practical matter*. That is, I describe how members (workers, not researchers or professional sociologists) manage to produce and recognize contextually relevant social action unique to that work and its context.

Beyond this hybrid discipline, *this work contributes to knowledge of how groups of people orient to, and collaboratively come to know about, types of people—specifically, the ways that social facts about groups of people are practically, locally, and collaboratively identified as such, and how objectivity regarding those mutually intelligible facts about people is achieved rather than ordained.* This work should prove insightful for those tasked with understanding the many connected, big data and consumer analytics-driven aspects of everyday life that continue to emerge as adoption and application marches on.

The preceding work describes interpretive practices of identifying consumer culture at work, however, the case study directed by radical interpretive sociological theory and method in Chapter 4 shows us the implications of noticing these interpretive practices. This analysis shows us that a restricted emphasis on the empirical admissibility of consumer intent leads us to overlook the way accounts as discourse are actually methods for accessing how "social phenomena emerge as objects in the world" (Bonner, 2013: p.21). Consequently, this approach offers us a path to a more foundational understanding of consumer culture. Chapter 4 shows how through a deep structure analysis of a case, the desire to expand human powers is culturally expressed in ordinary talk, and how the abstract idea of the desire to expand human powers can be critically addressed. The study reveals the seen-but-unnoticed assumption embedded in the culture, an unquestioned commitment to expanding technology. I will describe what this helps us learn, and elaborate by further engaging Arendt (1958) and Grant (1969).

Radical Interpretive Contribution

In the preceding ethnomethodological analyses (Chapters 1-3), I uncover the illusion that big data and related statistical techniques operate by themselves absent practical reasoning. This paper's second sociological contribution adopts radical interpretive theory and method to push the limits of ethnomethodology and reveal the irony of its endeavor. More specifically, by examining discourse through the perspective of Blum and McHugh (1971) and Bonner (2013), we can see that technological power and its purveyance via seduction are unexamined holds on talk and culture involving "big data" (including the focus of the ethnomethodological analysis). Using Blum and McHugh (1971) and Bonner's (2011; 2013) analysis of motive talk and reason giving, the analysis shows the unique insight into the culture of technological consumption that this approach to reflexivity can achieve. The deep structure analysis of the stretch of talk about the "leaf blower" allows the unquestioned assumption—expanding human powers—to come to the fore and so allows for a more critical engagement with that assumption. According to Grant (1969), one perspective for critically engaging with this assumption is that the unquestioned commitment undermines our capacity to talk about purpose or point. Instead, there is only one purpose: expanding our human powers. Thus, the principle of expanding our human powers does not just have to be assumed, it can be critically engaged by radical interpretive approaches to modernity, including Grant (1969) and Arendt (1958), which I introduced in Chapter 4 and will now expand on.

According to Arendt (1958), this hold on talk is a reflection of the "production paradigm" oriented relationship we have with technology. In other words, our discourse involving technology (big data) is gripped by the technological method or "means" and is trapped in a tight circle of technocratic rationality and efficiency (Grant, 1969) that hides the "ends," or the purpose or point. This is a phenomenon that formal theory and method, even as radical as ethnomethodology, cannot uncover. Thus, I turn to key critiques of modernity (Grant, 1969; Arendt, 1958) and radical interpretive theory and method to uncover this second illusion. Blum and McHugh's (1984) description of the technologist illustrates the influence of the production paradigm of technology on the reflexivity found in formal analytic social sciences, a hold that was left uncovered by previous analyses: "The technologist personifies a particular form of rationality: he is constructed to follow rules and to connect rules to acts by organizing his behaviour in accord with rules. The technologist tends to disregard the way in which the rules that he follows are rooted in the deep need to

167

ground the validity of these rules in a principled conception of good discourse" (Blum and McHugh, 1984: p.5). Using this perspective, we can start to see how in previous analyses big data workers are examined as if they are the technologists described by Blum and McHugh (1984). This further illustrates the opportunity and importance of critically engaging the deep need that the radical interpretive perspective consequently uncovers.

For Grant (1969), we have lost our ability to truly act outside of a tight circle of technology. Arendt (1958) offers as a contrast to the production paradigm responsible for this tight circle of technology the "praxis paradigm," where humans are formulated as part of, and tied to, the power they exercise. This final analysis allows us to move toward a *phronesis*, that is, a wisdom disclosing itself through action. This is a path toward a free relationship with technology, in particular one with big data that doesn't subject workers and other stakeholders to determinism or instrumentalism and the consequences that come with this. This analysis moves beyond what Mair et al. (2015) describe as the threat of entrenching an epistemological divide between qualitative and quantitative data. By identifying these assumed but unnoticed holds technology has on our discourse, we can move beyond reinforcing the "means" versus "ends" relationship between big data and humanity in this "tight circle" of technology, and avoid its suffocating presence that cuts off our capacity to talk about purpose of point. To begin this discussion, I turn to a more detailed examination of some key works of Arendt (1958) and Grant (1969) in their critique of modernity to discuss the opportunity this kind frame raises for critical analysis.

Arendt (1958) and Grant (1969) argue that technology plays a central role in modernity, and that science holds a privileged position in this era. Arendt (1958) and Grant (1969) place emphasis on culture, history, and community in their examination of science and technology. They take steps toward satisfying Gadamer's requirement that "unless the analysis undertakes to comprehend the way it comprehends" (as cited in Bonner, 1997: p.172) the *possibility* of meaning uncovered in an empirical study stays hidden. Their work serves as an ontological critique of social inquiry in modernity, both suggesting that its methods "treat themselves as messengers and neutral instruments" (Bonner, 2001: p.279), which renders the "question of the authority for speech and its appearance as a socio-historical action ... invisible" (p.279). They are useful

for further illustrating radical interpretive critique, and reinforcing a call to extend our focus to how we coexist with technology such as big data tools and their application, beyond critiquing how we better utilize it (as I did through my ethnomethodological analysis).

For Arendt (1958), labor is responsible for sustenance and formerly existed in the privacy of the home (private realm), its output being consumed in the cycle of life. Work involves the fabrication or reification of a physical thing from concept, and its yield made to last (Arendt, 1958). And action, or praxis, saying or doing something worthwhile, possesses the "twofold character of equality and distinction" (p.175) and materializes in the public realm, which is the sanctuary for the political in pre-modernity. Arendt's (1958) demarcation of these three categories is important for illustrating the merging of the private and public spheres in modernity, and within this, the hierarchal ascent of labor and the "esteem" of work and homo faber. Consequently, in modernity any opportunity for action is now accompanied by the heavy burden produced by the integration of "the driving necessity of biological life" (Arendt, 1958: p.174) of labor and the "utilitarian instrumentalism of fabrication and usage" (Arendt, 1958: p.174) of homo faber, without the privacy and permanence of pre-modern times.

Arendt (1958) could argue that the creation and introduction of big data and its techniques is a reflection of these critical categorical changes in modernity. In contrast to an era with distinct private and public realms, Arendt would suggest the categories and insights about groups of people lack distinction: their attributes and their application treated as causal and uniform, tasks to strike off a project list. With the rise of the social, categorizations and insights are produced and consumed like commodities in a cyclical fashion. If, for Arendt (1958), praxis or action cannot take place in a workplace or world where looking down on humanity through big data technology is viable, then neither can the promises and forgiveness that characterize action in pre-modern times exist. The introduction of the three ontologically distinct human activities allows analysts to put the principle of the expansion of human powers in perspective.

Big data tools conceive of, and implicitly condone, behavior that takes a utilitarian yet disposable character, and the problem becomes the "irreversibility and unpredictability from which the action process

draws its very strength" (Arendt, 1958: p.233). The criticism that Arendt (1958) would have for purveyors of this type of information technology is clear. For Arendt (1958), "in acting and speaking men show who they are, reveal actively their unique personal identities and thus make their appearance in the world" (p.186). Work seeks to create tangible things in the world, whereas action discloses who a person is, which Arendt (1958) describes as a *somebody*, not a *something*. These big data tools extinguish the possibility for the individual to disclose who they are, and treats both consumers and their commitments as *something* rather than *somebody*. This logic leads to an important synthesis between how Suchman (1994), influenced by Foucault (1977), sees the enactment of the political, power relations in big tools and analyses, and the extinguishment of Arendtian action in the *polis*. Within these big data systems, politically, "the possibility of being a *polis*, a public space where one sees and is seen by others" (Bonner, 1997: p.191), is disposed of and replaced by a digital repository where the consumer becomes an object of an analytical system possessed by companies and customers. Digital footprints or "commitments" are produced by the consumer, and consumed by the system without the surveyability of the polis and the opportunity to see and judge the actions of others.

For Arendt (1958), the type of social inquiry through which these big data systems are conceptualized, the resultant modern technology introduced into the workplace, and the destruction of the political conditions of times passed have their roots in the rise of industrialization in society, and two important catalysts: the universal viewpoint of a subject of inquiry in the natural sciences, and the skepticism that the human senses are capable of recognizing reality. Prior to the Archimedean point, where this universal vantage point was established, the conditions of human existence could never "'explain' what we are or answer the question of who we are for the simple reason that they never condition us absolutely" (p.11). Cartesian doubt, a discrediting of human senses, also represents a new world order of evaluation, characterized by suspicion toward claims to knowledge other than that established by scientific procedures: "it was not reason, but a man made instrument, the telescope, which actually changed the physical world view; it was not contemplation, observation, and speculation which led to new knowledge, but the active stepping in of homo faber*,* of making and fabricating" (Arendt, 1958: p.274). The objectification of earth, and the distrust of humans owning and defining the experience of their senses is problematic for Arendt (1958),

and paved the way for modern science and humanity's new relationship with technology. The notion that we can look down upon all Western consumers with big data tools is the perfect analogy and an example Arendt would have embraced.

In keeping with her bleak assessment of modernity, Arendt (1958) reframes the question regarding technological determinism from one that is simply about the relationship between man/woman and machine to one about its impact on the "world and its things" (p.151). In general, Arendt's (1958) critique of big data technology and techniques would be premised on the notion that technology is considered instrumental, and subject to an objective universal critique of the "ease of life" value (progress) that it provides, in this case seen in the seduction and concern with expanding human powers. Arendt (1958) would also argue that without modern science and its technologies being subject to the contemplation that traditionally occurs in the public realm—the conceptualization, deployment, and criteria upon which technologies such as big data tools and techniques are evaluated—individuals act on nature and tear into the fabric of the human condition with the esteem of homo faber and the commodity-driven spirit of labor. In sum, technology such as the big data we have examined and its method of creation in its tools, backed by specific changes in how we view the world and the emergence of the skepticism of science, takes a deterministic tone for Arendt (1958), in that it destroys the natural conditions that are provided for human life.

Grant (1969), in *Technology and Empire,* provides another bleak assessment of modernity and the empirical epistemology of the social sciences. Similar to Arendt (1958), Grant (1969) gives an account of technology intertwining with political (liberal ideology), scientific (education), and religious (atheist) societal attitudes toward technology and the combinatory influence on humanity "written out of the study of history and philosophy" (Grant, 1969: p.11). For Grant (1969), a failure to account for one's grounds is occurring at a national level in Canada: those who are most integrated into technology are the least able to criticize it. Grant (1969) indicates that the organization of power in the new world, at the forefront of modernity, is resolutely technocratic.

Grant (1969) suggests that there is a dangerous relationship between liberal ideology and the value-free orientation of social science: he offers a critique of this modern attitude toward technology. He describes liberalism as the "drive to universalize freedom, to build the acme of the objective society which increasingly stifles the spontaneity of those it was built to free" (Grant, 1969: p.133). Here technology in the new world is closely linked to the predominance of pluralistic liberalism. Grant (1969) suggests this intertwining of liberalism, technology, and homogenous freedom, along with equality, traps the human race, and in sentiments similar to Arendt (1958), suggests it suppresses the opportunity to evaluate and act. Developing the notion of technique from Ellul, Grant (1969) suggests that all of humanity is left with a standardized mindset of the idea of "the problem." Ellul sees technique (technology) as "the totality of methods rationally arrived at and having absolute efficiency … in every field of human activity"(as cited in Grant, 1969: p.113), a group of social practices that has escaped the control of people in society. Grant (1969) feels that this sweeping determinism cultivates the type of person that perpetuates it (engineers, natural scientists, social scientists, economists, etc., and in this case, analysts and other everyday workers using big data tools routinely for their day-to-day employment). From this perspective alone, Grant (1969) could be accused of being a technological determinist, however, he views technique as ingrained in our being, which as mentioned for modernity, makes it incredibly difficult to criticize the advent of a new technology. In the final analysis, radical interpretive theory and method demonstrates from a simple piece of dialogue how this could be the case.

For Grant (1969), in technocratic societies (scientific) facts are distinct from, and take precedent over, value and judgment. Facts are a public object, and when viewed outside of a modernity defined by liberal ideology, they are not as evident as they appear: "it assumes a particular account of moral judgment, and a particular account of objectivity" (p.119). This interpretive stance presents challenges for the plausibility of categories advocated by the creators of big data tools. Grant (1969) endorses theorizing as an alternative to the proliferation of liberalism and its relationship to technique.

For Grant (1969), the introduction of technologies like big data tools and its techniques are simply creating more science to deal with the problems science has already created. In standardizing consumer

categories and behaviors, big data tools also deny mediators that would allow consumers and their onlookers to cross the chasm of the fact-value distinction, which blocks humanity off from a truer political and ethical assessment of the world that they live in. Big data tools isolate consumers and their lives in a world that treats rational commitments as fact: this continues where industrialism began in its control of non-human nature but, as Ellul suggests, also breathes life into a technique that supports "equally the control of human nature" (as cited in Grant, 1969: p.118). For Grant (1969), in a world that supports big data-type innovation, the means for spanning this fact-value divide—"common sense, reverence and art" (p.133)—have been all but destroyed, and in places like Canada, the problem is hidden by being submerged in the conditions of that world.

Arendt's conception of action cannot happen when technology treats lives and what is contained in the living experience as utilitarian and disposable, particularly when we are denied the ability to see and judge action hidden by a transactional system and the objectification of the earth and its people. As Grant suggests (1969), big data tools are simply more science and technology to solve problems science and technology has created for itself. These problems now include all of the ethical and humanitarian by-products involved in categorizing human beings and their behavior in easily accessible, real-time and manipulable 1's and 0's accessed through a Graphical User Interface. By-products of the big data movement include well publicized issues of privacy, geopolitics, work culture, excessive consumerism etc. Through unveiling the grip that this technology has on our culture, the radical interpretive perspective bring a unique and productive element to the sociological debate around what counts as consumer data in a world that has embraced digital consumer analytics, particularly data focused on consumer interest and intent. This type of analysis helps us reorient toward a frequently ignored focus, beyond "the technologist" and the debate over what counts as "good data," such as in the debates in the social science of methods (Mair et al,. 2015), and toward the purpose or point other methods deny, a purpose or point that we can critically engage.

Importance of these contributions and future work

Accomplishing big data and consumer analytics related work requires more than just automation and attention to technical, quantitative methods and processes. This is critical for organizations that truly want to understand what is required to accomplish goals in settings inundated with big data and consumer analytics, and also uncovers opportunities for differentiation where they may be hidden. Continued research into how to better support the practical work required to accomplish big data and consumer analytics tasks in the workplace is important in an era of enormous growth.

The advent of big data and consumer analytics regarding groups of people, and their application, presents an opportunity similar to work in the area of ubiquitous computing. Previous ubicomp experiences suggest that big data and consumer analytics will eventually become taken-for-granted technologies that fade into the social fabric of the workplace, and as Sacks (1992) suggests, be "made at home in the world." It will no longer be written about in articles with headlines such as "How Consumers are Using Big Data" (Kolodny, 2014). A *Forbes* article called "How Consumers are Using Desktop Computers" would not be nearly as compelling today, as it would have been 25 years ago. It is important that we insert our research efforts at this nexus in the process of "normalization." This research is dependent upon an existing understanding of markets, the consumers that comprise them, and the work that goes into making data relevant to purpose. Gleaning sociological and design insights in the midst of this rapid uptake is important for the future development of big data and analytics applications, the organization of people in relation to them (including consumer legislation, organizational design, new applications in both industry and the home), and perhaps more importantly, critically reassessing our relationship with technology. Thus, this brief look into big data in the workplace also represents a call for other areas of academia to examine similar phenomena.

Lastly, as Mair et al. (2015) point out, digital analytics threaten to deepen the "epistemological" divide between qualitative and quantitative data for social scientists. The work in this dissertation offers another important bridge across this divide. First, the ethnomethodological analysis shows how interpretive work and the derivation and application of technical, quantitative big data tool outputs are inextricably intertwined. Second, the radical interpretive analysis demonstrates that a narrow focus on the empirical admissibility of consumer intent means we miss the way accounts as discourse are in fact methods for

174

accessing how "social phenomena emerge as objects in the world" (Bonner, 2013: p.21). It is my concern, and hope, that this analysis leads to more reflexive work in this area, and curtails some of the momentum toward this artificial dichotomization between quantitative and qualitative data, while at the same time encouraging a focus on the assumptions that make that dichotomization possible in the first place, to develop deeply insightful design research and action. Rather than simply improving the way we design better big data tools, we can begin to engage in a debate regarding the "ends" rather than the "means" of our work with big data and associated technologies.

Appendices

Appendix A: Segmentation analysis using keyword trends and reporting

Analysts frequently examine users' past query trend behavior. Below are examples of the type of analysis that can be conducted using billions of search queries from Google's public database. Analysts use these tools in conjunction with internal Google data tools that contain information specific to an advertiser's account (not shown here). In this case segments are groups of people who have been searching for similar things.

Google Trends (compare search query behavior by segment according to volume, geography, and related searches over time):
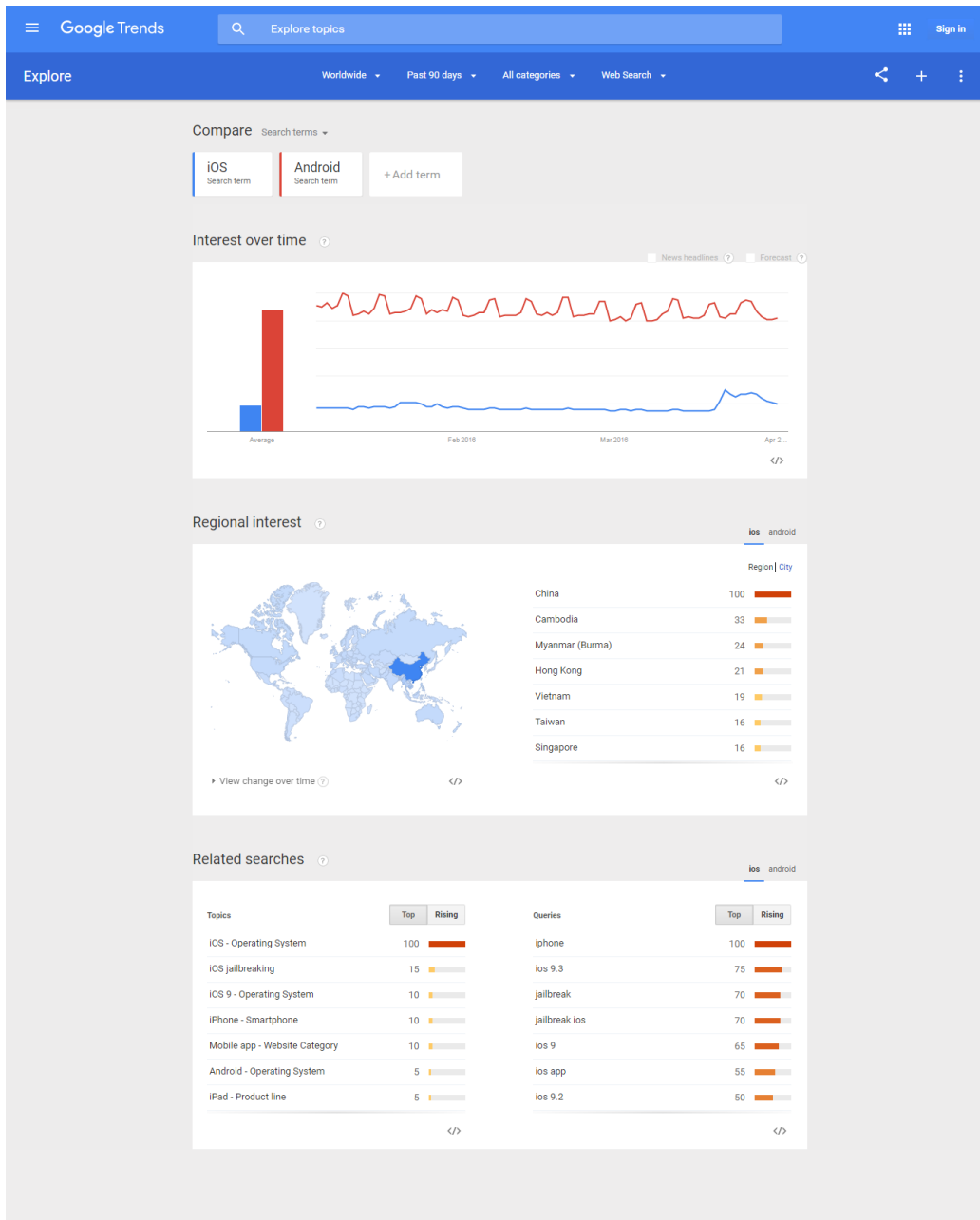
Google Trends CSV Output:

report.csv
File Edit View Insert Format Data Tools Add-ons Help Accessibility   All changes saved in Drive

	Web Search interest: Android iOS			Top regions for Android			Top cities for Android		Rising searches for Android		
	Worldwide 2004 - present			Region	Android	iOS	City	Android	android app	Breakout	
				Iran	100	37	Tehran (Iran)	100	android apps	Breakout	
	Interest over time			Indonesia	54	22	Jakarta (Indones	64	facebook androic	Breakout	
	Week	Android	iOS	Bangladesh	43	22	Surabaya (Indon	64	samsung	Breakout	
	2012-07-08 - 20	63	4	Syria	42	0	Howrah (India)	41	samsung androic	Breakout	
	2012-07-15 - 20	64	4	Belarus	39	28	Mumbai (India)	39	google android	+4	100%
	2012-07-22 - 20	64	4	Philippines	36	53	Bangalore (India	37	android phone	+3	750%
	2012-07-29 - 20	63	4	India	34	29	Pune (India)	35	tablet android	+2	650%
	2012-08-05 - 20	63	4	Bolivia	34	0	Chennai (India)	34	андроид	+2	450%
	2012-08-12 - 20	65	4	Russia	32	39	Kiev (Ukraine)	32	android games	+950%	
	2012-08-19 - 20	65	4	Kazakhstan	32	28	Hyderabad (India	32			
	2012-08-26 - 20	64	4	Nigeria	32	0	New Delhi (India	30			
	2012-09-02 - 20	63	4	Ukraine	31	25	Moscow (Russia	26	Rising searches for iOS		
	2012-09-09 - 20	62	4	El Salvador	29	0	Kuala Lumpur (M	21	apple ios	Breakout	
	2012-09-16 - 20	64	9	Guatemala	27	22	Singapore (Singa	20	ipad	Breakout	
	2012-09-23 - 20	66	8	Pakistan	26	25	Ho Chi Minh City	19	iphone	Breakout	
	2012-09-30 - 20	64	6	Dominican Repu	25	24			iphone ios	Breakout	
	2012-10-07 - 20	62	5	Hong Kong	23	83	Top cities for iOS		jailbreak	Breakout	
	2012-10-14 - 20	62	5	Sri Lanka	23	0	City	iOS	ios 6	+3	150%
	2012-10-21 - 20	65	5	Panama	22	0	Quezon City (Ph	100	ios 8	+3	50%
	2012-10-28 - 20	65	7	Malaysia	21	34	Ho Chi Minh City	94	ios 7	+2	200%
	2012-11-04 - 201	63	7	Kenya	20	0	Singapore (Singa	92	ios 5	+2	50%
	2012-11-11 - 201	64	6	Iraq	20	20	Hanoi (Vietnam)	87	update ios	+200%	
	2012-11-18 - 201	67	6	South Korea	20	34	Moscow (Russia	74			
	2012-11-25 - 201	66	5	Singapore	19	55	Bangkok (Thaila	74			
	2012-12-02 - 20	65	6	Czech Republic	18	21	Melbourne (Aust	68			
	2012-12-09 - 20	67	6	Costa Rica	18	22	Seoul (South Ko	68			
	2012-12-16 - 20	72	6	Vietnam	18	55	Sydney (Australi	65			
	2012-12-23 - 20	93	7	Mexico	17	20	San Francisco (L	60			

report.csv

(google.com/trends)

Google Trends for Marketers (formerly a tool used internally and by select large advertising customers that allowed analysts to more easily visualize search query relationships. Proximity indicates magnitude co-searching, size indicates amount of searches)

Mid-tier Department Stores
JCPenney, Kohl's, Dillard's, Macy's

Miscellaneous
Bed Bath & Beyond, Sears, Costco

Big Box Stores
Target, Walmart, Kmart

Upscale Department Stores
Nordstrom, Bloomingdale's, Saks
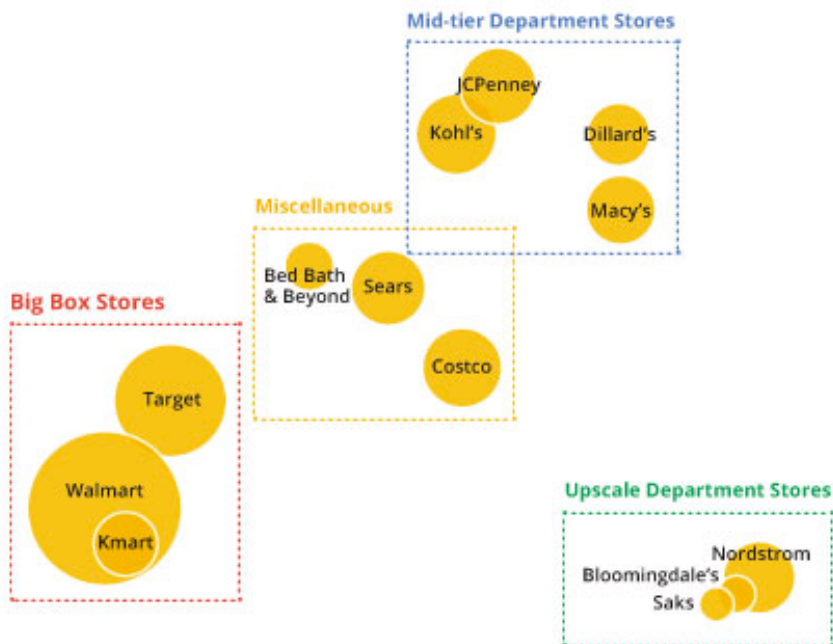
Google Trends for Marketers showing percentage share of search queries for a particular category of keywords by brand.
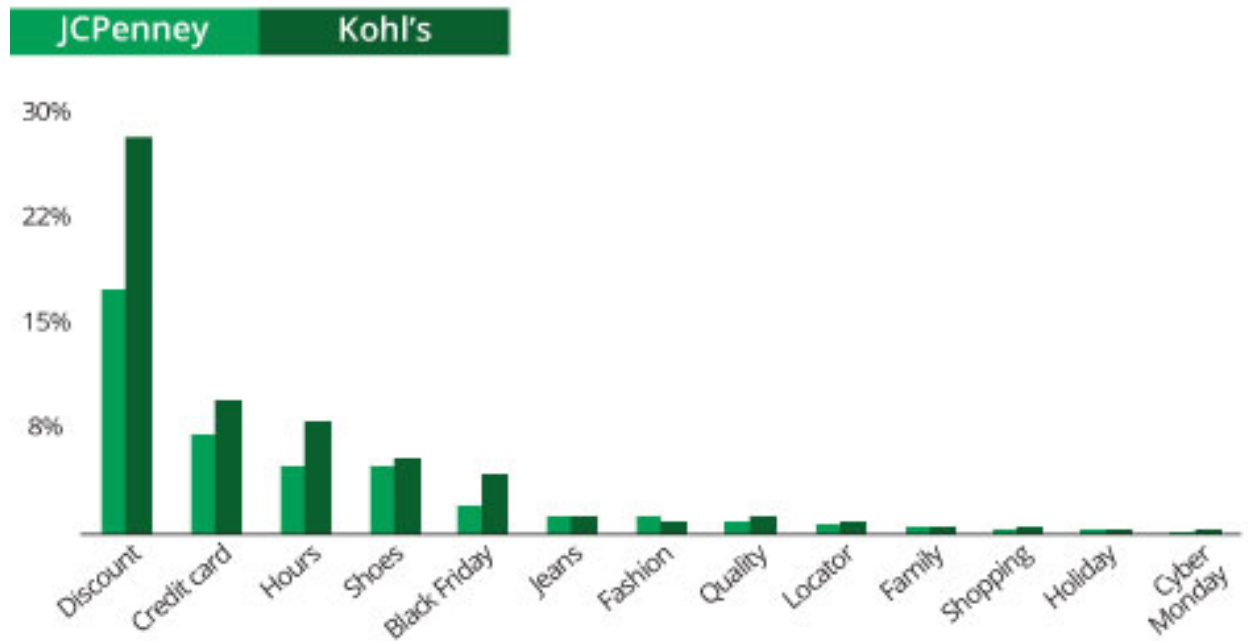
(thinkwithgoogle.com)

Google Correlate Interface (enter a search query or your own data to see correlations):
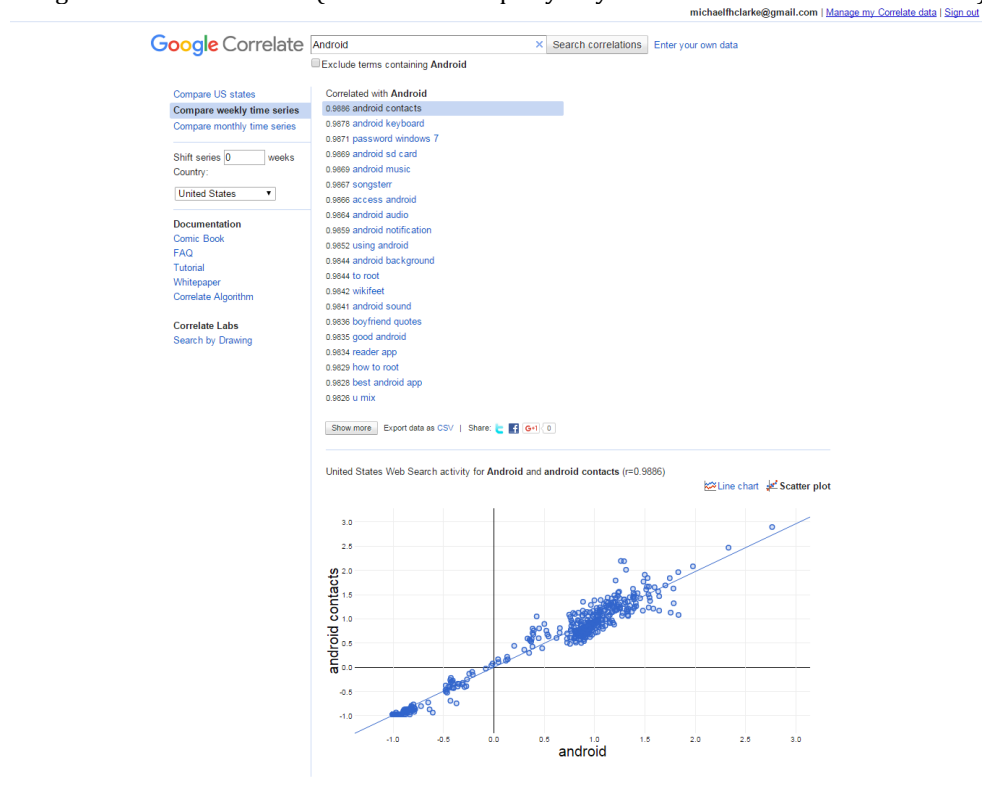
Google Correlate CSV output example:

(google.com/trends/correlate)

Appendix B: Segmentation options for video and display campaigns (both planning and reporting)

Analysts and other account team members plan campaigns by projecting how many of a certain "type" or "segment" they can reach. They determine this by running analyses similar to those shown in the campaign interface below. Once campaigns have been run, the data from accounts are used to conduct an analysis on how those segments have performed.

The campaign interface below shows audience options and projections prior to a campaign launch. This shows projected advertisement reach potential by demographic category (age, gender), device (desktop/mobile/tablet), and targeting by contextual interest (keywords that categorize content and estimate number of cookies or impressions available to target).

The next interface shows potential websites, applications, and videos that an advertiser can place advertisements against and their relevance to the selected segments.

The next interface shows age and gender selection options and associated targeting volume.

The next shows keyword level segment targeting opportunity by volume.

The next interface shows "interest" or "affinity" audience opportunities by volume. These segments are developed by previous browsing behavior and are available for targeting. They are refreshed frequently.

Analysts can export data and run analyses prior to developing campaign targeting settings. They can run a very detailed investigation with this data and feed the custom output of the analysis into the advertising targeting system.

(adwords.com)

Appendix C: Survey Data—Google Consumer Surveys

Google Consumer Surveys allow survey researchers to target the same type of Doubleclick Cookies (targeting) as the display campaigns mentioned above. Analysts may set up market research surveys to target these cookies (segments). Once data has been collected, data can be analyzed in the interface below.
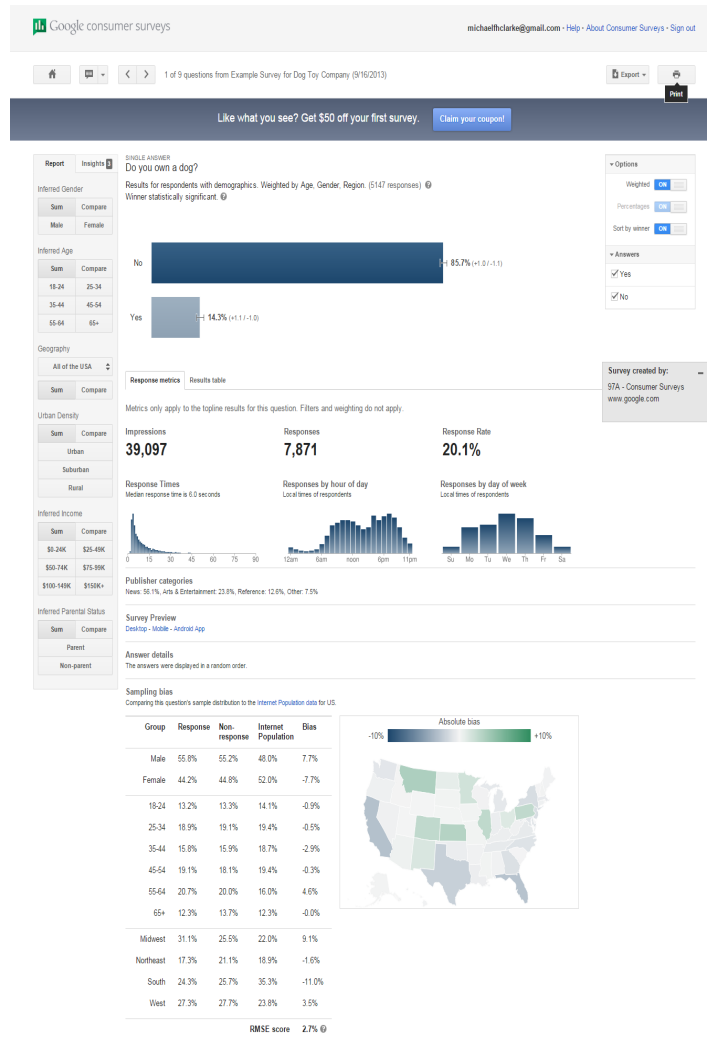
Below is an example of completed questions in a Google Consumer Survey.

Google consumer surveys

michaelfhclarke@gmail.com · Help · About Consumer Surveys · Sign out

CREATE SURVEY   View as Respondent ▾   Export to Excel   Copy survey

SURVEY	TARGETING	FIELD DATE	FREQUENCY
Example Survey for Dog Toy Company (9/16/2013) PrideBites evaluates dog toy tastes & preferences for dog owners.	General Population in the United States on the Google Consumer Surveys publisher network.	09/16/2013	One-time

Question	Answer	Insights	Responses
1. Screening question: Do you own a dog? Target answer: "Yes" (14.3%)	No 85.7%	3	7,871
2. Which quality do you look for most when purchasing a dog toy?	Durability 46.9%	None	1,049
3. When purchasing a toy for your dog, what is the maximum amount you expect to spend?	Average: 10.7	3	1,049
4. Which of the following animal toys would you be most likely to buy for your dog?	Too close to call Trending towards: F	None	1,049
5. In which of the following places do you normally play with your dog and its toys?	In my house 65.6%	3	1,049
6. Which of the following messages do you like most for a dog tog company:	"Where durability meets design" 44.7%	1	1,049
7. In evaluating a dog toy, how important is the following? Toy can be washed in a washing machine.	Average: 3.4 stars	17	1,049
8. In which of the following ways do you typically play with your dog:	Too close to call Trending towards: Fetch with a toy	2	1,049
9. How do you feel about the following statement: I am more likely to buy a dog toy from a company that donates a portion of sales to preventing animal cruelty.	Average: 4.9 stars	25	1,049 / 1,000

©2016 Google - About - Terms - Privacy Policy - Program Policies - Send Feedback

Below is an example of a CSV cross-tab export from a Google Consumer Survey. Analysts can use these files to run analyses for clients on future marketing campaign opportunities. This data is frequently combined with the other analyses mentioned above.

(google.com/consumersurveys)

Appendix D: Google Adwords API and Campaign Reporting

The Google Adwords API can be accessed using proprietary reporting systems. Accessing this API allows Google workers and others to run analyses of campaigns that have already been completed. This can be done according to many segmentation dimensions, as mentioned above. Analysts routinely make use of this technology to conduct their analyses.

A CSV file of reporting categories.

Developer guide describing how to enable this reporting using the Adwords API.

6. Display Network (ad group level)

7. Keyword

8. Default ad group bid (least specific)

Example triggering scenarios

The following table shows the attribution outcomes for different scenarios where you have a bid modifier on target Age
18to24 = +10% in a Criteria Performance report:

Triggering Scenario	Attribution
Triggering occurs by matching *placement* and *remarketing list*.	Neither *placement* nor *remarketing list* have bid modifiers; therefore, because *placement* is higher priority, the attribution goes to *placement*.
Triggering occurs by matching *remarketing list* and *keyword*.	Neither *remarketing list* nor *keyword* have bid modifiers; because *remarketing list* is higher priority, the attribution goes to *remarketing list*.
Triggering occurs by matching *placement*, *remarketing list*, and *Age 18to24*.	Because it has a bid modifier, the attribution goes to *Age 18to24*.

Example report

The example below shows a Criteria Performance Report (single attribution) for a campaign targeting only the Display
Network, and using only verticals and placements as criteria. The report shows 10 total impressions across five rows,
one row for each of three placements and one row for each of two verticals that triggered impressions—each getting two
impressions.

```
Keyword / Placement,Impressions
www.example.com,2
```

```
www.example.com,2
www.example.ca,2
www.example.net,2
Computers & Electronics,2
Sports,2
```

Multiple attribution

With multiple attribution, up to one criterion in each dimension that triggered the impression will have the impression
recorded for it. For example, the Display Topics Performance and Placement Performance reports follow this model. As
opposed to single attribution, multiple attribution reports should **NOT** be aggregated together, since this may double
count impressions and clicks.

Example

```
Topic,Impressions
Computers & Electronics,6
Sports,4

Placement,Impressions
www.example.com,4
www.example.ca,3
www.example.net,3
```

If you target Display Only with verticals (topics) and placements, and run a Display Topics report, you'll get one row for
each vertical (topic) that triggered impressions. Likewise, a Placements performance report will return one row per
impressions. These reports are covering the same impressions, because up to one vertical and one placement will both
be attributed to each impression.

(developers.google.com/adwords/api/docs/guides/reporting-concepts#segmentation)

Appendix E: Example of eCommerce Reporting Using Google Analytics

Analysts frequently use Google Analytics to examine sales and other conversion data in reports. They can configure these reports to examine which segments and related variables performed best.

Below is an example of a Google Analytics report showing conversion rate according to different web sources (Google and Yahoo in this example). It also shows how quickly visitors left following a click on an advertisement (Bounce Rate) and how much each website visit was worth according to the conversions that happened after clicking on that advertisement (Per Visit Value).
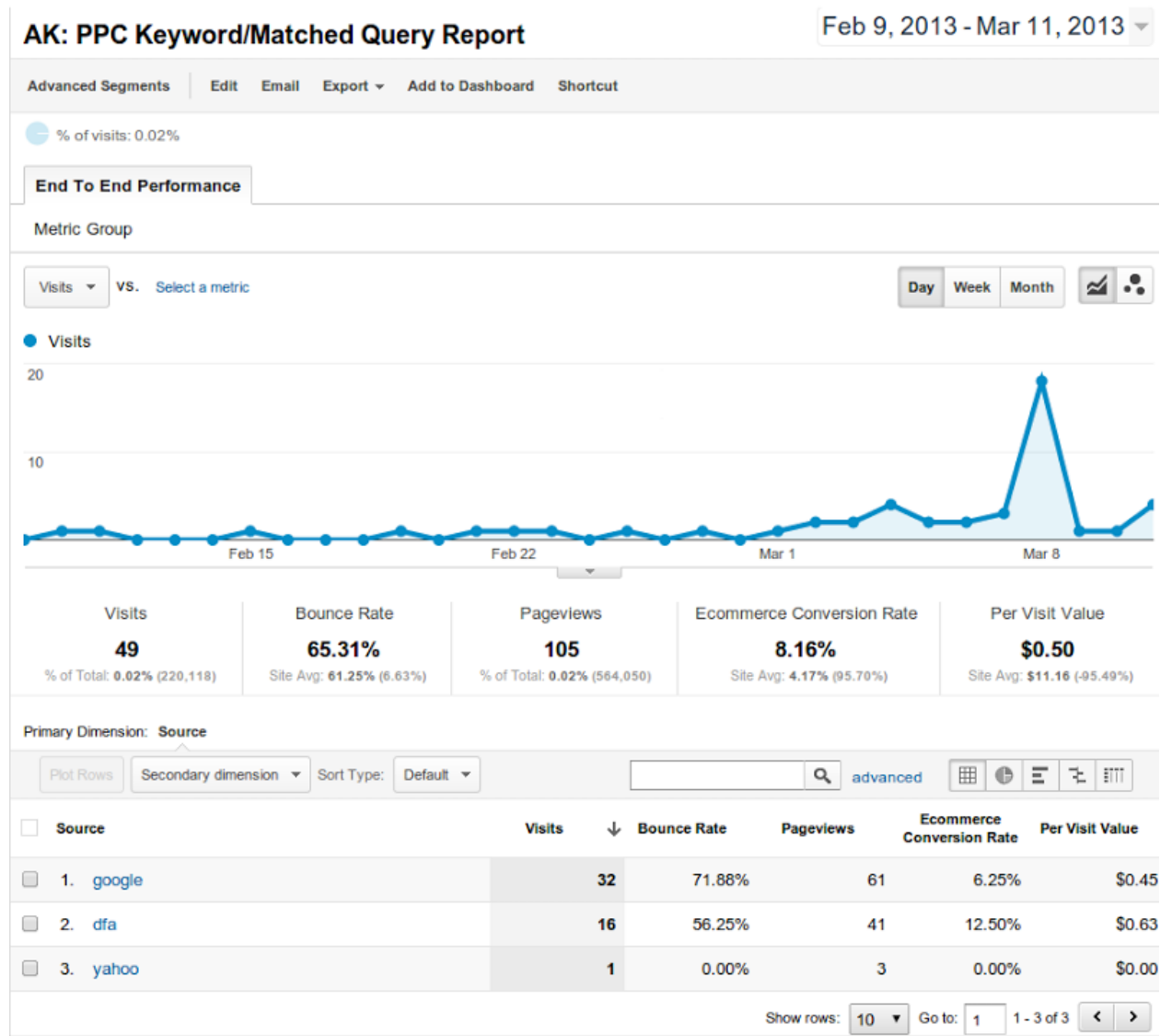
(google.com/analytics/gallery/#landing/start/)

Appendix F: Glossary

Analysts: individuals responsible for the "analytics" of a given advertising account or initiative. The analyst monitors new segment opportunities for the campaign and also provides an assessment of how to achieve the greatest success from current campaigns. The analyst also looks for opportunities prior to the campaign by mining data at their disposal. Periodically, these analysts have direct advertising client contact, however, they most frequently work with Product Management and Client Management teams internally. They advise on selecting and refining attributes to deliver advertising to particular groups of people and in highly technical cases help the Client Management team implement solutions.

Audience Products: these are digital consumer profiles, the technical application of the "segments" in advertising. They are digital profiles created by observing and applying qualified interest in a particular topic, such as a number of visits or time spent on categories of sites (affinity segments), or people who have visited a specific website (remarketing segments).

B2B (Business-to-Business): B2B is a client sales and marketing model. In a B2B model, goods or service providers serve another business as a customer (as opposed to an end consumer). For example, a business selling advertising would be considered B2B, whereas a company selling packaged food is primarily considered B2C.

Banner/Display Advertising: advertising that is placed on a web page, typically in the form of a static image. These advertisements can be a multitude of sizes or configurations.

Brand exposure advertisers: advertisers interested in reaching segments of the population and influencing their perception with brand advertising, as opposed to generating an online sale.

Brand Leads: Brand Leads are brand advertising campaign specialists. They are shared resources that help Client Managers with domain specific knowledge in the sales process. They help client teams, and ultimately advertisers, conceptualize advertising campaigns with a brand exposure advertising goal (versus an online sales goal) and draw on brand marketing expertise and knowledge of branding-focused digital products (YouTube video advertisements in this case).

Client Managers: Client Managers oversee advertiser accounts. They define objectives with advertisers and help conceptualize and launch campaigns. They are commonly referred to interchangeably as account executives, account managers, or business managers. This work often requires that they develop recommendations using consumer research. Thus, Client Managers work very closely with Analysts/Analytical Leads to develop advertising stories through quantitative analysis.

Client/Advertiser: the group or individual who purchases advertising and related targeting.

Customer Relationship Management System/Software: software used to store and apply information about customers and contacts for a given business.

Doubleclick for Advertisers: online software for managing programmatic advertising campaigns (see programmatic definition).

Google Adwords: online software for managing advertising campaigns with Google.

Google Analytics: web analytics and reporting service for an advertiser's digital properties. This is primarily used as a service for capturing all online sales from advertisements that occur on a user's website.

Google Consumer Surveys (GCS): a survey platform that uses web profiles to target "micro surveys" and allow users to manage those surveys in a web interface.

Google Trends: a public tool with a simple graphical user interface that provides a multitude of options for analyzing search query trends that occur on Google.com.

Product Leads: Product Leads are technical advertising product specialists. They are shared resources available to Client Managers on an advertising team. They help Client Managers with technical knowledge specific to a particular advertising product area. Product Leads can be as technical as engineers, and have typically held advertiser-facing sales roles in the past. For Client Managers, Product Leads are representatives for research and development.

Programmatic Advertising: an automated system used to buy advertising through an auction across many Internet advertising providers. Advertisers enter a bid, as well as some consumer segment characteristics, and purchase Internet placements according to the price they are willing to pay and the attributes of the segment they have selected (their web behaviors, offline purchase behaviors, their interests, their demographics, etc.)

Request for proposal (RFP): "Request for Proposals" (RFPs) originate from clients (advertising customers), and are documents inviting advertising providers like Google to present plans for campaigns according to a set of specifications. These requirements include business objectives and a variety of advertising campaign goals, including the commitment to reach certain consumer segments (groups of people an advertiser wants to influence). The campaign plan in the RFP response typically includes desired storylines and supporting technical specifications. This involves working knowledge of a range of consumer profile targeting capabilities and video advertising formats.

Search Advertising: advertising that surfaces when a user searches in a search engine. Advertisers purchase this advertising by bidding on keywords in an auction in Adwords.

Trends for Marketers (T4M): using Google search query data, this tool allows analysts to categorize and analyze search queries related to brands in aggregate.

Ubi-insight tools: a small but rapidly growing group of research tools that can rapidly derive rich consumer information from digital signals using big data. These tools are highly accessible and available to the general public. They include Google Trends and Google Consumer Surveys.

Video Advertising: advertising that plays prior to an online video, or somewhere on a publisher's website, e.g. YouTube video ads.

References

Ackermann, M., Pipek, V., and Wulf, V. 2003. *Sharing Expertise: Beyond Knowledge Management.* Cambridge, MA: MIT Press.

Alac, M.. 2011. *Handling of Digital Brains: A Laboratory Study of Multimodal Semiotic Interaction in the Age of Computers. Cambridge, MA:* The MIT Press.

Alspaugh, S., Chen, B., Lin, J., Ganapathi, A., Hearst, M., and Katz, R. 2014. "Analyzing Log Analysis: An Empirical Study of User Log Mining." *In USENIX (The Advanced Computing Systems Association), Proceedings of the 28th Large Installation System Administration Conference–LISA '14. Seattle, Washington, November 9-14, 2014,*, pp.53-68.

Arendt, H. 1958. *The Human Condition.* Chicago: The University of Chicago Press.

Arendt, H. 1968. *Between Past and Future: Eight Exercises in Political Thought. Middlesex:* Penguin Books.

Arnould, J. and Wallendorf, M. 1994. "Market-Oriented Ethnography: Interpretation Building and Marketing Strategy Formulation." *Journal of Marketing Research*, 31(4), pp.484-504.

Barnett, M. 2013. "Data vs. Creativity." *Marketing Magazine,* [online] April 10. Available at: <http://www.marketingweek.com/ 2013/04/10/data-vs-creativity/> [Accessed April 4, 2016].

Barter, P. and DeChambeau, J. 2012. "From Mad Men to Math Men." *The Intelligent Application of Technology, [online]* March 2. Available at: <http://www.t4g.com/articles/from-mad-men-to-math-men/> [Accessed April 4, 2016].

Bayles, M.E. 2002. "Designing Online Banner Advertisements: Should We Animate?" *In: SIGCHI (Special Interest Group on Computer-Human Interaction), Proceedings of the SIGCHI Conference on Human Factors in Computing Systems—CHI '02. Minneapolis, Minnesota, April 20-25.*ACM Digital Library. Available at: <http://dl.acm.org/citation.cfm?id=503441&CFID=767697033&CFTOKEN=11085117> [Accessed April 4, 2016], pp.363-366

Berger, P. 1963. Invitation to Sociology: A Humanistic Perspective. New York: Anchor.

Berger, P. and Luckmann, T. 1966. *The Social Construction of Reality.New York:* Doubleday.

Berger, P., Berger, B., and Kellner, H.. 1974. *The Homeless Mind: Modernization and Consciousness.* New York: Vintage Books.

Bergkvist, L. 2000. Advertising Effectiveness Measurement: Intermediate Constructs and Measures. Ph.D. Stockholm School of Economics.

Berman, J.J, 2013. *Principles of Big Data: Preparing, Sharing, and Analyzing Complex Information*. Waltham, MA: Newnes.

Blum, A. 2003. The Imaginative Structure of the City. Montreal: McGill-Queen's University Press.

Blum, A. and McHugh, P. 1971. "The Social Ascription of Motives." American Sociological Review, 36(1), pp.98-109.

Blum, A. and McHugh, P. 1978. "The Risk of Theorizing and the Problem of Good of Place: A Reformulation of Canadian Nationalism." Canadian Journal of Sociology, 3(3), pp.321-347.

Blum, A. and McHugh P. 1984. *Self-Reflection in the Arts and Sciences*. Atlantic Highlands, NJ: Humanities Press.

Blumer, H. 1969. *Symbolic Interactionism: Perspective and Method.* Englewood Cliffs, NJ: Prentice Hall.

Bonner, K. 1994. "Hermeneutics and Symbolic Interactionism: The Problem of Solipsism." *Human Studies,* 17(2), pp.225-249.

Bonner, K. 1997. *A Great Place to Raise Kids: Interpretation, Science and the Urban-Rural Debate*. Montreal: McGill-Queen's University Press.

Bonner, K. 1998. *Power and Parenting: A Hermeneutic of the Human Condition*. New York: St. Martin's Press.

Bonner, K. 2001. "Reflexivity and Interpretive Sociology: The Case of Analysis and the Problem of Nihilism."*Human Studies,* 24(4), pp.267-292.

Bonner, K. 2011. "Data, Methods and Understanding Social Action: The Radical Interpretive Method of Theorizing." In: International Social Theory Consortium, 10th Annual Conference. Cork, Ireland, June 16-17.

Bonner, K. 2013. "Reason Giving, City Icons and the Culture of Cities: Data from a Radical Interpretive Perspective." *Journal of Comparative Research in Anthropology and Sociology*, 4(2), pp.21-31.

Bruun, A. and Stage, J. 2012. "Training Software Development Practitioners in Usability Testing: An

 Assessment Acceptance and Prioritization." In: Australian Computer-Human Interaction Interest Group

 (OzCHI), Proceedings of the 24th Annual Conference. Melbourne, Australia, November 26-30. ACM

 Digital Library. Available at:

 <http://dl.acm.org/citation.cfm?id=2414545&CFID=767697033&CFTOKEN=11085117>

 [Accessed April 4, 2016}, pp. 52-60.

Burger, P., and Schott, B. 1972. "Can Private Brand Buyers be Identified?" *Journal of Marketing Research*, 9(2),

 pp.219-222.

Burns, A. and Harrison, M. 1979. "A Test of the Reliability of Psychographics." *Journal of Marketing Research*,

 16(1), pp.32-38.

Button, G. and Dourish, P. 1996. "Technomethodology: Paradoxes and Possibilities.In: SIGCHI (Special Interest

 Group on Computer-Human Interaction)—CHI '96, Proceeding of the SIGCHI Conference on Human

 Factors in Computing Systems. Vancouver, British Columbia, April 13-18. ACM Digital Library.

 Available at: <http://dl.acm.org/citation.cfm?id=238394&CFID=7C67697033&CFTOKEN=11085117>

 [Accessed April 4, 2016], pp. 19-26.

Button, G. and Sharrock, W. 1997. "The Production of Order and the Order of Production." In: J. Hughes et al.,

 eds. 1997. *Proceedings of the Fifth European Conference on Computer Supported Cooperative Work.*

 Dordrecht: Kluwer. pp.1-16

Button, G. and Sharrock, W. 2009. *Studies of Work and the Workplace in HCI: Concepts and Techniques, San*

 Rafael, CA: Morgan & Claypool.

Canhoto, A, Clark, M., and Fennemore, P. 2013. "Emerging Segmentation Practices in the Age of the Social

 Customer,." *Journal of Strategic Marketing*, 21(5), pp.413-428.

Castro, M. and Singh, S. 2004, "Rigour at a Trotting Pace: A Story from the User-Centered Design of Smart

 Internet Technologies." *In: The Institute for Integrated and Intelligent Systems, Proceedings of* the

 International Research Conference on Qualitative Research in IT and IT in Qualitative Research—

 QualIT 2004. Brisbane, Australia, November 24-26. Available at:

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.539.3411&rep=rep1&type=pdf>

[Accessed April 4, 2016], pp. 1-8.Chamberlin, E.H.. 1933. *The Theory of Monopolistic Competition.*

Cambridge, MA: Harvard University Press.

Chang, Y., Lim, Y., and Stolterman, E. 2008. "Personas: From Theory to Practices." *In: NordiCHI '08,*

Proceedings of the 5th Nordic Conference on Human-Computer Interaction: Building Bridges. Lund,

Sweden, October 18-22. ACM Digital Library. Available at:

<http://dl.acm.org/citation.cfm?id=1463214&CFID=767944099&CFTOKEN=71901107> [Accessed

April 4, 2016], pp.439-442.

Chapman, C. N. and Milham, R. P. 2006. "The Persona's New Clothes: Methodological and Practical Arguments

against a Popular Method." *In:* Human Factors and Ergonomics Society, *Proceedings of Human Factors*

and Ergonomics Society 50th Annual Meeting. San Francisco, California, October 16-20, pp.634-636.

Chapman, C. Love, E., Milham, R., ElRif, P., and Alford, J. 2008. "Quantitative Evaluation of Personas as

Information." *In: Human Factors and Ergonomics Society, Proceedings of the Human Factors and*

Ergonomics Society 52nd Annual Meeting. New York, New York, September 22-26, pp.1107-1111.

Chickowski, E. 2014. "Metrics Causing Pain? Could Be A People Problem." *AdExchanger, [online] March 28.*

Available at: <http://adexchanger.com /analysts/metrics-causing-pain-could-be-a-peopleproblem/>

[Accessed April 4, 2016].

Clarke, M.F. 2015. "The Work of Mad Men That Makes the Methods of Math Men Work: Practically Occasioned

Segment Design." *In: Conference on Human Factors in Computing Systems, Proceedings of CHI 2015.*

Seoul, Republic of Korea, April 18-23. ACM Digital Library. Available at:

<http://dl.acm.org/citation.cfm?id=2702493&CFID=767944099&CFTOKEN=71901107> [Accessed

April 4, 2016], pp.3275-3284.

Cooper, A. 1999. *The Inmates Are Running the Asylum.* Indianapolis: Macmillan Publishing Co.

Couper, M.P., 2008, *Designing Effective Web Surveys*, Cambridge University Press, New York.

Couper, M.P. 2013. "Surveys on Mobile Devices: Opportunities and Challenges." In: National Centre for

Research Methods, Web Surveys for the General Population: How, Why and When? London, UK,

February 25-26, pp. 25-26.

Crabtree, A. 2004a. "Design in the Absence of Practice: Breaching Experiments." *In: Designing Interactive Systems, DIS '04: Proceedings of the 5th Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniques. Cambridge, Massachusetts, August 1-4. ACM Digital Library. Available at:* <http://dl.acm.org/citation.cfm?id=1013125&CFID=767944099&CFTOKEN=71901107> *[Accessed April 4, 2016], pp.59-68.*

Crabtree, A. 2004b. "Taking Technomethodology Seriously: Hybrid Change in the Ethnomethodology-Design Relationship." *European Journal of Information Systems*, 13(3), pp.195-209.

Crabtree, A., Benford, S., Greenhalgh, C., Tennent, P., Chalmers, M. and Brown, B. 2006. "Supporting Ethnographic Studies of Ubiquitous Computing in the Wild*. In: Designing Interactive Systems, DIS '06: Proceedings of the 6th Conference on Designing Interactive Systems. University Park, Pennsylvania, June 26-28. ACM Digital Library. Available at:* <http://dl.acm.org/citation.cfm?id=1142417&CFID=767944099&CFTOKEN=71901107> *[Accessed April 4,2016], pp.60-69.*

Crabtree, A., Rodden, T., Hemmings, T., and Benford, S. 2003. "Finding a Place for UbiComp in the Home." *In: UbiComp 2003, Proceedings of the 5th International Conference on Ubiquitous Computing. Seattle, Washington, October 12-15,* pp.208-226.

Crabtree, A., Rouncefield, M. and Tolmie, P. 2012. *Doing Design Ethnography.* New York: Springer.

Darley, W.A. and Smith, R.E. 1995. "Gender Difference in Information Processing Strategies: An Empirical Test of the Selectivity Model in Advertising Response." *Journal of Advertising*, 24(1), pp.41-56.

Dibb, S. 2001. "New Millennium, New Segments: Moving Towards the Segment of One?" Journal of Strategic Marketing, 9(3), pp.193-213.

Dibb, S. and Simkin, L. 1997. "A Program for Implementing Market Segmentation." *Journal of Business and Industrial Marketing*, 12(1), pp.51-65.

Dong, X., Manchanda, P., and Chintagunta, P. 2006. "Quantifying the Benefits of Individual Level Targeting in the Presence of Firm Strategic Behavior." *Journal of Marketing Research*, 46(2), pp.207-221.

Dotan, A., Maiden, N., Lichtner, V., and Germanovich, L. 2009. "Designing with Only Four People in Mind?—A Case Study of Using Personas to Redesign a Work Integrated Learning Support System." *In:* Human-Computer Interaction, INTERACT 2009: 12th International Conference Proceedings Part II. Uppsala, Sweden, August 24-28. Springer, pp.497-509. 10.1007/978-3-642-03658-3.

Dourish, P. 2006. "Implications for Design." *In:* SIGCHI (Special Interest Group on Computer-Human Interaction)—CHI '06, *Proceeding of the SIGCHI Conference on Human Factors in Computing Systems.* Montreal, Quebec, April 22-27. ACM Digital Library. Available at: <http://dl.acm.org/citation.cfm?id=1124855&CFID=767944099&CFTOKEN=71901107> [Accessed April 4, 2016], pp. 541-550.

Dourish, P. and Button, G. 1998. "On 'Technomethodology': Foundational Relationships between Ethnomethodology and System Design." *Human-Computer Interaction,* 13, pp.395-432.

Faily, S. and Flechais, I. 2011. "Persona Cases: A Technique for Grounding Personas." *In: SIGCHI (Special Interest Group on Computer-Human Interaction)—CHI '11, Proceeding of the SIGCHI Conference on Human Factors in Computing Systems. Vancouver, British Columbia, May 7-12. ACM Digital LIbrary. Available at: <http://dl.acm.org/citation.cfm?id=1979274&CFID=767944099&CFTOKEN=71901107> [Accessed April 4, 2016], pp.2267-2270.*

Ferenstein, G. 2013. "How Google Surveys Could Turn Anyone Into a Professional Pollster." *Techcrunch,* [online] July 20. Available at: <http://techcrunch .com/ 2013/07/20/how-google-surveys-could-turn-anyone-into-a-professional-pollster-as-shown-in-1-graph/> [Accessed April 4, 2016].

Firat, A., and Venkatesh, A. 1993. "Postmodernity: The Age of Marketing." *International Journal of Research in Marketing*, 10(3), pp.227-249.

Fischer, J.E., Yee, N., Bellotti, V., Good, N., Benford, S., and Greenhalgh, C. 2010. "Effects of Content and Time of Delivery on Receptivity to Mobile Interruptions." *In: Mobile HCI2010, Proceedings of the 12th International Conference on Human Computer Interaction with Mobile Devices and Services. Lisbon, Portugal, September 7-10. ACM Digital Library. Available at: <http://dl.acm.org/citation.cfm?id=1851620&CFID=767944099&CFTOKEN=71901107> [Accessed April 4, 2016], pp. 103-112.*

Ford, H. 2014. "Big Data and Small: Collaborations between Ethnographers and Data Scientists." *Big Data & Society*, July–December, pp.1-3.

Friess, E. 2012. "Personas and Decision Making in the Design Process: An Ethnographic Case Study." *In:* SIGCHI (Special Interest Group on Computer-Human Interaction)—CHI '12, Proceeding of the SIGCHI Conference on Human Factors in Computing Systems. Austin, Texas, May 5-10. ACM Digital Library. Available at: <http://dl.acm.org/citation.cfm?id=2208572&CFID=767944099&CFTOKEN=71901107> [Accessed April 4, 2016], pp.1209-218.

Gadamer, H. 1975. *Truth and Method. London:* Sheed and Ward.

Gadamer, H. 1981. *Reason in the Age of Science*. Boston: MIT Press.

Garfinkel, H. 1967. *Studies in Ethnomethodology.* Englewood Cliffs, NJ: Prentice Hall.

Garfinkel, H. 2002. *Ethnomethodology's Program: Working out Durkheim's Aphorism. Lanham, MD:* Rowman & Littlefield.

Garfinkel, H., Lynch, M., and Livingston, E. 1981. "The Work of Discovering Science Construed with Materials from the Optically Discovered Pulsar." *Philosophy of the Social Sciences,* 11, pp.131-158.

Garfinkel, H., Sacks, H. 1970. "On Formal Structures of Practical Actions". In: McKinney, J.D. & Tiryakian, E.A. eds. 1970. *Theoretical Sociology*. New York: Appleton Century Crofts, New York, pp. 337-366.

Gibson, C. 2015. "Why Market Research Matters.", *Entrepreneur, [online] March 7. Available at:*<http://www.entrepreneur.com/article/242521> [Accessed April 4, 2016].

Google Inc. 2014. Campaign Starter Kit Series Part 2: Building a Display Campaign. *YouTube, May 8.* Available at: <https://www.youtube.com/watch?v=u7doH45JreA> [Accessed April 4, 2016].

Google Inc. 2014. Search insights: sizing up the competition. *Think with Google,* January, Available at: https://www.thinkwithgoogle.com/articles/search-insights-sizing-up-the-competition.html [Accessed June 26, 2016]

Grant, G. 1969. *Technology and Empire: Perspectives on North America*. Toronto: House of Anansi Press.

Green, P. and Wind, Y. 1975. "New Way to Measure Consumers' Judgements." *Harvard Business Review*, 53,

pp.107-117.

Green, P. and Krieger, A. 1991. "Segmenting Markets with Conjoint Analysis." *Journal of Marketing*, 55(4),

    pp.20-31.

GreenBook Research Industry Trends Report. 2014. New York: AMA Communications Services.

Greiffenhagen, C. and Sharrock, W.W. 2011. "Does Mathematics Look Certain in the Front, but Fallible in the

    Back?" *Social Studies of Science*, 41(6), pp.839-866.

Greiffenhagen, C., Mair, M., and Sharrock, W. 2011. "From Methodology to Methodography: A Study of

    Qualitative and Quantitative Reasoning in Practice." *Methodological Innovations Online*, 6(2), pp.93-

    107.

Griffith, E. 2011. "ComScore, eXelate Cleaning Up 'Garbage In, Garbage Out' Data: Companies Join Forces to

    Improve Audience Verification." *Adweek*, [online] August 16. Available at:

    <http://www.adweek.com/news/technology/comscore-exelate-cleaning-garbage-garbage-out-

    134154> [Accessed April 4, 2016].

Grudin, J. 1990. "The Computer Reaches Out: The Historical Community of Interface Design." *In: SIGCHI*

    (Special Interest Group on Computer-Human Interaction)—CHI '90, Proceeding of the SIGCHI Conference

    on Human Factors in Computing Systems. Seattle, Washington, April 1-5. ACM Digital Library. Available

    at: <http://dl.acm.org/citation.cfm?id=97284> *[Accessed April 4, 2016], pp.261-268.*

Haley, R. 1968. "Benefit Segmentation: A Decision-Oriented Research Tool." *Journal of Marketing*, 32(3),

    pp.30-35.

Harper, R. and Sellen, A. 1995. *Paper-Supported Collaborative Work*. Cambridge, UK: Rank Xerox Research

    Centre, Cambridge Laboratory.

Harper, R.R., Hughes, J.A., and Shapiro, D.Z. 1989. *The Functionalities of Flight Data Strips*. London: Kingsway.

Harrison, S., Tatar, D., and Sengers, P. 2007. "The Three Paradigms of HCI." In: SIGCHI (Special Interest Group

    on Computer-Human Interaction)—CHI '07, Proceedings of the SIGCHI Conference on Human Factors

    in Computing Systems. San Jose, California, April 20-May 3.

Heidegger, M. 1977. *The Question Concerning Technology and Other Essays*. New York: Harper & Row.

Heritage, J. 1984. Garfinkel and Ethnomethodology. Englewood Cliffs, NJ: Prentice Hall.

Hof, R. 2014. "Not Just for Nerds: Automated Ad Buying Goes Mainstream." *Forbes, [online] March 24.*

    Available ate: <http://www.forbes.com/sites/roberthof/2014/03/24/not-just-for-nerds-automated-

    ad-buying-goes-mainstream/> [Accessed April 4 2016].

Housley, W. and Fitzgerald, R. 2015. "Introduction to Membership Categorisation Analysis." In: R.

    Fitzgerald and W. Housley, eds. *Advances in Membership Categorisation Analysis*, pp.1-22. London:

    SAGE.

Hughes, J., King, V., Rodden, T., and Anderson, H. 1994. "Moving Out of the Control Room: Ethnography in

    System Design." In: Computer Supported Cooperative Work—CSCW '92, Proceedings of the 1994

    Conference on Computer Supported Cooperative Work. Chapel Hill, North Carolina, October 22-26.

    ACM Digital Library. Available at:

    <http://dl.acm.org/citation.cfm?id=193065&CFID=767944099&CFTOKEN=71901107> [Accessed

    April 4, 2016], pp.429-438.

Hughes, J.A., Randall, D., and Shapiro, D. 1992. "Faltering from Ethnography to Design." In: Computer

    Supported Cooperative Work—CSCW '92, Proceedings of the 1992 ACM Conference on Computer-

    Supported Cooperative Work. Toronto, Ontario, November 1-4. ACM Digital Library. Available at:

    <http://dl.acm.org/citation.cfm?id=143469&CFID=767944099&CFTOKEN=71901107> [Accessed

    April 4, 2016]..Husserl, E. 1960. *Cartesian Meditations. The Hague:* Martinus Nijhoff.

Husserl, E. 1964. *The Paris Lectures. The Hague:* Martinus Nijhoff.

Jakab, A. 2014. "Programmatic Branding, Marketing's Best Secret." *Marketing Magazine, [online]* August 29.

    Available at: <http://www.marketingmagazine.co.uk/article/1309937/programmatic-branding-

    marketingsbest-kept-secret> [Accessed April 4, 2016].

Joe, R. *AdExchanger*. 2013. "Rocket Fuel CEO: 'Nerds Are in Charge' of Brand Media Teams." Adexchanger,

    [online] December 10. Available at: <http://adexchanger. com/platforms/achieving-liftoff-in-a-world-

    of-disruption-rocket-fuel-ceo-cfo-ignite-a-fireside-chat/> [Accessed April 4, 2016].

Kahle, L., Beatty, S., and Homer, P. 1986. "Alternative Measurement Approaches to Consumer Values: The List

of Values (LOV) and Life Style (VALS)." *Journal of Consumer Research*, 13(3), pp.405409.

Kantrowitz, A. 2015. "Programmatic Goes Beyond Display Ads, Opening Up Creative Possibilities." *AdAge, [online] April 15. Available at:* <http://adage.com/article/digital/splashy-ads-major-sites-programmatically/298034/> [Accessed April 4, 2016].

Kensing, F., Simonsen, J., and Bodker, K. 1998. "Participatory Design at a Radio Station." *Computer Supported Cooperative Work*, 7(3-4), pp.243-271.

Knorr-Cetina, K. 1981. *The Manufacture of Knowledge: An Essay on the Constructivist and Contextual Nature of Science.* Oxford: Pergamon Press.

Kobsa, A., Knijnenburg, B.P., and Livshits, B. 2014. "Let's Do it at My Place Instead? Attitudinal and Behavioral Study of Privacy in Client-Side Personalization." In: In: SIGCHI (Special Interest Group on Computer-Human Interaction)—CHI '17, Proceeding of the SIGCHI Conference on Human Factors in Computing Systems. Toronto, ONtario, April 26-May 1. ACM Digital Library. Available at: <http://dl.acm.org/citation.cfm?id=2557102> [Accessed April 4 2016], pp. 81-90.

Krippendorff, K. 2006. *The Semantic Turn: A New Foundation for Design.* Boca Raton: Taylor & Francis Group.

Kuhn, T. 1970. *The Structure of Scientific Revolutions,(2nd ed)*. Chicago: The University of Chicago Press.

Laporte, L. Slegers, K., and De Grooff, D. 2012. "Using Correspondence Analysis to Monitor the Persona Segmentation Process." In: NordiCHI '12, Proceedings of the 7th Nordic Conference on Human-Computer Interaction: Making Sense Through Design. Copenhagen, Denmark, October 14-17. ACM Digital Library. Available at: <http://dl.acm.org/citation.cfm?id=2399058&CFID=767944099&CFTOKEN=71901107> [Accessed April 4, 2016], pp.265-274.

Latour, B. 1986. "Will the Last Person to Leave the Social Studies of Science Please Turn on the Tape Recorder?" *Social Studies of Science*, 16(3), pp.541-548.

Latour, B. and Woolgar, S. 1979. *Laboratory Life: The Social Construction of Scientific Facts.* Beverly HIlls: Sage Publications.

Lesser, J. and Hughes, M. 1986. "The Generalizability of Psychographic Market Segments Across Geographic

Locations." *Journal of Marketing*, 50(1), pp.18-27.

Livingston, E. 1986. The Ethnomethodological Foundations of Mathematics. London: Routledge & Kegan Paul.

Loehr, A. 2015. "Big Data for HR: Can Predictive Analytics Help Decrease Discrimination in the Workplace?"
Huff Post Business, [online] March 23. Available at: <http://www.huffingtonpost.com/anne-loehr/big-data-for-hr-can-predi_b_6905754.html> [Accessed April 4, 2016].

Long, F. 2009. "Real or Imaginary? The Effectiveness of Using Personas in Product Design." In: Irish
Ergonomics Society, *Proceedings of Irish Ergonomics Society Annual Conference. Irish Ergonomics
Review, ed. L.W. O'Sullivan. Available at:*
<http://www.ergonomics.ie/Documents/Irish%20Ergonomics%20Review/Irish%20Ergonomics%20
Review%202009.pdf> *[Accessed April 4, 2016], pp.1-10.*

Lopez-Jaquero, V., Fernandez-Caballero, A., Montero. F., and Gonzalez, P. 2002. "Social Computing and
Usability Metrics: Toward User-Centered and Adaptive Interaction Agents." In: *Proceedings of VIII
Conferencia Iberoamericana de Inteligencia Artificial. Available at:*
<http://www.lsi.us.es/iberamia2002/confman/SUBMISSIONS/115-ntz-cabfer.pdf> *[Accessed April 4,
2016].*

Luff, P. and Heath, C. 1998. "Mobility in Collaboration." In: Computer Supported Cooperative Work—CSCW
'98, Proceedings of the 1998 ACM Conference on Computer Supported Cooperative Work. Seattle,
Washington, November 14-18. ACM Digital Library. Available at:
<http://dl.acm.org/citation.cfm?id=289444&picked=prox&cfid=767944099&cftoken=71901107>
[Accessed April 4, 2016], pp.305-314.

Luff, P., Pitsch, K., Heath, C., Herdman, P., and Wood, J. 2010. "Swiping Paper: The Second Hand, Mundane
Artifacts, Gesture and Collaboration." *Personal and Ubiquitous Computing*, 14(3), pp.287-299.

Luker, K. 2010. *Salsa Dancing into the Social Sciences: Research in an Age of Info-Glut. Cambridge, MA:* Harvard
University Press.

Lynch, M. 1985. *Art and Artifact in Laboratory Science: A Study of Shop Work and Shop Talk in a Research
Laboratory*. Boston: Routledge Kegan & Paul.

Lynch, M. 1993. *Scientific Practice and Ordinary Action: Ethnomethodology and Social Studies of Science.Cambridge, UK:* Cambridge University Press.

Lynch, M. 1997. "Preliminary Notes on Judges' Work: The Judge as a Constituent of Courtroom Hearings." In: *Law in Action: Ethnomethodological & Conversation Analytic Approaches to Law.* Aldershot, UK: Dartmouth Publishing.

Lynch, M. 2000. "Against Reflexivity as an Academic Virtue and Source of Privileged Knowledge." *Theory, Culture & Society*, 17(3), pp.26-54.

Lynch, M., and Bogen, D. 1996. *The Spectacle of History: Speech, Text and Memory at the Iran-Contra Hearings.*Durham: Duke University Press.

Mad Men. 2008. "Babylon" [TV episode]. Directed by A. Bernstein. Written by A. Jacquemetton and M. Jacquemetton. Los Angeles: AMC.

Mair, M., Greiffenhagen, C., and Sharrock, W.W. 2015. "Statistical Practice: Putting Society on Display." *Theory, Culture & Society*. DOI: 10.1177/0263276414559058.

Majurin, I.A. 2001. "Industrial Segmentation. A Review." *Memo-Stencil, Preliminära forskningsrapporter från Företagsekonomiska*.

Mannheim, K. 1936. *Ideology and Utopia.* London: Routledge.

Manyika, J., Chui, M., Brown, B., Bughin, J., Dobbs, R., Roxburgh, C. , and Byers, A.H. 2011. "Big Data: The Next Frontier for Innovation, Competition, and Productivity." *McKinsey & Company. Available at:* <http://www.mckinsey.com/insights/business_technology/big_data_the_next_frontier_for_innovation > [Accessed April 4, 2016].

Martin, D., O'Neill, J., and Randall, D. 2009. "'Talking about (my) Generation': Creativity, Practice, Technology & Talk." *In: ECSCW 2009, Proceedings of the 2009 11th European Conference on Computer-Supported Cooperative Work. Vienna, Austria, September 7-11. Available at:* <http://www.ecscw.org/2009.htm> *[Accessed April 4, 2016], pp.171-190.*

Martin, D., Rooksby, J., and Rouncefield, M. 2007. "Users as Contextual Features of Software Product Development and Testing." In: GROUP '07, Proceedings of the 2007 International ACM Conference on

Supporting Group Work. Sanibel Island, Florida, November 4-7. ACM Digital Library. Available at: <http://dl.acm.org/citation.cfm?id=1316670&CFID=767944099&CFTOKEN=71901107> [Accessed April 4, 2016], pp.301-310.

Martineau, P. 1958. "Social Classes and Spending Behavior." *Journal of Marketing*, 3(2), pp.121-141.

Mavletova, A. and Couper, M.P. 2014. "Mobile Web Survey Design: Scrolling versus Paging, SMS versus E-mail Invitations." *Journal of Survey Statistics and Methodology,* 2(4), pp.498-518.

Mayleft, T.D. 2003. "Models, Metaphors and Client Relations: The Negotiated Meanings of Advertising." In: T. deWaal Malefyt and B. Moeran, eds. 2003. *Advertising Cultures.* Oxford: Berg.

Maynard, D.W. and Schaeffer, N.C. 2000. "Toward a Sociology of Scientific Knowledge: Survey Research and Ethnomethodology's Asymmetric Alternates." *Social Studies of Science,* 30(3), pp.323-370.

McHugh, P. 1971. "On the Failure of Positivism." In: J.D. Douglas, ed. 1971. *Understanding Everyday Life. London:* Routledge & Kegan Paul.

McHugh, P., Raffel, S., Foss, D., and Blum, A. 1974. *On the Beginning of Social Inquiry*. London: Routledge and Kegan Paul.

Meliones, A. and Karidis, A. 2001. "Distributed High-End Audio-Visual Content Creation: An Experience Report." *Computer Supported Cooperative Work*, 10(3-4), pp.373-386.

Miaskewicz, T. and Kozar, K. 2001. "Personas and User-Centered Design: How Can Personas Benefit Product Design Processes." *Design Studies*, 32(5), pp.417-430.

Miaskewicz, T., Sumner, T., and Kozar, K. 2008. "A Latent Semantic Analysis Methodology for the Identification and Creation of Personas." In: SIGCHI (Special Interest Group on Computer-Human Interaction)—CHI '08, Proceeding of the SIGCHI Conference on Human Factors in Computing Systems. Florence, Italy, April 5-10. ACM Digital Library. Available at: <http://dl.acm.org/citation.cfm?id=1357290> [Accessed April 4, 2016], pp.1501-1510.

Miles, M.B., and Huberman, M.A. 1994. *Qualitative Data Analysis: An Expanded Sourcebook. Thousand Oaks, CA:* Sage Publications.

Mitchell, A. 1983. *The Nine American Lifestyles: Who We Are and Where We're Goin*g. New York: Warner.

Moeran, B. 2006. *Ethnography at Work*. New York: Berg.

Morais, R.J. 2007. "Conflict and Confluence in Advertising Meetings." *Human Organization*, 66(2), pp.150-159.

Negru, S. and Buraga, S, 2012. "Towards a Conceptual Model for Describing the Personas Methodology." *In:* Intelligent Computer Communication and Processing (ICCP), *Proceedings of 2012 IEEE International Conference* , pp.99-102.

Pollner, M. 1991. "Left of Ethnomethodology: The Rise and Decline of Radical Reflexivity." *American Sociological Review,* 56(3), pp.370-380.

Pruitt, J., and Grudin, J. 2003. "Personas: Practice and Theory." *In: DUX '03, Proceedings* of the 2003 *Conference on Designing for User Experiences. San Francisco, California, June 5-7. ACM Digital Library. Available at:* <http://dl.acm.org/citation.cfm?id=997089&CFID=767944099&CFTOKEN=71901107> *[Accessed April 4, 2016], pp.1-15.*

Quinn, L. 2009. "Market Segmentation in Managerial Practice: A Qualitative Examination." *Journal of Marketing Management*, 25(3-4), pp.253-272.

Quinn, L., Bennison, T., and Hines, D. 2007. "Making Sense of Market Segmentation: A Fashion Retailing Case." *European Journal of Marketing*, 41(5-6), pp.439-465.

Randall, D., Harper, R., and Rouncefield, M. 2007. *Fieldwork for Design: Theory and Practice.* London: Springer

Robinson, H. 1938. "The Equilibrium Price in a Perfect Inter-Temporal Market." *Econometrica*, 6(1), pp.48-62.

Rodgers, S. and Harris, M.A. 2003. "Gender and E-Commerce: An Exploratory Study." *Journal of Advertising Research,* 43(3), pp.322-329.

Rossi, P., McCulloch, R., and Allenby, G. 2006. "The Value of Purchase History Data in Target Marketing." *Marketing Science*, 15(4), 321-340.

Sacks, H. 1974. "On the Analyzability of Stories by Children." In: R. Turner, ed. 1974. *Ethnomethodology*. Harmondsworth: Penguin, pp.216-232.

Sacks, H. 1992. *Lectures on Conversation* Volumes I and II. Edited by G. Jefferson. Oxford: Blackwell.

Sacks, H., Schegloff, E.A., and Jefferson, G. 1974. "A Simplest Systematics for the Organization of Turn-Taking

for Conversation." *Language, 50(*4), pp.696-735.

Savage, M. 2009. "Contemporary sociology and the challenge of descriptive assemblage" *European Journal of Social Theory 12(1*), pp. 155-174

Savage, M. 2013. "The social life of methods: A critical introduction." *Theory, Culture & Society 30(4),* pp. 3-21

Savage, M., Devine, F., Cunningham, N., Taylor, M., Li, Y., Hjellbrekke, J., Le Roux, B., Friedman, S., and Miles, A. 2013. "A New Model of Social Class? Findings from the BBC's Great British Class Survey Experiment." *Sociology,* 47(2), pp.219-250.

Schutz, A. 1936. *Collected Papers Vol. IV. Dordrecht:* Kluwer Academic Publishers.

Schutz, A. 1953. "Common-Sense and Scientific Interpretation of Human Action." *Philosophy and Phenomenological Research*, 14(1), pp.1-38.

Schutz, A. 1962. *Collected Papers Vol. I: The Problem of Social Reality. The Hague:* Martinus Nijhoff.

Schutz, A. 1963. "Concept and Theory Formation in the Social Sciences." In: M.A. Natanson, ed. 1963. *Philosophy of the Social Sciences.* New York: Random House, pp.302-346.

Schutz, A. 1966. *Collected Papers Vol. III: Studies in Phenomenological Philosophy.* The Hague: Martinus Nijhoff.

Schutz, A. 1972. *The Phenomenology of the Social World. London:* Heinemann.

Schutz, A. and Luckmann, T. 1974. *The Structures of the Lifeworld.* London: Heinemann.

Schwanda-Sosik, V., Bursztein, E., Consolvo, S., Huffaker, D.A., Kossinets, G., Liao, K., McDonald, P. and Sedley, A. 2014. "Online Microsurveys for User Experience Research." CHI '14, Extended Abstracts on Human Factors in Computing Systems. Toronto, Ontario, April 26-May 1. ACM Digital Library. Available at: <http://dl.acm.org/citation.cfm?id=2559975&CFID=767944099&CFTOKEN=71901107> [Accessed April 4, 2016], pp.889-892.

Sharrock, W. 1974. "On Owning Knowledge." In: R. Turner, ed. 1974. *Ethnomethodology: Selected Readings.* Harmondsworth: Penguin.

Sharrock, W. and Anderson, B. 1986. *The Ethnomethodologists.* New York: Tavistock Publications.

Sharrock, W. and Anderson, B. 1994. "The User as a Scenic Feature of the Design Space." *Design Studies,* 15(1),

pp.5-18.

Sharrock, W. and Anderson, B. 2011. "Discovering a Practical Impossibility: The Internal Configuration of a
Problem in Mathematical Reasoning." *Ethnographic Studies,* 12, pp.47-58.

Sinha, R. 2003. "Persona Development for Information-Rich Domains." In: CHI '03, Extended Abstracts on
Extended Factors in Computing Systems. Ft. Lauderdale, Florida, April 5-10. ACM Digital Library.
Available at: <http://dl.acm.org/citation.cfm?id=766017&CFID=767944099&CFTOKEN=71901107>
[Accessed April 4, 2016], pp.830-831.

Smith, W. 1956. "Product Differentiation and Market Segmentation as Alternative Marketing Strategies."
Journal of Marketing, 2(1), pp.3-8.

Stigler, G. 1946. *The Theory of Competitive Price.* London: MacMillan.

Suchman, L. 1987. *Plans and Situated Actions: The Problem of Human-Machine Communication.* Cambridge,
UK: Cambridge University Press.

Suchman, L. 1994. "Do Categories have Politics? The Language/Action Perspective Reconsidered." *Computer
Supported Cooperative Work*, 2(3), pp.177-190.

Suchman, L., Trigg, R., and Blomberg, J. 2002. "Working Artefacts: Ethnomethods of the Prototype." *British
Journal of Sociology*, 53(2), pp.163-179.

Ten Have, P. 2004. *Understanding Qualitative Research and Ethnomethodology*. London: Sage.

Thielman, S. 2013. "How Agencies Are Retooling for the Automated Ad Buy: Q&A with Jay Sears, SVP of
Marketplace Development for the Rubicon Project." *Adweek, [online] November 4. Available at:*
<http://www.adweek.com/news/advertising-branding/how-agencies-are-retooling-automated-ad-
buy-153589> [Accessed April 4, 2016].

Triantafyllakos, G., Palaigeorgiou, G., and Tsoukalas, I. 2009. "Design Alter Egos: Constructing and Employing
Fictional Characters in Collaborative Design Sessions." *In: British Computer Society, Proceedings of HCI
2009—People and Computers XXIII*, pp.20-28.

Tu, N., He, Q., and Zhang, T, 2010. "Combine Qualitative and Quantitative Methods To Create Persona." In:
Innovation Management and Industrial Engineering, *Proceedings of 2010 3rd International Conference*

on Information Management, pp.597-603.

van Raaij, W. 1993. "Postmodern Consumption." *Journal of Economic Psychology*, 1(3), pp.541-563.

Weber, M. 1949. *Objectivity in Social Science. Glencoe, IL: Free Press.*

Weber, M.. 1968. *Economy and Society.* Translated and edited by G. Roth and C. Wiitich. New York:
Bedminster.

Wedel, M. and Kamakura, W. 2000. *Market Segmentation: Conceptual and Methodological Foundations.* Boston:
Kluwer Academic Publishers.

Weick, K.E. 1995. *Sensemaking in Organizations.* London: Sage.

"What is Analytics?" INFORMS [website]. Available at: <https://www.informs.org/About-INFORMS/What-is-
Analytics> [Accessed April 4, 2016].

Winch, P. 1958. The Idea of a Social Science and its Relation to Philosophy. London: Routledge

Wind, Y. 1978. "Issues and Advances in Segmentation Research." *Journal of Marketing Research,* 15(3),
pp.317-337.

Wind. Y., and Cardozo. R. 1974. "Industrial Market Segmentation." *Industrial Marketing Management,* 3(3),
pp.153-165.

Ylirisku, S., Halttunen, V., Nuojua, J., and Juustila, A. 2009. "Framing Design in the Third Paradigm." In: SIGCHI
(Special Interest Group on Computer-Human Interaction)—CHI '09, Proceeding of the SIGCHI
Conference on Human Factors in Computing Systems. Boston, Massachusetts, April 4-9. ACM Digital
Library. Available at:
<http://dl.acm.org/citation.cfm?id=1518874&CFID=767944099&CFTOKEN=71901107> [Accessed
April 4, 2016], pp.1131-1140.